

Evidence Based Treatments for Trauma-Related Psychological Disorders

A Practical Guide for Clinicians

Ulrich Schnyder
Marylène Cloitre
Editors

Second Edition

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Ulrich Schnyder
University of Zurich
Zurich, Switzerland

Marylène Cloitre
Dissemination and Training Division
National Center for PTSD
Palo Alto, CA, USA

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Introduction

1

Ulrich Schnyder and Marylène Cloitre

1.1 Why This Book?

Over the last several decades, the field of traumatic stress-related research and clinical practice has developed tremendously. In the aftermath of the war in Vietnam, similar to other periods in recent history such as following World War I and World War II, mental health professionals, policy makers, and the general public became aware of the bio-psycho-social impact that overwhelming traumatic experiences can have on both soldiers and the civilian population (McFarlane and Kilpatrick 2021). However, unlike earlier periods, this time the interest among professionals and the public did not abate and has led to profound changes in government policies, mental health services, and social perceptions. Never before has the trauma field encountered such a long period of ever-increasing interest among scientists as well as clinicians. The introduction of the new diagnostic category of posttraumatic stress disorder (PTSD) in the DSM-III in 1980 (APA 1980) sparked an unprecedented and, at least to some degree, unexpected development. The last several years have brought, e.g., the introduction of the new diagnosis of complex PTSD (CPTSD) in ICD-11, tremendous innovations in telemental health approaches, a growing attention to the ever increasing number of forcibly displaced persons across the globe and accordingly, the development of a greater array of treatments to address the impact of trauma in diverse populations and settings. Few areas in mental health have enjoyed such a dynamic and steady growth over the last

U. Schnyder (✉)
University of Zurich, Zurich, Switzerland
e-mail: ulrich.schnyder@access.uzh.ch

M. Cloitre
Dissemination and Training Division, National Center for PTSD, Palo Alto, CA, USA
Department of Psychiatry and Behavioral Sciences, Stanford University, Stanford, CA, USA

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35 years. The number of trauma-related publications in basic and clinical research, and thus the body of knowledge in the trauma field, has increased exponentially and continues to grow.

In parallel with the steady accumulation of basic knowledge, therapeutic approaches have been developed to treat people suffering from PTSD and other trauma-related psychological problems. Today, a number of evidence-based psychological and pharmacological treatments are available (Bisson and Olf 2021; Forbes et al. 2020; Lewis et al. 2020). Overall, effect sizes appear to be larger for psychotherapy as compared to medication. Many well-controlled trials studying outcomes for a variety of trauma survivors have demonstrated that trauma-focused psychotherapies are effective in treating PTSD. Still, dropout rates are relatively high, and the majority of patients who complete psychotherapy and/or pharmacotherapy still retain their PTSD diagnosis and do not achieve good end-state functioning at posttreatment assessment. Therefore, new developments are needed (Lewis et al. 2020). One way forward is to further refine well-established, empirically supported psychotherapies. By means of dismantling (component control) studies, mechanisms of change can be established, the most effective treatment components can be identified, and less effective elements can be eliminated. In addition, new psychotherapeutic and psychopharmacological interventions, as well as non-pharmacological and non-psychological approaches (Bisson et al. 2020) must be considered and systematically tested as should strategies to increase access to mental health resources globally (e.g., the use of technology and telemental health approaches, Chap. 26).

So, why this book? There are so many excellent and up-to-date books already on the market on various aspects of traumatic stress. However, most of these books are either written by scientists for scientists or written by clinical practitioners for clinical practitioners. The motivation for publishing yet another book lay in our desire to edit a book written by clinically experienced researchers and scientifically trained clinicians, a book firmly rooted in sound science but written in a language that appeals to clinicians. The contributors to this book are writing for therapists in clinical settings who may be academically trained but are primarily interested in how they can best treat their traumatized patients.

Both the publisher, Springer Nature, and we as editors were surprised—and pleased of course—by the initial success of this volume’s first edition in 2015. We took the positive response our book enjoyed on the market as an indication of the need for such a publication, as we had argued when putting together the first edition. However, over the past 7 years, the field has further advanced. For instance, complex PTSD (CPTSD) was introduced as a new diagnosis in the ICD-11. Moreover, in view of the ever increasing number of forcibly displaced persons globally, a number of low-intensity psychological interventions have been developed and tested to address the widening gap between traumatized refugees’ psychosocial needs on the one hand, and the availability of mental health professionals on the other hand. Also, the COVID-19 pandemic has forced clinicians and mental health institutions as well as patients to use telemental health much more frequently than ever before,

generating a wealth of data and narrative information about the pros and cons of the use of technology in providing mental health services. In short, we felt it was time for a second edition of our book.

The second edition offers a thoroughly revised and updated, evidence-based guide for clinical psychologists, psychiatrists, psychotherapists, social workers, mental health nurses, and other clinicians working with trauma survivors in various settings. It provides easily digestible, up-to-date information on the basic principles of traumatic stress research and practice, including psychological and sociological theories as well as epidemiological, psychopathological, and neurobiological findings. However, given the therapists' aforementioned primary interest, the core focus of the book is on evidence-based psychological treatments for trauma-related mental disorders. Importantly, the full range of trauma and stress-related disorders is covered, including acute stress reaction, CPTSD, and prolonged grief disorder, reflecting important anticipated developments in the ICD-11 diagnostic classification. Additional chapters are devoted to the treatment of comorbidities, special populations and special treatment modalities, and pharmacological treatments for trauma-related disorders. The book concludes by addressing the fundamental question of how to treat whom and when.

1.2 The Content of the Book

Part I of the book lays the foundation for understanding the effects of trauma and implications for treatment by providing a short and concise overview of the basic principles of what we know today about traumatic stress. Starting with the epidemiology of potentially traumatic events and trauma-related disorders, it becomes clear from the very beginning of this book that trauma is a major public health issue. The most important psychological and sociological theories of PTSD are described, such as fear conditioning, dual representation theory, cognitive theory and "hotspots," psychodynamic theories, and PTSD from a social and societal perspective. This is followed by an update on psychobiological findings in PTSD and a chapter on the relationship between traumatic exposure, PTSD, and physical health.

Part II describes the current diagnostic spectrum of trauma-related disorders. It covers PTSD, acute stress disorder and acute stress reactions, complex PTSD, and prolonged grief disorder. Similarities and differences between the two major diagnostic classification systems, the DSM and the ICD, are discussed. While the DSM-5 was published in 2013, the release of the ICD-11 is expected until 2022. There will be much greater differences between DSM-5 and ICD-11 than there were between DSM-IV and ICD-10. This has already started creating interesting challenges but also opportunities for the trauma field to further grow, diversify, and differentiate.

Part III is the core part of the book, and, accordingly, the largest one. In ten chapters, empirically supported psychological interventions in the trauma field are presented. Part III starts with early interventions in both unselected populations of

recent trauma survivors and preselected groups of trauma survivors who have been screened and identified as being at high risk of developing chronic trauma-related disorders. Empirically supported psychotherapies for PTSD are next: prolonged exposure (PE) therapy, cognitive therapy, cognitive processing therapy (CPT), eye movement desensitization and reprocessing (EMDR) therapy, narrative exposure therapy (NET), and brief eclectic psychotherapy for PTSD (BEPP) each are thoroughly described in separate chapters. Skills training in affective and interpersonal regulation (STAIR) narrative therapy for more complex conditions such as complex PTSD is addressed in a separate chapter, as is complicated grief treatment (CGT) for prolonged grief disorder. Part III is concluded by a new addition to this second edition, a chapter on innovative interventions to increase global mental health, including, e.g., low-intensity psychological interventions for forcibly displaced persons, interventions that are being provided by trained lay people, particularly peer refugees (Chap. 16).

To provide some consistency across treatment approaches, we asked the authors of this part of the book to organize their chapters in a similar way, beginning with a short summary of the theoretical underpinnings of their approach, using language that can be understood and digested by clinicians who do not necessarily read the research literature. The main part of the chapter then demonstrates how the treatment is applied in clinical practice. Invariably, the treatment protocol is illustrated by one or several case presentations. Having read this part of any given chapter, we hope that readers will get a clear picture of how the treatment works in real-world clinical practice. This is followed by a section on the challenges that are typically met by clinicians when applying this treatment with a wide range of trauma survivors and how to deal with them. Each chapter ends with a summary of empirically established treatment outcomes and other research findings related to this particular treatment approach.

Part IV concerns the treatment of those comorbidities that can be found most frequently in people with trauma-related disorders: substance use disorders, borderline personality disorder, and chronic pain conditions such as somatoform pain disorder.

Part V addresses clinical challenges related to the treatment of special populations: children and adolescents, elderly people, refugees, and war veterans. When planning this part of the book, we recognized that the field of child and adolescent psychotraumatology has developed and expanded dramatically over the past years. In some aspects, the field is now more advanced than the “mainstream” of trauma work with adults. Therefore, we decided to ask the contributing authors to write a chapter that differs a bit from the other chapters and to provide a general overview of evidence-based treatments for traumatized children and adolescents, rather than an in-depth description of one particular approach. In the meantime, Markus Landolt, University of Zurich, Switzerland, joined us to edit a separate volume on empirically supported treatments for traumatized children and adolescents (Landolt et al. 2017).

Part VI is on special treatment modalities such as group treatment and couple treatment for PTSD and on telemental health and technology-based approaches to

assess and treat trauma survivors, a field that has gained enormous traction since—and due to—the onset of the COVID-19 pandemic.

Part VII covers pharmacological treatments for PTSD.

The concluding Part VIII of the book is devoted to discussing what treatments work best for which patients. It describes research and clinical advances in other fields regarding patient-treatment matching that are applicable to trauma work. This includes collaborative decision-making between patient and therapist to determine focus of treatment, strategies for building streamlined multicomponent interventions, and the use of “measurement-based care” to guide decisions about duration of interventions and of treatment.

In line with its title, the main focus of this book is on evidence-based treatments. Chambless and Hollon (1998) postulated that the following criteria would have to be met for a therapeutic approach to be “evidence-based” or “empirically supported.” First, the efficacy of the approach must have been demonstrated by a series of randomized controlled trials (RCTs), using appropriate samples and control groups. In these trials, the samples must have been adequately described, and valid and reliable outcome assessments must have been used. Finally, the results must have been replicated by at least one independent group of researchers. Forbes and colleagues make the point that the use of more rigorous scientific methods in psychotherapy outcome research in the trauma field has increased substantially in the course of the past decades (Forbes et al. 2020). However, evidence-based medicine is by definition oriented towards the past, as it only informs us about the well-established, empirically supported treatments that have already proven their efficacy. If we rely only on the currently available scientific evidence, new developments will be substantially impeded. Since many patients decline treatment or do not seek professional help at all, there is a need for improvements regarding acceptance of established therapies. Also, there ought to be scope for new, creative approaches, for which scientific evidence is not yet available.

It appears that the state of the science varies greatly across fields covered in this book. On the one hand, there is quite an array of empirically supported treatments for PTSD from which both clinicians and patients can choose. On the other hand, when it comes to, for example, treating trauma-related disorders and comorbid chronic pain in tortured refugees, the level of scientific evidence is still very poor. As mentioned before, there is room for improvement and a need for further development. Promising developments may include, e.g., mindfulness-based approaches, “mini-interventions” for specific problems trans-diagnostically, treatment protocols that emphasize the development of resilience to stress, or web-based therapies and other telemental health and technology-based approaches.

1.3 Commonalities Across Psychological Treatments

When reading through the various chapters, and particularly those of Part III, what emerges very clearly is that the empirically supported psychotherapies for trauma survivors have a lot in common. We think that while there are some important

differences across approaches, the commonalities outweigh the differences by far. Interventions and characteristics of treatments that are frequently shared are as follows (Schnyder et al. 2015):

- *Psychoeducation* offers information on the nature and course of posttraumatic stress reactions, affirms that they are understandable and expectable, identifies and helps with ways to cope with trauma reminders, and discusses ways to manage distress (Schnyder et al. 2012). In short, as defined by Wessely and colleagues, psychoeducation provides “information about the nature of stress, posttraumatic and other symptoms, and what to do about them” (Wessely et al. 2008). Psychoeducation is provided in the immediate aftermath of individual or large-scale, collective trauma, such as in the context of psychological first aid (PFA), with the aim of preventing acute and chronic trauma-related psychiatric disorders, as well as fostering resilience. Psychoeducation also is an important component of trauma-focused psychotherapies for PTSD and other trauma-related disorders; here, psychoeducation additionally aims at facilitating therapeutic interventions, optimizing patient cooperation, and preventing relapse. Although most mental health professionals consider trauma education or psychoeducation to be an important tool, there is no generally accepted definition of its aims and core components. Accordingly, there are no standardized procedures for its delivery, and not surprisingly, barely any research has been published regarding its effectiveness (Schnyder et al. 2012).
- *Emotion regulation and coping skills* are frequently taught and trained across many therapeutic approaches. In some instances, this is done more implicitly, in others very explicitly to the degree that, e.g., in Cloitre’s skills training in affective and interpersonal regulation (STAIR) narrative therapy, the training in emotion regulation skills takes center stage in the first part of the treatment protocol. In most therapies, emotion regulation skills are introduced in the beginning or first stages of treatment. Viewed from a different angle, teaching emotion regulation skills may also be seen as a treatment element that aims at promoting trauma survivors’ resilience to stress.
- *Imaginal exposure* is emphasized most strongly in prolonged exposure (PE) therapy where imaginal exposure to trauma memories is combined with in vivo exposure to reminders of the trauma. However, some form of exposure to the patients’ memory of their traumatic experiences can be found in virtually all evidence-based psychological treatments for trauma-related disorders. In EMDR therapy, patients focus their attention on the trauma while remaining silent and performing saccadic, horizontal eye movements; in narrative exposure therapy (NET), they produce a written account jointly with their therapist; in brief eclectic psychotherapy for PTSD (BEPP), imaginal exposure is done to promote catharsis; etc.
- *Cognitive processing and restructuring* is another element that can be found in almost all of the empirically supported psychological treatments for PTSD and other trauma-related disorders. While in cognitive therapy for PTSD as well as in CPT, socratic dialogue and cognitive restructuring are the most important treat-

ment ingredients, in other approaches such as PE or EMDR therapy, cognitive restructuring is seen as part of the integration that takes place after exposure or following a set of eye movements.

- *Emotions* are targeted more or less in all psychotherapies. Some (NET, PE) predominantly tackle the patients' trauma or fear network, others focus more on guilt and shame (CPT), anger (STAIR), or grief and sadness (BEPP). Moral injury can occur in particularly complex traumatic experiences and involves a mixture of partially conflicting emotions that arise from being exposed to ethical dilemmas. Although not (yet) explicitly described in most treatment manuals, moral injury is increasingly recognized as a relevant issue that needs to be addressed in psychotherapy with traumatized veterans, tortured refugees, and other populations that survived complex traumatic exposure.
- *Memory processes* also play an important role in treating trauma-related disorders. PTSD can be understood as a memory disorder. According to Brewin's dual representation theory, sensation-near representations are distinguished from contextualized representations, previously referred to as the situationally accessible memory (SAM) and the verbally accessible memory (VAM) systems (Brewin et al. 2010) (Chap. 3). NET therapists work on transforming hot memories into cold memories. No matter which technical terms are used, the restoration of memory functions and the creation of a *coherent trauma narrative* appear to be central goals of all trauma-focused treatments.

1.4 The Cultural Dimension

Wen-Shing Tseng, the founding president of the World Association of Cultural Psychiatry, defined culture as a dynamic concept referring to a set of beliefs, attitudes, and value systems, which derive from early stages of life through enculturation, and become an internal mode of regulating behavior, action, and emotion (Tseng and Streltzer 2001). Thus, culture is not static, but changing continuously across generations, responding to ever-changing environmental demands. Furthermore, culture in Tseng's sense is specific for each individual and therefore much more important than ethnicity or race. Experienced therapists usually tailor psychotherapy to each patient's particular situation, to the nature of psychopathology, to the stage of therapy, and so on. Treatment could be even more effective, however, if the cultural dimension were to be incorporated. Culturally relevant, culture-sensitive, or culture-competent psychotherapy involves trying to understand how culture enhances the meaning of the patient's life history, the cultural components of a patient's illness and help-seeking behaviors, as well as the patient's expectations with regard to treatment.

Trauma is a global issue (Schnyder 2013). Our traumatized patients come from all over the world. We can no longer take for granted that they all speak our language or share our cultural values. Therefore, we need to increase our cultural competencies. Being sensitive to cultural issues has become a *sine qua non* for being a good therapist. Only few of us will conduct psychotherapies with the help of

professional interpreters on a regular basis (Chap. 22). On the one hand, taking into account the cultural dimension adds yet one more challenge to our already demanding profession. On the other hand, it also enriches our work, providing us with opportunities to learn how diverse human beings are and how different a phenomenon such as a flashback or a certain aspect of a traumatic experience can be understood and interpreted depending on the patient's and their therapist's cultural backgrounds (Schnyder et al. 2016).

Acknowledgments Editing the second edition of this book has been a greatly rewarding pleasure throughout the process. We feel privileged to have been able to work with a truly outstanding panel of contributing authors, many of whom are world leaders and scholars in the trauma field. Not only did the authors submit their manuscripts in a timely fashion, they were extremely responsive to our editorial feedback and suggestions. We also learned a lot from them. Working with such a group of colleagues is simply wonderful: Thank you to all our chapter authors!

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Part I

Traumatic Stress: The Basic Principles



Trauma as a Public Health Issue: Epidemiology of Trauma and Trauma-Related Disorders

2

Emma J. Mew, Karestan C. Koenen, and Sarah R. Lowe

Reports in the mainstream media suggest that potentially traumatic events (PTEs), such as natural disasters, sexual assault, and child abuse, are frequent occurrences throughout the world and take a tremendous psychological toll on individuals and communities. Epidemiology is the cornerstone of public health and is the study of the distribution and determinants of disease in human populations and the application of this study to control health problems. Epidemiological studies have provided empirical evidence of the high prevalence of PTEs and the devastating effects of trauma-related disorders, and have shown that PTEs are not equally distributed across populations. In this chapter, we review the frequency and distribution of PTEs and trauma-related disorders, note methodological considerations, and highlight risk- and protective-factors. Finally, we discuss public health approaches to addressing PTEs and trauma-related disorders.

E. J. Mew

Department of Chronic Disease Epidemiology, Yale School of Public Health, Yale University,
New Haven, CT, USA

K. C. Koenen

Department of Epidemiology, Harvard T.H. Chan School of Public Health, Harvard
University, Cambridge, MA, USA

e-mail: kkoenen@hsph.harvard.edu

S. R. Lowe (✉)

Department of Social and Behavioral Sciences, Yale School of Public Health, Yale University,
New Haven, CT, USA

e-mail: sarah.lowe@yale.edu

2.1 Global Burden of Trauma Exposure

Trauma-related disorders are mental health conditions that require PTE exposure as part of the diagnostic criteria. Although definitions vary slightly across diagnostic systems, the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) defines PTEs as experiences involving “exposure to actual or threatened death, serious injury, or sexual violence” (American Psychiatric Association 2013; Maercker et al. 2013). The global prevalence of PTEs remains unknown, especially among low- and middle-income countries (LMICs). In recent years, however, more rigorous studies have been conducted across a variety of international contexts. Most notably, the World Mental Health (WMH) surveys provide the first unified global effort to measure prevalence estimates of PTEs and their corresponding psychological sequelae using standardized methodologies (Harvard Medical School 2005). The WMH surveys aim to sample over 160,000 adults in 29 high-income countries (HICs) and LMICs across six continents, and trauma-related results are currently available for nearly 70,000 adults from 24 countries surveyed between 2001 and 2012 (Harvard Medical School 2005). These surveys estimated that roughly 70% of individuals experienced at least one lifetime PTE, with an average of 3.2 number of PTEs per person (Kessler et al. 2017). The most common PTEs were accidents/injuries (36%), witnessing a death, dead body, or someone seriously injured (23%), being mugged (15%), and life-threatening automobile accidents (14%; Benjet et al. 2016).

Table 2.1 summarizes the results of 29 nationally representative epidemiological studies that measured prevalence estimates of various PTEs from 20 countries across seven continents, including findings from the WMH surveys. Nationally representative studies in the United States of America (USA), including the National Epidemiological Survey of Alcohol and Related Conditions-III (NESARC-III; Goldstein et al. 2016), National Comorbidity Survey (NCS; Kessler et al. 1995), and National Comorbidity Survey-Replication (NCS-R; Kessler et al. 2005) have found that the majority of US adults have experienced at least one PTE. The most commonly experienced PTEs in US studies include the sudden, unexpected death of a close friend or family member, witnessing someone being badly hurt or injured, and exposure to a human-made or natural disaster (e.g., McLaughlin et al. 2013). Nationally representative studies of adults in other HICs, including Australia (Mills et al. 2011), Canada (Van Ameringen et al. 2008), Northern Ireland (Bunting et al. 2013), Sweden (Frans et al. 2005), Japan (Kawakami et al. 2014), and the Netherlands (Knipscheer et al. 2020), have similarly found that the majority of adults have experienced at least one PTE. Lower national prevalences were reported in Germany (Hauffa et al. 2011) and South Korea (Jeon et al. 2007), wherein a third or fewer respondents reported lifetime PTE exposure.

Studies suggest that PTE exposure is also common in LMICs; however, characteristics of many of these studies, including their focus on specific regions (e.g., metropolitan areas) or groups (e.g., adolescents), limit their generalizability (e.g., Algeria [de Jong et al. 2001]; Cambodia [de Jong et al. 2001]; Democratic Republic of Timor-Leste [Soosay et al. 2012]; Kenya [Jenkins et al. 2015]; Morocco [Kadri

Table 2.1 Nationally representative epidemiological studies on the prevalence of potentially traumatic events (PTEs) and posttraumatic stress disorder (PTSD) among adult populations^a

Author(s), year	Country	Study name (age range)	N	PTE prevalence	PTSD assessment (instrument; criteria; index event)	PTSD prevalence
<i>Africa</i>						
Johnson et al. (2008)	Liberia	— (18+)	1666	Sexual (1): 42.3% (female former combatants), 9.2% (female non-combatants), 32.6% (male former combatants), 7.4% (male former combatants); War-Related (1): 33.0%	PSS, modified; DSM-IV; unspecified	Past-month: 44%
Vinck and Pham (2012)	Liberia	— (18+)	4496	War-Related (1 ^b): 76.6%; Sexual (1 ^b): 4.1%	PCL-C; DSM-IV; unspecified	Current: 12.6%
Munyandamutsa et al. (2012)	Rwanda	— (16+)	1000	—	MINI; DSM-IV or ICD-10 (unspecified); unspecified	Past-month: 26.1% (for those exposed to at least one PTE)
Jalloh et al. (2018)	Sierra Leone	— (15+)	3564	—	IES-6; DSM-IV; unspecified	Current: 16%
Atwoli et al. (2013)	South Africa	South African Stress and Health study (18+)	4315	Any PTE (27): 73.8%; Childhood (1): 12.9%; Sexual (3): 7.6%; War-Related (6): 12.2%; Disaster (1 ^b): 4.1%; Bereavement (1): 39.2%	CIDI; DSM-IV; random	Past-year: 0.7%; Lifetime: 2.3%
Peltzer and Pengpid (2019)	South Africa	SANHANES-1 (15+)	16,780	Any PTE (14): 20.1%; Bereavement (1): 67.6%	DTS; DSM-IV; unspecified	Current: 2.1%
<i>Asia</i>						

(continued)

Table 2.1 (continued)

Author(s), year	Country	Study name (age range)	N	PTE prevalence	PTSD assessment (instrument; criteria; index event)	PTSD prevalence
Kawakami et al. (2014)	Japan	WMH Japan Survey (20+)	1682	Any PTE (29): 60.7%; Childhood (1): 6.9%; Sexual (3): 4.3%; War-Related (7): 8.7%; Bereavement (1): 23.7%	CIDI; DSM-IV; worst and random	Lifetime: 1.3%; Past-year: 0.7%; Past-month: 0.2%
Jeon et al. (2007)	South Korea	Korean Epidemiologic Catchment Area study (18–64)	6258	Any PTE (1): 33.3%; Sexual (1): 2.3%; War-Related (1): 1.6%; Disaster (1): 5.4%	CIDI; DSM-IV; worst	Lifetime: 1.7%
Supanya et al. (2017)	Thailand	Thai National Mental Health Survey (18+)	4727	Any PTE (total unspecified): 51.1%	CIDI; unspecified; unspecified	–
<i>Europe</i>						
Darves-Bornoz et al. (2008)	Belgium	ESEMeD (18+)	1043	–	CIDI; DSM-IV; worst	Past-year: 0.8%
Karam et al. (2013)	Bulgaria	Bulgaria National Survey of Health and Stress (18+)	2233	–	CIDI; DSM-IV; worst and random	Past-year: 0.9%
Darves-Bornoz et al. (2008); Husky et al. (2015)	France	ESEMeD (18+)	1436	Any PTE (28): 72.7%; Childhood (1): 2.8%; Sexual (1 ^b): 12.1%; War-Related (1 ^b): 21.1%; Disaster (1 ^b): 7.8%; Bereavement (1): 28.2%	CIDI; DSM-IV; worst	Past-year: 2.3%
Darves-Bornoz et al. (2008)	Germany	ESEMeD (18+)	1323	–	CIDI; DSM-IV; worst	Past-year: 0.7%
Haufla et al. (2011)	Germany	— (14+)	2510	Any PTE (12): 23.8%; Childhood (1): 1.5%; Sexual (1): 1.2%; War-Related (1 ^b): 5.5%; Disaster (1): 0.6%	PSS; DSM-IV; unspecified	Lifetime: 2.9%

Maercker et al. (2008)	Germany	— (14–93)	2426	Any PTE (12): 28.0% (females), 20.9% (males); Childhood (1): 1.2%; Sexual (1): 0.8%; War-Related (1 ^b): 8.2%; Disaster (1): 0.8%	PSS, modified; DSM-IV; unspecified	Past-month: 2.3%
Darves-Bornoz et al. (2008); Carmassi et al. (2014)	Italy	ESEMeD (18+)	1799	Any PTE (27): 56.1%; Sexual (3): 3.7%; War-Related (7): 6.9%; Disaster (2 ^b): 7.8%; Bereavement (1): 20.4%	CIDI; DSM-IV; worst	Past-year: 0.7%
Bronner et al. (2009)	Netherlands	— (18+)	2238	Any PTE (12): 52.2%; Sexual (1 ^b): 7.6%; War-Related (1): 1.9%; Disaster (1): 11.1%; Bereavement (1): 9.3%	—	—
Darves-Bornoz et al. (2008)	Netherlands	ESEMeD (18+)	1094	—	CIDI; DSM-IV; worst	Past-year: 2.6%
de Vries and Olff (2009)	Netherlands	— (18–80)	1087	Any PTE (36): 80.7%; Childhood (1): 3.9%; Sexual (1 ^b): 3.7%; War-Related (1 ^b): 16.3%; Disaster (1 ^b): 7.5%; Bereavement (5): 51.4%	CIDI; DSM-IV; worst	Lifetime: 7.4%
Knipscheer et al. (2020)	Netherlands	NEMESIS-2 (18–64)	6457 (PTE prevalence); 4639 (PTSD prevalence)	Any PTE (10): 71.1% (unweighted); Sexual (1): 3.4% (weighted); Disaster (1): 0.9% (weighted); War-Related (1): 1.3% (weighted); Bereavement (1 ^b): 37.2% (weighted)	TSQ; DSM-IV; worst	Current: 2.0% (of PTE exposed respondents)

(continued)

Table 2.1 (continued)

Author(s), year	Country	Study name (age range)	N	PTE prevalence	PTSD assessment (instrument; criteria; index event)	PTSD prevalence
Bunting et al. (2013)	Northern Ireland	Northern Ireland Study of Health and Stress (18+)	1986	Any PTE (28): 60.6%; War-Related (12): 39.0%	CIDI; DSM-IV; worst	Past-year: 5.1%; Lifetime: 8.8%
de Albuquerque et al. (2003)	Portugal	— (18+)	2606	Any PTE (10): “around 75%”; Sexual (1 ^b): 0.9%; War-Related (1): 7.4%; Disaster (1): 16.7%; Bereavement (1): 29.3%	Short Screening Scale; DSM-IV; worst	Current: 7.9%
Florescu et al. (2009)	Romania	Mental Health Study in Romania (18+)	2357	—	CIDI; DSM-IV; unspecified	Past-year: 0.7%
Karam et al. (2013); Olaya et al. (2015)	Spain	ESEMeD (18+)	2121	Any PTE (28): 54.0%; Childhood (1): 2.5%; War-Related (7): 7.4%; Sexual (3): 2.6%; Disaster (1 ^b): 4.3%; Bereavement (1): 20.6%	CIDI; DSM-IV; worst	Past-year: 0.6%
Frans et al. (2005)	Sweden	— (18–70)	1824	Any PTE (7): 80.8%	PCL; DSM-IV; unspecified	Lifetime: 5.6%
Karam et al. (2013)	Ukraine	Comorbid mental disorders during periods of social disruption (18+)	1719	—	CIDI; DSM-IV; worst and random	Past-year: 2.0%
Weich et al. (2011); Bentall et al. (2012); Qassem et al. (2021)	United Kingdom	2007 Adult Psychiatric Morbidity Survey (16+)	7353	Childhood (1): 2.9%; Sexual (1 ^b): 8.7%	TSQ; DSM-IV; unspecified	Past-week (for <i>n</i> = 7325): 2.9%, 2.4% (men), 3.3% (women)

<i>Middle East</i>						
Hajebi et al. (2018)	Iran	Iran Mental Health Survey (15–64)	7886	–	CIDI; DSM-IV; unspecified	Past-year: 2.1%, 2.4% (females), 1.7% (males)
Alhasnawi et al. (2009)	Iraq	Iraq Mental Health Survey (18+)	4332	–	CIDI; DSM-IV; unspecified	Past-year: 1.1%; Lifetime: 2.5%
Karam et al. (2013)	Israel	Israel National Health Survey (21+)	4849	–	CIDI; DSM-IV; worst	Past-year: 0.4%
Karam et al. (2008, 2013)	Lebanon	Lebanese Evaluation of the Burden of Ailments and Needs of the Nation Study (18+)	2857	War-Related (10): 68.8%	CIDI; DSM-IV; unspecified	Past-year: 1.6%; Lifetime: 3.4%
Altwajjri et al. (2020)	Saudi Arabia	Saudi National Mental Health Survey (15–65)	4004	–	CIDI; DSM-IV; unspecified	Lifetime: 3.3% (n = 1981)
<i>North America</i>						
Van Ameringen et al. (2008)	Canada	— (18+)	2991	Any PTE (18): 75.9%; Childhood (1): 9.3%; Sexual (1 ^b): 21.9%; War-Related (1 ^b): 4.3%; Disaster (1): 15.6%; Bereavement (1): 41.1%	Canadian Community Health Survey (based on CIDI); DSM-IV; worst	Current: 2.4%; Lifetime: 9.2%
Medina-Mora et al. (2003, 2005); Karam et al. (2013)	Mexico	National Study of Psychiatric Epidemiology (18–65)	5286	Any PTE (28): 68%; Childhood (1): 18.3%; Sexual (1 ^b): 5.4%; War-Related (1): 1.0%; Disaster (1): 13.7%; Bereavement (1): 26.9%	CIDI; DSM-IV, ICD-10; worst	Lifetime: 1.5% (DSM-IV), 2.6% (ICD-10); Past-year: 0.3% (DSM-IV), 0.6% (ICD-10); Past-month: 0.2% (ICD-10)

(continued)

Table 2.1 (continued)

Author(s), year	Country	Study name (age range)	N	PTE prevalence	PTSD assessment (instrument; criteria; index event)	PTSD prevalence
Goldstein et al. (2016)	United States	NESARC-III (18+)	36,309	Any PTE (19): 68.6%; Among respondents with lifetime PTSD: Childhood (1): 12.1% (men), 18.9% (women); Sexual (1 ^b): 16.1% (men), 42.7% (women); Disaster (1): 10.1% (men), 12.6% (women); War-Related (1 ^b): 16.4% (men), 1.4% (women)	AUDADIS-5; DSM-IV; worst	Past-year: 4.7%; Lifetime: 6.1%
Kessler et al. (1995)	United States	National Comorbidity Survey, Phase II (15–54)	5877	Any PTE (10): 51.2% (females), 60.7% (males); Childhood (1 ^b): 4.8% (females), 3.2% (males); Sexual (1 ^b): 12.3% (females), 2.8% (males); War (1): 0.0% (females), 6.4% (males); Disaster (1): 15.2% (females), 18.9% (males)	Revised DIS, CIDI; DSM-III-R; worst	Lifetime: 7.8%
Kessler et al. (2005); Nickerson et al. (2012)	United States	NCS-R (18+)	5692	Any PTE (26): 86.9%; Childhood (1 ^b): 19.0%; Sexual (1 ^b): 19.1%; War-Related (5): 10.4%	CIDI; DSM-IV; worst and random	Past-year: 3.5%
Pietrzak et al. (2011); Breslau et al. (2013)	United States	National Epidemiological Survey of Alcohol and Related Conditions (18+)	34,653	Sexual (1): 8.7%; Disaster (1): 15.7%; Bereavement (1): 41.6%	Module from the Alcohol Use Disorders and Associated Disabilities Interview Schedule; DSM-IV; worst	Lifetime: 6.4%

<i>Oceania</i>							
Chapman et al. (2010); Mills et al. (2011)	Australia	Australian National Survey of Mental Health and Wellbeing, 2007 (18–65)	8841	Any PTE (29): 74.9%; Childhood (1 ^b): 10.1%; Sexual (1 ^b): 9.6%; War-Related (1 ^b): 4.1%; Disaster (1 ^b): 8.4%; Bereavement (1): 34.4%	CIDI, modified; DSM-IV; worst	Past-year: 4.4%; Lifetime: 7.2%	
Rosenman (2002); Creamer et al. (2001)	Australia	National Survey of Mental Health and Wellbeing, 1997 (18+)	10,641	Any PTE (10): 57.4%, 64.4% (males), 49.5% (females); Sexual (1 ^b): 10.6%; War-Related (1): 3.2%; Disaster (1): 16.8%	CIDI, modified; DSM-IV, ICD-10; worst	Past-year: 1.5% (DSM-IV), 3.6% (ICD-10)	
Karam et al. (2013)	New Zealand	New Zealand Mental Health Survey (18+)	7312	–	CIDI; DSM-IV; worst and random	Past-year: 2.1%	
<i>South America</i>							
Puac-Polanco et al. (2015)	Guatemala	2009 Guatemalan National Mental Health Survey (18–65)	1452	Sexual (1): 1.2%; War-Related (1): 0.7%	CIDI; DSM-IV; unspecified	Lifetime: 1.9%	

Notes. Selected studies included nationally representative samples of adult populations. Trauma types included: Childhood—non-sexual events, e.g., abuse, neglect; Sexual—e.g., child sexual abuse, rape; War-Related—e.g., combat, civilian in war zone; Disaster—e.g., natural, man-made; Bereavement—e.g., loss of family member due to homicide, sudden death of a close friend. Number of events included listed in parentheses

AUDADIS-5 NIAAA alcohol use disorders and associated disabilities interview schedule-5, *DIS* diagnostic interview schedule, *DTS* Davidson trauma scale, *ESEMeD* European Study of the Epidemiology of Mental Disorders, *IES-6* short version of the *IES-R*, *IES-R* impact of events scale-revised, *MINI* mini international neuropsychiatric interview, *NCS-R* National Comorbidity Survey-Replication, *NEMESIS-2* Netherlands Mental Health Survey and Incidence Study-2, *NESARC-III* National Epidemiological Survey of Alcohol & Related Conditions-III, *PCL* PTSD checklist, *PCL-C PTSD checklist - civilian version*, *PSS* PTSD symptom scale, *SANHANES-1* South African National Health And Nutrition Examination Survey, *TSQ* trauma screening questionnaire

^aThis is a shortened version of eTable 1 (can be accessed at: <https://osf.io/wtzdy/>). This complete eTable includes epidemiological studies from representative and non-representative populations (including pediatric populations, speciality populations, and regionally representative samples)

^bDenotes that more events in category were included, but total prevalence not reported; value represents the event with highest prevalence

et al. 2007], among others; see eTable 1 as found in Mew et al. 2021). There have been, however, a small handful of recent nationally representative studies. In Africa, three-quarters of a nationally representative sample of Liberian adults reported at least one war-related PTE (Vinck and Pham 2012). Two nationally representative studies in South Africa found lifetime PTE prevalences of 20% and 74%, respectively (Table 2.1), with the divergent results likely due in part to differences in the number of PTEs assessed (Atwoli et al. 2013; Peltzer and Pengpid 2019). In Asia, one study estimated roughly half of Thai adults experienced at least one lifetime PTE (Supanya et al. 2017), as did the majority of adolescents in Malaysia (Ghazali et al. 2016) and fourth-grade children in Taiwan (Hsieh et al. 2016). In South America, roughly one fifth of adult Guatemalan respondents had experienced exposure to violence (Puac-Polanco et al. 2015), and representative adult samples in two Brazilian cities estimated that 86% of respondents had been exposed to any lifetime PTE (Ribeiro et al. 2013).

Although PTEs are common worldwide, there is marked cross-country variation in the frequency of specific events. Several factors may influence such differences. First, this divergence could reflect real differences in rates. For example, rape may be more common in conflict zones and therefore result in higher prevalences (e.g., higher rates among Liberian former combatants versus non-combatants; Johnson et al. 2008). Second, there is cultural variation in the acceptability of PTE reporting, particularly sexual assault, for example due to embarrassment or fear of retaliation. Third, respondents might be less likely to report events that are considered normative. In this vein, regions in which one might expect more trauma exposure do not necessarily show a higher prevalence of PTEs (e.g., marked variation in the prevalence of PTEs in post-conflict settings; de Jong et al. 2001). Fourth, intracategory variability might also influence patterns of results. For example, the PTE category of “serious accidents” could encompass a range of events, and a respondent’s particular experience could impact whether they would identify as having experienced a “serious accident” or not (Dohrenwend 2006).

An additional consideration concerns variation in how PTEs were assessed. Trauma inventories differ in both the number and types of events listed. More extensive inventories have been found to yield a higher prevalence of PTE exposure solely due to inclusion of additional events (Mills et al. 2011). Variation in which events are included is due in part to varied and evolving definitions of trauma between diagnostic systems, such as the DSM and *World Health Organization International Classification of Diseases* (ICD) (Wisco et al. 2016).

2.2 Risk- and Protective-Factors for Trauma Exposure

Epidemiological studies have shown PTE exposure to vary by sociodemographic, within-individual, and social contextual factors.

2.2.1 Sociodemographic Factors

Sociodemographic variation in trauma exposure depends in part on the nature of the PTE. Some PTEs are, by definition, confined to specific developmental stages. For example, various PTEs specify that the victim is a minor, such as child physical, sexual, and emotional abuse, and therefore occur only in childhood and adolescence. On the other end of the spectrum, elder abuse—including physical abuse, neglect, and exploitation by caregivers—is by definition specific to persons 65 years and older. For PTEs that can occur at any point during the lifespan, exposure generally decreases with age (e.g., Norris 1992; Hatch and Dohrenwend 2007), although there is variation among different classes of events. For example, the WMH surveys found that younger cohorts had increased odds of interpersonal and sexual violence, accidents and injuries, unexpected death of a loved one, being mugged, and causing/witnessing bodily harm, but lower odds of exposure to collective violence (Benjet et al. 2016).

Gender differences in PTE exposure depend on specific characteristics of PTEs. An epidemiological study in Mexico, for instance, found gender differences by PTE *type* (women reported more sexual assault; men reported more physical assault), PTE *timing* (women reported more trauma in childhood; men reported more trauma in adolescence and adulthood), and *relationship context* (women reported more intimate partner and family violence; men reported more violence perpetrated by friends, acquaintances, and strangers; Baker et al. 2005). These findings were further supported in the WMH surveys, which identified gender differences by PTE *type* (e.g., women reported more unexpected death of a loved one; men reported more accidents or injuries) and *relationship context* (e.g., women reported more intimate partner violence; men reported more exposure to collective violence; Benjet et al. 2016).

Only recently have researchers begun to study risk of PTEs among sexual minorities. One epidemiological study found that lesbians, gay men, bisexuals, and heterosexuals with a history of same-sex activity had a greater risk of childhood maltreatment, interpersonal violence, trauma to a loved one, or unexpected death of someone close compared to heterosexuals with no same-sex activity (Roberts et al. 2010). There is also evidence of higher risk of exposure to childhood sexual abuse among sexual minorities. For example, the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), a nationally representative study in the USA, found a three times higher prevalence of childhood sexual abuse among lesbian women (35%) compared to heterosexual women (10%), and a seven times higher prevalence of childhood sexual abuse among gay men (15%) compared to heterosexual men (2%; Hughes et al. 2010).

The NESARC also identified ethnic differences in prevalence estimates, with 66% of Asian/Hawaiian/Pacific Islander respondents, 68% of Hispanic respondents, 76% of Black respondents, and 84% of White respondents reporting lifetime PTE exposure (Roberts et al. 2011). However, racial/ethnic variation in PTE exposure likely depends in part on PTE type. For example, some studies have found that

African Americans are at increased risk for physical assault and unexpected death of a friend or family member relative to Whites (e.g., Rheingold et al. 2004; Roberts et al. 2011), whereas others have found African Americans at lower risk of lifetime exposure to physical assault (e.g., Norris et al. 1992).

Finally, some evidence suggests that marital status might be protective against risk of PTE exposure. In the WMH surveys, married respondents had reduced odds of almost all PTEs measured, compared to never married respondents, but had greater odds of being beaten up from a spouse or romantic partner or having a child with a serious illness (Benjet et al. 2016).

2.2.2 Within-Individual Factors

Within-individual risk- and protective-factors relate to preexisting mental health conditions and prior PTE exposure. Studies have shown that adolescents with a history of child physical and sexual abuse are at increased risk of further PTE exposure (e.g., Amstadter et al. 2011; Elwood et al. 2011). Others have identified significant associations between childhood and adulthood PTEs, although these findings are mixed (Bürgin et al. 2021; Cintora and Laurent 2020). The WMH surveys also demonstrated that prior PTE exposure was associated with future PTE exposure for all countries and PTE subtypes studied (Benjet et al. 2016).

Prospective studies of children into early adulthood have identified several early psychological risk factors—including aggressive, disruptive, and antisocial behaviors, hyperactivity, difficult temperament, and lower intelligence—for later PTEs, particularly assaultive events (e.g., Koenen et al. 2007; Storr et al. 2007). For instance, a longitudinal birth cohort study in New Zealand found the presence of any juvenile psychiatric disorder to be a significant predictor of PTE exposure in early adulthood (Breslau et al. 2013).

Additional prospective studies have examined the role of adults' psychological symptoms in predicting subsequent PTE exposure and suggest that classes of symptoms might be differentially related to different forms of exposure. For example, in the National Study of Women, posttraumatic stress disorder (PTSD) symptoms were predictive of rape, whereas depression and drug use were predictive of physical assault (Acierno et al. 1999). In contrast, in a cohort of German adolescents and young adults, anxiety disorders and drug use were significantly associated with both assaultive and sexual trauma, whereas depression, and alcohol and nicotine use were not (Stein et al. 2002).

2.2.3 Social Contextual Factors

The socio-contextual environment can also influence risk of PTE exposure. Several studies have found income and education to be negatively associated with exposure, although others have shown either positive or no associations (Hatch and Dohrenwend 2007; Benjet et al. 2016). Variation in findings is likely a function of

both context and PTE type. For example, a study in Mexico found that lower education and income increased risk for some PTEs (e.g., sexual and physical assault, combat) and decreased risk for others (e.g., accidents, threats with weapons; Norris et al. 2003). In the same study, there was significant variation in the frequency of PTEs among the four cities from which participants were recruited, indicating that geographic location or community characteristics influence exposure. Along these lines, studies in the USA have suggested that rates of assaultive violence are higher in urban, versus suburban, areas (e.g., Breslau et al. 1998).

Within communities, characteristics of the family environment are associated with risk. Adolescents whose parents have lower education or who live with only one biological parent have higher rates of exposure than their counterparts (e.g., Landolt et al. 2013; McLaughlin et al. 2013). One representative study of 2- to 4-year old children found a higher lifetime PTE prevalence among children from poor (49%) compared to nonpoor (21%) families, with particularly marked differences in lifetime exposure to violence and domestic violence (Briggs-Gowan et al. 2010). Parents' psychological symptoms, including posttraumatic stress and drug use, can also increase risk (e.g., Amstadter et al. 2011; Roberts et al. 2012).

2.3 Consequences of Trauma Exposure

The consequences of trauma exposure on psychological health can be profound. Here, we highlight key trauma-related disorders in the DSM-5 and the *World Health Organization International Classification of Diseases, 11th version* (ICD-11), including PTSD and complex PTSD (CPTSD), acute stress disorder (ASD), prolonged grief disorder (PGD), and other conditions. These disorders are empirically derived categories intended to lead to the development and dissemination of more efficient and effective treatments worldwide (Maercker et al. 2013).

2.3.1 Posttraumatic Stress Disorder (PTSD)

The core diagnostic features of PTSD are similar between the DSM-5 and ICD-11, both characterized by an emotional response to a PTE and include intrusion symptoms, avoidance behaviors, state of hypervigilance, and/or negative alternations in cognitions or mood (American Psychiatric Association 2013; Maercker et al. 2013). The global burden of PTSD has been rigorously estimated across many HICs, particularly in North America, Europe, and Australia, whereas evidence remains limited in LMICs. However, recent population-level surveys and synthesis efforts have furthered the understanding of the epidemiology of PTSD in conflict- and low-resource settings (Charlson et al. 2016; Musanabaganwa et al. 2020; Naveed et al. 2020; Ng et al. 2020; Yatham et al. 2018). The WMH surveys found that the overall lifetime prevalence of PTSD was 3.9% for a randomly selected PTE, and that the prevalence of PTSD was higher in HICs (5.0%) compared to LMICs (2.1%; Watson 2019). The estimated global burden of PTSD was 77.7 years per 100 participants (Kessler et al. 2017).

Table 2.1 summarizes the prevalence estimates of PTSD among 40 nationally representative epidemiological studies from 30 countries across seven continents, including findings from the WMH surveys. A consideration in comparing these figures is that some studies have reported on past-month, past-6 months, or past-year prevalence, whereas others have reported lifetime prevalence. An additional source of variation is the PTE(s) to which PTSD symptoms were linked, for example whether participants reported on symptoms linked to the event identified as the “worst,” to a randomly selected PTE, or to all PTEs endured. Studies have also used different measures of PTSD and criteria to define cases. Among nationally representative studies of adults in HICs that used the Composite International Diagnostic Interview (CIDI), the “worst event” method, and DSM-IV criteria, lifetime prevalence ranged from 1.7% in South Korea (Jeon et al. 2007) to 8.8% in Northern Ireland (Bunting et al. 2013), and past-year prevalence from 0.4% in Israel (Karam et al. 2013) to 5.1% in Northern Ireland (Bunting et al. 2013).

Nationally representative studies in LMICs have also demonstrated considerable heterogeneity in prevalence estimates (Table 2.1). For example, among African nations, current PTSD prevalence ranged from as low as 2.1% in South Africa (Peltzer and Pengpid 2019) to as high as 12.6% in Liberia (Vinck and Pham 2012), and past-month PTSD prevalence ranged from 26.1% in Rwanda (Munyandamutsa et al. 2012) to 44% in Liberia (Johnson et al. 2008). One recent meta-analysis also identified heterogeneity across nationally and regionally representative studies in Sub-Saharan Africa and generated pooled lifetime (22%) and current (25%) prevalence estimates of PTSD (Ng et al. 2020). Estimates of PTSD were relatively low in the Middle East, such as a past-year prevalence of 1.1% in Iraq (Alhasnawi et al. 2009), 2.1% in Iran (Hajebi et al. 2018) and a lifetime prevalence of 3.3% in Saudi Arabia (Altwaijri et al. 2020), and 3.4% in Lebanon (Karam et al. 2008). In South America, one study identified a lifetime prevalence of 1.9% among Guatemalan respondents (Puac-Polanco et al. 2015). There are at least two nationally representative studies assessing PTSD prevalence in Asia, both of which assess estimates among children and adolescents specifically 12% among adolescents in Malaysia (Ghazali et al. 2016) and 25% among fifth grade elementary school children in Sri Lanka (Elbert et al. 2009). There are, however, several regionally representative studies completed in LMICs in Asia, including in Cambodia, China, India, Nepal, Taiwan, Thailand, and Timor-Leste (eTable 1, as found in Mew et al. 2021). One recent meta-analysis estimated a PTSD prevalence of 17.2% among South Asian countries; however, these estimates combined both regionally representative and non-representative samples (e.g., displaced persons; Naveed et al. 2020). Additional studies have been conducted in LMICs, but are limited in their generalizability given their focus on specific regions or groups (eTable 1, as found in Mew et al. 2021).

Risk for PTSD varies by type of PTE experienced, such that assaultive events, particularly rape and sexual assault, are most likely to yield PTSD, and learning of a PTE that happened to someone else or witnessing an injury are least likely (e.g., Breslau et al. 1998; Bronner et al. 2009). The WMH surveys similarly identified that 43% of years of PTSD morbidity was attributed to intimate partner or sexual

violence (Kessler et al. 2017). This study also found that triggering events such as witnessing injury, death or a dead body (17%), unexpected death of a loved one (17%), and exposure to physical violence (14%), were also heavily attributable to global years of PTSD burden (Kessler et al. 2017). Studies also suggest that the number of exposures contribute to PTSD risk, such that exposure to more events is associated with higher PTSD prevalence (e.g., Finkelhor et al. 2007).

A methodological limitation of this research is that the majority of studies to date have been cross-sectional, meaning measured at one point in time. However, in recent years, more studies have explored longitudinal trajectories of posttraumatic stress among survivors of single incident events—that is, studies in which participants experienced the same PTE or type of event including disaster (Norris et al. 2009), traumatic injury (deRoos-Cassini et al. 2010), and sexual assault (Steenkamp et al. 2012). One meta-analysis identified 54 studies that examined longitudinal trajectories after PTE exposures (Galatzer-Levy et al. 2018). Across these studies, the majority of participants (65.7%) demonstrated a trajectory of consistently low post-trauma symptoms (often termed *resilience*), whereas some experienced other patterns including initially high symptoms that remitted over time (*recovery*; 20.8%), consistently high symptoms (*chronic*; 10.6%), or initially low symptoms that increased over time (*delayed*; 8.9%). This review also identified marked differences in the trajectories observed between studies, which are likely due to a variety of factors, including the instrument used to assess posttraumatic stress, the timing of assessment, the nature of the PTE, and the duration of follow-up (Galatzer-Levy et al. 2018).

Epidemiological studies have not yet provided much insight into the prevalence of the dissociative subtype of PTSD, which was introduced in the DSM-5. An exception is the WMH surveys in which 14.4% of over 25,000 participants from 16 countries reported dissociative experiences (Stein et al. 2013). Future studies using measures based on the DSM-5 criteria will shed additional light on the prevalence of the dissociative subtype.

2.3.2 ICD-11 CPTSD and PTSD

ICD-11 distinguishes CPTSD from PTSD in that it typically follows “severe stressors of a prolonged nature” and is characterized by affect dysregulation, negative self-concept, and interpersonal disturbances in addition to classic PTSD symptoms (Maercker et al. 2013; Chap. 6). To date, over 30 studies across at least 20 countries support the factor and discriminant validity of PTSD and CPTSD (Redican et al. 2021). In studies of nationally representative samples, the prevalence of PTSD and CPTSD tend to be equivalent to each other and when added together, their total combined prevalence is typically the same as or somewhat lower than that of DSM PTSD. For example, the reported prevalence of PTSD and CPTSD in the USA are 3.4% and 3.8%, respectively, with a total of 7.2% of the population identified with one or the other disorder (Cloitre et al. 2019). Rates of PTSD and CPTSD in Israel are 6.4% and 4.9%, respectively (Ben-Ezra et al. 2018); in Ireland, 5.0% and 7.7%,

respectively (Hyland et al. 2021); and in the United Kingdom, 5.3% and 12.9% respectively (Karatzias et al. 2019). Regions of the world which have been exposed to sustained violence and warfare have substantially higher rates of both disorders, such as in Ghana (17.6% and 13.0%, respectively), Kenya (20.3% and 13.7%, respectively), and Nigeria (17.4% and 19.6%, respectively) (Ben-Ezra et al. 2020). Further research is needed to evaluate whether these differences will have implications for improving the efficiency and efficacy of treatment for trauma-exposed populations.

2.3.3 Acute Stress Disorder (ASD)

Few studies have reported on the prevalence of ASD in a population-level generalizable sample. One study conducted in Israel identified that 6.8% of northern and 3.9% of central Israeli respondents met DSM-5 criteria for ASD during the second Lebanon war in 2006 (Cohen and Yahav 2008). At least five studies have also assessed the prevalence of ASD among emergency room samples, but these estimates are variable and non-generalizable, with prevalence estimates ranging from 12% to 41% 1–2 weeks post injury (Ophuis et al. 2018).

The paucity of epidemiological evidence on ASD is likely due to the very nature of the disorder, that is, it can occur only within the first month of the PTE. In a normative population-based survey, it is likely that few participants who experienced a lifetime PTE had done so within the prior month, and therefore the point-prevalence of ASD would inherently be very small. An alternative approach would be to assess lifetime prevalence of ASD by asking participants if they had ever experienced symptoms and, if so, whether symptoms were confined to the first month after the event. This would rely on participants' accuracy regarding the timing of symptoms and could be affected by recall bias. A third approach would be an epidemiological study of ASD in the aftermath of a mass PTE, such as a natural disaster. This too might be impractical given the time it would take for researchers to secure funding and resources to launch an investigation. Furthermore, the prevalence would be confined to the specific event, leaving it to speculation how the results would generalize to other PTEs.

2.3.4 Prolonged Grief Disorder (PGD)

PGD is a mental health condition that presents after normal grief from the death of a loved one becomes pathological. The diagnostic classification of PGD has historically lacked standardization in “terminology and conceptualization” (Maciejewski et al. 2016, p. 266), which led to several variants in terms to describe this concept including bereavement related disorder (BRD) and complicated grief (CG) disorder (Steil et al. 2019). PGD was newly introduced to the ICD-11 and DSM-5 (under

“Persistent Complex Bereavement Disorder”). Key symptoms are similar between DSM-5 and ICD-11 diagnostic criteria; for example, both view separation distress as a defining feature, use a 6-month timing criterion, and conceptualize disturbed grief as a continuation of normal grief (Boelen et al. 2019a, b). There are, however, marked differences in the nature and number of symptoms considered between criteria (Boelen et al. 2019a, b). More research is needed to understand and standardize psychological sequelae of PGD (Steil et al. 2019).

Recent evidence sheds light on the global prevalence of PGD. Two recent meta-analyses suggest one out of ten bereaved adults from non-violent death subsequently developed PGD (Lundorff et al. 2017), and of adults bereaved from unnatural deaths (such as accidents, disasters, suicides, and homicides), nearly half developed PGD (Djelantik et al. 2020). To our knowledge, few epidemiological studies have explored the population-level prevalence of PGD. One population-based survey of Israeli nationals found a 2% prevalence of PGD using ICD-11 criteria (Killikelly et al. 2019). There are, however, at least four studies that have investigated CG in epidemiological samples. First, a study of the general German population reported a 3.7% prevalence of CG, assessed via the Inventory of Complicated Grief-Revised (ICG-R; Kersting et al. 2011; Prigerson et al. 1995). Second, a 4.8% prevalence of CG was found among Dutch older adults using the ICG-R (Newson et al. 2011). Third, a study of Swiss older adults found that the prevalence of CG to be 4.2% using the Complicated Grief Module (Horowitz et al. 1997), and 0.9% using the Inventory of Traumatic Grief-Revised (Forstmeier and Maercker 2006). Lastly, using the Brief Grief Questionnaire, a study of bereaved Japanese adults found 2.4% to have CG (Fujisawa et al. 2010; Shear et al. 2006). Taken together, the findings suggest that PGD may be quite common and, like PTSD, related to demographic, trauma-related, and psychological characteristics.

2.3.5 Other Psychological Disorders

Although other disorders are not necessarily precipitated by a PTE, epidemiological studies have found trauma exposure to be associated with mood disorders (major depression, dysthymia), other anxiety disorders (panic disorder, agoraphobia, social phobia, specific phobia, intermittent explosive disorder), substance use disorders (alcohol and drug misuse, nicotine dependence), eating disorders, and antisocial personality disorder (e.g., Bunting et al. 2013; Zlotnick et al. 2008; Scott et al. 2013). Other trauma- and stressor-related psychological conditions, not covered in this chapter, include reactive attachment disorder, disinhibited social engagement disorder, and adjustment disorder (American Psychiatric Association 2013; Maercker et al. 2013). There is also evidence to suggest an association between PTE exposure and downstream physical health implications, such as increased odds of diabetes, peptic ulcer, back and neck pain, and frequent or severe headaches, among other conditions (Pacella et al. 2013; Scott et al. 2013) (Chap. 5).

2.3.6 Intergenerational Transmission of Trauma

Intergenerational trauma is a process in which parents with unresolved trauma can transmit their trauma to their children. This results in subsequent generations experiencing the psychological effect of trauma without being exposed to the original PTE. Only recently has there been epidemiological exploration of this concept. For example, one large longitudinal study of mothers and their children identified that maternal posttraumatic stress symptoms were incrementally associated with increased risk of child posttraumatic stress symptoms (Roberts et al. 2012). It is unclear how intergenerational transmission could be mediated, but some promising studies have shed light on potential epigenetic, biological, and psychosocial mechanisms (Flanagan et al. 2020; Yehuda and Lehrner 2018).

2.4 Public Health Perspectives on Prevention

In addition to providing information on the prevalence, distribution, and consequences of PTE exposure, a public health perspective can provide valuable insights into the prevention and mitigation of trauma-related morbidity. Public health approaches are defined by their timing relative to the PTE and state of disease pathophysiology (primary, secondary, tertiary), as well as the socio-ecological level targeted (individual, relationship, community, society; Magruder et al. 2017).

2.4.1 Primary Prevention

Primary prevention strategies are implemented before the biological onset of disease to prevent initial development. In the context of trauma, there are two general approaches: (1) strategies to improve resilience before a PTE and (2) strategies to prevent PTE exposure. Interventions aiming to build resilience often deliver psychoeducational or skill-building programs to improve the ability to cope with future stressors (Howlett and Stein 2016). These programs are often delivered among groups at high risk for PTE exposure; however, limited research has evaluated their effectiveness (Howlett and Stein 2016). Other primary prevention efforts are delivered universally (meaning, to the general population), such as targeting common modifiable risk-factors associated with the development of trauma-related disorders after PTE exposure (Tebes et al. 2019). The rationale in this approach is that targeting a small change within one modifiable risk factor common in the general population will generate more public health impact than targeting large change within a smaller, high-risk sub-population (Tebes et al. 2019). Other primary prevention strategies aim to prevent PTEs from occurring in the first place, and are often educational and operate at the individual level.

Primary prevention interventions also operate beyond the individual level. Interventions also operate at the relational- or community level, such as the implementation of separation barriers on highways to prevent motor-vehicle collisions

(Howlett and Stein 2016). At the societal level, policies and legislation can operate universally or be targeted to specific subpopulations. In the case of natural disasters, for example, sound plans for evacuation of residents in low-lying areas can prevent PTE exposure related to large-scale floods.

2.4.2 Secondary Prevention

Unlike primary prevention which aims to intervene before a disease begins to develop, secondary prevention occurs after a disease has originated, but before it becomes symptomatic enough to cross a diagnostic threshold (Howlett and Stein 2016). In the context of trauma, such efforts intervene early after PTE exposure, when the individual is either asymptomatic or pre-symptomatic, in an effort to prevent or reduce the severity of future trauma-related stress disorders. Individual-level approaches focus primarily on psychological and pharmacological therapies. There is some evidence to support the effectiveness of multi-session psychological interventions, including a brief version of cognitive behavioral therapy (CBT; Howlett and Stein 2016; Shalev et al. 2012). Pharmacologic interventions delivered early after a PTE, such as glucocorticoid administration, show promise; however, few studies demonstrate effectiveness (Burbiel 2015; Howlett and Stein 2016). Secondary prevention also operates at the relationship, community, and society levels, mostly through psychosocial approaches (Chap. 7).

The development of a more streamlined approach could improve efficiency and cost-effectiveness of secondary prevention efforts and policies. This is especially relevant given that a recent study released by the International Consortium to Predict PTSD (ICCP) estimated that roughly 12% of individuals exposed to a PTE will develop PTSD (Shalev et al. 2019), suggesting that secondary prevention efforts should be directed toward this small subset of individuals. The use of machine learning is one approach that might be useful in detecting those at highest risk, integrating genomic, clinical, and biological risk factors (Kessler et al. 2014; Shalev et al. 2019). Efforts are currently underway to identify such factors, including the Advancing Understanding of Recovery after Trauma (AURORA) study, a groundbreaking large-scale longitudinal study following neurobiology and function of trauma-related emergency department admissions (McLean et al. 2020).

2.4.3 Tertiary Prevention

Finally, tertiary prevention involves methods to prevent further decline or disability after a trauma-related disorder has already developed. Tertiary prevention overlaps substantially with clinical treatments, and thus, a major aspect of tertiary prevention relies on accurate identification of cases. Clinicians' assessment of whether presenting problems are indicative of a trauma-related condition is essential to case identification. Of course, not all persons suffering from PTSD and other trauma-related conditions will present to mental health treatment. As such, other practitioners such

as primary care physicians and personnel at social service agencies should be educated on how to screen for trauma-related psychopathology. It is also important to identify chronic cases and cases in which trauma-related symptoms may have already contributed to comorbid mental health conditions (e.g., substance misuse), physical health problems (e.g., obesity, migraine headaches), and psychosocial impairment (e.g., unemployment, relationship problems).

Once cases are identified, most tertiary prevention operates at the individual level through the use of evidence-based clinical treatments. To date, several treatments have received empirical support for reducing PTSD symptoms, including pharmacologic therapies (Chap. 27), cognitive behavioral therapies (e.g., cognitive restructuring, prolonged exposure), and eye movement desensitization and reprocessing (*Part III*). The more limited research on the treatment of PGD has provided some evidence for the efficacy of cognitive behavioral and interpersonal psychotherapies (Chap. 15). In some cases, treatment of comorbid conditions should be prioritized over trauma-related pathology to restore a level of functioning conducive to trauma-focused therapies (*Part IV*). Similarly, interventions that target functional impairment—including parenting strategies, couples therapy, and job training—could address pressing concerns that prevent patients from facing their traumatic histories (Chap. 25).

2.5 Conclusion

This chapter presented a current overview of the epidemiology of PTEs and their subsequent trauma-related disorders, risk- and protective-factors, and public health prevention strategies. This evidence-base highlights the need for further research within the epidemiology of trauma. Although significant knowledge has been gained in recent years, gaps remain in quantifying the global burden of many trauma-related disorders, as well as the need for further rigorous evaluation of primary and secondary prevention strategies.

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Psychological and Social Theories of PTSD

3

Mirjam J. Nijdam and Lutz Wittmann

3.1 Introduction

Psychological theories have been developed to explain why certain trauma survivors go on to develop PTSD and others do not. These theories try to capture what happens at the level of the trauma survivor's personal experiences, in terms of thoughts, memory, emotions, behaviours, and underlying processes of which the person is unaware. Symptoms of PTSD in DSM-5 include recurrent involuntary and intrusive memories of the trauma, flashbacks that make the person feel like he or she is experiencing the trauma again, inability to recall key features of the trauma, and impaired concentration (American Psychiatric Association 2013). Because these symptoms are linked to memory functioning and the way the trauma is processed, PTSD has been termed a disorder of memory by various theorists (Brewin 2003; McNally 2003; van der Kolk 2007). Trauma-focused psychotherapies could also be called memory-focused psychotherapy for PTSD, because patient and therapist work with the memory of the trauma (Grey and Holmes 2008).

Psychological theories are also essential to understanding the working mechanisms of psychological treatments for PTSD. It can sound quite counterintuitive that imaginal exposure to the traumatic memory works, as some memory theories predict that repeated exposure to a memory would only strengthen it (f.i. Crowder 1976). In the first part of this chapter, we will successively focus on learning theories, dual representation theory, cognitive theory and 'hotspots', reconsolidation,

M. J. Nijdam (✉)

Department of Psychiatry, Center for Psychological Trauma, Amsterdam University Medical Centers, Amsterdam, The Netherlands

e-mail: m.j.nijdam@amsterdamumc.nl

L. Wittmann

International Psychoanalytic University Berlin, Berlin, Germany

e-mail: lutz.wittmann@ipu-berlin.de

and psychodynamic theories. We will first discuss the most important concepts used by these theories and then focus on their accounts of natural recovery from PTSD and their proposed working mechanisms for psychological treatments. In the second part of this chapter, we will outline PTSD from a societal perspective and discuss the most important ideas in this realm. Case examples will provide illustrations of important concepts of these theories.

3.2 Learning Theories

The overarching idea of these theories is that a traumatic event is stored in a way that hinders the person's recovery from the trauma and from PTSD. This can, for instance, be apparent in recollections of the trauma that keep the person from maintaining his or her daily routines and vivid nightmares from which the person awakens, thereby reducing the individually necessary amount of sleep the person needs. In the elementary version of these theories, two processes were hypothesized in the process that led to PTSD symptoms after having experienced a traumatic event. Mowrer's two-factor theory (1960) assumes that these processes play a role in the various anxiety disorders with which PTSD shares some characteristics. This theory has been elaborated further for PTSD by Keane et al. (1985). A classical conditioning process is hypothesized to be crucial in the *development* of PTSD. This classical conditioning process holds that previously neutral stimuli present at the time of the traumatic event (conditioned stimuli, such as the tunnel where an accident happened) become fear-laden through their association with the trauma, for instance, the accident itself (termed the unconditioned stimulus). When a person encounters a conditioned stimulus such as the tunnel again, it would evoke the memory of, for instance, the car that was shredded to pieces and the people who were severely wounded in the accident. An operant conditioning process is proposed to be responsible for the *maintenance* of the PTSD symptoms in the longer run. This operant conditioning process would involve people avoiding thinking about or being reminded of the traumatic event, because this memory is painful and evokes anxiety and tension. Avoiding the fear-conditioned stimuli or thinking of the incident itself would be reinforced by a short-term decrease of fear or even the absence of fear and tension. One can imagine how this may be for an accident survivor who may want to avoid the tunnel in which the accident took place altogether or try to block the thoughts of the traumatic incident when it is necessary to drive through the tunnel because he has no other option. However, such avoidance would make the person even more anxious and tense to think of the traumatic event in the future and thus reinforce the fear responses in the long run.

Lang's theory (1979, 1985) assumes that frightening events are stored in a broader cognitive framework and that they are represented within memory as interconnections between nodes in an associative network. These networks function as a kind of prototypes for recognizing, and coping with, meaningful situations. Three types of information were proposed: stimulus information about the trauma, such as sights and sounds, information about the emotional and physiological response to

the event, and meaning information (most importantly about the degree of threat). These nodes are interconnected, so if the person encounters one sort of information belonging to the traumatic event, the other modes of information would be activated automatically. As soon as sufficient elements of the network are activated, the whole network of fear is activated together with the subjective experience and the corresponding behaviours. Lang proposes that fearful memories are easily activated by ambiguous stimuli, which are in some respect similar to the content of the original anxiety-provoking memory. PTSD may then be explained as a permanent activation of the fear network because of the very tight connections in this kind of fear network and the very strong emotional and physiological responses. Knowledge about the traumatic experience can change by strengthening associations between a certain emotional network and other incompatible networks. If the above-mentioned accident survivor approaches many tunnels and experiences that physiological responses such as panic do not occur, this response is incompatible with anxiety and avoidance.

Foa's emotional processing theory (Foa et al. 1989; Foa and Rothbaum 1998) draws on these principles but emphasizes that the representation of traumatic events in memory is different from that of 'normal' events. An assumption made by this theory is that traumatic events violate the basic concepts of safety that people hold. A central concept in this theory is the *fear network*, the cognitive representation of fear that includes both emotional reactions and ongoing beliefs about threats in the environment. Foa and colleagues hypothesize that activation of one node (the place of the accident) would automatically and selectively trigger the fear node and behavioural and physiological responses (such as sweating and heart palpitations) that coincide with very frightening events. Activation of the fear network could be caused by a large number of environmental cues and would have a low threshold to be activated, and this activation can be maintained for quite some time. A person with PTSD would notice this activation in terms of hypervigilance to trauma cues, information of the traumatic experience entering consciousness and re-experiencing parts of it, having very strong physiological responses when being reminded of the trauma, and attempting to avoid and suppress intrusions. Updates to this theory have focused on the role of pre-trauma views and vulnerability for PTSD as well as negative appraisals of responses and behaviours which could exacerbate the perception of incompetence (Foa and Rothbaum 1998; Brewin and Holmes 2003; Foa et al. 2007). Pre-trauma views that are more rigid (either rigid positive views or rigid negative views) would lead to increased vulnerability for PTSD. Rigid positive views about the self as extremely competent and the world as extremely safe would be contradicted by the trauma. Rigid negative views about the self as extremely incompetent and the world as extremely dangerous would be confirmed by the traumatic event. These rigid negative beliefs (or the shattering of the positive ones) make a person likely to interpret many situations or people as harmful and overgeneralize danger. Emphasis is also placed on beliefs present before, during, and after the trauma, which may lead to negative appraisal of one's reactions to the trauma and exacerbation of feeling incompetent or feeling very much in danger.

Foa and Rothbaum (1998) further suggest that trauma memories can be reactivated and changed by incorporating new information. Natural recovery would mean that

this fearful memory would be integrated with the rest of a person's memories, and the overly strong reactions need to be weakened for this. This could be achieved by repeated exposure to the fearful places and memories and by integrating information that is inconsistent with the fearful character of the acquired traumatic memory (for instance, driving through the same tunnel and not being in an accident). Foa et al. (1989) assume that PTSD will persist if this exposure to all the fearful elements of the memory does not take place sufficiently or long enough for anxiety to extinguish. In that case, only some associations are weakened and others stay intact. Excessive arousal or thinking errors and simply the strong tendency to avoid re-exposure are examples of ways in which this process does not take place in an optimal fashion. Trauma survivors may then continue to believe that the world is threatening.

The treatment method that is rooted in this theory, prolonged exposure therapy (Foa and Rothbaum 1998; Foa et al. 2007), has proven to be very effective and is recommended in various treatment guidelines as treatment of choice for PTSD (NICE 2018; ISTSS 2019; American Psychological Association 2017). Repeated exposure to the trauma memory is applied in this treatment with the aim of achieving fear extinction. For emotional processing to occur, Foa and colleagues think that it is essential that survivors are emotionally engaged with their traumatic memories, that they articulate and organize their chaotic experience, and that they learn to develop a balanced view of the world—to come to believe that the world is not a terrible place, despite the trauma (Foa and Riggs 1995; Foa and Street 2001). Effective processing changes the unrealistic associations and erroneous cognitions are corrected (Foa et al. 2007).

Case Example

A woman who had survived a plane crash in which the airplane was set on fire during landing was very frightened to fly again. For her work, she used to fly every week and she tried to continue to do this, but she panicked the moment the doors closed for take-off and urgently asked to get out. She spoke with pilots who were very understanding and said that they would never fly again if they had experienced what she had been through. This reinforced her fear of flying. In treatment, repeated exposure to the memory of what had happened and repeated focusing on the details of the worst moments of the crash in which she thought she was going to die reduced the anxiety that this memory evoked in her. This helped her overcome her fear of stepping into a plane, and she noticed that the panic reactions subsided after the take-off and after the landing.

The fear conditioning theories described above emphasize the associative learning processes that come into play when an individual develops PTSD. Non-associative learning processes are also closely associated with PTSD, and include a failure to habituate and stress sensitization (Lissek and van Meurs 2015). Failure to habituate refers to impaired ability to adapt to intense, novel, or fear-relevant environmental stimuli. Stress sensitization is an autonomic hyper-excitability to such

stimuli that progresses over time. Both these processes are proposed to be at the basis of symptoms of hyperarousal which are typical for PTSD, such as startling when confronted with an unexpected sound or touch. In the last two decades, much experimental research has been performed to investigate which of these processes are pre-existing risk factors for PTSD after trauma, and which ones are acquired (Lissek and van Meurs 2015). Summarizing the evidence, Lissek and van Meurs describe deficits in original extinction learning (a fear response that does not diminish when repeatedly being confronted with stimuli that have previously become associated with the traumatic memory) and a failure to habituate as pre-existing risk factors. Poor recall of extinction and stress sensitization, on the other hand, are termed acquired markers of PTSD based on the available evidence. In the clinical context, the acquired markers would likely be more malleable by therapeutic interventions than the pre-existing risk factors because they go hand in hand with the PTSD symptoms. In contrast, there are some learning processes that are more prone to persist despite appropriate interventions, which can explain why some patients continue to be vulnerable for recurrence of the disorder.

3.3 Dual Representation Theory

Dual representation theory of PTSD (Brewin et al. 1996, 2010; Brewin 2008; Brewin and Burgess 2014) assumes that there are two kinds of memory representations that play a role in PTSD. In this model, the flashbacks experienced by PTSD patients are hypothesized to be the consequence of very strong encoding of certain aspects of the traumatic event in a sensory-bound representation (S-rep). In earlier versions of the theory, these were called situationally accessible memory (SAM) to emphasize that these aspects can automatically be activated by triggers that the person encounters. This explains why a PTSD patient with flashbacks of being stabbed with a knife feels as if the trauma is occurring in the present, because the memory is primarily sensory and lacks a spatial and temporal context. This memory representation includes information from lower perceptual processes and the affective/emotional state experienced during the trauma. In case of the survivor of the stabbing incident, these memories would for instance be very much coupled to pain in the place where the knife once entered the survivor's body. This representation is assumed to be processed in parts of the brain that are specialized for action in the environment, specifically the dorsal visual stream, insula, and amygdala. Moreover, the model assumes that there is an impaired encoding of the material in a parallel contextual representation (C-rep) which consist of a more abstract, structural description including associations with the spatial and personal context of the person who experienced the trauma. In earlier versions of the theory, these were termed the verbally accessible memory system (VAM) to indicate that the person had consciously processed these parts of information and could communicate about these with other people. This representation is assumed to be processed in the ventral visual stream and in the medial temporal lobe. The contextual representation could inhibit the re-experiencing symptoms but functions poorly in PTSD. Retrieving

material from the contextualized representation can be the result of a conscious search strategy ('where was I at the time of the stabbing incident, and with whom?') but also be automatically activated by cues that remind the person of an incident. Because attention is very focused on danger and survival in case of a traumatic event and because this coincides with high arousal, the contents of the contextualized representations will be limited.

According to Brewin and Burgess (2014), this preferential encoding in PTSD may be a product of dissociative reactions at the time of the trauma and downregulation of the hippocampal memory system in response to a level of stress that exceeds the person's coping. Flashbacks would provide an initially adaptive pathway to natural recovery (Brewin 2008). They are an opportunity to encode the information that is lacking into the contextual representation and strengthen connections between C-reps and S-reps, so that the S-rep is generally retrieved via the associated C-rep. In that way, the sensory and affective/emotional representation of the traumatic event can be seen in its appropriate context. The awareness that the trauma has happened in the past would then also decrease the need for sensory memories in response to trauma cues. Dual representation theory suggests that the process of re-association of S-reps and C-reps does not or not sufficiently take place in PTSD, leading to persistent and intense flashbacks and nightmares and to a poorly functioning verbal memory.

Dual representation theory also offers explanations for how trauma-focused cognitive behavioural therapy could work (Brewin 2005). Brewin assumes that trauma treatment involves both the image-based S-rep and the more verbally oriented C-rep. According to this theory, a form of imaginal exposure reduces re-experiencing symptoms, and cognitive restructuring techniques target beliefs that the person has about himself or herself and the world. When the trauma survivor deliberately maintains attention on the content of the flashbacks and no longer tries to avoid them, connections between S-reps and C-reps are strengthened. Trauma survivors will then be able to place their memory in the past and to recognize that the threat is no longer present. This enhanced control facilitates deliberate recall and communication of the details of the trauma. Flashbacks and nightmares are reduced, leading to a subsequent more general reduction of PTSD symptoms. The different contents of memory representations and the re-encoding during treatment can be recognized in the following case example.

Case Example

A nurse was attacked by a patient at a mental health admission facility. The bathroom door of the patient's room had been left open by colleagues, but this had not been communicated to her. The access to the bathroom caused the psychotic patient to be within reach of an aftershave bottle, which he had destroyed. He used the broken bottle to stab her in the face when she entered his room to check on him. He entered into a fight with her. He was huge and she was not strong enough to resist him. She felt like she was left to her fate and that he would kill her. This incident had left a scar on her cheek and nose, which reminded her of the dangerous situation she had been in. In the

exposure treatment, she remembered two parts of the trauma story again that she had forgotten about. One part was the moment that she was able to press her emergency pager. She realized that she had been able to actively cope with the situation and that this had made her colleagues rush to the room and prevent worse things from happening. The other part she remembered in an exposure session was the moment her colleagues gathered around her and she first realized what had happened. She remembered that one of her female colleagues held her and this made her cry in the session, which had not happened since the incident. Later, she also realized that the patient had a severe mental condition and that the attacker's victim could have been anyone; she was no specific target. This mitigated the pain she felt over the scars. When she was confronted with the patient in court, she realized that he was a normal-sized man contrary to what she thought she had seen before.

3.4 Cognitive Theory and 'Hotspots' in Trauma Narratives

3.4.1 Cognitive Theory of PTSD

Some emotional responses of trauma survivors depend on cognitive appraisal. Cognitive factors, such as expectancies and the individual's amount of control over the situation, have been elaborated by Ehlers and Clark (2000) in their model of PTSD. They propose that experiencing extreme stress, which depends on the person's appraisal of the threat, is an essential factor in the occurrence of acute stress reactions, which display emotional, behavioural, and biological effects. Failure to effectively regulate this acute reaction may result in an ongoing dysregulation, which may ultimately lead to posttraumatic stress symptoms. Ehlers and Clark describe that pathological responses to traumatic events occur when the trauma survivor processes the trauma in a way that produces a sense of current threat. This sense of current threat can be outward-focused to an external source of threat (for instance, that a trauma survivor feels that she cannot trust other people's actions) or inward-focused as an internal threat to the self and the future (e.g. when a trauma survivor feels that her body has been ruined forever by a sexual assault). Negative appraisals about danger, violations of boundaries, and loss are thought to be responsible for the range of emotions experienced by trauma survivors with PTSD.

Trauma survivors with PTSD can thus experience an ongoing sense of threat either because they fear that the trauma will recur or because they believe they are not able to cope with their emotions. Furthermore, the nature of the trauma memory itself is different from that of an ordinary memory. Therefore, another possible reason for the ongoing sense of threat is that the trauma memory is inadequately integrated with the person's broader autobiographical memories and beliefs. This means that the person has the feeling that a traumatic event will occur more frequently, that another robbery will take place, or that another plane crash will occur. Situations that are in some respect similar to the traumatic event may evoke a strong sense of

threat. This usually happens in an unintentional, cue-driven manner. Similarly to Brewin's dual representation theory, Ehlers and Clark describe that the memory of the trauma is poorly elaborated and does not have sufficient context in terms of time and place. An important distinction in Ehlers and Clark's theory is the difference between data-driven and conceptual processing. Data-driven processing is focused on sensory information while conceptual processing is on the meaning of the situation which includes organizing information and placing it in the appropriate context. According to Ehlers and Clark, conceptual processing facilitates integration of the trauma memory with autobiographical knowledge, whereas data-driven processing leads to perceptual priming and difficulty in intentionally retrieving the trauma memory. Flashbacks in this model are assumed to be the result of enhanced perceptual priming (i.e. a reduced perceptual threshold for trauma-related stimuli).

Ehlers and Clark also identified many maladaptive coping strategies that can contribute to the onset and maintenance of PTSD. Behavioural coping strategies can include active attempts to suppress unwanted thoughts, use of alcohol and medication to control one's feelings, seeking distraction, avoidance of trauma reminders, and adoption of safety behaviours. Cognitive coping strategies that play a role are persistent rumination, dissociation, and selective attention to threat cues.

Case Example

An explicit form of negative appraisal is the concept of mental defeat, defined by Ehlers et al. (2000) as 'the perceived loss of all autonomy, a state of giving up in one's own mind all efforts to retain one's identity as a human being with a will of one's own'. The inability to influence one's own fate is a risk factor for very negative self-appraisals. After several life-threatening car accidents with permanent damage to his back and knees and after the crib death of his daughter, a trauma survivor expressed that he now felt 'as if the system is broken'. He was afraid that the stress of these accidents had been too much for his body to bear and that he would totally break down. Stressful years at work and in private life added to this perception. When he was paged for his work in case of an emergent dike burst, this triggered recollections of the accidents. When he encountered the sentence 'It is not safe to live' in a book, he noticed that he completely agreed with this statement and this frightened him very much.

3.4.2 'Hotspots' in Trauma Narratives

Ehlers and Clark developed cognitive therapy for PTSD, which is a highly effective treatment (Bradley et al. 2005). In this therapy, negative appraisals and cognitions are investigated and replaced by appraisals and cognitions that are more adaptive. Ehlers and colleagues also continued to study intrusive memories and found that these mainly represented stimuli that were present shortly before the moments of the trauma with the greatest emotional impact (Ehlers et al. 2002). They called these

stimuli ‘warning signals’, because they alert the person to danger if encountered again. These stimuli are logically connected with a sense of current threat and are often re-experienced. Ehlers et al. (2004) developed a therapeutic strategy in which the intrusions lead the therapist to the moments with the greatest emotional impact, also called ‘hotspots’. In trauma-focused cognitive behavioural therapy, they assume that it is essential to focus on hotspots and change their meaning, in order to lead to a decrease in PTSD symptoms.

It is interesting to note that cognitive behavioural therapies of PTSD have seen this condition primarily as an anxiety disorder and much attention has been directed to optimal treatment of anxiety responses. The first studies on hotspots were important, because they showed that a range of emotions are often associated with these peak emotional moments in the trauma story before they were included in the diagnostic criteria for PTSD. Anger, grief, shame, and guilt were shown to often be associated with hotspots (Grey et al. 2001, 2002), next to the typical emotional responses of anxiety, helplessness, or horror. This led Ehlers and colleagues (Ehlers et al. 2004) to believe that imaginal exposure functions not only to ensure emotional habituation but to identify the hotspots in the trauma story and use these as a starting point for cognitive restructuring. By this combination of techniques, new information can be added while reliving the trauma memory, which reduces the level of current threat. This technique was also elaborated by Grey et al. (2002), who, in an elegant way, combined imaginal exposure and cognitive restructuring for the broad spectrum of the emotions they found in hotspots. The way hotspots are addressed in imaginal exposure may be important for symptom reduction in trauma-focused psychotherapy (Nijdam et al. 2013).

3.5 Reconsolidation

Reconsolidation refers to a process by which a fearful or traumatic memory is activated and becomes labile for a limited time period, after which it is stabilized again. This allows for memory traces to be blocked or updated with new information during that labile time frame, which is assumed to permanently alter the memory. Twenty-one years ago, Nader, Schafe, and LeDoux (2000) demonstrated reconsolidation in their landmark study in animals. Over recent years this mechanism has been elaborated further in humans and also shaped thinking about therapeutic change in posttraumatic stress disorder. The introduction of reconsolidation meant a change in the way of thinking about fearful and traumatic memories, as they proved not to be solidified upon storage as many theorists used to think. One may compare this to the difference between ‘save’ and ‘save as’ in a text processor; the changes would be integrated into a memory instead of having old and new versions of it. The most well-known experimental studies investigating reconsolidation have used a pharmacological agent, propranolol, to block a memory once it had been activated (e.g. Kindt et al. 2009). It is also possible to introduce behavioural strategies to interact with the reconsolidation process. If these strategies interfere with the original content of the memory trace, the traces can be updated with the information that is provided and new learning can occur (e.g. Schiller et al. 2010; Monfils and Holmes 2018; James et al. 2015). Both the pharmacological and behavioural

approach to intervene in reconsolidation have been integrated into psychological interventions for PTSD yielding positive effects in preliminary studies (Brunet et al. 2011, 2018; Gray et al. 2019, 2020).

The effects of performing dual-attention tasks on vividness and emotionality of traumatic memories, such as those applied in eye movement desensitization and reprocessing therapy, could also be explained as a reconsolidation phenomenon. Drawing on studies in this area, Lane, Ryan, Nadel, and Greenberg (2015) proposed a reconsolidation-based model to underlie the process of change in a variety of psychotherapeutic interventions for different psychiatric disorders: cognitive behavioural therapy, emotion-focused therapy, as well as psychodynamic psychotherapy. Like in theories previously put forward, they argue that emotional engagement is critical for updating memories. As this explanatory model is relatively new, much remains to be studied. Evidence regarding the exact conditions under which reconsolidation takes place is limited for instance, including the time frame during which updating is possible (Monfils and Holmes 2018). Criticisms of reconsolidation as a mechanism to explain therapeutic change include difficulties to explain recurrence of symptoms and difficulties to prove that reconsolidation has unambiguously taken place (Brewin 2015). If a memory would have permanently been altered by reconsolidation, it is hard to explain why a trauma survivor with PTSD would experience a relapse in symptoms. Similarly, it is challenging to prove that reconsolidation is accountable for change when the original memory trace cannot be retrieved.

3.6 Psychoanalytical Theory

Psychoanalytical theories regarding traumatic experiences have a long history. Already at the very beginning of psychoanalytic thinking about 125 years ago, Freud and his mentor Breuer (Freud and Breuer 1895/1987) tried to reconstruct the essence of psychotrauma. They assumed that memories resisting abreaction by expression of the related emotions (catharsis) could not be further psychically processed. They considered two reasons responsible for such a development. In the first case, the nature of the traumatic event, social conditions, or a personal motive of the affected person stimulated repression of the event. In the second case, the event occurred during a hypnoid or dissociative state (e.g. paralysing affects, hypnagogic states, autohypnosis) hindering the person from adequate psychic reaction to the event. Here, the influence of the French school of Charcot and Janet is, of course, easily recognizable (c.f. Kudler 2012). As a consequence of these processes, the traumatic event resulted in dissociated rather than integrated memory traces. Freud's later approach (Freud 1920/1955) was based on the psychophysiology of that time conceptualizing mental processes in energetic terms, a perspective that fascinated Freud throughout his life. He assumed that during trauma, large quantities of excitation originating from external stimuli overwhelm the psychic system. In order to stabilize, the psychic system would be forced to engage in potentially endless repetitive cycles until the trauma was successfully mastered.

Since that time, many psychoanalytically oriented scientists and clinicians have contributed to shaping psychotraumatology as we know it today. Examples of such widely recognized trauma concepts are cumulative traumatic experiences (Khan 1963), Type-I- and Type-II-traumatic events (Terr 1991), complex traumatic stress disorder (Herman 1992), or continuous PTSD (Straker and The_Sanctuaries_Counselling_Team 1987). The significance of the concept of counter-transference for understanding phenomena of secondary traumatization of therapists (Figley 1995) or the wealth of empirical research stimulated by the concepts of attachment and mentalization are immediately evident. Due to the vast number of publications, it appears hardly possible to give a comprehensive summary of all relevant aspects of psychoanalytic trauma theory. Therefore, the following sections selectively summarize several key aspects emerging from different psychodynamic reflections on psychotrauma:

- Trauma is not only an event but a subjective experience.
- Parts of the personality shaped by previous interpersonal experiences may limit an individual's tolerance for processing potentially traumatic experiences.
- Trauma is a process with social dimensions.

3.6.1 Trauma as a Subjective Experience

Trauma refers to diverse and complex processes. The endless variety of possible traumatic events is only one reason for this complexity. A second factor lies within trait and state factors related to the trauma victim. Even if two persons would develop PTSD after the same event (e.g. an accident), their behaviours, thoughts, and feelings during the accident as well as later memories, ways of processing them, individual symptoms, and required steps for improvement may differ fundamentally.

Considering the interaction between event, personality, and current life context, psychoanalysts stress that trauma may best be referred to not only as an event, but rather as a subjective experience. As early as 1954, Mitscherlich (1954) emphasized the importance of dismantling the trauma of its 'false objectivity' (p. 565, own translation) and to put it into a dynamic relation with the injured being. This subjective approach requires clinicians not to be seduced by the striking traumatic nature of an event but to engage together with the patient into a detailed analysis of the meaning of the event. Some examples may illustrate this:

- Clinical experience shows that the most harmful impact of an experience does not always coincide with the moment of highest objective danger or injury. For instance, the most painful memory of a child's sexual abuse by a stepfather may not refer to the moments of rape but to the discovery that the child's mother pretended not to notice anything.
- An experience of victimization by adolescent hooligans may exert its pathogenic impact not only through the injuries suffered or the momentary experience of

helplessness alone. Rather, this event may become associated with earlier experiences of being bullied by schoolmates. The incident might be interpreted as proving that the victim will never be able to be safe from hatred by social groups.

- Not having been able to prevent the death of one's child during a civil war may destroy the self-perception of being a reliable parent. Processes such as these were identified by Abraham (1921) and Horowitz (1976/1986) who described how trauma can destroy the illusory belief in one's invulnerability (compare Janoff-Bulman 1992 for a more recent comprehensive version of this theory).
- The impact of extreme situations (Bettelheim 1943) should be determined most strongly by objective event characteristics. But even in one of the most extreme forms of trauma—torture—individual psychological aspects appear to be of significance. For instance, Basoglu et al. (1997) reported that political activists suffered from lower degrees of posttraumatic stress and other psychopathology as compared to non-activists, even when they were more severely tortured.

In summary, psychoanalysis emphasizes the clinical significance of the difference between objective traumatic events and trauma as a subjective experience. The huge variability in the number of traumatic events necessary for an individual person to develop posttraumatic stress disorder (PTSD) is in line with this argument (e.g. Neuner et al. 2004).

3.6.2 Significance of the Personality in the Posttraumatic Process

Interpersonal experiences are a crucial factor influencing development of psychic structures and personality. Acquisition of language, meaning, or cultural stances takes place in interpersonal situations. All these interactions leave their traces. According to Kernberg (e.g. Clarkin et al. 2006), the building blocks of psychological structures include a self-representation, a representation of another person (called 'object representation'), and an affect linking the two of them. For instance, a person may have grown up in a family emphasizing excellent performance (e.g. only the best results in school, sports, etc.) as a condition for attention, confirmation, and love. As a consequence, the person may hold ambition as a central and personal value. A self-object representation underlying this value could be one in which the child has experienced contempt from their father for their poor school performance generating deep feelings of shame such that the person avoids failure at all costs and indeed becomes driven to succeed. The interpersonal experiences which led to his or her ambitious character may or may not be remembered. For the following, it is important to keep in mind that the psychic structures underlying personality represent interpersonal experiences. They influence later perceptions, interpretations, and behaviours in interpersonal situations but are active also when one is alone.

One of the key features of PTSD is the oscillation between re-experiencing and avoidance of traumatic memories. The theory of Horowitz (1976/1986) describes

how trauma survivors can experience the need to integrate new information accompanying the traumatic experience, but at the same time, the information is warded off as provoking ‘too much emotional response’ (p. 100). This causes an alternating pattern between reliving (promoting the processing of the information) and avoiding (protecting the person by suppressing the threatening information). According to Horowitz, a stagnation of this process leads to persistent posttraumatic stress symptoms. Understanding why the processing of the traumatic memory is avoided is thus of importance: Why does this individual person I am working with in psychotherapy try to avoid remembering the trauma? On first view, this may appear to be a trivial question with an obvious answer. For instance, a patient will describe fear of overwhelming emotions by answering ‘Because it is painful and I can’t bear so much pain’. This is, however, an answer from a one-person-psychology perspective (Gill 1982). Let us remember that interpersonal experiences have shaped this person and thus reconsider from a two-person-psychology perspective (Gill 1982).

Consider, for example, that a patient is retelling one part of the traumatic event but without any signs of emotions. And let us assume that this patient—if more involved—would become sad or angry. Are there interpersonal reasons that the patient does not start to cry or speak in an angry tone? In the history of this patient, there may have been experiences such as being rejected, punished, or ignored in response to such expressions. For instance, one patient was laughed at by her father and ignored by her mother when trying to make them aware of the violations by her uncle. Another patient mentioned that his older brothers made fun of him each time he showed any signs of weakness (e.g. crying). Previous experiences are of therapeutic significance to the extent that they influence the here and now. They can be approached in the here and now by emphasizing the interpersonal character of the present situation. The therapist can offer himself or herself as the one hindering the perception or communication of the conflicting emotion. Identification of how the therapist is perceived by the patient is needed. For instance, the patient may expect not to be accepted as a ‘real man’ anymore when crying or as ‘too dangerous’ when showing aggression. By re-establishing a two-person-psychology perspective on avoidance, relevant interpersonal patterns can be identified. The steps necessary for dissolving such patterns vary interindividually. Typically, joint identification of the pattern and consideration of its protective function for the therapeutic relationship (e.g. not experiencing/showing anger in order not to frighten the therapist who may otherwise abandon the patient) would be among the first steps.

Bowlby (1969), the originator of attachment theory, proposed the idea that the first interpersonal relationship was the dyad between the child and caretaker which operated to keep the child safe and help him or her survive during the first precarious years of life. The child develops a cognitive-affective or psychic structure which Bowlby termed ‘a working model’ of the contingencies which kept the relationship with the caretaker going well and therefore the child ‘safe’. Bowlby extended the concept of ‘working models’ as applicable to all important relationships including parents, peers, and spouses. The working model for each includes assumptions about the emotions, behaviours, and interactions with the other person that are necessary to maintain the relationship. The models are used to guide behaviours in new

situations or with new relationships and are particularly important and ‘activated’ in times of stress or trauma.

Attachment Patterns and Empirical Trauma Research: Three Central Questions

- Do traumatic events influence the development of the attachment system?
There is no doubt that [especially Type-II- (Terr 1991)] traumatic events during childhood can prevent the development of secure attachment patterns, as reflected by high incidences of borderline personality and complex posttraumatic stress disorder (Allen and Fonagy 2015).
- Do attachment patterns mediate the effect of traumatic events?
A meta-analysis by Woodhouse, Ayers, and Field (2015) confirms that secure attachment styles are associated with less severe posttraumatic stress levels. A recent systematic literature review (Barazzone et al. 2019) concludes that especially the effects of interpersonal trauma are linked to the attachment system and highlights attachment anxiety as a risk factor for elevated posttraumatic stress levels.
- Can traumatic events change a fully developed attachment system?
Any answer to the question if traumatic experiences can alter an already established attachment system is impeded by the small number of longitudinal studies on this topic. Mikulincer, Ein-Dor, Solomon, and Shaver (2011, p. 975–6) conclude from their controlled longitudinal study on former prisoners of war that ‘complex traumas can modify attachment orientations’. However, a longitudinal study on evacuated students from a university campus in response to increased missile-fire in the area does not confirm this result (Besser and Neria 2010).

From an attachment point of view, the patient in the above examples is behaving with the therapist in a way consistent with a ‘working model’ from his past as means by which to keep the therapist engaged. The patient will not show anger in the belief that this is necessary to secure the therapist’s presence. Alternatively, a patient will expect the therapist to ignore the importance of the event and may, therefore, himself dismiss its importance and talk little about it or with little affect. In order to adapt an interpersonal pattern to be more flexible, it may be necessary to work through it at many occasions during treatment and in daily life. Thus the therapeutic work includes the patients’ expectations about how the therapist would react to their way of dealing with the trauma. One opportunity for addressing this issue is when the patient’s ‘working model’ becomes obvious by the difference between expected and actual reactions of the therapist. The therapist would then, for instance, acknowledge how difficult it must be to work through the trauma memory when he needs to be afraid of the therapist’s reaction to any emotion he may show. Of course, the therapist could skip this work and convince a patient of the necessity to confront the memory. However, doing this because the therapist as an expert told the person to

do so may miss the opportunity for personal development or of recognizing and leaving behind interpersonal patterns related to the traumatic experience. In one case, a patient got into a traumatic situation after listening to ill advice (to walk at night in a dangerous area because it was ‘such a lovely night’) against his own feelings. It turned out that this patient expected others to tell him what to do, in the context of therapy as well as in other contexts. Any directive approach may be at risk to repeat the patient’s working model which preceded the traumatic situation. The approach of loosening entrenched interpersonal patterns in order to enable the individual to confront the trauma in his or her way complements the repertoire for therapeutic decisions. The strong focus on personality development may also help to avoid future traumatization due to preventing behaviours related to the risk of re-traumatization or by enhancing the individual’s resilience.

As mentioned above, emphasizing interindividual differences makes it hardly possible to develop one trauma definition covering all possible constellations. *One* possible definition derived from the preceding discussion could be: an event becomes traumatic when trauma victims do not feel free to perceive and/or express the subjective experience as this would bring them into a position which needs to be avoided as judged on the basis of previous interaction experiences. Therefore, the memory or parts of it cannot be worked through and be integrated into general memory structures.

3.6.3 Trauma as a Process with Social Dimensions

One further psychoanalytic contribution relevant for clinical work with trauma survivors shall be mentioned. The psychoanalyst Keilson performed extensive clinical and scientific work with Dutch Jewish orphans whose parents had been killed in the Holocaust. His theory of sequential traumatization (Keilson 2005) differentiates between three phases in the trauma process: the beginning persecution and terror after the German occupation of the Netherlands, the acute direct persecution (e.g. deportation to a concentration camp), and the post-war period. He observed that experiences and conditions after the liberation from Nazi Germany strongly moderated the effect of the traumas sustained during the previous sequences. ‘Children with an advantageous second, but a disadvantageous third sequence showed approximately 25 years later an unfavorable developmental outcome as compared to children with a disadvantageous second, but an advantageous third traumatic sequence’ (Keilson 2005, p. 430, own translation). His concept has been further elaborated including the interaction of social trauma and migration by Becker (2007). From the concept of sequential trauma, we can learn that trauma is best conceptualized not as an event, but an open-ended process. In the case of social trauma, the concept gains an ethical dimension criticizing the replacement of societal responsibility by individual psychopathology in the context of our current diagnostic approach (Becker 1995). But even independent of the framework of social trauma in which this concept was developed, it is important to remember that the process of traumatization does not end when the acute trauma phase is concluded. All later experiences in

interpersonal contexts—be it on private or societal level, with clinical or legal instances—should not be separated from the trauma process. How others do or do not refer to the traumatic event, posttraumatic symptoms, or personality changes may be as meaningful as public/sociopolitical stances as, for example, conveyed by the media. The significance of the reactions of others in processing traumatic events has been repeatedly supported by empirical evidence (Mueller et al. 2008; Ullman et al. 2007).

3.7 PTSD from a Societal Perspective

As expressed in the above paragraph, it is important to consider the interpersonal and social perspective in which traumatic events and PTSD symptoms take place. Social comparisons with other people can be an important moderator in this respect as some individuals, for instance, express the opinion that they believe it is ‘unfair’ that they experienced so many traumatic events compared with others. Moreover, a lack of perceived social support on different levels has been demonstrated to increase the risk of developing PTSD after being exposed to a trauma (Ozer et al. 2003). The following case examples illustrate these phenomena:

- A police officer in training on his second day of work was confronted with an arrestee who had not been properly examined and shot himself through the head with a gun that he had hidden beneath his clothes. The police officer vividly remembers many parts of the incident, such as the moment that the arrestee aimed at him with the gun and the moment he shot himself. However, he cannot remember the face of the man, only his angry expression. He increasingly developed PTSD symptoms after this incident and was confronted with many other suicides during his training. His supervisor says that the PTSD symptoms cannot be work related, since he cannot remember the face of the arrestee and therefore doubts whether what he saw was traumatic. The supervisor assumes that the PTSD symptoms originate from earlier experiences in his youth.
- A young mother who has experienced emotional neglect and physical abuse during her childhood recovered from these experiences by means of trauma-focused psychotherapy. This treatment decreased the intrusions of the traumatic experiences considerably. She also noticed that she became more assertive and dared to defend herself and her daughter when being treated in an unfair way. However, her younger stepsister in her country of origin, whom she took care of while still a child, told her that she does not believe that the patient has experienced emotional and physical abuse in her youth. The pictures of the stepsister on Instagram are a continuing slideshow of all the things the patient did not have in her adolescence and that her stepsister takes for granted. This hinders her in her further recovery from her PTSD symptoms.

Recognition of the impact of traumatic events by important others is not only important for the individual trauma survivor but is also connected with the societal

views on trauma and PTSD. In this respect, it is interesting to see which factors contributed to the recognition of PTSD in the diagnostic and statistical manual of mental disorders in 1980 (DSM-III; American Psychiatric Association 1980). Historically, much interest has been on soldiers deployed on mission, who dropped out of the deployment as a result of ‘shell shock’ (Myers 1940) or ‘war neurosis’ (Kardiner and Spiegel 1947). The symptoms these soldiers displayed bore much resemblance to PTSD symptoms. The recognition of PTSD in the post-Vietnam war era was remarkable, as battle dropout was less frequent than in earlier wars, but delayed stress responses were much more common (Lifton 1973; Figley 1978). A lack of social support may also have contributed to PTSD prevalence rates in Vietnam veterans (Oei et al. 1990), as veterans were often treated with disdain. Another societal development in the 1970s was the revelation of mental health symptoms after child sexual abuse. Feminists warned about the consequences of rape and incest. A third societal development contributing to the formalization of PTSD, especially in Europe and the United States, was the increasing number of people who suffered under the late sequelae of the Second World War (e.g. Withuis 2010). Symptoms resulting from war experiences proved to have important similarities to those resulting from other types of trauma.

Whereas the feminist emphasis on the consequences of unwanted sexual experiences contributed to the recognition of PTSD, the condition became more controversial by subsequent elaborations of this topic in the professional field. During the 1980s, therapists described that adult incest survivors were often reluctant to disclose their abuse to others (e.g. Miller 1997/1979), and toward the end of this decade, this shifted to the belief that many survivors were unable to remember their sexual abuse experiences (McNally 2003). Techniques such as hypnosis and guided imagery exercises were applied to help survivors recover their memories of the sexual experiences, but these methods proved to lead to ‘false memories’ while increasing the confidence in the survivor that they were genuine (Stebly and Bothwell 1994). McNally (2003) describes similar developments in daycare centres, where odd behaviours of children were seen as signs of sexual abuse, and suggestive interrogations were carried out until the children confessed their abuse. This led to unsubstantiated lawsuits and conviction of alleged abusers in both groups. Similar suggestive therapeutic techniques were applied to war or resistance experiences (e.g. Enning 2009). Professionals increasingly changed their view and left behind suggestive techniques when they became aware of these facts. Nowadays the professional consensus regarding recovered memories of traumatic events is that they can be genuine, false, or a mixture of the two (Lindsay and Read 1995; Brewin 2021). In a therapeutic context, therapists are not responsible for finding out the absolute truth as proven by evidence in lawsuits but to help patients to the best of their abilities to recover from their mental health conditions.

The sociologist Withuis (2010) describes the developments over time in ideas about health problems and highlights the importance of considering secondary benefits of symptoms and the concept of premorbidity. Directly after the Second World War, the societal opinion was that someone’s health would deteriorate if the symptoms were given too much attention. Because the costs for shell shock patients after

the First World War had been much larger than foreseen, European countries like England, France, Germany, Italy, and Austria were cautious about the emergence of a new cohort of patients with psychogenic illnesses. From 1975 on, the societal opinion had completely turned around, and health problems were seen as arising from a lack of attention. This societal development facilitated recognition of PTSD in the early 1980s. Withuis defines secondary gain, or benefits, as the invalidating effect that results from treating people as ill and discharging them from their daily obligations. The concept of premorbidity refers to the influence of the mental health of the survivor *before* the traumatic experience on the consequences of the trauma later on. Many soldiers and resistance workers of the Second World War filed for a resistance or war pension in the 1970s and 1980s and were awarded the pension without taking into account whether traumatic experiences were causally related to their symptoms. The risk of thinking only in terms of traumatization, Withuis claims, is that it denies the association between person and mental health problem by attributing the cause of the mental health problem solely to the external stressor. In the decades that followed, it gave people an alibi to attribute all kinds of problems to traumatic experiences. Meanwhile, premorbid factors contributing to vulnerability for posttraumatic psychopathology and factors that enhance resilience are investigated in many studies and shape the clinical picture of PTSD. Including the possibility of secondary gains and the role of pre-trauma vulnerability factors in our clinical views remain important.

In sum, in the treatment of trauma survivors with PTSD, it is essential to integrate psychological theories about symptom development, maintenance, and recovery with important moderators in the context of close relationships and societal values. In their socio-interpersonal model of PTSD, Maercker and Horn (2013) distinguish the relevant processes in this respect at the individual level, the level of close relationships, and the distant social level. At the individual level, the social affective processes that occur as the individual interacts with others are specified, such as shame, guilt, and anger. At the second close relationships level, the social support or negative exchange between the trauma survivor and important others takes place. The distant social level of the cultural and societal context encompasses the societal acknowledgment of trauma, collective trauma experiences, and cultural values. Being aware of these processes and taking them into account in treatment, Maercker and Horn argue, will possibly enhance treatment outcome for patients with PTSD. A further elaboration of emotions such as shame and guilt has also been included in the concept of moral injury. Originally defined with the moral dilemmas of deployment to Vietnam in mind (Shay 1995), moral injury refers to the lasting psychological, social, and spiritual impact of perpetrating, failing to prevent, or bearing witness to acts that transgress deeply held moral beliefs and expectations (Litz et al. 2009; Griffin et al. 2019). While the boundaries of this concept still need to be further defined, it has widely been adopted by clinicians and chaplains to give words to the experiences of their clients. Several interventions have been proposed to alleviate moral injury at different social levels which deserve further study, for instance in response to the COVID-19 pandemic (Borges et al. 2020).

3.8 Conclusion

When trauma survivors develop PTSD, trauma memories are stored in a distinct way that hinders the individual in his or her daily life. Psychological theories have proposed different ways in which the mechanisms underlying the development of PTSD, natural recovery, and the improvement of symptoms during psychotherapy for PTSD can be explained. Some theories focus on fear as the primary emotional network involved, whereas others propose that emotions such as anger, grief, shame, and guilt are equally important. Some theories emphasize the role of negative appraisals of traumatic events or stress responses; others focus on the role of different representations or the malleability of the traumatic memory. The social perspective is also important, as traumatic experiences happen in the context of responses of others and societal views on trauma, and these influence and shape the symptoms of the individual trauma survivor. One common concept in the psychological theories of PTSD is memory, with traumatic events from the past being remembered far too well and decreased concentration on, and capacity for, everyday tasks which do not involve danger. The activation of traumatic memory by trauma-related cues is closely linked to survival and therefore connected to fast stress responses initiated by the amygdala and the secretion of stress hormones, which will be described in detail in the next chapter.

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An Integrative View on the Biopsychology of Stress and Posttraumatic Stress Disorder

4

Suchithra Varadarajan, Alexander Behnke, Anja M. Gump, R. Nehir Mavioglu, Patrick Fissler, and Iris-Tatjana Kolassa

4.1 Introduction

An alarming propensity of various psychological and physiological disease states are associated with stress and trauma-related illnesses such as PTSD. This underscores the necessity to adopt a comprehensive and integrative perspective. Therefore, this chapter elucidates an integrative biopsychological view derived from interdisciplinary fields of research: clinical psychology, neuroscience, genetics and epigenetics, psychoneuroimmunology, mitochondria, and gut microbiota. The first section summarises the effect of traumatic stress, traumatic load, the role of the fear/trauma network linked with PTSD. The next section reviews latest findings on brain and cognitive alterations in PTSD and proposes a model that aims to provide a novel perspective on different treatment approaches. The third section outlines the prospective role of genetics and epigenetic alterations in PTSD. The fourth section provides pivotal insights from biomolecular studies on the role of altered mitochondrial functioning, oxidative stress, and immune regulation in psychological/traumatic stress and PTSD. Gut microbiota research is gaining momentum, hence the

S. Varadarajan · A. Behnke · A. M. Gump · R. N. Mavioglu · I.-T. Kolassa (✉)
Clinical and Biological Psychology, Institute of Psychology and Education, Ulm University,
Ulm, Germany
e-mail: Suchithra.Varadarajan@uni-ulm.de; Alexander.Behnke@uni-ulm.de; anja.gump@web.de; Nehir.Mavioglu@uni-ulm.de; Iris.Kolassa@uni-ulm.de

P. Fissler
Psychiatric Services Thurgau, Münsterlingen, Switzerland
Paracelsus Medical University, Salzburg, Austria
e-mail: Patrick.Fissler@stgag.ch

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final section outlines the implications of gut microbiota in stress and PTSD. Overall, we have endeavoured to provide a state-of-the-art integrative view on the biopsychology of PTSD and its comorbidities.

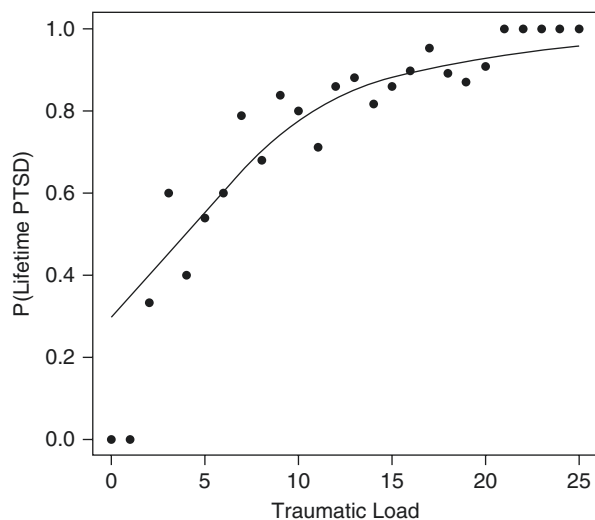
4.2 Role of Cumulative Trauma Exposure, Traumatic Stress, and Trauma Load in PTSD Risk

4.2.1 Trauma Load and the Dose-Response Effect on PTSD

Traumatic stress refers to experiences which elicit feelings of helplessness, fear, or horror, along with an alarm response triggering acute release of stress hormones (Kolassa et al. 2010a). The higher the number of different trauma event types experienced, the higher the *traumatic load* of an individual (Schneider et al. 2020). Higher traumatic load leads to a higher risk for lifetime PTSD in a *dose-response relationship* (Kolassa et al. 2010b), which seems to be similarly present in both biological sexes (Wilker et al. n.d.). This dose-response relationship is also termed as *building-block effect* (Neuner et al. 2004). And for instance, this effect is reflected in individuals with a history of childhood maltreatment (CM) as trauma exposure in childhood sensitises individuals to the detrimental consequences of trauma even in later stages of their life (i.e. increasing the risk for PTSD, depression, and somatic symptoms) (Behnke et al. 2020).

Furthermore, PTSD prevalence can reach 100% due to extreme levels of trauma load (see Fig. 4.1) (Kolassa et al. 2010c), i.e. there is no ultimate resilience for PTSD and upon extreme trauma exposure any individual could develop PTSD. A study conducted by Kolassa et al. (2010c) among refugees ($n = 444$) who survived the Rwandan genocide (1994) showed that higher traumatic load increases current

Fig. 4.1 The increasing number of traumatic event types experienced (i.e. traumatic load) also increases the probability to fulfil the PTSD criteria at least once in a lifetime, P (Lifetime PTSD). In the case of extreme trauma load, the probability of lifetime PTSD approaches 100% (Figure adapted from Kolassa et al. 2010c)



as well as lifetime PTSD risk and severity, along with curtailing gradual spontaneous remission from PTSD. This study proposed traumatic load as a root cause of both chronicity and symptom severity of PTSD (Kolassa et al. 2010a).

Notably, higher traumatic load is also associated with higher levels of *appetitive aggression*, i.e. an individual's disposition to perpetrate violence along with deriving pleasure from inflicting violence. In formerly abducted rebel-war survivors ($n = 1166$) from Northern Uganda, appetitive aggression and the rate of perpetrated violence were found to be specifically elevated among those individuals who were abducted at a young age and experienced high traumatic load and combat events (Zeller et al. 2020).

4.2.2 Fear/Trauma Network Model: Role of “Cold” and “Hot” Memories in PTSD

The *Fear/trauma network model* of PTSD conceptualised by Elbert and colleagues postulates that the traumatic stress actuated intense fear/traumatic memories are stored in propositional networks, which can be shaped by new experiences through principles of associative learning and neuroplasticity (Wilker et al. 2014a; Elbert et al. 2015). As a core feature of PTSD includes fragmented memories, this model differentiates between “hot” and “cold” memories based on the terminology proposed by Metcalfe and Jacob (Metcalfe and Jacobs 1996). On the one hand, cold memories characterise autobiographical contextual information of specific events such as time, space, knowledge about period of life, dates, external circumstances, verbally accessible memories. On the other hand, “hot” memories encompass the stored information such as sensory and perceptual (e.g. hearing screams, smelling blood, burning houses); emotional or affective (e.g. fear, horror, disgust, sadness); cognitive (e.g. “I can't do anything”, “I will die”); introspective or physiological (feeling of physiological reactions such as strong heartbeat, fast breathing sweating) (Elbert et al. 2015; Schauer et al. 2005). Due to its associative nature any trauma-related stimulus can trigger the entire fear network (Wilker and Kolassa 2013). Therefore, any further exposure to traumatic stress and increased trauma load could eventually lead to a loss of the connection between “cold” and “hot” memories, whereas “hot” memories connect with increased excitatory power, thus fortifying fear/trauma network in PTSD (Neuner et al. 2020).

4.3 Brain and Cognitive Alterations in PTSD

Individuals with PTSD show global brain atrophy and cognitive impairment in contrast to healthy controls with and without traumatic experiences (Bromis et al. 2018; Scott et al. 2015). Consistent with these findings, individuals with PTSD show approximately a 1.5-fold risk for developing dementia in comparison with healthy controls (Günak et al. 2020). In addition to global alterations, specific brain regions with pronounced abnormalities have been found. These include regions of the

limbic and paralimbic system such as hippocampus, amygdala, and insula, as well as regions of the prefrontal cortex such as the anterior cingulate and orbitofrontal cortex (Bromis et al. 2018). In the following, we depict how these brain alterations are linked with specific PTSD symptoms.

4.3.1 Connection of Brain Alterations with PTSD Symptoms

The phenomenon of *fragmented memories* in PTSD characterised by impaired episodic memory (“cold” memories) with overactive implicit memory (“hot” memories) could be explained by hippocampal and amygdala alterations. Impaired episodic memory seems to be reflected by atrophy and hypoactivity of the hippocampus (Logue et al. 2018). Reduced inhibition of the limbic system through the medial prefrontal cortex may account for *intrusion symptoms* in PTSD (hot memories) (Fenster et al. 2018). In response to trauma-related stimuli and imaginations, PTSD patients demonstrated hyperactivity of the amygdala (involved in fear regulation) and insula (involved in bodily awareness) along with hypoactivity of the ventromedial prefrontal cortex (involved in top-down inhibition of the limbic system (Hayes et al. 2012; Hopper et al. 2007; Rauch et al. 2006).

Symptoms of poor concentration seem to be reflected in impaired working memory and processing speed (Scott et al. 2015). Altered prefrontal processing could be a brain-related correlate of these cognitive impairments (Moores et al. 2008).

Symptoms of persistent negative affect and anhedonia could be explained by a downregulated reward system (Nawijn et al. 2015). The striatum depicted reduced activation in anticipation of rewards (wanting) and after receiving the reward (liking).

Symptoms of *altered arousal and reactivity* could be connected to an upregulation of the salience network (involved in stimuli-driven, bottom-up attentional processes), along with a downregulation of the default mode network (involved in self-referential processing) (Koch et al. 2016). This shift could reflect the neuronal correlate of increased assignment of salience to external events and impaired internal thoughts and memories.

4.3.2 Causes of PTSD-Related Cognitive and Brain Alterations

PTSD-related alterations in brain and cognition (1) may be a consequence of the disorder itself, (2) may be risk factors that facilitate PTSD symptoms after traumatic experiences, (3) may result from a multitude of other factors that lead to both PTSD and neurocognitive changes (e.g. childhood maltreatment, genetic and lifestyle factors), or (4) may be a combination of all these cause–effect relationships. There is evidence from animal and human studies that traumatic stress and PTSD itself affect brain and cognition (Fenster et al. 2018). These studies indicate an adverse—but to some degree reversible—effect of chronic and traumatic stress on brain and cognition (Lupien et al. 2009).

However, increasing evidence suggests that in addition to an effect of trauma on brain and cognition, brain and cognitive abnormalities may be risk factors for PTSD after trauma exposure. For example, longitudinal studies suggest that a major part of cognitive abnormalities were present before the onset of PTSD (Parslow and Jorm 2007). In this line, a twin study compared hippocampal volume in monozygotic twin pairs, in which one member was exposed to trauma (Vietnam combat exposure) and the other member, his brother, was not trauma-exposed (Gilbertson et al. 2002). In combat-exposed twin members with PTSD and, notably, in the non-combat-exposed co-twin members without PTSD smaller hippocampi were observed than in a control group. As genetically identical twin brothers with and without PTSD showed hippocampal abnormalities, this marker seems to be a risk factor rather than a consequence of PTSD. In addition, patients with PTSD displayed reduced intracranial volume (Bromis et al. 2018) but this feature usually manifests in childhood long before trauma exposure. As intracranial volume is an indicator of premorbid brain volume, reduced brain volume seems to be a risk factor for PTSD.

Taken together, PTSD may affect brain and cognition, and conversely, premorbid brain and cognitive alterations may increase the risk to develop PTSD. In the following, we discuss how additional factors such as childhood maltreatment, lifestyle, and genetic factors could affect brain, cognition, and psychopathology, which in turn could increase PTSD risk (see Fig. 4.2). In line with this notion, studies investigating the effect of early-life stress on cognition, psychopathology and the brain yielded highly similar findings as in patients with PTSD (Nakayama et al. 2020; Teicher et al. 2016). Studies on childhood maltreatment indicate a link with (1) general cognitive impairment, (2) increased general psychopathology, (3) volume loss in hippocampus and the medial prefrontal cortex, as well as (4) altered brain function such as increased amygdala response to threat and a less responsive reward system (see Teicher et al. 2016 for a review). Similarly, lifestyle factors such as physical exercise increase hippocampal volume (Opel et al. 2020), reduce measures of psychopathology (Caspi et al. 2014) and improve cognition (Karabatsiakakis et al. 2014). Finally, genetic polymorphisms such as the apolipoprotein E—known to reduce hippocampal size and neurocognition—are linked with measures of psychopathology (Picard et al. 2018). That means, childhood maltreatment, lifestyle, and genetic factors may affect brain, cognition, and psychological health, thus increasing the risk for PTSD.

In line with the notion that brain, cognitive and general psychopathological alterations are a risk factor for PTSD, a meta-analysis suggests that brain region-specific alterations are only found when individuals with PTSD are compared with healthy controls but not when compared with depression (Bromis et al. 2018). Similarly, a large-scale study showed that a single cross-disorder factor score of brain structure explained 42–89% of the observed variance of four major psychological disorders, including major depressive disorder (MDD), bipolar disorder, schizophrenia, and obsessive-compulsive disorder (Opel et al. 2020). Abnormalities in brain structure highly correlated between all four disorder categories ($r = 0.4–0.8$). Regions that are altered in PTSD like the hippocampus, the amygdala, and anterior cingulum mainly

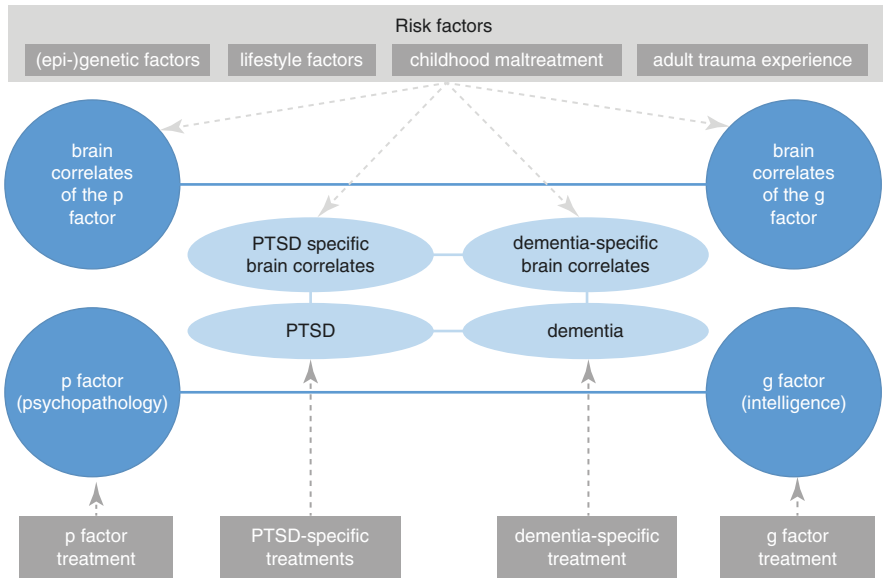


Fig. 4.2 P and g factor model and its relevance for treatment. The p factor reflects general psychopathology and explains high correlations between different psychological symptoms, while the g factor represents a dimension of general intelligence that is thought to underlie high correlations between different cognitive functions. Thus, these two general factors of psychological and cognitive health describe general characteristics that underlie and contribute to symptoms of specific psychological and cognitive disorder categories such as PTSD (e.g. intrusions, altered arousal and reactivity, fragmented memories, and poor concentration) or dementia (e.g. depression, impaired memory). After accounting for the general factors of psychological and cognitive health, a part of symptoms that are specific for disorder categories are likely to remain unexplained (light blue). The general factors of p and g need to be accounted, to extract symptom-specific risk factors and brain correlates that go beyond and are independent from the general factors. This model has implications for PTSD treatment as interventions can be delineated in approaches that are transdiagnostic and target general factors of pathology (p and g factor) and treatments that target specific symptoms that are not explained by these two general factors

drove the two most important factor scores of brain structure abnormalities in these four psychological disorders (Opel et al. 2020). This finding indicates that a large proportion of brain alterations between different psychological disorder categories are overlapping, and this may reflect transdiagnostic or cross-disorder brain alterations that may even be linked with cognitive impairment. Correspondingly, cognitive impairment is not only present in PTSD but also could be revealed in many psychological disorders and was linked with general psychopathology (Caspi et al. 2014). Taken together, findings suggest that brain and cognitive differences between PTSD and healthy controls may not be specific to PTSD but might be linked to general psychopathology that increase the risk to develop PTSD after trauma exposure.

Caspi et al. (2014) validated the concept of “general psychopathology” and called it the *p factor*—a rather stable dimension. The idea is that a general

underlying factor explains the observation that individuals who score high in one psychological symptom (e.g. anxiety) usually display more symptoms of another disorder (e.g. depression). The p factor can be viewed in parallel with the *g factor* which is the well-known concept of a general intelligence factor.

4.3.3 The p and g Factor Model and Its Relevance for PTSD Treatment

We propose a novel p and g factor model of PTSD and depict its implication for treatment (see Fig. 4.2). In this model, we assume that genetic and environmental risk factors (e.g. poor diet, physical and social inactivity, childhood maltreatment) lead to a higher p factor (general psychopathology) and a lower g factor (intelligence). This symptomatology is reflected in brain correlates such as lower global brain volume as well as region-specific alterations (e.g. hippocampus, medial prefrontal cortex, insula, and amygdala). People with a high p and low g factor (which are reflected in a high amount of brain alterations) are believed to be more prone to develop PTSD after trauma exposure. This model partly explains why PTSD has a high comorbidity with other psychological disorders and is associated with brain and cognitive abnormalities.

In addition, this model yields important clinical implications, as it proposes two different kinds of therapeutic approaches (see bottom grey boxes in Fig. 4.2). On the one hand, so-called *general factor, cross-disorder or transdiagnostic treatments* should aim to improve the p and g factor and their underlying biological mechanisms. Macroscopic mechanisms such as global brain volume, hippocampal and medial prefrontal volume but also microscopic mechanisms may be the target. Examples for microscopic mechanisms include a dysregulated energy metabolism, altered mitochondrial respiration, oxidative stress, and inflammation (for details, see the following sections of this chapter). On the other hand, symptoms that go beyond the degree that is expected due to the p and g factor should be targeted with *symptom-specific treatments* (see light blue boxes in Fig. 4.2). This means, PTSD in a context of high general pathology of p and g might have a different biological underpinning than PTSD with low general pathology (e.g. larger hippocampal volume reduction in high vs. low general pathology). Therefore, it should be differently treated [e.g. with additional physical exercise as a potential general factor treatment that affects hippocampal volume and measures of p and g (Opel et al. 2020; Caspi et al. 2014; Karabatsiakakis et al. 2014)]. Importantly, such general factor treatments have the potential for generalised, transdiagnostic effects on a wide range of symptoms. These general factor treatments should be accompanied by symptom-specific treatments if symptoms go beyond what is expected by general pathology (e.g. exposure therapy in phobias in a context of normal p and g factors). A novel perspective that integrates general factor approaches with symptom-specific treatments has not only the potential to reduce the burden of PTSD but also to reduce incidence of other psychopathologies, cognitive decline, and dementia in old age.

4.4 Genetics of PTSD

Worldwide, 70.4% of individuals face a traumatic event at least once in their lifetime, whereas the lifetime prevalence of PTSD is around 4% (Kessler et al. 2017). This implies, some individuals might carry certain factors which make them vulnerable or resilient to develop the disorder. Individual differences such as family environment, personality, and biological risk factors can contribute to the vulnerability and resilience. Genetic factors can explain some of these individual differences. This makes PTSD genetically a *complex trait*, i.e. its variability must be explained by both genetic and environmental factors, and its aetiology is always a *gene × environment interaction* ($G \times E$).

4.4.1 Heritability of PTSD Risk

Heritability estimates of PTSD risk following trauma range from 23.5% (True 1993) to 71% (Sartor et al. 2011). The large range of the heritability estimates can be explained by characteristics of the study population, namely ethnicity, sex distribution, age, and trauma type (Duncan et al. 2018a). Heritability estimates for PTSD risk might also comprise the susceptibility to be exposed to certain traumatic events such as childhood abuse (Dalvie et al. 2020; Pezzoli et al. 2019), assaults, or war traumas, but not non-assaultive traumas such as motor vehicle accidents or natural disasters (Ryan et al. 2016; Stein et al. 2002). Personality traits and certain behaviours such as risk taking might also be influenced by genetic factors (Ryan et al. 2016). Therefore, heritability estimates of PTSD risk should be interpreted with caution as susceptibility to trauma exposure should not be overlooked.

Association studies that aim to discover the genes that might contribute to a genetic trait either test *hypothesis-driven* candidate genes or assess *hypothesis-free* genetic variations in terms of *single nucleotide polymorphisms (SNPs)* in *genome-wide association studies (GWAS)* throughout the genomes of cases versus controls. Since PTSD can only be triggered by traumatic event exposure, it is reasonable to evaluate the effect of different genes while considering the type and frequency of experienced traumatic events (Conrad et al. 2017). Due to the difficulty in quantifying the environmental factor “traumatic load”, only few studies model this variable as a quantitative covariate in their statistical models.

4.4.2 Candidate Gene Studies

Hypothesis-driven association studies in PTSD have mainly targeted the genes of serotonergic and dopaminergic systems, stress response systems, and inflammatory responses. Most genes were selected due to their roles in fear response and memory modulation, namely for their involvement in the activation of the amygdala (Smoller 2016). Here, we will focus on some of the most influential ones.

A polymorphism (5-HTTLPR) in the regulatory promoter region of the serotonin transporter gene was one of the first genetic factors to be associated with anxiety (Lesch et al. 1996), and it is also of interest for PTSD research. Compared to the long allele (L) of 5-HTTLPR, its short allele (S) is associated with less expression of the serotonin transporter gene (*SLC6A4*), and less production of the serotonin transporter protein that leads to a decreased serotonin reuptake from the synaptic cleft. 5-HTTLPR S-allele homozygotes (SS genotype) were reported to be at increased risk to develop PTSD (Kolassa et al. 2010b). Other studies report the S-allele as a risk factor predicting PTSD symptoms, interacting with traumatic events such as blast exposure (Taylor et al. 2019). However, it has been shown that upon extremely high trauma exposure, genetic factors lost their importance as all genotype groups approached 100% likelihood to develop PTSD. Thus, it is highly important to model the covariate trauma load in the statistical models investigating the genetics of PTSD in terms of a $G \times E$ (Kolassa et al. 2010b; Wilker et al. 2018). Research also found L-allele to be a risk factor, as the number of L-alleles increases, prevalence of PTSD also increases in individuals with higher traumatic load (Grabe et al. 2009). In par with this, a study found that SS homozygosity in the 5-HTTLPR was a buffer against acquisition of certain PTSD symptoms among individuals who were victims of emotional abuse during childhood (Walsh et al. 2014), whereas other studies found no such effects (Kovacic Petrovic et al. 2016). Moreover, a meta-analysis provided inconclusive evidence on the role of 5-HTTLPR in PTSD (Gressier et al. 2013; Navarro-Mateu et al. 2013). A recent meta-analysis investigating the interaction between 5-HTTLPR and stress in predicting PTSD reported that 5-HTTLPR is a significant moderator, concluding that the presence of at least one S-allele is a risk factor in PTSD aetiology in combination with stress (Zhao et al. 2017). Notably, none of these meta-analyses considered traumatic load in their models. Based on these findings, the actual role of 5-HTTLPR in PTSD aetiology is not yet fully understood, although it seems to be a predictor of PTSD in $G \times E$ context.

As PTSD has been associated with alterations in the regulation of the endocrine stress-response system, specifically the hypothalamic-pituitary-adrenal (HPA) axis, research has aimed to investigate the relevance of genes coding for proteins involved in the HPA axis physiology. Among them, the FKBP5 protein modulates the sensitivity of the glucocorticoid receptor (GR), and more presence of the protein is associated with decreased GR sensitivity to cortisol. Thereby, the negative feedback loop of the HPA axis is less efficient and, thus, individuals might return to their normal endocrine stress response less effectively (Mehta and Binder 2012). There are certain polymorphisms that were associated with changing expression of the *FKBP5* gene. These polymorphisms do not show main effects in predicting PTSD symptomatology (but see Watkins et al. 2016), and they are rather studied in $G \times E$ context. One of the initial $G \times E$ studies reported four different *FKBP5* SNPs to interact with exposure to traumatic events during childhood but not in adulthood in regard to predicting PTSD symptomatology (Binder 2008). Carrying at least one risk allele (T) of one of these SNPs (rs1360780) was reported to moderate the

influence of childhood trauma on PTSD risk in such a way that the T-allele carriers had increased PTSD risk, if they had a childhood trauma history compared to the ones who did not have. Conversely, in individuals not carrying the T-allele, childhood trauma history did not predict their PTSD risk (Klengel et al. 2013).

Two meta-analyses compiled a decade of research on the interplay of *FKBP5* × traumatic life events and confirmed significant interactions between *FKBP5* SNPs and presence of early-life stress (Wang et al. 2018) as well as presence of lifetime exposure to traumatic events (Hawn et al. 2019) in predicting PTSD risk. The meta-analytic studies concluded that certain combinations of genotype and being exposed to adverse environments constitute a particular risk for PTSD. Moreover, rs1360780 was also reported to condition the long-term effectiveness of exposure-based psychotherapy in PTSD (Wilker et al. 2014b). To conclude, a combination of *FKBP5* and early-life adversity is among the relatively consistent genetic factors disposing for PTSD.

Immune system alterations have been associated with PTSD and certain immunomodulatory genes have been studied in PTSD. As for the genetic role of immune response elements, Michopoulos et al. (2015) identified a SNP within the CRP gene, which was further associated with increased C-reactive protein (CRP) levels, to be directly associated with the PTSD diagnosis as well as with the severity of PTSD symptoms. Another study found evidence for correlations of tumour necrosis factor alpha (TNF- α) serum levels and the *TNF- α* polymorphism rs1800629 with PTSD severity (Bruenig et al. 2017). Stress response elements are important in modulating immune system activity (Chrousos 1995), and therefore, stress response-related genetic factors (e.g. *FKBP5*) might contribute to immune alterations in PTSD and development of PTSD symptoms (i.e. memory formation) following immune system alterations (Wilker et al. 2014b; Zannas et al. 2016).

4.4.3 Genome-Wide Association Studies

Candidate genes associated with mental disorders explain small proportions of the variability in PTSD. Therefore, to find other genetic factors related to the disease, the Psychiatric Genetics Consortium-PTSD Group has conducted various hypothesis-free GWAS with large samples. Their first big attempt with 20,070 participants could neither identify SNPs relevant for PTSD nor replicate their previous results (Duncan et al. 2018b). In a GWAS meta-analysis (Nievergelt et al. 2019), they provided additional analyses for a diverse cohort of African and European ancestries, as well as for men and women. With a sample of almost 200,000 participants, they detected some SNPs to be linked to PTSD along with one in a Parkinson's gene (*PARK2*) that has a role in the dopaminergic system. Moreover, the polygenic risk score that was computed to assemble the effects of all SNPs that the GWAS detected was shown to be significantly linked to PTSD. It was found to significantly predict PTSD symptomatology in yet another sample; however, the size of the observed association was small (~1%).

In large samples compiled from different studies, it is difficult to control the effect of traumatic load or previous traumatic event history, which can partially explain the difficulties in finding a consistent genetic factor predicting the PTSD risk. To overcome this, Wilker and colleagues (Wilker et al. 2018) performed a cases-only PTSD GWAS with Northern Ugandan rebel-war survivors ($N = 924$) along with Rwandan genocide survivors ($N = 370$) as the replication sample, and included traumatic load in their analyses as a covariate. They reported five significant SNPs in their discovery sample and could replicate one of them (rs3852144, A > G) in their replication sample. This indicates that as the number of rs3852144 minor G-alleles increased, the PTSD risk after trauma decreased. They provided initial evidence that rs3852144 could be linked to differences in the therapy-related decrease of PTSD symptoms. The biological mechanism of this SNP from a non-coding region is yet to be discovered.

To conclude, the genetic factors which have been associated with PTSD contribute little to explain the variability of the disease and its severity among patients. Therefore, genetic research in PTSD has so far not provided substantial contribution to the understanding of the disorder's aetiology or to develop novel treatment strategies. A reason for the limited success of genetic studies on PTSD might be the heterogeneity of the disease among individuals. Considering varying symptom profiles among individuals with PTSD, it is reasonable to assume that the individuals with diverse PTSD symptomatology might have different genetic risk factors, which leads to difficulties in finding a consistent genetic or epigenetic risk factor for all PTSD cases in a particular study. Other reasons include complex physiological mechanisms underlying PTSD (e.g. inflammation, oxidative stress) influencing memory formation and p factor which are associated with hundreds of different genetic factors, complex environmental predictors such as individual trauma history and traumatic load which are difficult to assess, as well as individual differences related to personality, ethnicity, and sociodemographic background. Studies should also analyse individuals with similar psychological symptoms, along with similar biological manifestations of the disease together.

4.4.4 Epigenetic Alterations in PTSD

Epigenetic alterations are changes in the chemical structure of DNA that do not affect the gene sequence. Epigenetic markers influence gene expression, i.e. whether a gene is activated or silenced, and how much they are expressed. Epigenetic mechanisms are evolution's shut-down tools for the genetic material; e.g. they silence the second X chromosome in human females, switch off the unnecessary genes in specialised cells, and shut down "outdated" genes from our evolutionary history that are redundant for us. Epigenetic alterations are heritable but also prone to change based on variety of environmental conditions. Not all epigenetic markers from parents pass onto the later generations.

Epigenetic changes can be additions or deletions of a chemical group to/from the DNA strand or the histone proteins that help pack the DNA in the form of chromosomes. The most studied epigenetic marker in stress research is DNA methylation, i.e. the addition of a methyl ($-\text{CH}_3$) group to (mostly) cytosine bases of DNA. If the cytosine is found next to a guanine, a so-called *CpG site* is formed. When CpG sites are common in one region of the gene, this region is called a *CpG island*. If DNA methylation occurs at a regulatory region of a gene (i.e. promoter), where transcription factors bind to control gene expression, it can prevent the transcription factor from binding and, thus, influence gene transcription and protein production.

Stress presents an important environmental factor that leads to dynamic changes in DNA methylation (Zhang and Meaney 2010). Therefore, DNA methylation has been a focus for PTSD epigenomics research. As for genetic studies, epigenetic studies may be hypothesis-driven and hypothesis-free. As for hypothesis-driven approaches, the same genes that were found to interact with adverse environment to predict PTSD symptomatology were studied in DNA methylation context. Researchers also conducted hypothesis-free *epigenome-wide association studies* (EWAS) to compare the methylation status of thousands of CpG sites in cases versus controls.

As for the hypothesis-driven studies, Koenen et al. (2011) found higher PTSD risk in individuals exposed to higher number of traumatic events, if they had lower serotonin transporter gene (*SLC6A4*) promoter methylation. However, a study assessing the impact of mindfulness intervention in PTSD reported no association between PTSD and *SLC6A4* promoter methylation before or after the intervention (Bishop et al. 2018).

Allele-dependent methylation, i.e. the occurrence of methylation patterns according to particular alleles (Meaburn et al. 2010), was commonly observed in *FKBP5*. In childhood-trauma survivors who carry an *FKBP5* rs1360780 risk allele (T), methylation of a CpG island on an important regulatory region was lower (which leads to increased *FKBP5* gene expression) than in individuals who do not carry the risk allele or who do not have a history of childhood trauma (Klengel et al. 2013). In another study, recovery following psychotherapy predicted decreased methylation in veterans with PTSD when compared to methylation levels before therapy (Yehuda et al. 2013). Moreover, higher *FKBP5* expression due to epigenetic changes related to stress and ageing has been associated with increased inflammatory responses that can also partially explain observed immune system alterations in PTSD (Zannas et al. 2019).

As for hypothesis-free studies, in different cohorts the PTSD EWAS results revealed many differentially methylated CpG sites but did not replicate each other. A recent meta-analysis which used data from civilian and veteran samples revealed less methylation in a CpG site of aryl-hydrocarbon receptor repressor gene (*AHRR*) in PTSD cases (Smith et al. 2020). The gene can contribute to immune system alterations in PTSD. Another recent EWAS replicated the finding in *AHRR* in US veterans, and reported other significant sites in genes that might be involved in pathogen response (Logue et al. 2020). Longitudinal EWAS concerning PTSD development and treatment were performed in military cohorts. Comparing

epigenomic profiles before and after deployment, Rutten et al. (2018) reported PTSD-associated decreases in DNA methylation in three genes *ZFP57*, *RNF39*, and *HIST1H2APS2*. Interestingly, increase in *ZFP57* methylation was later associated with successful treatment of PTSD in another sample (Vinkers et al. 2021). *ZFP57* protein is associated with epigenetic regulation (Li et al. 2008) and susceptibility to stress (Jakobsson et al. 2008).

Altogether, epigenomics results on PTSD aetiology point towards the role of stress axes, inflammation, and neuromodulatory processes. However, most of the reported methylation changes have not yet been replicated and offer limited explanation of individual variability in PTSD severity and prevalence. This could be explained with the heterogeneity of the disease, individual differences in personality and physiology, and the varying degrees of exposure to traumatic events and lifetime trauma history (Morrison et al. 2019). Supporting the idea of the possible effect of heterogeneity of PTSD symptomatology and differences in physiological manifestation of the disease on PTSD (epi-)genetics, researchers recently identified two PTSD epigenetic biotypes with EWAS data from samples of veteran male cohorts, and their 3-year follow-up (Yang et al. 2021). The two epigenetic biotypes show different methylation patterns, oppositely dysregulated in certain signalling pathways, and have distinct PTSD symptom manifestations. Furthermore, most epigenetic analyses are performed on blood samples which contain many different types of immune cells, whose composition might be associated with the disease, and likely have different methylation profiles. Methylation profiles differ across tissues (e.g. blood vs. saliva), and possibly contribute to nonreplicable results.

Future research should attempt to adequately model traumatic load and reduce the symptom heterogeneity in participants through creating symptom clusters or recruiting individuals with similar psychological and physiological manifestations. These measures may help to identify clinical and biological subtypes of PTSD and might contribute to novel classifications or treatments of PTSD.

4.5 Trauma-Related Alteration in Mitochondrial Functioning Leads to Energy Deficiency and Inflammation

Persistent alterations in the regulation of the immune system are arising as a deciding factor of mental health. The immune system consists of two major branches: innate and adaptive immune response. The *innate immune response* presents the body's fast-acting, pathogen-unspecific defence against infectious threats and injury. It is mainly mediated by *leukocytes*, including macrophages/glia cells, monocytes, neutrophils, basophils, and eosinophils. The *adaptive immune response* presents a delayed, but prolonged and threat-specific defence against pathogens. It mainly constitutes *lymphocytes*, including T cells which ought to destroy pathogen-infected cells. Besides, B cells produce and release antibodies to destroy recognised pathogens (Murphy and Weaver 2018).

4.5.1 Immune Cell Composition and PTSD

Regarding the *cellular immune response*, PTSD has been linked to altered numbers of leukocytes and lymphocytes (Lindqvist et al. 2017a) although there is conflicting evidence of the precise nature of these alterations. To address this inconsistency, Sommershof et al. (2009) distinguished between functionally differing T cell sub-populations, and found lowered naïve cytotoxic CD3⁺ and CD8⁺ T lymphocyte counts, elevated memory CD3⁺ and CD8⁺ T lymphocyte counts, as well as lower counts of CD4⁺ regulatory T cells in PTSD patients as compared to trauma-exposed individuals and non-traumatised controls. A reduction in naïve T cells can imply a higher susceptibility to infectious diseases. A shortage of regulatory T cells is critical for immune-regulatory imbalances. Importantly, there is preliminary evidence that the altered proportion of CD4⁺ regulatory T cells could be partially reversible by trauma-focused psychotherapy (Morath et al. 2014a).

4.5.2 Low-Grade Inflammation and Cytokine Levels in PTSD

Immune cells communicate by releasing signalling proteins, e.g. cytokines, which also present major communicators between the immune and nervous systems. There are various types of cytokines which can exert pro-inflammatory effects (i.e. increasing immune activity) as well as anti-inflammatory effects (i.e. decreasing immune activity) (Murphy and Weaver 2018). Research frequently investigated pro-inflammatory cytokines like interleukin (IL-) 1 β , IL-6, the tumour necrosis factors (TNF-) α and β , and interferon (IFN-) α , β , and γ , as well as anti-inflammatory cytokines like IL-4 and IL-10. Elevating levels of IL-6 and TNF- α trigger the liver to produce C-reactive protein (CRP) presenting a biomarker of acute-phase inflammation (Murphy and Weaver 2018).

Higher levels of pro-inflammatory cytokines have also been found in blood of individuals with stress-related mental health problems, indicating a chronic low-grade activity of their immune system. In PTSD, meta-analyses and systematic reviews provided evidence for *elevated blood levels of IL-1 β , IL-6, TNF- α , CRP, IL-4, and IL-10* as compared to healthy controls (Hori and Kim 2019; Speer et al. 2018; Yuan et al. 2019). However, there is inconclusive evidence on elevated IFN- γ levels in blood serum of PTSD patients (Lindqvist et al. 2017b).

To date, it is ambiguous whether inflammation is a (potential) vulnerability marker for PTSD onset after traumatic stress or whether it manifests because of trauma exposure and/or due to PTSD itself. Notably, elevated inflammatory markers are *no* specific biomarker of PTSD. Instead, various mental and physical conditions involve elevated cytokine levels. In fact, research found elevated inflammatory activity in a variety of mental health problems (e.g. depression, bipolar disorder) or after stress exposure (e.g. chronic caregiving stress, early-life stress, intimate partner violence) but could not identify disorder-specific markers of inflammation (Yuan et al. 2019; Tursich et al. 2014). At the same time, chronically elevated, unspecific inflammatory activity applies to almost all ageing-related

non-communicable diseases such as cardiovascular diseases, diabetes, and even cancer (Duan et al. 2019; Franceschi and Campisi 2014; Grivennikov et al. 2010). Likewise, individuals with stress-related mental health problems such as PTSD exhibit an elevated vulnerability for the premature onset of such non-communicable physical health problems (Pacella et al. 2013). Investigating the shared immunological correlates of PTSD will enable advanced understanding of the multiple adverse consequences of PTSD and will open new perspectives on effective treatment approaches.

4.5.3 Cellular Energy Metabolism and Oxidative Stress in PTSD

Chronic inflammatory activity manifested as elevated levels of pro-inflammatory cytokines exerts wide-spread alterations in the metabolism of cells, disturbs their oxidative balance, and can impair the cellular energy production by *mitochondria*. These alterations emerge as key mechanisms underlying the development of a variety of chronic diseases and also apply to several mental health problems such as PTSD and depression (Hitzler et al. 2019; Karabatsiakos and Schönfeldt-Lecuona 2020). Mitochondria, the powerhouses of our cells, are intracellular organelles, which have their own mitochondrial DNA (mtDNA), and are the main producers of biochemical energy in humans. Moreover, immune cells release various molecules to regulate the inflammation reaction and fight pathogens, including reactive oxygen/nitrogen species (ROS/RNS), i.e. highly reactive oxygen and nitrogen molecules (Lugrin et al. 2014). Normally, ROS and RNS are rapidly neutralised by antioxidants or detoxification mechanisms of cells. Upon imbalance between levels of ROS and antioxidants—a state called *oxidative stress*—, ROS/RNS cause considerable damage to essential cell compartments, including mitochondria, DNA, cell membranes, and essential enzymes (Turrens 2003). ROS are physiological by-products of oxidative phosphorylation (OXPHOS), a process to produce biochemical energy in the form of adenosine triphosphate (ATP), which takes place in mitochondria.

Few studies have so far investigated markers of *oxidative stress* in PTSD. There is initial evidence of elevated levels of lipid peroxidation and lowered antioxidant enzymes in blood serum of earthquake-survivors with PTSD as compared to earthquake-exposed healthy controls (Atli et al. 2016). Using a combined metabolomics and lipidomics approach, Karabatsiakos et al. (2015) identified several metabolites in blood serum that allowed to discriminate between PTSD patients and healthy controls, including lowered levels of two metabolites with antioxidant properties, i.e. a bilirubin isomer and pantothenic acid (vitamin B5). Besides, studies also characterised possible consequences of oxidative stress in PTSD: Morath and colleagues (2014b) observed a higher level of DNA double-strand breaks in leukocytes of PTSD patients and traumatised adults as compared to non-traumatised healthy controls. Importantly, successful trauma-focused psychotherapy was able to normalise DNA strand breaks among PTSD patients. Further research is needed to draw firm conclusions regarding the associations of PTSD with oxidative stress.

Mitochondria themselves are of pivotal relevance in initiating, regulating, and resolving immune responses and inflammatory processes (Mills et al. 2017). As for their immunomodulatory role, altered (and possibly impaired) mitochondrial functioning is gaining attention in the explanation of various psychopathologies such as depression (Karabatsiakos and Schönfeldt-Lecuona 2020). Mitochondria are essentially involved in several physiological processes that are disrupted in PTSD; i.e. mitochondria were linked to abnormal fear learning, brain circuit activities, synaptic plasticity, the production of steroid hormones, as well as the regulation of central and peripheral inflammation (Mills et al. 2017; Miller 2013). Chronic and traumatic stress are not only important triggers of PTSD and related mental health problems, but were also linked to altered mitochondrial functioning (Boeck et al. 2016; Gump et al. 2020; Picard and McEwen 2018).

To date, direct studies of *mitochondrial functioning* in PTSD have not yet been conducted in humans. By now, metabolomics studies identified several metabolites involved in pathways related to mitochondrial activity which enabled to discriminate between PTSD patients and healthy controls: Karabatsiakos et al. (2015) identified 13 metabolites including glycerophospholipids, fatty acid metabolites, nucleosides, bile acids and derivatives, monosaccharides, and antioxidants, which displayed significant changes in PTSD. In another metabolomics study, Mellon et al. (2019) found differences between PTSD subjects and controls in pathways related to glycolysis and fatty acid uptake and metabolism as well as in pathways related to urea cycle and amino acid metabolism. These data indicate changes in the metabolic profile of individuals with PTSD with an involvement of mitochondrial alterations.

Furthermore, there is initial evidence that mitochondrial alterations may contribute to PTSD symptomatology and increase susceptibility to PTSD (Preston et al. 2018). One preliminary study showed altered gene expression of mitochondria-related genes, including six genes of the OXPHOS pathway, in the prefrontal cortex of post-mortem brains from six PTSD patients and six controls (Su et al. 2008). Another study identified genes associated with mitochondrial function that were differentially methylated in PTSD compared to trauma-exposed control subjects (Hammamieh et al. 2017). Moreover, lower mtDNA copy number as a marker for the cellular mitochondrial density was found in male combat veterans with PTSD (Bersani et al. 2016). Another study analysed SNPs in the mtDNA and showed significant correlation between PTSD severity and the heteroplasmy levels of two mtDNA SNPs in genes coding for proteins in the respiratory chain (Flaquer et al. 2015).

These findings altogether suggest that mitochondrial alterations play a role in the aetiology of PTSD. Longitudinal studies are needed to determine whether mitochondrial dysregulation precedes or follows PTSD onset and if a causal relationship exists between PTSD and mitochondrial alterations (Bersani et al. 2020). Further research also needs to measure mitochondrial function and mitochondrial oxygen consumption related to ATP production in cells of individuals with and without PTSD.

4.6 Implication of Gut Microbiota in Stress and PTSD

Perturbations in the microbiota-gut-brain axis (MGBA) have been linked to illnesses both physical (e.g. gastrointestinal disorders) and psychological (e.g. depression, anxiety) (Smith et al. 2019). The MGBA is a complex, bidirectional, and interactive network that connects gut and brain. The underlying mechanism of MGBA involves *gut microbiota*, central nervous system (CNS), enteric nervous system (ENS), immune system, hypothalamic-pituitary axis (HPA), etc. (Dinan and Cryan 2012). Gut microbiota refers to the approximately 100 trillion diverse microorganisms inhabiting the human gastrointestinal (GI) tract such as archaea, fungi, eukaryotes, protozoa, bacteriophages, viruses, and predominantly bacteria (beneficial and pathogenic bacteria) (Thursby and Juge 2017). Gut microbiota along with their genes and metabolites are termed as the human *gut microbiome* (Berg et al. 2020). Indeed, vastly present microbial communities in the GI tract play a crucial role in modulating the immune system, the metabolomic responses, stress regulation, and our health homeostasis (Cryan et al. 2019; Danneskiold-Samsøe et al. 2019).

Alterations and imbalance in the composition as well as metabolic capacity of gut microbiota is known as *gut dysbiosis* (Zeng et al. 2017) and it is a major factor linked to MGBA perturbation. Exposure to stress as well as other factors such as antibiotics, dietary changes, changes in pH levels in gut, etc. are attributed to cause gut dysbiosis (Zeng et al. 2017; Fröhlich et al. 2016; Ilhan et al. 2017; Madison and Kiecolt-Glaser 2019). Animal model studies show alterations in the composition of gut microbiota due to exposure to different types of psychological stress like maternal separation, chronic social defeat, restraint conditions, etc. (Rea et al. 2020). On the one hand, increased inflammation associated with stress could trigger “blooms” of pathogenic bacteria which promotes dysbiosis (Madison and Kiecolt-Glaser 2019). On the other hand, gut dysbiosis could affect the regulation of the stress response by intensifying HPA activity, and causing variations in neurotransmitters and inflammation (Johnson 2020). Gut dysbiosis is especially linked to abnormal immune responses and resultant abnormal production of inflammatory cytokines (Lin et al. 2019). Both these are observed in PTSD (Toft et al. 2018).

A better health status is associated with a higher diversity of bacterial composition; however, gut dysbiosis is commonly associated with loss of microbiota diversity (LOMD) (Mosca et al. 2016), and congruently, an increased level of anxiety and depression is associated with LOMD (Johnson 2020). This is further reflected in an exploratory study which found no substantial difference in overall microbial community diversity between trauma-exposed and PTSD participants; but, in participants with PTSD, a decrease in the relative abundance of certain bacterial phyla (i.e. Actinobacteria, Lentisphaerae, and Verrucomicrobia) were found (Hemmings et al. 2017). PTSD is associated with liver cirrhosis in veterans, and a study observed, gut dysbiosis characterised with reduced microbial diversity in cirrhotic veterans with PTSD when compared with non-PTSD veterans (Bajaj et al. 2019). The intestinal mucosal barrier prevents microbes, toxins, food antigens to leave the gut lumen and enter other body systems (Ghosh et al. 2020). However, stress can impact

intestinal mucosal barrier and may trigger a state of “*leaky gut*” characterised with severe dysfunctions of the intestinal mucosal barrier and increased intestinal permeability, this can potentially permit entry of pathogenic bacteria and bacterial toxins into systemic circulation (Kelly et al. 2015). For instance, systemic presence of lipopolysaccharides (LPS; which are a major constituent of the outer membrane of gram-negative bacteria) can elevate inflammation as well as oxidative stress, and a slight increase in systemic LPS itself could trigger depressive symptoms (Selhub et al. 2014).

Stress, alterations in the gut microbial composition (gut dysbiosis), a state of leaky gut (gut permeability), and associated inflammation may potentially contribute to the development and exacerbations of PTSD symptomatology and comorbidities. Therefore, future studies on PTSD should consider the pathophysiological role of MGBA in their respective research framework. Importantly, emerging knowledge on the role of gut microbiota in stress-related disorders can tremendously contribute to innovative treatment and disease prevention approaches (see: Cryan et al. 2019).

4.7 Conclusion and Future Perspectives

The most well-replicated finding is the dose-response effect of traumatic stress load on PTSD risk, which seems to be similarly present in both biological sexes. Traumatic stress load not only affects the aetiology of PTSD or other psychological disorders but also the risk for adverse physical health outcomes often associated with PTSD. Genetic studies indicate that the contribution of single SNPs to overall PTSD risk is small, and research is yet to yield conclusive evidence. G × E interaction studies clearly demonstrate the need to consider lifetime traumatic load in genetic studies on PTSD, because genetic risk factors might lose their importance with exposure to traumatic stress, and anyone could develop PTSD with sufficient trauma load.

PTSD is consistently associated with chronic low-grade inflammation and altered immune regulation, and this may further contribute to the overall health decline. Therefore, we consider the biomolecular process modulating inflammation and its systemic consequences as a promising research focus for PTSD. An important hinge factor related to the regulation of inflammation may be alterations in mitochondrial bioenergetics and related oxidative stress in cells. Indeed, inflammation, oxidative stress, and mitochondrial functioning might be a biological correlate of a general psychopathological dimension, the so-called p factor, or in other words, the common variance between a diverse set of psychological symptoms. Hence, mitochondrial and immune system functioning might represent a common underlying mechanism of the aetiology of a wide range of psychological disorders including PTSD. This potential cross-disorder mechanism might explain why brain and cognitive alterations (e.g. volume reduction in hippocampus and anterior cingulum as well as deficits in executive function and episodic memory) found in PTSD are also found in several other psychological disorders and in people who experienced risk

factors of psychopathology such as childhood maltreatment (CM). New therapeutic interventions that target these common mechanisms between disorders have the beneficial potential not only for patients with PTSD but also for other psychological and neurocognitive disorders.

Stress-induced elevation in inflammation and resultant higher levels of oxidative stress could alter the gut microbiota (gut dysbiosis) and a subsequent state of “leaky gut”. This may induce perturbations in MGBA which is implicated in the development or exacerbation of several diseases such as anxiety, MDD, PTSD, gastrointestinal disorders, cancer, etc. Further, microbiota alterations may increase inflammation and can potentially contribute to a compromised regulation of the immune system and metabolic processes. Endeavours are required to develop an integrative knowledge on the interplay of brain activity, immune regulation, cellular energy homeostasis, mitochondrial metabolism, and gut microbiota as hinge factors to investigate the biological effects of chronic and traumatic stress exposure in diseases like PTSD and its comorbidities. In the long run, this integrative perspective may result in developing innovative evidence-based *psychobiological interventions* that will serve as effective add-ons to existing evidence-based trauma-focused psychotherapies with the aim to ensure sustainable health outcomes for individuals with a history of CM or severe stress and trauma exposure.

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Understanding Pathways from Traumatic Exposure to Physical Health

5

Paula P. Schnurr

Most research on the effects of traumatic exposure has focused on mental health symptoms and functioning, but many studies have shown that exposure to a traumatic event can have negative effects on physical health as well. For example, Felitti et al. (1998) investigated the effects of childhood trauma on adults in a large health-care maintenance organization in the USA. For almost every disease category, individuals who had a higher number of traumatic events in childhood also had a higher likelihood of serious chronic diseases in adulthood, including cardiovascular, metabolic, endocrine, and respiratory systems. Although the investigators did not explicitly examine potential mechanisms for their findings, one explanation was suggested by evidence that childhood trauma was related to increased likelihood of poor health behaviors such as smoking and drinking.

However, behavioral factors alone do not account for the relationship between traumatic exposure and poor health. Instead, the most consistent factor is the development of posttraumatic stress disorder (PTSD). This chapter reviews the evidence on the physical health consequences of traumatic exposure by using a model that conceptualizes PTSD as the primary mediator through which exposure affects physical health (Schnurr and Jankowski 1999; Schnurr and Green 2004; Schnurr et al. 2021).

5.1 Defining and Measuring Physical Health

Understanding the relationship between traumatic exposure and physical health requires understanding of what is meant by “health” itself. The World Health Organization (WHO) defines health as “a state of complete physical, mental, and

P. P. Schnurr (✉)

National Center for PTSD and Geisel School of Medicine at Dartmouth, Hanover, NH, USA
e-mail: Paula.P.Schnurr@dartmouth.edu

social well-being and not merely the absence of disease or infirmity” (www.who.int/governance/eb/who_constitution_en.pdf. Accessed 28 January 2021). This definition, reflecting a contemporary biopsychosocial perspective, actually appears in the preamble to the WHO constitution written in 1946. Recognition of health as a complex state thus has a long history.

Wilson and Cleary (1995) describe health as a continuum of increasing complexity, beginning with biological and physiological variables that represent disease or changes to physical systems. Next are symptoms, followed by functional status, health perceptions, and health-related quality of life. These elements influence each other but are not perfectly correlated and can be influenced by personal and environmental factors, e.g., two individuals with the same degree of pain may function very differently due to differences in temperament, social support, and physical exercise.

Both objective and subjective measures are needed in order to fully capture the continuum of physical health. These include not only laboratory tests, clinical exams, and archival records, but also self-reports. One concern about the use of self-reported measures of physical health is the influence of psychological factors such as negative affectivity (Griffin et al. 1999) on how physical health is reported. In fact, comparisons between archival sources and self-reports usually find that self-reports are valid but not perfect substitutes for objective measures of variables such as utilization and diagnosis (Edwards et al. 1994; Smith et al. 2008; Wallihan et al. 1999). However, archival records are not necessarily perfect indicators either because they may be incomplete or inaccurate. Furthermore, although self-reports do not always agree with more objective indicators, an individual’s perspective is needed to obtain information about all parts of the health continuum except for biological and physical variables.

5.2 A Conceptual Framework for Understanding How Traumatic Exposure Affects Physical Health

Traumatic exposure is linked to adverse outcomes across the continuum of health outcomes: self-reported health problems and functioning (e.g., Glaesmer et al. 2011; Paras et al. 2009; Scott et al. 2011), objective indicators of morbidity (e.g., Gilsanz et al. 2017; Hendrickson et al. 2013; Sibai et al. 1989; Spitzer et al. 2011), service utilization (Dube et al. 2009; Walker et al. 1999), and mortality (e.g., Chen et al. 2016; Elliot et al. 2018; Sibai et al. 2001).

In order to understand how exposure to a traumatic event could adversely affect physical health, it is necessary to consider what happens following the exposure. Direct effects of trauma are not the answer in most cases. It appears that relatively few trauma survivors are injured or made ill as a result of their exposure; even in a sample of combat veterans who were seeking care for a variety of problems, only 21% had sustained physical injuries in combat (Moeller-Bertram et al. 2014). Also, the types of health problems that emerge—e.g., cardiovascular morbidity and mortality in civilians exposed to war (Sibai et al. 1989, 2001)—typically are not linked to the type of trauma experienced.

So if the traumatic event typically does not lead to direct physical harm, how does the exposure affect physical health? Schnurr and Green (2004) proposed that the answer is severe and persistent distress resulting from traumatic exposure—primarily PTSD but also other mental disorders (Fig. 5.1). The distress is necessary to engage psychological, biological, behavioral, and attentional mechanisms that can lead to poor health. This chapter focuses on PTSD because very few studies have examined the effects of disorders other than PTSD on physical health in trauma survivors. The focus also is on health problems that are not a direct result of a traumatic event.

Psychological mechanisms include comorbid problems often associated with PTSD that have been linked to poor health. Depression, for example, is associated with increased risk of cardiovascular disease and factors such as greater platelet activation, decreased heart rate variability, and greater likelihood of hypertension that could explain the association (Dhar and Barton 2016). Biological alterations that are associated with PTSD offer additional mechanisms, e.g., increased activation of the locus coeruleus/norepinephrine-sympathetic system and dysregulation of the hypothalamic-pituitary-adrenal system (see Friedman and McEwen 2004). Behavioral mechanisms are health risk behaviors associated with PTSD, such as smoking, substance abuse, poor self-care, and lack of adherence to medical regimens (Taggart Wasson et al. 2018; van den Berk-Clark et al. 2018; Zen et al. 2012). Attentional mechanisms could affect both health perceptions and illness behavior; for example, Pennebaker (2000) suggested that avoidance of thinking about a

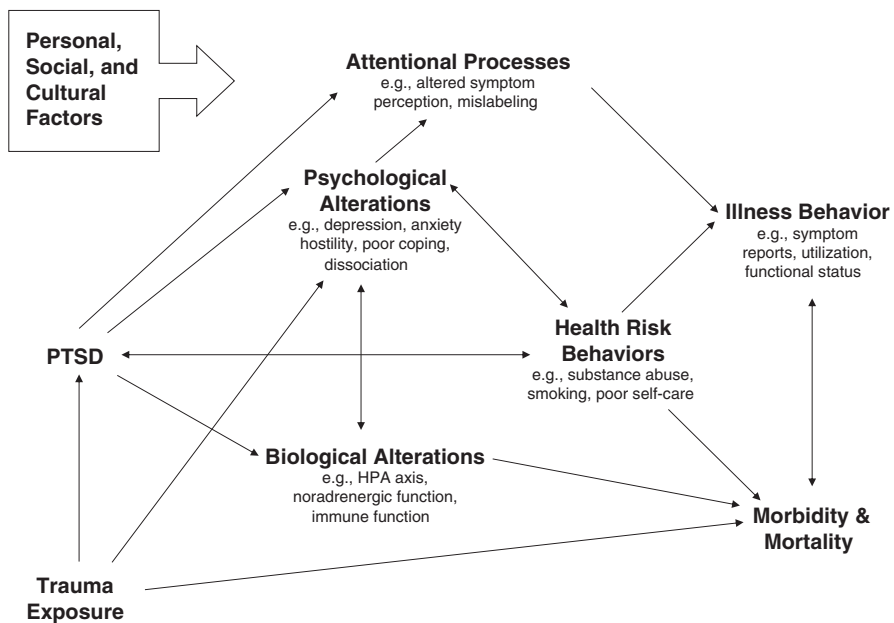


Fig. 5.1 A model relating traumatic exposure and PTSD to physical health outcomes. From Schnurr and Green (2004, p. 248). In the public domain

trauma and then mislabeling the physical and emotional consequences of the avoidance could heighten perceived symptoms. A distinctive aspect of the model is that factors such as smoking and depression, which are often treated as confounding variables to be controlled, are mechanisms through which PTSD can adversely affect health (Schnurr and Green 2004).

Schnurr and Green's (2004) model uses the concept of allostatic load to explain how these mechanisms could lead to disease. Allostatic load is defined as "the strain on the body produced by repeated up and downs of physiologic response, as well as the elevated activity of physiologic systems under challenge, and the changes in metabolism and wear and tear on a number of organs and tissues" (McEwen and Stellar 1993, p. 2094). Because load is defined by cumulative changes, over time and across biological systems, it explains how changes in PTSD that are too subtle to produce disease by themselves could lead to disease (Friedman and McEwen 2004; Schnurr and Green 2004; Schnurr and Jankowski 1999). Schnurr and Jankowski (1999) gave the example of hyperarousal and hyperreactivity in PTSD in combination with the physical effects of substance abuse and smoking and suggested that allostatic load might be greater in PTSD relative to other mental disorders. This hypothesis remains to be tested, but one study found that allostatic load was higher in individuals with PTSD than in traumatized controls (Glover et al. 2006).

5.3 Review of the Literature

There is abundant evidence linking PTSD with poor physical health across a range of outcomes (Koenen and Galea 2015; Pacella et al. 2013; Ryder et al. 2018; Schnurr et al. 2021). In terms of self-reports, PTSD is associated with poor general health, more physical symptoms and chronic health conditions, and lower physical functioning (e.g., Lee et al. 2016; Löwe et al. 2010; O'Toole and Catts 2008; Pacella et al. 2013; Roberts et al. 2017). For example, a meta-analysis of 62 studies (Pacella et al. 2013), most of which were based on self-reports, found a large effect of PTSD ($r = 0.48$) for general physical symptoms. Most of the findings are from cross-sectional studies, but increasing evidence comes from longitudinal studies that have found initial PTSD to predict poorer self-reported health at subsequent follow-up for outcomes as varied as diabetes (Boyko et al. 2010), rheumatoid arthritis (Lee et al. 2016), and lupus (Roberts et al. 2017).

PTSD also is associated with poor health measured by objective indicators such as physician-diagnosed disease (e.g., Agyemang et al. 2012; Andersen et al. 2010; Nazarian et al. 2012; Seng et al. 2006). The range of outcomes is striking. One cross-sectional study of a large sample of women who were receiving public health-care in the USA found that women who had PTSD were more likely than women with another mental disorder to have syndromes such as chronic fatigue, irritable bowel, and fibromyalgia as well as disorders with more defined etiology, such as cancer and circulatory, endocrine, and respiratory disease (Seng et al. 2006). A longitudinal study found that PTSD symptoms were associated with greater incidence

of physician-diagnosed arterial, musculoskeletal, gastrointestinal, and dermatological disorders in a sample of older male veterans (Schnurr et al. 2000), even after statistical adjustment for age, smoking, body mass index, and alcohol use. Some longitudinal studies have focused on single types of disorders, including cancer (Gradus et al. 2015a, b) and gastrointestinal (Gradus et al. 2017), autoimmune (O'Donovan et al. 2015; Song et al. 2018), and cerebrovascular (Chen et al. 2015) disorders.

Cardiovascular outcomes have been a particular focus in this literature. Prospective studies have shown that PTSD is associated with increased risk of coronary heart disease, e.g., in male veterans (Beristianos et al. 2016; Kubzansky et al. 2007; Vaccarino et al. 2013), and civilian women (Gilsanz et al. 2017; Kubzansky et al. 2009). According to one meta-analysis (Edmondson et al. 2013), PTSD was associated with a 55% increased risk of coronary heart disease; risk was decreased after adjustment for depression but remained elevated by 27%. Pain is another area of focus, spanning both self-reported and physician-diagnosed measures. PTSD often co-occurs with chronic pain (Siqveland et al. 2017). Individuals with PTSD report higher levels of chronic pain that is not related to traumatic injury (e.g., Lee et al. 2016; Mikuls et al. 2013; Moeller-Bertram et al. 2014) and have an increased likelihood of pain syndromes such as chronic pelvic pain and fibromyalgia (e.g., Häuser et al. 2013; Seng et al. 2006) (cross-reference to Chap. 19; Morina & Egloff).

Given the range of adverse physical health outcomes associated with PTSD, it is not surprising that PTSD is associated with greater use of medical care services (e.g., Gill et al. 2009; Glaesmer et al. 2011; O'Toole and Catts 2008; Schlenger et al. 2016). Few studies have examined cost implications but one study found that PTSD was associated with higher healthcare costs (e.g., Walker et al. 2004).

Most studies on PTSD and mortality have found that PTSD is associated with increased mortality (e.g., Boscarino 2006; Bullman and Kang 1994; Drescher et al. 2003; Schlenger et al. 2016; Forehand et al. 2019; Gradus et al. 2015a, b). However, there are exceptions (Abrams et al. 2011; O'Toole et al. 2010). For example, in one study PTSD was associated with all-cause mortality, but not after statistical adjustment for demographic, behavioral, and clinical factors (Chwastiak et al. 2010). Some studies have found that PTSD is associated with mortality due only to external causes or diseases related to substance abuse (e.g., Bullman and Kang 1994; Drescher et al. 2003; Forehand et al. 2019), or have reported only all-cause mortality and mortality due to external causes (Gradus et al. 2015a, b). Note that all of the studies on PTSD and mortality except one (Gradus et al. 2015a, b) have been conducted in veterans.

5.3.1 Explicit Tests of PTSD as a Mediator of the Relationship Between Traumatic Exposure and Physical Health

Evidence that PTSD mediates the effects of traumatic exposure on physical health comes from several types of analyses: (a) multiple regression analyses in which a statistically significant association between exposure and physical health is reduced

or eliminated when PTSD is added to the model; (b) structural equation modeling, a more formal version of (a); and (c) comparisons involving individuals with PTSD, traumatized controls, and nontraumatized controls. Most of these studies have examined self-reported health outcomes (e.g., Campbell et al. 2008; Löwe et al. 2010; Norman et al. 2006; Subica et al. 2012; Tansill et al. 2012; Wachen et al. 2013), with few exceptions (e.g., Glaesmer et al. 2011; Schnurr et al. 2000).

However, the effects also may differ across populations and outcomes. A study of Vietnam Veterans found that PTSD mediated 58% of the effect of warzone exposure on self-reported health in men but only 35% of the effect in women (Taft et al. 1999). A study of PTSD and self-reported health in primary care patients also found the effects of mediation to be larger in men (Norman et al. 2006). Although trauma exposure was related to digestive disease and cancer in women, PTSD did not mediate these relationships. Exposure was related to arthritis and diabetes in men, but PTSD mediated only the association between trauma and arthritis. In another study showing differential mediation across outcomes, combat exposure predicted increased incidence of physician-diagnosed arterial, pulmonary, and upper gastrointestinal disorders, and other heart disorders over a 30-year interval in older veterans, yet PTSD mediated only the effect of exposure on arterial disorders (Schnurr et al. 2000).

5.3.2 Evidence on Potential Mechanisms Through Which PTSD Affects Physical Health

To date, no study has simultaneously examined the psychological, biological, behavioral, and attentional factors. Schnurr and Green (2004) hypothesized to mediate the relationship between PTSD and health. Instead, studies have focused on specific domains or individual factors.

Of all the potential psychological mediators, depression is arguably the most important because it has well-documented associations with a range of physical health problems (Dhar and Barton 2016). The data on depression are generally consistent with its hypothesized role as a mediator of the relationship between PTSD and health (e.g., Morasco et al. 2013; Poundja et al. 2006; Scherrer et al. 2019). For example, in a recent study (Scherrer et al. 2019), controlling for depression significantly reduced the risk of cardiovascular disease from a hazard ratio of 1.41 to 1.20, which is consistent with the idea that depression mediates the relationship. Depression also may mediate the relationship between PTSD and other mediators. Zen et al. (2012) found that depression mediated the relationship between PTSD and both physical inactivity and medication nonadherence.

The data on health behaviors are mixed. Some studies have found that health behaviors are partial mediators of the relationship between PTSD and health (e.g., Crawford et al. 2009; Flood et al. 2009). Other studies have failed to find that health behaviors mediate the relationship (e.g., Del Gaizo et al. 2011; Schnurr and Spiro 1999). Although it makes sense that health behaviors would at least partially mediate the relationship between PTSD and physical health, these behaviors do not

appear to account for a substantial amount of the effect. Furthermore, many studies have controlled for these factors and still find that PTSD is related to poor health (e.g., Beristianos et al. 2016; Gradus et al. 2017; Lee et al. 2016; Roberts et al. 2017; Schnurr et al. 2000).

In terms of biological mediators, one of the most recent mechanisms to be explored is advanced cellular aging (Wolf et al. 2018). The most substantial evidence comes from studies of risk factors for cardiovascular disease. Individuals with PTSD are more likely than individuals with depression or with no mental disorder to have hypertension (e.g., Kibler et al. 2008). One study found that PTSD symptoms were associated with increased risk of developing obesity in a group of normal-weight nurses who were followed over a 16-year interval (Kubzansky et al. 2014). Another study found that male and female veterans with PTSD were at increased risk of obesity, as well as smoking, hypertension, diabetes, and dyslipidemia (Cohen et al. 2009). Meta-analytic findings show that PTSD also is associated with low-grade inflammation, an additional risk factor for cardiovascular disease (Passos et al. 2015).

Friedman and McEwen (2004) suggested that PTSD would be associated with risk of metabolic syndrome, a constellation of risk factors including obesity, hyperlipidemia, hyperglycemia, and hypertension that is associated with increased risk of cardiovascular morbidity and mortality (Mottillo et al. 2010). A meta-analysis found that PTSD was associated with a 1.82 relative risk of metabolic syndrome (Rosenbaum et al. 2015), and a longitudinal study found that PTSD predicted increased metabolic syndrome severity over time (Wolf et al. 2016). The association between PTSD and metabolic syndrome is independent of other risk factors such as demographic characteristics, health risk behaviors, and depression (Heppner et al. 2009; Jin et al. 2009; Weiss et al. 2011).

Metabolic syndrome illustrates one of the key features of allostatic load, which is the combined effect of multiple risk factors. The studies linking PTSD with metabolic syndrome therefore provide support for the possibility that higher allostatic load is a key mechanism through which PTSD affects physical health. This hypothesis has not been tested, although two studies have found that allostatic load is higher among individuals with PTSD (Glover et al. 2006; Thayer et al. 2016).

5.3.3 Evidence on Whether Treating PTSD Improves Physical Health

Despite the evidence suggesting that PTSD leads to poor health, there is only limited information on the question of whether treating PTSD improves health. The best evidence comes from studies that have used measures of self-reported physical symptoms and physical functioning, but the evidence is not consistent. Studies have found that symptoms and functioning improved following cognitive-behavioral therapy for PTSD (e.g., Dunne et al. 2012; Galovski et al. 2009; Rauch et al. 2009; Shipherd et al. 2014; Sofko et al. 2016; Song et al. 2020). For example, Dunne et al. (2012) found that cognitive-behavioral therapy for PTSD in patients with chronic

whiplash disorders led to reductions in neck disability and improvements in physical functioning. One of these studies found that poorer physical functioning predicted lesser improvement in PTSD (Song et al. 2020).

The effects of PTSD treatment on physician-diagnosed disorder or other objective indicators of morbidity have not been studied. Whether treating PTSD can improve a disorder such as coronary artery disease or diabetes thus is unknown and even uncertain given the mixed evidence from trials on the treatment of depression (e.g., Bogner et al. 2007; Writing Committee for the ENRICH Investigators 2003). Even though PTSD may have increased the likelihood of an individual developing a given disorder, the biological mechanisms through which this has occurred may become independent of PTSD and nonreversible through the reduction of PTSD symptoms alone. Consider the case of metabolic syndrome. It is plausible that reduced hyperarousal following successful treatment could lead to reductions in hypertension. However, the majority of people with hypertension do not suffer from PTSD or any mental disorder (e.g., Hamer et al. 2010), so simply reducing the hyperarousal may not be sufficient in order to treat the hypertension. Furthermore, it is less plausible that obesity, hyperlipidemia, and hyperglycemia would improve without behavioral changes such as better diet and exercise and compliance with medical regimens to control these factors.

5.4 Implications for Clinical Practice

The effects of PTSD on physical health have implications for clinical practice. Patients with PTSD may be dealing with physical health burden in addition to PTSD: medical disorders, reduced physical functioning, and simply not feeling well. A holistic, patient-centered approach to care requires that mental health providers may need to address physical health problems, particularly if these problems interfere with treatment adherence or treatment response. Over 20 years ago, Kilpatrick et al. (1997) emphasized the importance of psychoeducation to help patients understand how their trauma-related symptoms may be related to their physical problems and how addressing both physical and mental health problems could enhance recovery. This message is as relevant as ever.

Many providers are familiar with addressing substance use disorders when treating trauma survivors. Providers may need to address additional health risk behaviors as well and make necessary referrals. Some providers may be reluctant to address smoking in particular out of a concern that patients who use smoking to help manage PTSD symptoms may find it difficult to stay engaged in intensive trauma-focused work if this coping strategy is taken away. However, McFall et al. (2010), who found that integrating smoking cessation treatment into outpatient PTSD care was effective for reducing smoking, also found that PTSD symptoms did not increase as a result of smoking cessation. Foa et al. (2017) reported that integrating PE with smoking cessation interventions enhanced the effects of these interventions. Integrating medical care into a mental healthcare setting also may be helpful, particularly for patients who have significant psychiatric problems (Druss et al. 2001).

Because PTSD is associated with increased utilization of medical services (e.g., Gill et al. 2009; Glaesmer et al. 2011; Schlenger et al. 2016), providers in medical care settings may need to increase efforts to address PTSD. Many patients with PTSD seek care only in medical settings, typically primary care (Spottswood et al. 2019). Providers in these settings may need to more routinely screen for PTSD and engage in strategies to help patients receive care for their PTSD symptoms. There are a variety of strategies for integrating medical and mental healthcare that have been shown to work in mental health disorders other than PTSD (Bower et al. 2006; Roy-Byrne et al. 2010), but evidence for their effectiveness in PTSD is mixed. Two randomized controlled trials found improved outcomes (Engel et al. 2016; Fortney et al. 2015) and two found no improvement over usual care (Meredith et al. 2016; Schnurr et al. 2013).

5.5 Implications for Research

Schnurr and Green (2004) proposed a research agenda that included both methodological and content issues to be addressed. In terms of methodological issues, they called for studies based on large representative samples and on populations outside the USA. Although there have been more non-US studies (e.g., Chen et al. 2015; Gradus et al. 2017; Song et al. 2018), most of the literature is still based on US samples. Schnurr and Green also called for studies with measures of PTSD and other posttraumatic reactions and not only measures of traumatic exposure. Studies investigating PTSD, and not only traumatic exposure, have increased substantially, but there is still a need for greater understanding the physical health effects of posttraumatic reactions other than PTSD, such as depression. There has been more progress on Schnurr and Green's call for studies that are based on biological measures of morbidity. Studies using biological measures have increased as well, as have studies of mechanisms that could explain how PTSD could lead to poor health (e.g., Passos et al. 2015; Rosenbaum et al. 2015; Wolf et al. 2018). Research on allostatic load remains limited, however (Glover et al. 2006; Thayer et al. 2016). Schnurr and Green's suggestion that measures of physical health be added to studies of the biological correlates of PTSD has not gained traction.

In terms of content issues, Schnurr and Green (2004) called for studies that provide more definitive information about which health problems are, and are not, associated with PTSD and other posttraumatic reactions. They also called for studies on the effects of PTSD treatment on physical health, including system-level interventions designed to integrate mental and physical healthcare. Although there have been studies showing that effective treatment leads to decreased symptom reporting and improved physical functioning, studies of the effect of treatment on objective indicators of morbidity are needed. It would be useful to examine conditions that could respond to behavioral and psychological change, such as diabetes. There have been studies of system-level interventions, such as the delivery of integrated mental and physical healthcare, but results of these studies had been mixed.

It also would be useful to evaluate integrated efforts to reduce health risk behaviors in PTSD patients, such as the smoking cessation studies by Foa et al. (2017) and McFall et al. (2010).

There are important analytical issues to consider too. When studying events that are likely to cause injury or illness (such as accidents, combat, or torture), analyses need to delineate the direct effects of trauma from the indirect effects caused by PTSD or other reactions. Another analytic issue is how psychological and behavioral correlates of PTSD such as depression and smoking are handled. Statistically adjusting for these factors is appropriate if the goal is to determine whether PTSD has independent effects on health. If the goal is to examine these factors as mechanisms, methods such as hierarchical regression, path analysis, and structural equation modeling are more appropriate.

5.6 Implications for Society

The increased risk of poor health associated with exposure to traumatic events has important implications for society. One is that some disease may be prevented by either reducing the risk of exposure or by reducing the risk of PTSD and other significant posttraumatic disorders. The health benefits of reducing the risk of preventable exposures such as accidents and physical and sexual assault are obvious (and for reasons in addition to those specific to trauma). However, there could be important population health benefits of preventing posttraumatic symptomatology by interrupting the cascade of biological, psychological, behavioral, and attentional changes that may emerge when a traumatized individual fails to recover. There also could be important monetary benefits of prevention given that PTSD is associated with increased financial costs (Marshall et al. 2000; Marciniak et al. 2005; Walker et al. 2004).

Increased awareness of traumatic exposure and its consequences is key from a public health perspective. The greater likelihood of health risk behaviors associated with traumatic exposure, and especially with PTSD, suggests that recognition and management of posttraumatic reactions could enhance public health campaigns for problems such as smoking, obesity, and the importance of engaging in preventive healthcare to improve population health. Increased awareness of the effects of traumatic exposure and PTSD on physical health is needed at a global health level as well, particularly in countries with recent or ongoing conflict or disasters and in third world countries with limited healthcare and mental healthcare infrastructure.

The relationship between traumatic exposure and poor physical health also has implications for legal and compensation systems. Should individuals with PTSD receive compensation for physical health problems? It makes sense that an individual who developed PTSD and sustained permanent knee damage as a result of a life-threatening accident at work would receive compensation for both conditions. But should the same individual receive additional compensation after developing coronary artery disease or diabetes? The scientific evidence at this point is not conclusive enough to support the burden of proof necessary to determine causality.

Furthermore, there are no established scientific methods for determining whether such disease in a given individual is due to posttraumatic symptoms or other factors. This is an extremely complicated question to answer because physical disorders are typically influenced by multiple factors, including genetics and epigenetics, demographic characteristics, pretraumatic health, and posttraumatic factors unrelated to the trauma.

5.7 Conclusions

There is substantial evidence showing that individuals who are exposed to a traumatic event have increased risk of poor health. The chapter is based on a model in which PTSD and other significant distress reactions are the mechanism(s) through which exposure affects health (Schnurr and Green 2004). Biological, psychological, behavioral, and attentional changes associated with PTSD are the proposed mechanisms through which PTSD could affect physical health, with the concept of allostatic load (McEwen and Stellar 1993) as an explanation for how even subtle changes could combine to adversely affect health. The literature showing that PTSD is associated with poor health is highly consistent across self-reported and objective indicators, although there is relatively less evidence on objective indicators of morbidity other than cardiovascular disease and on mortality. Nevertheless, recognizing the physical health effects of traumatic exposure has important implications for research, practice, and society as a whole.

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Part II

Stress and Trauma Related Disorders



The Diagnostic Spectrum of Trauma-Related Disorders

6

Richard A. Bryant

6.1 Introduction

Classifying traumatic stress disorders has often been difficult because of the need to discriminate between normal and abnormal states of stress after a potentially traumatic situation. This chapter reviews the current status of diagnostic systems for describing the range of posttraumatic stress conditions. Over the past decade the two major psychiatric diagnostic systems have revised their definitions of traumatic stress disorders, and these have yielded quite distinct understandings of the relevant disorders. In this context, this chapter reviews the current definitions of posttraumatic stress disorder (PTSD), complex PTSD, acute stress disorder (ASD), acute stress reaction (ASR), and prolonged grief disorder. Further, the chapter outlines some recent methods for understanding traumatic stress phenotypes that go beyond the assumptions of diagnostic systems.

6.2 History of DSM

The American Psychiatric Association's diagnostic recognition of stress-related conditions can be traced back to the origins of the *Diagnostic and Statistical Manual for Mental Disorders* (DSM). In the initial iteration, DSM-I (American Psychiatric Association 1952) identified "gross stress reactions", which was a loosely defined classification aimed to describe those affected by traumatic exposure. Arguably influenced by military conceptualizations that stress reactions were typically

R. A. Bryant (✉)

School of Psychology, University of New South Wales, Sydney, NSW, Australia

e-mail: r.bryant@unsw.edu.au

transient, this conceptualization was based on the premise that these reactions were temporary. In DSM-II (American Psychiatric Association 1968) this diagnosis was removed and replaced by “situational reaction”, which described reactions to the full range of severe and mild aversive experiences. The first significant recognition of posttraumatic stress reactions came in 1980 with the publication of DSM-III (American Psychiatric Association 1980). Strongly influenced by the need to formally recognize the mental health needs of Vietnam veterans, this diagnosis encompassed 17 symptoms that fell into three clusters: re-experiencing, avoidance, and hyperarousal. This formulation remained for many years and set the framework by which PTSD has been understood since 1980. In DSM-IV (American Psychiatric Association 1994), it underwent minor revisions but essentially kept to the same formula as set by DSM-III. DSM-IV defined PTSD as having been exposed to or witnessing a severely threatening experience, and responding with fear, horror, or helplessness. This was the gatekeeper to the diagnosis because only if these experiences were present could one then consider the re-experiencing, avoidance, and arousal symptoms.

6.3 History of ICD

The World Health Organization has traditionally recognized stress-related conditions in its International Classification of Diseases (ICD). ICD-8 described “transient situational disturbance” that was a broad category that comprised adjustment problems, severe stress reactions, and combat neurosis (World Health Organization 1965). In the next revision (ICD-9), acute stress reaction (ASR) and adjustment reaction (AR) were introduced, and another two were noted in ICD-10 (World Health Organization 1994): posttraumatic stress disorder (PTSD) and enduring personality change after catastrophic experiences (EPCACE). The latter two disorders marked important changes from prior diagnoses, which had been conceptualized as transient reactions which normally subside after a period of time had elapsed since the trauma. It is worth noting that the ICD approach has often been influenced by military psychiatry and so an emphasis was placed on the temporary nature of stress reactions. It is also worth noting an important difference between ICD and DSM in terms of their missions. Whereas DSM is understandably focused on US health care agendas, ICD is more globally focused and aims to address the mental health needs of people across the rest of the world. This focus has resulted in ICD diagnoses being more attuned to the needs of low-resource settings and those affected by conflict, disaster, and war. Accordingly, an explicit goal of ICD has been to place the emphasis on practical applications, which includes having diagnoses that are (a) consistent with clinicians’ usual classifications, (b) simple diagnoses with minimal symptoms, and (c) useful to allow distinctive decisions about treatment between conditions (Reed 2010).

6.4 Classification in DSM-5

There were a number of core changes in DSM-5. One of the fundamental shifts was the location of trauma-related disorders in DSM. Traditionally, PTSD and ASD were classified with anxiety disorders because of the common phenomenology and presumed mechanisms. Leading up to DSM-5 there was considerable debate about creation of a fear circuitry section that would comprise PTSD, ASD, panic disorder, agoraphobia, social phobia, and specific phobia (Andrews et al. 2009). This proposal rests on the notion that there is a common aetiology and neural circuitry underpinning these disorders. Building on fear conditioning models, it was proposed that these disorders commence when stimuli are paired with an inherently aversive event; subsequent exposure to the conditioned stimuli signals threat and results in anxiety (Milad et al. 2006). Although PTSD is the classic example of a disorder commencing after a conditioned aversive experience, there is also evidence that aversive experiences can precede onset of panic disorder (Faravelli 1985; Manfro et al. 1996) and social phobia (McCabe et al. 2003). In terms of neural circuitry, fear circuitry disorders tend to be characterized by excessive amygdala reactivity, and to a lesser extent impaired regulation of that response by the medial prefrontal cortex (Rauch and Drevets 2009; Shin and Liberzon 2010), whereas different neural networks appear to be involved in non-fear circuitry anxiety disorders (Cannistraro et al. 2004; Rauch et al. 2007). This is supported by evidence that following trauma, fear circuitry disorders are characterized by elevated heart rate but non-fear circuitry disorders are not (Bryant et al. 2011a). Despite this overlap between PTSD and other fear circuitry disorders, other arguments were put forward to challenge the view that trauma-related disorders should be understood as anxiety disorders. First, the evidence that aversive experiences precipitate most fear circuitry disorders is mixed (Rapee et al. 2009, 1990). Second, many symptoms of PTSD can be found in other disorders; e.g. numbing, withdrawal, and disinterest are common in depression (Blanchard and Penk 1998). Third, fear conditioning models cannot readily explain the guilt, anger, and shame that often characterizes PTSD, and so it is argued that this weakens the argument that PTSD is exclusively a fear circuitry disorder (Horowitz 2007). On this basis, the decision was made to include PTSD, ASD, adjustment disorder, and dissociative disorders into a category of *Trauma and Stressor-Related Disorders*. The decision to not conceptualize PTSD as an anxiety disorder has been controversial, especially considering that the treatments for PTSD overlap very strongly with those for other fear circuitry disorders.

6.5 PTSD

6.5.1 DSM-5

A number of reasonably significant changes were introduced in the DSM-5 definition of PTSD (see Table 6.1). The major change to the entry point to the diagnosis was that the subjective aspect of the stressor (A2: “fear, horror, or helplessness”)

Table 6.1 Posttraumatic stress disorder definitions in DSM-5 and for ICD-11

DSM-5	ICD-11
A. Exposed to death/threatened death Witnessed death/threat	A. Exposure to threat
Learning events occurs to close other	B. Re-experiencing (at least 1 of) Intrusive memories
B. Re-experiencing (at least 1 of) Intrusive memories Nightmares Flashbacks Distress to reminders Physiological reactivity	Flashbacks Nightmares C. Avoidance (at least 1 of) Thoughts Situations
C. Avoidance (at least 1 of) Avoid thoughts/feelings Avoid situations	D. Perceived threat (at least 1 of) Hypervigilance Startle response
D. Negative alterations in cognition/mood (at least 3 of) Dissociative amnesia Negative expectations of self/world Distorted blame Negative emotional state Diminished interest Detachment Emotional numbing	E. Duration (at least several weeks) F. Impairment
E. Hyperarousal (at least 2 of) Reckless/self-destructive behavior Hypervigilance Startle response Concentration deficits Sleep problems	
F. Minimum 1 month after trauma	
G. Impairment	
<i>Specifier:</i> With dissociative symptoms	
<i>Specifier:</i> With delayed expression of >6 months after trauma exposure	

was removed. This had been initially introduced, in part, to ensure that minor reactions to events would not qualify for a PTSD diagnosis (Friedman et al. 2011). Studies indicate that this qualification to the stressor definition is poorly predictive of PTSD (Brewin et al. 2000), and that some people who would otherwise meet criteria for PTSD were excluded from the diagnosis (O'Donnell et al. 2010; Rizvi et al. 2008).

DSM-5 has few changes to the re-experiencing cluster. In contrast, the avoidance conceptualization has been markedly altered. Whereas DSM-IV presumed PTSD comprised three factors, multiple factor analytic studies have indicated that the

construct is better explained by four factors: re-experiencing, active avoidance, passive avoidance (including numbing), and arousal (Asmundson et al. 2000; King et al. 1998; Marshall 2004). Accordingly, DSM-5 now has a separate cluster that requires the person to satisfy at least one of two active avoidance symptoms (of either internal or external reminders). The major change has been the addition of a new cluster, termed *Negative Alterations in Cognitions and Mood*. This cluster recognizes that numbing is distinct from active avoidance, but also notes the importance of exaggerated negative appraisals about the trauma and the range of emotional responses that can be experienced in PTSD. This has led to the addition of new symptoms. On the basis that many people with PTSD blame themselves and feel guilty (Feiring and Cleland 2007), self-blame has been added to this new cluster. Given the abundant evidence that people with PTSD have negative evaluations about themselves and the world (e.g. “I am a bad person”) and that they will not enjoy positive future experiences (“Nothing will ever work for me”) (Ehring et al. 2008), the DSM-IV symptom of foreshortened future has been replaced by a symptom that involves exaggerated negative appraisals about oneself and the world. Evidence that PTSD can also exist in association with diverse negative mood states, including anger, shame, and guilt (Leskela et al. 2002; Orth and Wieland 2006) led to the inclusion of a symptom of pervasive negative mood states. The arousal cluster has remained largely the same in DSM-5 as it was in DSM-IV, with a few exceptions. Based on evidence that reckless or self-destructive behaviour has been observed in a range of PTSD populations (Fear et al. 2008), this has been added as an additional symptom to the arousal cluster. The only further modification to this cluster was altering irritable mood to aggressive behaviour because this is seen as more indicative of PTSD (Jakupcak et al. 2007).

What is the impact of the altered PTSD definition in DSM-5? In the years since DSM-5 was released there have been a series of studies investigating the extent to which DSM-5 yields different rates of PTSD compared to DSM-IV. One study of traumatic injury survivors found comparable rates of PTSD across both DSM-5 (6.7%) and DSM-IV (5.9%) definitions (O'Donnell et al. 2014). Similar findings have been noted in other studies that report comparable rates between DSM-IV and DSM-5, with reasonably good concordance between definitions (Schaal et al. 2015). Notably, some other studies have reported that DSM-5 detects fewer cases of PTSD than DSM-IV, and that approximately one-quarter of people classified as PTSD under DSM-IV criteria were not classified under DSM-5 (Schnyder et al. 2015). One study based on the World Mental Health Survey of 23,936 respondents found DSM-IV had a prevalence rate of 3.3% compared to the rate of 3.0% using DSM-5 (Stein et al. 2014). There is reason for concern regarding the comparability of the two systems, however, because one study of military personnel found that whereas the rates of PTSD were comparable across the two definitions, 30% of personnel diagnosed with PTSD under DSM-IV criteria were not identified as having PTSD using DSM-5 (Hoge and Warner 2014). Studies of children have found that DSM-IV and DSM-5 criteria yield comparable rates of PTSD, and the concordance between the two definitions was good (although not perfect) (Danzi and La Greca 2016).

It is worth noting that DSM-5 met with criticism from some quarters when it was introduced because it represented a marked departure from its traditional focus on being a fear-based disorder. Specifically, some critics objected to the broadening of the definition to include a range of emotional reactions, and challenged the extent to which the existing evidence regarding treatments of PTSD could be generalized to this redefined PTSD (Hoge et al. 2016). In this context it is interesting that an outcome of the DSM-5 modifications is that it has greatly expanded the possible number of permutations by which PTSD can now be diagnosed; whereas in DSM-IV there were 79,794 possible combinations, the added cluster and the new symptoms in DSM-5 have resulted in 636,120 possible clinical presentations of PTSD (Galatzer-Levy and Bryant 2013).

6.5.2 ICD-11

As noted above, ICD-11 (World Health Organization 2018) proposes a considerably simpler definition than DSM-5—and this is exemplified in the proposed definition of PTSD (see Table 6.1). It has been noted that PTSD was more readily diagnosed in ICD-10 than DSM-IV and that ICD-10 could be improved by adding an impairment requirement to raise the diagnostic threshold (Peters et al. 1999). ICD-11 also introduces a formal stressor criterion to tighten the entry for the diagnosis (Maercker et al. 2013a). Arguably the biggest difference between DSM-5 and ICD-11 is the latter's emphasis on re-experiencing symptoms. In an attempt to reduce comorbidity and focus PTSD on its core element (i.e. a memory-based disorder characterized by reliving of the traumatic experience), considerable weight was placed on the role of the distinctive types of memory for the trauma evident in PTSD (Maercker et al. 2013b). Specifically, whereas intrusive memories are evident across many disorders, the sense of reliving of a trauma is apparently distinctive to PTSD (Brewin et al. 2010; Bryant et al. 2011c). Accordingly, ICD-11 defines *reexperiencing the traumatic event(s) in the present*, reflected by either vivid intrusive memories, flashbacks, or nightmares, accompanied by fear or horror; in this definition flashbacks can range from transient experiences to a complete disconnection from one's current state of awareness (Maercker et al. 2013b). ICD-11 also stresses avoidance of re-experiencing symptoms, which includes effortful avoiding of internal (e.g. thoughts, emotions) and external (e.g. situations) reminders. The third emphasis is an excessive sense of current threat, which can be reflected in hypervigilance or by exaggerated startle. Overall, the ICD-11 definition is intended to simplify the diagnosis for clinicians and allow diagnosis to be made on the basis of satisfying two symptoms of each of the three central features of PTSD. This definition is clearly much simpler than the DSM-5 criteria and leads to much fewer potential permutations by which the diagnosis can be made.

There have now been numerous studies comparing ICD-11 and DSM-5 definitions of PTSD. Some initial evidence has emerged about the relative performances of the DSM-5 and ICD-11 definitions of PTSD. In one study of 510 traumatically injured patients, PTSD current prevalence using DSM-5 criteria was markedly

higher than the ICD-11 definition (6.7% versus 3.3%), and ICD-11 tended to have lower comorbidity with depression (O'Donnell et al. 2014). The observation of lower rates of PTSD in ICD-11 than DSM-5 has been reported in studies of community-based individuals (Oe et al. 2020), internally displaced people (Shevlin et al. 2018), war veterans (Wisco et al. 2017), parents of children affected by mass shooting (Hafstad et al. 2018), and children (Eilers et al. 2020). In other studies, the rates of PTSD in ICD-11 and DSM-5 have been comparable (Danzi and La Greca 2016; Stein et al. 2014).

Another key question is the extent to which DSM-5 and ICD-11 yield comparable rates of comorbid depression. This is a pertinent issue because the high comorbidity of PTSD with depression has traditionally been a challenging issue for the diagnosis of PTSD because there is concern of the distinctiveness of the PTSD diagnosis relative to depression (Flory and Yehuda 2015). The data regarding this issue across the two definitions of PTSD tends to suggest that ICD-11 results in less comorbid depression than DSM-5 (La Greca et al. 2017; Oe et al. 2020; Shevlin et al. 2018), although another study has shown the opposite trend (Wisco et al. 2017).

6.6 Acute Stress Disorder

DSM-5 and ICD-11 have two very different conceptualizations of acute stress responses, and they do not match onto each other. They are based on different premises, have very different timeframes, and consequently are operationally defined in very distinct ways. In fact, ASD only exists in DSM and has never been a diagnosis in ICD, which instead has a construct termed Acute Stress Reaction.

DSM-5

ASD was first introduced in DSM-IV for two stated reasons: (a) to describe severe acute stress reactions that predated the PTSD diagnosis (which can only be recognized 1 month after trauma exposure), and (b) as a means to identify people who are at high risk for developing subsequent PTSD (Spiegel et al. 1996). In DSM-IV to meet criteria for ASD one needed to experience a traumatic event and respond with fear, horror, or helplessness (Criterion A), and also dissociative (Criterion B), re-experiencing (Criterion C), avoidance (Criterion D), and arousal (Criterion E) symptom clusters. Whereas most clusters were similar to those in PTSD, although more loosely defined (Bryant and Harvey 1997), the exception was the dissociative cluster which required at least three of five possible symptoms (emotional numbing, derealization, depersonalization, reduced awareness of surroundings, or dissociative amnesia). This emphasis resulted from arguments at the time that dissociative responses were central to the posttraumatic response because they impeded emotional processing of the experience, and therefore were predictive of PTSD (Harvey and Bryant 2002).

In preparing the ASD diagnosis for DSM-5, a core question was how well was ASD predicting PTSD? Longitudinal studies that indexed the relationship between ASD and later PTSD display a convergent pattern. Whereas the majority of individuals with a diagnosis of ASD do subsequently develop PTSD, most people who

eventually experience PTSD do *not* initially display ASD (Bryant 2011). That is, although ASD is performing adequately in terms of most people who meet criteria are at high risk for PTSD, it is performing poorly by not identifying most people who are at high risk. For this reason, it was decided in DSM-5 that the ASD diagnosis should not be aiming to predict PTSD but rather simply describe severe stress reactions in the initial month (Bryant et al. 2011b). A driving reason for retaining the diagnosis was that a major utility of the ASD diagnosis is that within the US health care system having a diagnosis can facilitate access to mental health services.

Recognizing that the requirement of dissociative symptoms was arguably too prescriptive in the DSM-IV definition and precluded many distressed people from being identified (Bryant et al. 2008; Dalgleish et al. 2008), the DSM-5 definition was modified such that to meet criteria one needs to satisfy at least 9 out of possible 14 symptoms without regard to any specific clusters (American Psychiatric Association 2013) (see Table 6.2). Although the diagnosis is structured in a way that does not require any specific symptoms or clusters, to meet criteria one nonetheless must display re-experiencing and/or avoidance symptoms. This retains the essential core of ASD as being comparable to PTSD. One study has reported that the DSM-5 (14%) identifies more distressed people than the DSM-IV (8%) definition (Bryant et al. 2015). Interestingly, this study also reported that the DSM-5 definition also identified more participants who developed PTSD than DSM-IV criteria.

Table 6.2 DSM-5 criteria for acute stress disorder and ICD-11 criteria for acute stress reaction

DSM-5	ICD-11
A. Exposed to death/threatened death	A. Exposure to threat
Witnessed death/threat	B. Transient emotional, somatic, cognitive, or behavioural symptoms
Learning events occurs to close other	
B. Presence of at least 9 of	C. Normal response to severe stressor
Intrusive memories	D. Symptoms appear within days
Nightmares	E. Symptoms subside within 1 week of removal of stressor
Flashbacks	
Psychological/physiological reactivity	F. Symptoms do not meet criteria for mental disorder
Numbing/detachment	
Derealization/depersonalization	
Dissociative amnesia	
Avoidance of thoughts/feelings	
Avoidance of situations	
Hypervigilance	
Irritable/aggressive behaviour	
Startle response	
Sleep problems	
Concentration deficits	
C. Symptoms last at least 3 days to 1 month after trauma	
D. Impairment	
E. Not due to substance or medical causes	

In terms of the incidence of ASD, there have been a range of studies reporting very variable rates, with one systematic review reporting rates of ASD following interpersonal trauma (36.0%), accidents (15.9%), disasters (21.9%), life-threatening illness (20.7%), and war-related trauma (14.1%) (Ophuis et al. 2018). This variability may be attributed to differing instruments, definitions of ASD (DSM-IV vs DSM-5), and types of trauma. Even restricting the focus to ASD after assaults, incidence rates vary from 17% to 41% (Boccellari et al. 2007; Brewin et al. 1999; Elklit and Brink 2003; Fein et al. 2001; Kleim et al. 2007; Pailler et al. 2007). One needs to recognize that the diagnosis of ASD is necessarily simplistic because it requires a categorical distinction between those classified as having ASD or not. In fact, the current evidence indicates that acute stress reactions fluctuate markedly in the initial weeks after trauma (Bryant et al. 2013). One study employed ecological momentary analysis to index symptoms on a daily basis in the acute post-trauma period, and observed four distinct trajectories: consistently high, rapidly decreasing, slowly decreasing, and initially low and decreasing (Brier et al. 2020); this finding underscores the different and fluctuating courses that acute stress responses can follow, and the dichotomous approach of DSM can be misleading. This conclusion is reinforced by evidence from network analyses that indicate that posttraumatic stress symptoms in the acute phase are diffusely connected, and it is only in later months that they distil into a syndrome in which PTSD symptoms are more cohesively interconnected (Bryant et al. 2017).

It should also be noted that in recent times many studies have been reported that have described ASD reactions to the COVID-19 pandemic. Very high rates of ASD have been reported in frontline health care workers who responded to surveys during the pandemic (Gonzalo et al. 2021; Shahrour and Dardas 2020), which is consistent with a systematic review of 117 studies of psychological outcomes of health care workers during pandemics; this study found that 40% of health care workers had ASD (Serrano-Ripoll et al. 2020). The observation of elevated rates of ASD during COVID-19 has also been noted in students (Lin et al. 2020) and elderly citizens (Garcia-Fernandez et al. 2020). This evidence shows that elevated levels of acute stress responses are associated with ongoing stressors, such as uncertainty about the future, lockdowns, quarantine, and fear of infection (Gomez-Duran et al. 2020; Tsur and Abu-Raiya 2020; Ye et al. 2020). This convergent evidence points to the limitations of the DSM-5 conceptualization of ASD as a disorder that emerges after a singular traumatic event because people's ongoing stress reactions are strongly impacted by more pervasive and ongoing stressors.

6.6.1 ICD-11

Acute stress reactions (ASR) have always been conceptualized in ICD as transient responses that are not necessarily psychopathological (Table 6.2). It is a category that is meant to capture the initial distress that is commonly experienced after traumatic exposure, and it was expected that these reactions would subside within a week or soon after the threat has eased (Isserlin et al. 2008). In this way ASR is

qualitatively different from DSM-5's ASD because it is neither a mental disorder in its own right nor a predictor of subsequent disorder. It is also worth noting that in ICD-11 there is no minimal time in which PTSD can be diagnosed, and so the issue of having a diagnostic "gap" to describe posttraumatic stress responses (which existed in DSM prior to DSM-IV) does not apply to ICD.

In terms of its definition, ASR has never been limited to strict PTSD definitions because it is intended to encompass the broader array of reactions that can occur in the initial aftermath of trauma. Motivated by the need to be applicable to emergency workers, military personnel, and disaster agencies who respond initially to trauma, especially large-scale events, the described symptoms are intentionally very broad and non-prescriptive. The symptoms may include shock, sense of confusion, sadness, anxiety, anger, despair, overactivity, stupor, and social withdrawal. Underscoring the intent that ASR is not a mental disorder it is coded as a "Z" code, distinguishing it from mental disorders. ICD-11 proposes that if the symptoms of ASR persist beyond a week, one should consider a diagnosis of adjustment disorder or PTSD.

6.7 Complex PTSD

Perhaps the most difficult traumatic stress condition to categorize over the past 20 years has been the notion of complex PTSD. Dating back to the early 1990s, the notion of more complicated PTSD responses has been discussed at length, typically in the context of describing the more complex reactions suffered by survivors of prolonged, and often childhood, trauma. It was argued that those who had suffered sustained and severe trauma, such as childhood abuse, torture, or domestic violence, can experience marked problems with their sense of identity and organization of emotions (Herman 1992). Termed disorders of extreme distress not otherwise specified (DESNOS), it was never well defined and accordingly not systematically studied.

In more recent years, the field has moved towards the construct of complex PTSD, which has enjoyed a tighter definition. This is a proposed condition that requires the PTSD symptoms noted above but also reflects the impact that trauma can have on systems of self-organization, specifically in affective, self-concept, and relational domains. Unlike the PTSD symptoms in which reactions of fear or horror are tied to trauma-related stimuli, these three latter types of disturbances are pervasive and persistent and occur across various contexts and relationships regardless of proximity to traumatic reminders. Specifically, the construct has evolved to comprise three major sets of disturbances in addition to the core PTSD responses: affective regulation, self-construct, and interpersonal. These have been identified both from studies of patients (Roth et al. 1997) and expert clinicians (Cloitre et al. 2011). Though not defined by exposure to prolonged trauma, this constellation of reactions is typically associated with very prolonged and severe traumatic experiences (van der Kolk et al. 2005).

6.7.1 DSM-5

The possibility of introducing complex PTSD in DSM-5 was debated; however, it was rejected. It was decided to not consider complex PTSD as a separate entity because in the DSM-IV field trials, only 8% of those who displayed DESNOS did not also have PTSD; thus, it was suggested that it could only be considered as a subtype (Friedman et al. 2011). It was argued that it was premature to introduce this subtype because it had not been adequately defined, insufficient data existed to warrant its distinction from other disorders (including borderline personality disorder), and there was no evidence that people with this presentation respond differentially to treatments that work effectively with PTSD (Resick et al. 2012). In contrast, DSM-5 did introduce a dissociative subtype of PTSD which was regarded as a viable alternative to complex PTSD. This subtype builds on evidence of two types of presentation of PTSD: one characterized by elevated arousal and one by blunting/dissociative responses. This division is largely based on some evidence that people who present with dissociative symptoms show less reactivity at both peripheral (Griffin et al. 1997) and neural (Felmingham et al. 2008; Lanius et al. 2012) levels relative to those with non-dissociative symptoms. Although other studies have reported that there is no difference in reactivity in dissociative and non-dissociative presentations of PTSD (Kaufman et al. 2002; Nixon et al. 2005), this subtype was nonetheless introduced into DSM-5 in recognition that it was a valid sub-entity.

6.7.2 ICD-11

A different approach was taken in ICD-11. ICD has a different organizational structure than DSM, and complex PTSD is a “sibling” disorder to PTSD rather than a subtype (World Health Organization 2018). This disorder in ICD-11 is based on the core PTSD symptoms with the addition of disturbances in self-organization that includes affective, identity, and relational disturbances (see Table 6.3). Affective disturbances include emotional reactivity, extreme outbursts, self-destructive behaviour, and potentially dissociative states. Disturbances in self may include the sense of worthlessness, or of being defeated or diminished. Difficulties in relations often involve deficits in maintaining a sense of intimacy with others, disinterest in social relations, or oscillating between intimate relations and estrangement. Initial evidence supporting this proposal comes from a latent profile analysis that showed

Table 6.3 ICD-11 criteria for complex PTSD

- | |
|--|
| 1. Exposure to extreme/prolonged trauma |
| 2. Core symptoms of PTSD (re-experiencing, avoidance, perceptions of threat) |
| 3. Pervasive problems with |
| a. Affect regulation |
| b. Sense of self as diminished, defeated, or worthless |
| c. Difficulties in sustaining relationships |

patients with affective, self, and relational disturbances comprised a distinct class from PTSD patients who were low on these symptoms; further, the former class were more likely to have suffered chronic rather than discrete traumas (Cloitre et al. 2013). This finding has been replicated numerous times with a range of different populations (Elklit et al. 2014; Frost et al. 2020; Rink and Lipinska 2020). In addition, studies using a range of statistical approaches have shown that symptoms involving disturbances in self-organization are distinct from traditional PTSD symptoms (Frost et al. 2020; Hyland et al. 2017; Knefel and Lueger-Schuster 2013; Tay et al. 2015). Whilst numerous studies have demonstrated that complex PTSD is associated with childhood abuse more than PTSD (Hyland et al. 2020; Karatzias et al. 2017; Knefel and Lueger-Schuster 2013), there is increasing evidence that complex PTSD can also develop after prolonged adult trauma exposures (Barbieri et al. 2019; Choi et al. 2020; Facer-Irwin et al. 2021; Palic et al. 2016). Although there is evidence of some overlap with borderline personality disorder (Saraiya et al. 2020), there are also multiple studies indicating that complex PTSD is distinguished from borderline personality disorder to warrant it being recognized as a distinct syndrome (Cloitre et al. 2014; Frost et al. 2020). It is also worth noting that there is evidence from neuroimaging research indicating that complex PTSD is distinct from PTSD by activation of neural networks implicated in dysfunctions in emotion regulation and processing self-constructs (Bryant et al. 2020).

6.8 Prolonged Grief Disorder

6.8.1 ICD-11

One of the major developments in ICD-11 was the introduction of a new diagnosis to describe prolonged and pathological grief reactions. Termed Prolonged Grief Disorder, it has been proposed that a new diagnosis be introduced to recognize the disabling nature of severe and persistent grief reactions (see Table 6.4). This disorder would be defined as severe and persisting yearning for the deceased or a persistent preoccupation with the deceased; this reaction may be compounded by difficulty accepting the death, feelings of loss of a part of oneself, anger about the loss, guilt or blame regarding the death, or difficulty in engaging with new social or other activities. The diagnosis can only be made if the symptoms are impairing

Table 6.4 ICD-11 criteria for prolonged grief disorder

1. Experienced bereavement of close other person
2. Severe yearning/emotional pain persisting for greater than 6 months since death
3. Grief impedes formal functioning
4. Grief reaction is beyond normative cultural/religious context
5. Associated features may include: preoccupation with circumstances of death; bitterness about death; guilt; blame; difficulty accepting loss; reduced sense of self; oscillating between preoccupation and avoidance; difficulty progressing with activities or friendships; withdrawal; perception that life is meaningless; emotional numbing

functioning and persist for over 6 months since the death (Maercker et al. 2013b). The evidence put forward to support this initiative includes multiple studies attesting to persistent yearning being central to the condition in adults (Simon et al. 2011) and children (Melhem et al. 2011). The disorder is distinct from anxiety and depression (Boelen and van den Bout 2005; Golden and Dalgleish 2010), and it contributes to a range of psychological, behavioural, medical, and functional problems (Boelen and Prigerson 2007; Bonanno et al. 2007; Simon et al. 2007). From an ICD-11 perspective, it is important that these patterns have been observed across western and non-western cultures (Fujisawa et al. 2010; Morina et al. 2010). Further support for the ICD-11 diagnosis comes from evidence that targeted treatments for prolonged grief are effective relative to those that have shown efficacy for depression (Shear et al. 2005) (cross-reference to Chap. 15 Shear).

One of the major challenges for the diagnosis of prolonged grief is that it is difficult to discern between normative and psychopathological grief reactions. The manner in which it has been defined in ICD-11 is that it is not qualitatively different from normative grief reactions that occur in the initial months after bereavement but rather that it does not abate and continues in its severity over an extended period. That is, the definition of psychopathological response is based on time since bereavement, and this is inherently problematic because not everyone will manage their grief in a uniform manner. There is a risk of overdiagnosis of prolonged grief disorder because some grief responses may take longer than 6 months to resolve (Wakefield 2013). It is for this reason that ICD-11 emphasizes that the diagnosis can only be made when the response is beyond what is culturally normative because it is sensitive to the problems of inappropriately prescribing a diagnosis across cultural contexts.

6.8.2 DSM-5

In contrast to ICD-11, DSM-5 was initially resistant to introducing the diagnosis of prolonged grief. DSM has traditionally not recognized grief as a mental disorder because it is concerned about pathologizing a normal response to bereavement. During the initial discussions about this issue, there were disagreements about the terminology that should describe a possible new diagnosis which reflected differing views about the nature of the condition. Whereas some preferred the term “complicated grief” to reflect the fact that the symptoms are qualitatively different from normal grief reactions (Shear et al. 2011), others supported the term “prolonged grief” in recognition of the condition being a persistence of the same symptoms observed in the acute bereavement phase (Prigerson et al. 2009). Despite the differences that were expressed, there was agreement that the condition involved intense yearning or emotional pain that persists beyond 6 months after the death, and potentially having difficulty accepting the death, anger over the loss, a diminished sense of one’s identity, feeling that life is empty, and problems in engaging in new relationships or activities (Bryant 2012). It was finally decided to not introduce the

diagnosis on the basis that insufficient evidence exists to warrant its introduction as a separate diagnosis, instead relegating it to the Appendix as an area for future study.

As the research continued into pathological grief reactions, the American Psychiatric Association reviewed the evidence on this condition and decided that there was sufficient evidence for a new diagnosis of Prolonged Grief Disorder in DSM-5-TR. This diagnosis was conceptually and definitionally very similar to the ICD-11 diagnosis. It recognizes prolonged grief disorder as requiring either intensive yearning or preoccupation with thoughts of the deceased that lasts for at least 12 months after the death, and involves at least three of: disruption to one's identity, disbelief about the death, avoidance of reminders of the person, emotional pain, difficulty re-engaging with activities, emotional numbness, a sense that life is meaningless, and intense loneliness (Prigerson et al. 2021). These criteria have been tested in the context of three large datasets of bereaved people in the USA, the United Kingdom, and The Netherlands (Prigerson et al. 2009; Boelen et al. 2015; Smith and Ehlers 2020), and been shown to have strong reliability and validity in diagnosing psychopathological grief responses.

6.9 The Structure of PTSD

It is worth noting that in recent years there has been considerable attention given to how posttraumatic stress symptoms interact with each other. This network approach adopts the premise that symptoms covary as a result of being linked via causal relations between each other (Borsboom and Cramer 2013). In the example of PTSD symptoms, it could be proposed that nightmares may lead to insomnia which in turn may contribute to fatigue, which can then lead to difficulties in concentration and irritability (Cramer et al. 2010). A common metric reported in network analyses is the centrality of symptoms, which refers to symptoms that are related to other symptoms and may play a causal role in impacting other symptoms. This statistical approach has been used in many studies of PTSD, complex PTSD, and prolonged grief disorder, which has shed much light on the structure of the symptoms of these disorders.

In terms of PTSD, one study found that hypervigilance and foreshortened future were central to other symptoms, and also that irritability was linked to both sleep and concentration problems, and re-experiencing was associated with concentration problems (McNally et al. 2015). A longitudinal network analysis found that whereas stress symptoms in the acute phase were loosely connected in the initial weeks after trauma exposure, months later these symptoms took the form of a structure resembling the symptom clusters of PTSD (Bryant et al. 2017). One review of network analytic studies of PTSD symptoms concluded that (a) functional amnesia was loosely connected to other PTSD symptoms, (b) intrusive memories of the trauma (in DSM-IV) and persistent negative emotional states (in DSM-5) were highly central in the PTSD networks, and (c) there was enormous heterogeneity of how strongly symptoms were interconnected across studies (Birkeland et al. 2020). In

terms of complex PTSD, network analyses have noted the centrality of the core symptom of self-disorganization, and importantly this pattern has been shown to be robust across different samples and cultures (Knefel et al. 2019, 2020). Network analyses of prolonged grief disorder have indicated that symptoms central to the disorder are emotional pain (Robinaugh et al. 2016). and yearning for the deceased (Malgaroli et al. 2018). This statistical approach has also yielded interesting observations about comorbidities between stress-related conditions; for example, network analyses have shown that comorbid dissociation and depression are distinct from PTSD, however there are also specific symptoms within these disorders that connect these respective conditions (Lazarov et al. 2020; Ross et al. 2020). This approach has also indicated different central symptoms for men and women, with flashbacks and disinterest being highly central for men, and concentration deficits, avoidance, and physiological reactivity being more central for women (Gay et al. 2020). Despite the insights offered by these dynamic causal modelling approaches, it should be noted that this methodology does not actually provide proof of causal relationships (Forbes et al. 2019).

6.10 Summary

Posttraumatic psychiatric diagnoses have evolved significantly since they were introduced decades ago. Interesting distinctions are developing between the two major systems currently available. Whereas DSM is moving towards more complex and broader conceptualizations of PTSD, ICD in contrast is shifting towards a simpler and more focused definition. Beyond PTSD, ICD appears to be adopting a more lateral approach by considering complex PTSD and prolonged grief disorder. This is understandable as the different diagnostic systems have distinct agendas that they are addressing, guided by the respective needs of the American Psychiatric Association and the World Health Organization. With different nomenclatures operating across the world, there is the possibility of confusion and discrepancies in how traumatic stress is operationalized across the world. Time will tell how these respective systems will serve the field, facilitate identification of conditions, and lead affected people to appropriate treatments.

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Part III

Psychotherapy



Early Intervention After Trauma

7

Richard A. Bryant

7.1 Introduction

The personal, social, and economic costs of posttraumatic stress disorder (PTSD) have stimulated enormous efforts over the past several decades into developing better strategies to reduce the adverse psychological effects of trauma. Much of this energy has been devoted to early intervention strategies. By early intervention, we mean interventions that are implemented in the initial hours, days, or weeks after trauma exposure. The goals of these approaches are variably to reduce the acute stress or to achieve secondary prevention to avert subsequent PTSD. In this chapter I will review the current strategies for early intervention, the theoretical models and purported mechanisms underpinning early intervention strategies, the evidence for these strategies, and the challenges that are facing the field.

7.2 Providing Early Interventions to All Survivors

The early form of popular prevention strategies after trauma rested on the approach of providing immediate psychological assistance to all survivors of trauma. This practice was based on the premise that all people are vulnerable to adverse effects of trauma, and if we do not provide interventions shortly after the trauma exposure dire results will occur. However, this presumption of vulnerability has been shown to be wrong. As I will discuss below, the evidence has shown that most people are highly resilient and do not require formal mental health interventions. Instead of requiring any form of psychological intervention, most people are able to adjust to

R. A. Bryant (✉)

School of Psychology, University of New South Wales, Sydney, NSW, Australia
e-mail: r.bryant@unsw.edu.au

a traumatic experience once the immediate threat passes, and can use their own personal resources and social networks to adapt successfully.

Although there have been variants of early interventions for 100 years, beginning with interventions provided to soldiers in the immediate aftermath of combat (Shephard 2000), they have been most popular since the 1980s. These interventions are most commonly referred to as ‘psychological debriefing’ and there are numerous iterations of them. The simplest means of evaluating the role of psychological debriefing is to review the history and efficacy of its most popular variant: Critical Incident Stress Debriefing (CISD). This programme was initiated in the 1980s by a firefighter, Jeffery Mitchell, who argued that it could ‘generally alleviate the acute stress responses which appear at the scene and immediately afterwards and will eliminate, or at least inhibit, delayed stress reactions’ (Mitchell 1983, p. 36). CISD typically consists of a single debriefing session and is usually administered within several days of the trauma exposure. The session typically lasts between 3 and 4 h (Everly Jr. and Mitchell 1999). It formally comprises seven phases. The Introduction phase introduces the format and clarifies that it is not intended to be psychotherapy. The Fact phase asks participants to recount their accounts of the traumatic incident. The Cognitive phase invites participants to describe their cognitive responses to the experience, with encouragement to be aware of initial thoughts about what occurred. Next, in the Reaction phase participants are encouraged to express emotional responses they have about the experience. In the Symptom phase, the participants are asked to notice symptoms or reactions with the view of identifying stress reactions. The Teaching phase involves normalizing stress reactions. Finally, in the Re-entry phase a summary is provided of the debriefing session and any necessary referrals are offered. Although CISD was initially targeted towards emergency responders, it has subsequently expanded to encompass a much broader audience. Summarizing the growth of CISD by the end of the 1990s, the authors wrote, ‘Mitchell’s CISD model of psychological debriefing is generally recognized as the most widely used in the world and is used across the greatest diversity of settings and operational applications’ (Everly Jr. and Mitchell 1999, p. 84).

Does CISD help people? There are many reports in the literature of CISD being well-received and participants finding it helpful (Adler et al. 2008; Carlier et al. 2000). This does not amount to evidence, however. Numerous trials have been conducted that have assessed people who have and have not received CISD (or variants of it), and compared their functioning (typically in terms of PTSD levels) at subsequent follow-up assessments (for a review, see McNally et al. 2003). Overall, these studies indicate that CISD and related debriefing interventions do not result in reduced levels of posttraumatic stress relative to not receiving the intervention (Bisson et al. 2007).

Can debriefing do harm? This is a critical issue because it may be important to respect people’s natural adaption processes, and it can be unwise to interfere with these mechanisms. This issue has become particularly relevant in the light of some evidence that CISD may be harmful; this conclusion emerges from studies that found that those (particularly those who display marked PTSD symptoms initially following trauma) who received debriefing had worse PTSD than those who did not

receive it (Bisson et al. 1997; Mayou et al. 2000). Another controlled study found that emotional debriefing led to a delayed recovery relative to educational input (Sijbrandij et al. 2006). Although these studies are limited by methodological flaws, it nonetheless raises concerns that global interventions may not be warranted. It has been suggested that activating trauma memories for a brief period after which the person is not seen repeatedly may not be helpful, and may even further consolidate trauma memories (Bisson and Andrew 2007). Debriefing may also be harmful because it typically occurs without prior assessment, and so it involves a standard intervention for all regardless of individual differences in premorbid vulnerability, current distress severity, or social context. Accordingly, treatment guidelines generally recommend against this intervention (Foa et al. 2009).

If psychological debriefing, such as CISD, is out of fashion, then what is the preferred alternative? In light of evidence that a single session intervention is not preventative of subsequent adaptation, more recent approaches simply aim at helping people cope with the acute response. The most common new approach is Psychological First Aid (PFA; Brymer et al. 2006). PFA has tried to retain fundamental strategies of debriefing without encouraging steps that may be unhelpful, such as encouraging emotional catharsis. PFA involves suggested strategies to provide safety, information, emotional support, and access to services, heighten expectancy of recovery, encourage utilization of social support, and promote self-care strategies. Like other forms of universal intervention, PFA does not commence with a formal assessment. This approach is now promoted in practice guidelines (Inter-Agency Standing Committee 2007), which is curious given the lack of robust evidence currently available for PFA.

7.3 Who Should Receive Early Intervention?

In contrast to approaches that provide universal intervention to all trauma survivors, other approaches have adopted a targeted strategy that intends to focus on trauma survivors who are at high risk for subsequent PTSD. This framework presumes that we can identify people in the acute phase who will subsequently develop PTSD. Over the past several decades, much work has focused on acute predictors of longer-term PTSD—and in that time the enthusiasm for how confidently we can predict chronic PTSD has tempered a lot.

The main challenge for our field in this regard has been the recognition that acute stress reactions are not linearly related to PTSD reactions at subsequent points in time. Earlier work indicated that the initial spike in traumatic stress in the weeks after trauma exposure remitted markedly in the following months; this was shown in cohorts of survivors of rape (Rothbaum et al. 1992), non-sexual assault (Riggs et al. 1995), motor vehicle accidents (Blanchard et al. 1996), disasters (van Griensven et al. 2006), and terrorist attacks (Galea et al. 2003). This raised a challenge for early identification of trauma survivors at risk of developing PTSD because how do we disentangle transient stress reactions from the early reactions that are precursors of subsequent PTSD?

An earlier attempt to identify people who would be at risk for PTSD was the acute stress disorder (ASD) diagnosis. This diagnosis was introduced in DSM-IV as a diagnosis to (a) describe severe posttraumatic stress reactions in the initial month after trauma exposure, and (b) identify people who were at high risk for developing subsequent PTSD—and hence, representing candidates for early intervention (Harvey and Bryant 2002). The evidence of the predictive capacity of ASD to identify people at risk of PTSD has been modest at best (Bryant 2011). Although approximately half of people with ASD do subsequently develop PTSD, most people who eventually have PTSD do not initially meet the ASD criteria; for this reason the diagnosis was reconceptualized in DSM-5 to describe severe acute stress reactions without the goal of predicting subsequent PTSD (Bryant et al. 2011).

The problem of early identification is highlighted when we consider more recent research on the longitudinal course of posttraumatic stress reactions, which has underscored the complicated trajectories of posttraumatic response. Of course the most salient example of this is delayed-onset PTSD, which has traditionally been recognized as PTSD that develops at least 6 months after trauma exposure. Systematic reviews of the available evidence attest to the frequency of delayed-onset PTSD, with approximately 25% of PTSD cases being delayed-onset, with particular frequency in military populations following deployment (Smid et al. 2009). Increasing evidence tells us that the changing course of posttraumatic stress reactions can be influenced by ongoing stressors, appraisals people make, social factors, or health issues (Bryant et al. 2013). For example, in a study of survivors of Hurricane Katrina rates of PTSD generally increased over the initial 2 years following the hurricane, which has been attributed to the ongoing stressors in the region arising from lack of infrastructure, poor housing, and other necessary community resources (Kessler et al. 2008). This issue has been further highlighted by a body of evidence that has used latent growth mixture modelling to map the different trajectories that trauma survivors experience. This statistical strategy classifies homogenous groups in a population to identify classes of variation over time, and rather than assuming that all people belong to a homogenous population, it tracks *heterogeneous* patterns of response. Across a number of studies four major trajectories have been noted: (a) resilient class with consistently few PTSD symptoms, (b) a recovery class with initial distress then gradual remission, (c) a delayed reaction class with initial low symptom levels but increased symptoms over time, and (d) a chronic distress class with consistently high PTSD levels. These trajectories have been noted in a range of trauma survivors, including traumatic injury (deRoos-Cassini et al. 2010), disaster (Pietrzak et al. 2013), and military personnel deployed to the Middle East (Bonanno et al. 2012). This highlights that it is not a straightforward task to identify who will eventually develop PTSD after trauma, and attempts at early intervention need to recognize that not all high-risk trauma survivors can be identified in the acute phase.

Some attempts have been made to predict PTSD on the basis of severity of acute PTSD symptoms, and these have generally resulted in a consistent observation of initial PTSD severity being associated with later PTSD (Brewin et al. 1999; Zatzick et al. 2006). Although there is a statistical association in these studies, the actual

prediction that an individual will develop PTSD based on a specific threshold of PTSD symptoms in the acute phase is lacking. To achieve this one would need to demonstrate good sensitivity and specificity in predicting PTSD, which requires a proven cut-off of PTSD severity scores in the acute phase identifying only people who will develop subsequent PTSD with sufficient accuracy that it does not involve excessive false positive or false negative identifications. Using a different approach, a consortium-based approach recently considered a range of known risk factors and used these in a combined sample of 2,473 trauma survivors from ten longitudinal studies; this study found that if a person reported elevated PTSD severity, female gender, less than secondary level education, and a history of interpersonal trauma, the association between the risk algorithm and subsequent PTSD was high ($r = 0.94$) (Shalev et al. 2019).

A sophisticated attempt has been made to identify profiles of people in the acute phase who are at risk of PTSD by utilizing machine learning approaches. Machine learning involves algorithms that identify relationships between variables, and can be used to determine an outcome—such as the development of PTSD. The benefit of machine learning is that it can compute many different variables by using mathematical rules in a way to derive best-fitting models (Galatzer-Levy et al. 2018a). One study tested this approach in a sample of patients admitted to two separate Emergency Departments, and via machine learning they derived a model comprising stress symptoms and biological variables routinely collected in hospital admission (e.g. lymphocytes, blood glucose); impressively, of the patients that the algorithm predicted would be non-remitting in their stress symptoms 90% were still non-remitting 12 months after admission (Schultebrucks et al. 2020a). Another novel approach has used recordings of facial and acoustic expressions because of the evidence that both these channels of emotional responding can be associated with PTSD (McTeague et al. 2010; Rodin et al. 2017). A major advantage of this approach is that rather than relying on static self-report, as often relied on in predictive studies, this approach is based on continuous digital phenotyping that is more reflective of a person's actual emotional state. In an initial study that required patients in an Emergency Department to participate in an interview in which facial expressions and acoustic expressions were recorded and subsequently coded, this approach impressively found that this methodology accurately predicted subsequent PTSD with 83% precision (Schultebrucks et al. 2020b).

7.4 Psychological Treatments for People with Acute Stress Reactions

Prior to discussing psychological early interventions, it is worth reviewing the models and mechanisms underpinning these interventions. Most indicated psychological treatments recognize the role of fear conditioning as key to the genesis of PTSD, and in this sense they overlap with biological models and early interventions for PTSD. This model proposes that when a traumatic event (an unconditioned stimulus) occurs a person responds with fear (an unconditioned response), and that the

strong fear that occurs at the time leads to strong associative conditioning between the fear response and the stimuli associated with the trauma. Subsequent reminders of the trauma (the conditioned stimuli) can then trigger fear reactions (conditioned responses), such as re-experiencing symptoms and anxiety (Rauch et al. 2006).

The other component of most common psychological interventions involves the nature of memories and appraisals. These more cognitively oriented models put much emphasis on how information is coded, and suggest that the strong arousal that one experiences during a traumatic event leads to memories being encoded in a fragmented manner that is strongly dominated by perceptual (and mainly visual) sensations (Brewin et al. 2010a). This type of encoding (termed *data-driven processing*) results in the trauma memory not being properly integrated into one's autobiographical memory base, and it is argued that this leads to intrusive memories of the experience (Brewin et al. 2010b; Ehlers and Clark 2000). Regarding the role of appraisals, cognitive models emphasize that prior beliefs (often about safety and one's self-image) can be violated in a traumatic experience, and this intensifies the sense of threat in the acute phase and can lead to PTSD (Ehlers and Clark 2000).

Supporting this proposal is a large body of evidence that maladaptive appraisals in the acute phase are more evident in people with more severe acute stress responses (Smith and Bryant 2000; Warda and Bryant 1998) and that maladaptive appraisals are strongly predictive of subsequent PTSD (Bryant et al. 2007; Dunmore et al. 2001). Moreover, exaggerating the negative meaning of acute stress symptoms (Dunmore et al. 2001; Ehlers et al. 1998) and excessive rumination about the trauma (Ehlers et al. 2003a; Kleim et al. 2007) predict chronic PTSD development.

There is considerable evidence to support the cognitive models, including studies indicating that people with PTSD have more disorganized trauma memories than trauma-exposed people without PTSD (for a review, see O'Kearney and Perrott 2006), and this applies to people in the acute phase as well (Harvey and Bryant 1999). Importantly, memory fragmentation in the acute phase is predictive of subsequent PTSD (Buck 2007). There is also a body of research indicating that re-experiencing memories are underpinned by the visual system (James et al. 2016), with numerous experimental studies indicating that completing a visually based computer game (*Tetris*) leads to fewer intrusive memories than a verbal task (Davies et al. 2012). Moreover, self-report measures of data-driven processing predict later intrusive memories and PTSD (Ehring et al. 2008a). This evidence is pertinent as we discuss psychological early intervention strategies. This evidence has formed the basis of early intervention strategies by targeting specific data-driven processes.

7.5 Trauma-Focused Cognitive Behaviour Therapy

As distinct from universal interventions, more recent studies have focused on treating people with severe stress reactions. Early interventions can be divided into psychological and biological strategies. Much more work has been done in psychological interventions, arguably because of the substantial success of trauma-focused psychotherapies in treating chronic PTSD.

We can distinguish between interventions that have targeted a single mechanism versus those that have delivered a package of strategies. In terms of the first approach, there have been recent attempts to limit development of subsequent intrusive memories by addressing data-driven processing in the acute phase. Specifically, building on the evidence that interrupting the visual processing system during the acute phase of a traumatic event can reduce intrusive memories (James et al. 2015, 2016), one controlled trial found that having patients admitted to an Emergency Room perform *Tetris* resulted in fewer subsequent intrusive memories than those in a control condition (Iyadurai et al. 2018). Supportive evidence for this intervention came from a separate study that showed that intrusive memories could be prevented in women after an emergency caesarian procedure by having them complete the *Tetris* game (Horsch et al. 2017).

Another novel approach was an attempt to limit subsequent PTSD by retraining people's attentional biases to threat. There is considerable evidence that PTSD is characterized by greater variability in shifting attention towards threat and also away from threat (Alon et al. 2019; Swick and Ashley 2017). Building on this evidence, researchers have used Attention Control Training to enhance people's ability to control their attention more effectively. This involves presenting neutral and threat cues with equal probability on a computer screen, and asking individuals to ignore the cues which shifts attention equally across threat and neutral information. A series of studies have shown that this intervention can reduce PTSD symptoms (Badura-Brack et al. 2015; Lazarov et al. 2019). A recent study tested the extent to which this approach be effective in limiting PTSD by administering Attention Control Training to people with ASD; although there was the expected association between ASD severity and attention bias variability, there was no benefit in receiving the control training (Segal et al. 2020).

Most early interventions following trauma have adapted trauma-focused cognitive behaviour therapy (TF-CBT). Without doubt the frontline treatment of PTSD is TF-CBT, which is reflected in international treatment guidelines (Foa et al. 2009). Meta-analyses support these conclusions (Bradley et al. 2005; Roberts et al. 2009). The key commonality of these approaches is that they usually have a trauma-focused exposure as the centre-piece of treatment. Therapy usually commences with psychoeducation about the trauma responses, and then focuses on anxiety management, exposure, and cognitive restructuring. Anxiety management techniques aim to reduce anxiety through a variety of techniques, including breathing retraining or relaxation skills, or self-talk. Therapy usually gives most attention to prolonged exposure, which involves both imaginal and in vivo exposure. During imaginal exposure the patient is asked to vividly imagine their traumatic experience for prolonged periods, usually for at least 30 min. The therapist asks the patient to provide a narrative of their traumatic experience in a way that emphasizes all sensory, cognitive, and affective details. In vivo exposure involves graded exposure to feared and avoided situations in which the patient is asked to stay in close proximity to fearful reminders of the trauma; this begins with minimally fearful situations, and then increasing to more frightening situations. This approach is thought to be effective via a number of mechanisms, including extinction of initially conditioned fear

responses, integration of corrective information, and self-mastery through management of exposure itself (Rothbaum and Schwartz 2002). Cognitive restructuring is usually conducted following exposure and identifies the evidence for maladaptive automatic thoughts about the trauma, the person, and their future. This approach is based on much work showing that excessively negative appraisals in the acute period after trauma are strongly predictive of subsequent PTSD (Ehring et al. 2008b). In the context of early intervention, numerous trials have shortened TF-CBT to 5 or 6 sessions whilst retaining the core content.

Although there were some earlier attempts at early intervention (Frank et al. 1988; Kilpatrick and Veronen 1984), possibly the first study that attempted abridged forms of trauma-focused exposure approaches in the framework of early intervention was a study in which Edna Foa's team provided brief CBT to sexual and non-sexual assault victims shortly after the assault (Foa et al. 1995). Participants received four sessions of CBT and their responses were compared with matched participants who had received repeated assessments; although at post-treatment the CBT participants had less PTSD than those in the matched condition, this difference dissipated at 5 months follow-up. It should be noted that those receiving CBT had less depression and re-experiencing symptoms than the control participants.

One potential limitation of this study is that it focused on all trauma survivors who had symptoms severe enough to meet PTSD criteria (without the 1 month duration requirement), and we have seen that many people who are initially distressed may subsequently adapt regardless of intervention. In an attempt to address this issue, other studies have focused on people who meet criteria for ASD because of some evidence that most people who do display ASD are more at risk for subsequent PTSD (Bryant 2011). In an initial study adopting this approach, Bryant and colleagues randomized motor vehicle accident or non-sexual assault survivors with ASD to either CBT or nondirective supportive counselling (SC) (Bryant et al. 1998). Both interventions consisted of five 1 1/2 h weekly individual sessions. Emphasis in therapy was placed on imaginal and in vivo exposure, and cognitive restructuring. Six months after treatment there were fewer participants in the CBT group (20%) who met criteria for PTSD relative to supportive counselling participants (67%). A later study by the same group dismantled CBT by allocating ASD participants to five sessions of either (a) CBT (prolonged exposure, cognitive therapy, anxiety management), (b) prolonged exposure combined with cognitive therapy, or (c) supportive counselling (Bryant et al. 1999). This study found that at 6 months follow-up, PTSD was observed in approximately 20% of both active treatment groups compared to 67% of those receiving supportive counselling. A follow-up of participants who completed these two treatment studies indicated that the treatment gains of those who received CBT were maintained 4 years after treatment (Bryant et al. 2003b).

Since these early studies, a range of studies have followed that have essentially replicated these findings. One study randomized civilian trauma survivors ($N = 89$) with ASD to either CBT, CBT associated with hypnosis, or SC (Bryant et al. 2005). Hypnosis was employed because some theories posit that hypnosis may facilitate emotional processing in a condition that is characterized by dissociative symptoms

(i.e. ASD) (Spiegel et al. 1996). Individuals with ASD have been shown to be particularly skilled at using hypnosis (Bryant et al. 2001), and so this study used hypnosis immediately prior to imaginal exposure with the suggestion to facilitate processing of trauma memories. All participants received the same number of sessions and identical length of exposure, with the exception that some participants received the hypnotic induction prior to the exposure exercise. Regarding those who completed treatment, more participants who received SC (57%) had PTSD at 6-month follow-up than those who received CBT (21%) or CBT + Hypnosis (22%). Participants in the CBT + Hypnosis condition did have fewer re-experiencing symptoms at post-treatment than those in the CBT condition, suggesting that the hypnosis may have facilitated the exposure component. Another study of ASD participants ($N = 24$) who sustained mild traumatic brain injury compared the relative efficacies of CBT and SC in people who lost consciousness as a result of their traumatic injury (Bryant et al. 2003a). Fewer participants receiving CBT (8%) met criteria for PTSD at 6 months follow-up than those receiving supportive counselling (58%). In the largest study of ASD to date, Bryant and colleagues randomly allocated 90 civilian trauma survivors to either (a) imaginal and in vivo exposure, (b) cognitive restructuring, or (c) assessment only (Bryant et al. 2008b). Exposure therapy led to lower levels of PTSD, depression, and anxiety at 6 months follow-up compared to the two other conditions.

It is important to be aware that other teams have also demonstrated the utility of early intervention using trauma-focused interventions. Jon Bisson and his team randomized 152 injury survivors to receive four sessions of CBT or no intervention in the first 3 weeks after the trauma (Bisson et al. 2004). Those who received the active intervention had lower PTSD symptoms at 13 months follow-up. This approach focused on severe acute PTSD symptoms, rather than ASD, which is more consistent with the DSM-5 definition of ASD by not requiring the specific clusters of ASD symptoms. Similarly, early provision of CBT has been shown to be beneficial in other studies that have targeted trauma survivors with elevated PTSD levels (Lindauer et al. 2005).

A different approach was adopted in a study that compared the efficacy of TF-CBT for ASD against this same treatment but with the addition of having a significant other involved in therapy (Guay et al. 2018). This approach was undertaken on the premise that there may be a clinical benefit in having the social support of a person close to the patient aware of the therapy approaches and supporting the patient. In a large study 166 patients with ASD were allocated to one of these two TF-CBT conditions or to usual care. Even though patients who received TF-CBT had less PTSD at 12 months follow-up than those receiving usual care, there was no difference in the two TF-CBT treatment conditions. This is not to say that including supportive others is not useful in this therapy, but this initial trial suggests that this form of integrating social support does not confer a clinical benefit.

Rather than using a prolonged exposure approach, several studies have focused on more cognitively oriented approaches. Echeburua and colleagues provided 20 participants with acute posttraumatic stress with either cognitive restructuring and coping skills training or progressive relaxation training (Echeburua et al. 1996).

There were no differences between conditions at post-treatment; however, cognitive restructuring led to less severe PTSD symptoms 12 months later. An Israeli study provided two sessions SC or CBT that aimed to promote memory reconstruction to facilitate recovery in 17 survivors of road accidents (Gidron et al. 2001). This study used an entry criterion of a resting heart rate higher than 94 beats/min at admission to the emergency room on the basis that elevated heart rate in the acute phase is predictive of PTSD (Bryant et al. 2008a; Shalev et al. 1998). Treatment was delivered by the telephone 1–3 days after the accident. Patients who received the CBT intervention had less PTSD 3–4 months after the trauma than did those who received SC.

In an important study that compared early and later intervention, Shalev randomized 242 patients who were admitted to an emergency department and met criteria for either full or subsyndromal ASD. Participants were allocated to either prolonged exposure, cognitive restructuring, wait-list (who were subsequently randomized to exposure or cognitive restructuring after 12 weeks), escitalopram (SSRI), or placebo (Shalev et al. 2012). At 9 months follow-up, PTSD outcomes did not differ between prolonged exposure (21%) and restructuring (22%) conditions; in contrast, there were higher rates in the SSRI (42%) and placebo (47%) conditions. There were no longer-term differences between participants who received the early or later therapy. One important implication of this study is that early intervention is not essential for optimal outcome and one can provide therapy some time later and achieve the same outcomes in the long run. This is not to minimize the benefit of early intervention, however, because there are clear advantages in reducing the stress (and associated problems) that can occur in the intermediate phase after trauma.

Another study commenced exposure therapy very soon after trauma by administering it in the emergency room for trauma patients, and then repeating it weekly over the following 2 weeks (Rothbaum et al. 2012). Compared to an assessment only comparison condition, patients who received exposure therapy had reduced PTSD at the 3-month follow-up. The interesting implication that emerges from this study is that it indicates that exposure therapy can be safely commenced very soon after trauma exposure. A replication of this study applied the 3-session exposure therapy programme to hospitalized people with elevated PTSD risk, and this programme found that there was no difference between the treatment and control conditions (Larsen et al. 2020). Another variant of exposure-based therapy involved an internet-administered exposure therapy delivered in four modules and over 3 weeks; one pilot study found that this intervention led to fewer intrusive memories at follow-up, but needs to be tested in a full trial (Bragesjo et al. 2021). Other controlled trials that have applied CBT to acute PTSD have recruited patients within 3 months of the trauma, and therefore not provided therapy in the very acute phase after trauma. These studies also point to the utility of early intervention using exposure-based approaches. Each of these studies shows moderate-large effect sizes of PTSD symptom reduction (Ehlers et al. 2003a; Sijbrandij et al. 2007).

A major multinational trial of parents of young children hospitalized after injury tested the Coping with Reactions (CARE) intervention, which is delivered over two

60-min sessions and comprises psychoeducation, coping strategies, use of developmentally appropriate tools (e.g. storybooks), and the option of two brief follow-up contacts (Haag et al. 2020). This trial found that at the 3 months follow-up, children of parents who received the intervention had greater reduction of PTSD symptoms than children whose parents were in the control arm.

Notably, not all studies have reported beneficial effects of trauma-focused early intervention. One large study randomized 90 female assault survivors who had acute PTSD symptoms to either prolonged exposure, SC, or a repeated assessment within 4 weeks of trauma (Foa et al. 2006). Nine months after treatment all participants had made similar gains in terms of reducing PTSD; this finding did not change when only those who met ASD criteria were included. Another null finding was found in a study that used a writing paradigm, in which 67 traumatic injury patients were randomized to either a trauma writing intervention group or an information control group (Bugg et al. 2009). There were no differences between the groups at either post-treatment or follow-up assessments.

In summary, early provision of trauma-focused therapies, and particularly those that encourage emotional processing, appear to be efficacious in preventing subsequent PTSD. This conclusion is supported by a range of meta-analytic studies that have found that multi-session early intervention strategies have moderate effects in reducing subsequent PTSD severity (Giummarra et al. 2018; Roberts et al. 2019). This conclusion has also been shown in relation to early intervention strategies for children and adolescents (Gillies et al. 2016). It is important to qualify this claim, however, by noting that a substantive proportion of people do not respond to early intervention and so it should not be regarded as a panacea for posttraumatic problems. Moreover, the impact of early intervention with TF-CBT seems more complicated than having a linear effect for all recipients. For example, one follow-up study of the Jerusalem early intervention study found that people receiving TF-CBT could be classified into three distinct trajectories of posttraumatic stress response: non-remitting, rapid-remitting, and slow-remitting (Galatzer-Levy et al. 2013). Whereas TF-CBT accelerated recovery of those in the slow-remitting class, it did not affect the symptom course of people in the other classes.

7.5.1 Case Study: Trauma-Focused Cognitive Behaviour Therapy

Lou presented for treatment following a severe truck accident. He was a professional truck driver who had not had a serious road accident in over 20 years of driving long-haul trucks. Two weeks prior to presentation he was driving his truck on an interstate highway when a motorcyclist riding in the opposite direction lost control of her motorcycle, skidded across the road, and slid up the wheels of Lou's truck. Lou immediately tried to assist the girl, however she was partly crushed under one of the wheels. It transpired that he interacted with her briefly until she died whilst Lou was holding her head in his hands, waiting for paramedics to arrive.

Nine months after this traumatic experience, Lou attended for treatment. Therapy commenced with a thorough assessment, which revealed that Lou had no prior

psychological problems, had a supportive wife, and was a devout Catholic who believed it was extremely sinful to ever take a life. He expressed this view very strongly in the initial session, expressing great blame for (a) not averting the accident and (b) not saving the girl. He described severe re-experiencing symptoms, including frequent nightmares of the girl's bloodied face. He also reported often having intrusive memories of the experience, including seeing the motorcycle slide under his truck. Lou was engaging in pervasive avoidance of any reminders of the accident, including discussing it with his wife, thinking about it, or being exposed to situational reminders. Although it was his only source of income, Lou refused to drive since the accident. In terms of DSM-5 criteria, Lou satisfied the definition of ASD.

Following education about the rationale for processing the trauma memory to allow Lou the opportunity to understand what had occurred (previously precluded by his avoidance of thinking or talking about the experience), therapy commenced with prolonged exposure of the accident. Consistent with most forms of prolonged exposure (Bryant and Harvey 2000; Foa and Rothbaum 1998), this involved close engagement of the memory by asking Lou to relive what occurred in a subjectively compelling way. He found this highly distressing and was only able to narrate the trauma to the point of seeing the girl under the truck. The goal of exposure therapy in the initial sessions is to engage and master the anxiety, not necessarily to ensure that all aspects of the trauma are encompassed. This can be done in subsequent exposure sessions. In the initial session, Lou repeated the exposure to the accident three times to ensure that he was doing it for 30 min. He found this extremely distressing but was able to master the distress adequately.

Prolonged exposure was continued for four additional sessions. In the third session, Lou was strongly encouraged to focus on the 'hotspot' of the feature of the accident that he was avoiding—interacting with the girl as she lay under the truck. He was asked to slow down his narrative at this point and to stay with what was occurring at this time. He became very distressed during this reliving, during which he recounted that she disclosed to him that she was pregnant. This became a pivotal moment in Lou's memory of the trauma because he felt that he was responsible for the death of the unborn child, which was the source of extreme guilt. Considerable time was spent using cognitive restructuring techniques that challenged Lou to consider what alternative action he could have taken to (a) avert the accident, (b) save the girl, or (c) save the unborn child. The reliving was an important aspect for Lou to admit the guilt he felt about the deaths and allowed him to then realistically challenge his thoughts that he was responsible for either death. From the second therapy session, Lou was also instructed to commence a graded in vivo exposure programme in which he and his wife drove their family car for an hour twice a day. This commenced with quiet streets, gradually building up to busy roads, and then the freeway. Within 4 weeks, Lou was able to drive his truck again on the freeway.

Lou received a total of six therapy sessions, which is common for people with ASD. By the time he completed therapy, he still had some recurrent dreams but these diminished to weekly rather than multiple times a night. He was not engaging in avoidance, was discussing the incident with his wife and other drivers, and had

accepted that the accident was not his fault. Importantly, Lou understood the need to continue practising exposure every few days, and to challenge any thoughts that he identified as being unrealistic about the trauma.

7.6 Alternatives to Trauma-Focused Early Intervention

There have been alternative approaches used as early intervention psychological interventions. One study used acceptance and commitment therapy as the basis of a 6-session group intervention that was delivered via video-conferencing for parents whose children were admitted to hospital following medical emergencies (Muscara et al. 2020). This study randomized 313 parents to the intervention or wait-list, although only 81 who completed the post-intervention assessment were analysed. This study found that immediately after the trial, parents in the intervention arm had less severe PTSD symptoms than those in the wait-list. Conclusions from this study are hindered by the lack of intent-to-treat analyses and no follow-up data. Whereas there is evidence that keeping a daily diary of one's convalescence can limit PTSD symptoms (Jones et al. 2010), a study of diary keeping in the initial month found that this had no beneficial effect on later PTSD (Sayde et al. 2020). Another study used an app program that has been widely disseminated for treatment of PTSD, *PTSD Coach*, which comprises education about PTSD, self-monitoring, and simple strategies for managing stress. This pilot trial with recent survivors of motor vehicle accidents indicated no benefits for the PTSD Coach program, and as with many app programs, adherence to the program was poor (Pacella-LaBarbara et al. 2020).

7.7 Pharmacological Approaches

The role of stress hormones in managing early stress responses is indicated by evidence that they play a key role in formation of emotional memories. There is strong evidence from animal and human studies that overconsolidation of trauma memories involves an interaction of noradrenergic and glucocorticoid systems (McGaugh and Roozendaal 2009). Regarding early interventions based on noradrenergic response, most studies have focused on propranolol, which is a beta-adrenergic antagonist that has been used to inhibit trauma memories by limiting post-synaptic beta-adrenergic receptors.

One of the earlier studies was conducted by Roger Pitman's team, who attempted to prevent PTSD by reducing the level of noradrenergic response in the very immediate phase after trauma. The study administered propranolol (a β -adrenergic blocker) or placebo within 6 h of trauma exposure (Pitman et al. 2002). Although propranolol did not reduce PTSD relative to placebo at the 3 months follow-up, patients receiving propranolol did display less reactivity to trauma reminders 3 months later. Subsequent studies have also found that propranolol did not limit PTSD within 48 h after trauma, which may have been too late to achieve the desired effect, as indicated by meta-analysis of available studies (Argolo et al. 2015). The

impact of propranolol may be complex. Just as gender has been shown to influence outcomes of psychotherapy (Felmingham and Bryant 2012), another study reported gender-specific effects for the impact of propranolol on PTSD in children (Nugent et al. 2010). Moreover, there may be some benefit in further exploring the role of propranolol because there is recent experimental evidence that administering propranolol shortly after viewing a trauma film results in fewer intrusive memories (Kamboj et al. 2020).

Another possibility for preventing PTSD via reduction of norepinephrine levels in the acute phase is the use of opioids, such as morphine. Norepinephrine is inhibited by morphine, which is reflected in the impact of morphine on conditioning. For example, morphine injections into the amygdala of rats impair their level of fear conditioning (Clark et al. 1972), and cause amnesia for fear conditioning (McNally and Westbrook 2003). Extending this work to humans, uncontrolled studies have shown that administering morphine in the immediate hours after trauma has been associated with lower subsequent PTSD levels (Bryant et al. 2009; Holbrook et al. 2010). These studies have been naturalistic and observational rather than controlled trials (it is difficult to randomize injured patients to receive morphine or an alternative comparator!), and so we cannot place much emphasis on this evidence at the current time.

In terms of other pharmacological agents, considerably fewer controlled trials have been conducted relative to psychotherapy trials. As mentioned earlier, Shalev and colleagues compared escitalopram with placebo and psychotherapies (Shalev et al. 2012); SSRIs have been shown to decrease firing of noradrenergic neurons (Szabo et al. 1999), and so it is possible that escitalopram could have a preventative effect in the acute phase. This study found that the SSRI was no more effective than placebo in preventing PTSD, and less effective than CBT (Shalev et al. 2012). Another randomized trial found that 7 days of treatment with imipramine was more effective in treating symptoms of ASD in 25 child and adolescent burns victims than chloral hydrate (Robert et al. 1999).

Other researchers have focused on modulating the glucocorticoid system. This approach is built on considerable evidence that people with PTSD tend to have lower levels of cortisol (Morris et al. 2012). The possibility that glucocorticoid modulation in the acute phase may be relevant for prevention of PTSD is suggested by findings that lower cortisol levels in the initial period after trauma exposure predict later PTSD (Delahanty et al. 2000; Ehring et al. 2008b).

This evidence has led to the proposal that increasing levels of glucocorticoid activation in the early period after trauma exposure may reduce subsequent PTSD levels. In terms of early intervention after trauma exposure, there is evidence from animal studies that hydrocortisone administration after a stressor leads to less fear behaviour than placebo (Cohen et al. 2008). Similarly, in human participants, cortisol administered shortly after trauma exposure leads to fewer traumatic memories (Schelling et al. 2004). There is very initial support favouring the utility of cortisol as a means of early intervention: one study found that high-dose hydrocortisone within hours of trauma exposure led to reduced subsequent PTSD compared to placebo (Zohar et al. 2011a, b). Although tentative, this evidence does point to the

possibility that acute cortisol administration may play some beneficial role in preventing subsequent PTSD. This proposal is supported by experimental evidence that administration of hydrocortisone shortly after viewing a trauma film reduces subsequent intrusive memories (Kamboj et al. 2020).

7.7.1 Selective Serotonin Reuptake Inhibitors

Some researchers have explored the utility of selective serotonin reuptake inhibitors (SSRIs) since they are commonly approved as a treatment option for PTSD. At this stage only a few very small pilot trials have investigated their efficacy as a means of preventing PTSD when administered shortly after trauma exposure. These trials of escitalopram and sertraline indicated that they were not effective in limiting subsequent PTSD. Reflecting the current state of knowledge, one meta-analytic review concluded that SSRIs do not have a preventative benefit when administered shortly after trauma.

Summing up the state of the evidence for pharmacological early interventions to prevent PTSD, a recent meta-analysis identified 19 studies (16 with adults and three with children) and concluded that the quality of most studies was poor (Astill Wright et al. 2019). This review found that hydrocortisone was the only pharmacological intervention with any supporting evidence (three studies with a total of 88 participants, relative risk: 0.21). It concluded that other agents (including propranolol, oxytocin, gabapentin, fish oil, dexamethasone, escitalopram, imipramine, and chloral hydrate) were not effective, and although the evidence supports hydrocortisone as an emerging early intervention there is insufficient evidence to warrant its routine use at this stage.

7.8 Stepped Care

As mentioned earlier, arguably the most difficult challenge is to determine who should receive early intervention. Our identification of people who require assistance will never be perfect because the relationship between acute and chronic stress reactions is complex and predicted by multiple factors that cannot be indexed in the acute phase. Complicating this issue further is the problem that many people immediately after trauma exposure may not want intervention. The problems caused by pain, income loss, job or family interruption, or the social chaos that often accompanies a traumatic event may distract the person from being receptive to offers for intervention. Only a small proportion of acutely traumatized people actually accept offers for treatment (Shalev et al. 2012). This has led many commentators to emphasize the need for ongoing monitoring of some subgroups after trauma rather than placing the full emphasis on early intervention.

In an attempt to do this, stepped care models of intervention have strived to integrate early intervention with monitoring and appropriate care as the need becomes apparent. Several models exist to achieve this. O'Donnell reported a study in which

traumatically injured patients are (a) screened in the acute phase for high risk of PTSD development, (b) subsequently screened 4 weeks later to determine if high risk status has maintained, and (c) then offering trauma-focused psychotherapy for those who indicate high risk (O'Donnell et al. 2012). Patients who had persistently high posttraumatic stress were randomized to CBT or treatment as usual; 12 months follow-up indicated that those receiving CBT enjoyed lower PTSD levels than those who received usual treatment. In a similar vein, Zatzick has conducted a series of trials in which traumatically injured patients are identified through initial screening, and then provided with collaborative care—this involves case management and is integrated into the patient's overall medical recovery. A case manager oversees the patient's progress and may offer pharmacotherapy, psychosocial interventions, and CBT. A major aim of this framework is that it intends to reduce the likelihood that the patient will not be identified and treated within the health system. Across several controlled trials this approach has been shown to be effective relative to treatment as usual in reducing PTSD and enhancing functioning (Zatzick et al. 2004, 2013). Applying this framework in the post-disaster setting, Brewin reports on a screen and treat approach that was implemented within weeks of the 2005 London bombings (Brewin et al. 2008). In this programme, people were screened 2 months after the bombings and those who screened positive were provided with fuller assessments—identified cases were then treated with CBT or EMDR. This approach resulted in increased identification of people requiring care, and also robust response rates to treatment (Brewin et al. 2010a, b).

7.9 Placing Early Intervention in Context

Building on the stepped care approach, recent models have responded to disaster scenarios by contextualizing early intervention in relation to interventions that may occur subsequent to the acute phase. For example, following major bushfires in Australia in 2009 a three-tiered model was initiated to address the different stages of trauma response (Forbes 2009). In the initial period (days) after the fires, PFA was administered to all survivors who were affected by the disaster. This intervention was provided by many providers who received rapid training in PFA and was intended to disseminate PFA to as many people as possible. In recognition that many disaster survivors do not access formal mental health services, this programme trained government employees, health providers, local primary care physicians, and volunteer agency workers who were most likely to be dealing with the disasters in the acute period.

A second tier of intervention was based on Skills for Psychological Recovery (SPR), which was a transdiagnostic intervention developed after Hurricane Katrina (Brymer et al. 2006). This intervention is based on the evidence of the core strategies that can address common problems following disasters: assessment and problem formulation, behavioural activation, cognitive reframing, anxiety management, increasing social support, and problem-solving. Although PFA contains some

elements of these strategies, such as facilitating social support and cognitive reframing, SPR is qualitatively distinct from PFA insofar as the former commences with a personal assessment, is highly structured, devotes multiple sessions to targeting problems identified by the survivor, and is intentionally focused on addressing a presenting problem rather than representing a generic preventative function. Instead of treating established mental disorders, SPR attempts to address many of the sub-syndromal problems that arise after trauma. This approach may be provided in the weeks (or even months) after trauma exposure, and is intended to be delivered by health providers who are not necessarily highly qualified mental health specialists. These strategies have been applied in different settings after disasters, and are generally perceived well by non-specialist providers (Forbes et al. 2010). At the third tier, those people who still suffer clinical disorders are treated by specialist mental health providers in evidence-based interventions.

The advantage of this approach is that it recognizes that not all problems can be identified in the acute phase, that new problems may emerge as time elapses after the trauma, and that suitable resources can be appropriately allocated to needs as they arise. Many early intervention models are predicated on the notion that trauma has a discrete onset and offset, and early intervention occurs in the period after this. Whereas this is appropriate in many cases (e.g. motor vehicle accidents, assaults, etc.), there are many other examples where the traumatic experience is very protracted and it is difficult to determine when early intervention is appropriate. For example, disasters can involve very prolonged stressors that include fear for one's safety, loss of housing, food and water shortages, and illness. Similarly, people living in war zones may experience long periods of trauma exposure punctuated by periods of respite. In these cases, it is probably not suitable to conceptualize intervention as early vs later. Instead it is more appropriate to implement interventions according to the needs of the individual, the resources that are available, and the capacity of the person to undertake the intervention. Conceptualized in this way, intervention can be planned in a more flexible framework that can be provided at various time points and can accommodate the distinctive needs of a person at different points in the adaptation period. It is for this reason that more recently transdiagnostic interventions have been trialled specifically for disaster survivors; this approach recognizes the broad array of mental health problems that can develop after disasters and the need to provide appropriate strategies for people when they need it (Hamblen et al. 2017).

7.10 Lessons for Early Intervention

One of the major lessons that needs to be learnt from the evidence reviewed concerning early interventions for PTSD is that there is no single solution that will address mental health concerns in the wake of trauma. The notion that early intervention can effectively prevent PTSD, or related psychopathology, has effectively been discredited by a large body of evidence. This leaves us with the conclusion that

effective management of posttraumatic mental disorders needs to look beyond early intervention strategies, yet still retaining these approaches as one part of the suite of interventions employed to facilitate adjustment throughout the course of posttraumatic recovery. The evidence that posttraumatic stress fluctuates over time, and this is influenced largely by ongoing stressors that occur in a fluid manner (Bryant 2011), highlights that whilst early intervention strategies can be effective for many people, this benefit may be moderated by subsequent stressors. Accordingly, ongoing monitoring, detection of people in need, and provision of evidence-based strategies are needed to address the changing mental health problems that people may experience in the months and years after trauma exposure.

It needs to be recognized that governments and agencies typically have limited resources that they can allocate to mental health after traumatic events, especially large-scale disasters or humanitarian crises. Accordingly, there is a need to wisely focus limited resources on people who are in need. To this end, there is potential utility in future research identifying people who are likely to follow a resilient trajectory after trauma because many studies indicate that this group represents approximately three-quarters of trauma-exposed populations (Galatzer-Levy et al. 2018a). Being able to exclude this group of trauma survivors because it is known that they will not develop disorders over time, limited resources can be directed to people who are not resilient and need mental health monitoring and possible intervention.

There is also a need for new approaches in early intervention to consider other mechanisms that are known to underpin mental health responses after trauma (Bryant 2021). There are a range of cognitive, emotional, and biological processes that could be explored as ways of promoting better adjustment. Factors such as impaired retrieval of specific autobiographical memories (Harvey et al. 1998; Kleim and Ehlers 2008), rumination (Ehlers et al. 2003a, b; Kleim et al. 2007), and poor emotion regulation skills (Bardeen et al. 2013) in the acute phase have all been linked to worse subsequent PTSD. Targeting these mechanisms with specific interventions aimed at correcting these patterns may be helpful as preventative strategies, and deserve to be subjected to empirical investigation.

7.11 Concluding Comment

Our understanding of early intervention has made great strides over the past two decades. It is fair to conclude that the consensus today is that we have a more sophisticated comprehension of the complexity of posttraumatic stress responses and that single early intervention strategies cannot be expected to prevent subsequent posttraumatic psychopathologies. Mental health is a dynamic process that waxes and wanes over the life course, and is typically influenced by the initial traumatic and subsequent stressful events. As the field of traumatic stress grapples with the complexity of posttraumatic mental health responses, focused research is needed that addresses the accuracy and utility of early screening tools, the long-term effects of

early interventions, and the challenge of many people not responding to early intervention strategies. Although there will always be a proportion of trauma survivors who will be treatment-resistant, we should constantly be testing new ways to enhance our treatment programmes.

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Prolonged Exposure Therapy

8

Carmen P. McLean and Edna B. Foa

8.1 Theoretical Basis for Prolonged Exposure

Prolonged exposure (PE) therapy is based on emotional processing theory (EPT; Foa and Kozak 1985, 1986) which proposes a comprehensive model for understanding the development of anxiety-related disorders and therapeutic recovery. Foa and Cahill (2001) expanded EPT to provide a theoretical account for the development of PTSD, including the mechanisms involved in natural recovery following a traumatic experience and in PE with chronic PTSD. Influenced by Lang's bioinformational theory of fear (Lang 1977, 1979), a central premise of EPT is that emotions are represented in memory as cognitive networks that include representations of the distressing stimuli, emotional responses, and their meaning. An emotional structure is activated when a person confronts information that matches some of the representations in the structure. In nonpathological emotional networks, the associations within the network match reality (e.g., gun shots mean danger), and activation of normal networks elicits adaptive behavior (e.g., seeking cover) to avoid danger. In contrast, pathological emotional networks involve erroneous associations (e.g., roadside garbage is dangerous). According to EPT, the pathological emotion networks that underlie PTSD are characterized by a large number of stimulus representations, such that a wide range of inputs can trigger activation of the entire network.

C. P. McLean (✉)

National Center for PTSD, Dissemination and Training Division, VA Palo Alto Healthcare System, Menlo Park, CA, USA

Department of Psychiatry and Behavioral Sciences, Stanford University, Stanford, CA, USA
e-mail: carmen.mclean4@va.gov

E. B. Foa

Department of Psychiatry, University of Pennsylvania, Philadelphia, PA, USA
e-mail: foa@pennteam.upenn.edu

PTSD emotion networks are also characterized by representations of one's responses during and after the trauma with the meaning of self-incompetence (e.g., "I'm a weak person because I did nothing to prevent the rape").

A strength of EPT is that it employs the same mechanisms to explain both natural and therapeutic recovery (Cahill and Foa 2007). After a traumatic event, survivors often view the world as extremely dangerous and themselves as unable to cope with stressors. Natural recovery occurs when the emotion network is repeatedly activated in the absence of feared consequences. By thinking and talking about the trauma and/or approaching trauma reminders in daily life, erroneous trauma-related perceptions are disconfirmed. In contrast, persistent avoidance of trauma-related situations, objects, memories, thoughts, and feelings can increase risk for developing PTSD because avoidance prevents the activation of the emotional network and incorporation of information that disconfirms the pathological elements (Foa et al. 2006). It follows that effective treatment for PTSD should help patients to approach safe trauma-related thoughts, images, objects, and situations in order to promote activation of the trauma-related emotion network and disconfirmation of inaccurate or unhelpful perceptions.

Activation and disconfirmation are achieved in PE through in vivo exposure and imaginal exposure. In vivo exposure involves approaching safe situations that remind the patient of the trauma and cause emotional distress (i.e., anxiety, shame, guilt) or that they feel unsafe since the trauma. In vivo exposure promotes therapeutic recovery by activating the emotional structure and correcting unrealistic or exaggerated probability estimates of harm. This involves blocking the negative reinforcement of avoidance and helping to break the patient's habit of managing distress by avoiding or escaping the distressing situation. In vivo exposure provides the opportunity to test and disconfirm the anticipated negative consequences and incorporate more realistic information through experiential learning (e.g., realizing that driving near roadside garbage does not trigger an improvised explosive device). Finally, in vivo exposure also provides opportunities for extinction learning as patients realize that their distress decreases over time, and that they can tolerate distress without relying on escape.

Imaginal exposure involves revisiting and recounting aloud the memory of the trauma followed by processing of the experience. Once the negative emotion (e.g., fear) is activated in a safe setting, corrective learning occurs through integration of information that disconfirms the anticipated harm. Imaginal exposure promotes therapeutic recovery in several ways. First, like in vivo exposure, repeatedly revisiting the trauma memory promotes extinction of conditioned distress reactions (i.e., extinction learning) and helps the patient realize that the emotional distress associated with revisiting does not persist indefinitely and that remembering the trauma does not result in "falling apart." Second, deliberately approaching the trauma memory prevents the negative reinforcement of avoidance that comes with pushing away the trauma memory. Third, repeated revisiting and recounting of the traumatic memory helps the patient distinguish between remembering the trauma and being traumatized again. Fourth, it helps the patient organize the traumatic memory and gain a new perspective about what happened during the traumatic experience (e.g.,

“I did the best I could” instead of “I could have saved my friend if I were more competent”).

As a result of these processes, patients are able to change their negative trauma-related cognitions about themselves and the world (e.g., “I am totally incompetent, the world is completely dangerous”) which, according to EPT, are the core psychopathological features of PTSD (Foa and Rothbaum 1998).

8.2 Implementing Prolonged Exposure Therapy

Prolonged exposure (PE) is a specific manualized exposure therapy program designed to help people with PTSD emotionally process their traumatic experiences. The three primary components of PE are (a) psychoeducation about the nature of trauma and trauma reactions, which incorporates the presentation of a clear rationale for the use of exposure therapy to patients, (b) in vivo exposure typically as homework, i.e., gradual approach to trauma-related, safe situations that the person avoids because these are trauma reminders, and (c) imaginal exposure to the memory of the traumatic event, by having patients recount their trauma memories out loud followed by processing of the experience in session and then by listening to a recording of their account for homework.

PE typically consists of 8–15 individual 90-min sessions. In the first meeting, the therapist provides a detailed rationale for PE and explains that PTSD is maintained by two key factors. The first factor is avoidance of thoughts, images, and feelings related to the trauma and avoidance of trauma reminders in daily life. The therapist explains that although avoidance is effective in reducing anxiety in the short term, it maintains PTSD by preventing opportunities to emotionally process the trauma memory. The second factor is unhelpful and often erroneous perceptions and beliefs that have developed in the wake of the trauma such as “the world is extremely dangerous,” “no one can be trusted,” and “I am completely incompetent.” PE aims to alter these erroneous perceptions by providing opportunities to obtain corrective information experientially that disconfirms these perceptions or beliefs via imaginal and in vivo exposure.

Case Example

Monnica was a 42-year-old single cis-gender heterosexual African American woman currently unemployed and living alone in North Philadelphia. She sought treatment at the University of Pennsylvania’s Center for the Treatment and Study of Anxiety (CTSA), presenting with symptoms of PTSD and major depressive disorder (MDD). Monnica’s baseline score on the posttraumatic stress symptom inventory (PSS-I) was 36, indicating severe PTSD symptoms. Her baseline score of the Beck Depression Inventory (BDI) was 22, indicating moderate depression. She reported daily reexperiencing symptoms regarding the trauma, including flashbacks and nightmares, as well as insomnia, and hyperarousal. She also reported considerable social isolation. Monnica endorsed suicidal ideation, but denied having a plan or intent.

The Traumatic Event Currently Causing the Most Distress (Index Event)

Monnica reported that in the early evening of a warm summer day 4 years ago, she left her home to walk to a nearby convenience store. She reported that she heard someone walking behind her and that this made her nervous. Very shortly thereafter, she felt the pressure of a knife to her back and the man holding it told her to move into the vacant lot that they were near. After moving away from the street, Monnica reported that she recalls being hit in the head with a brick. At that point, she reported her memory stops, and she presumes that she lost consciousness. When she awoke, it was starting to get light out, and she was in considerable pain. She then realized that she had been disrobed, sexually and physically assaulted, and left lying in the vacant lot. She reported that someone was walking down the street and came to help her to cover herself. She then found her cell phone and called a friend, who came and drove her to the hospital. Monnica survived the incident; she had a broken rib, serious bruising, and symptoms of a traumatic brain injury in the weeks that followed the trauma.

Case Formulation

Monnica's PTSD symptoms were maintained by her avoidance of internal cues (e.g., memories, feelings) and external cues (e.g., men, being out alone) associated with the trauma. This avoidance blocked opportunities to disconfirm beliefs about the danger inherent to these cues and her ability to cope with the distress associated with exposure to them. Monnica's avoidance also functioned to maintain the more general dysfunctional perceptions and beliefs about the world (e.g., "the world is extremely dangerous"), others (e.g., "all men are dangerous"), and herself (e.g., "I always make bad decisions"). These beliefs, in turn, helped maintain several of Monnica's PTSD and depressive symptoms, including her isolation at home, her hyperarousal, and feelings of being disconnected from others. Monnica reported difficulties in her interpersonal relationships, because she had not disclosed the trauma with many of her family and close friends and they didn't understand why she had withdrawn. Monnica felt certain that she should have been able to predict and prevent the trauma from happening and she felt guilty about what happened.

Course of Treatment

In the first session, the therapist and patient typically clarify which trauma will be focused on during imaginal exposure. For patients who have a history of multiple traumas, this "index trauma" is selected by determining which event is currently causing the greatest distress and dysfunction for the patient. Often, this will be the event that is associated with the most frequent and upsetting reexperiencing symptoms. The index trauma is identified during the first session as part of the trauma history interview. Monnica had experienced previous traumatic loss and sexual assault; however, the most recent traumatic event noted above was described as the most distressing event she had experienced. This index trauma served as the focus of the imaginal exposure. The beginning (walking down the street) and end (her friends arriving to take her to the hospital) of the traumatic memory was also identified during this discussion.

Treatment began with the therapist providing an overview of the program and a rationale for exposure therapy. Monnica's therapist explained that PTSD symptoms

are maintained by two factors: (1) avoidance of thoughts and feelings related to the trauma and avoidance of trauma reminders and (2) the presence of unhelpful, dysfunctional beliefs such as “the world is extremely dangerous” and “I am extremely incompetent.” He then explained that PE works to shift these negative, dysfunctional perceptions by providing opportunities to re-evaluate these perceptions through in vivo and imaginal exposure followed by processing (discussion of the imaginal exposure experience and Monnica’s thoughts about the self and world related to the experience). The first session also involved teaching Monnica a slow-breathing relaxation technique that she was encouraged to practice on a daily basis to reduce daily stress. With her therapist’s guidance, Monnica practiced the slow-breathing technique in session and agreed to continue to practice at home for homework.

In the second session, the therapist began a collaborative discussion of common reactions to trauma. This discussion gave the therapist an opportunity to learn more about Monnica’s unique experience of PTSD symptoms and pattern of avoidance behaviors. It also served to help validate and normalize Monnica’s experience and helped her to see the interrelatedness of the various symptoms she was experiencing. Monnica was forthcoming in describing the difficulties that she has experienced since the trauma. She reported that she didn’t realize that some of her difficulties, such as difficulty concentrating and emotional numbing, were recognized as PTSD symptoms, and she expressed hope upon learning that PE is geared towards alleviating these symptoms.

Next, Monnica’s therapist introduced in vivo exposure and the rationale for gradually approaching safe but avoided places, people, and objects that reminded her of the trauma. Monnica and her therapist collaboratively constructed an in vivo hierarchy of trauma-related situations that Monnica had been avoiding. Then, these situations were rank ordered based on how distressed Monnica expected to be if she confronted the situation. Distress ratings were collected using SUDS (subjective units of distress scale) from 0 (no distress) to 100 (intense distress). Monnica was able to identify a good range of situations for her hierarchy, with some that were associated with mild distress (e.g., sitting on her front steps during the day), moderate distress (e.g., going for a walk with a friend), and high distress (e.g., being out in the evening).

An important consideration when developing the hierarchy relates to patient safety. Monnica described her neighborhood as less safe than other Philadelphia neighborhoods, and in vivo exposure is only recommended for situations for which there is a relatively low probability of danger (approaching objectively unsafe situations is neither appropriate nor therapeutic). Monnica and her therapist determined which situations were and were not appropriate to include on the hierarchy by discussing how neighbors would perceive the risk of a given situation and what they might do to get their needs met within the lowest risk possible. Monnica reported that many of her neighbors would walk to the grocery store during the day, often with a companion, and so this was used as a guide for determining what situations were reasonably safe for her to engage in. Monnica expressed hopes to move in with a family member who lived in a safer neighborhood. However, she and her therapist

agreed that it was important for her to regain confidence approaching reasonably safe situations within her current living situation.

In vivo exposure was conducted in a stepwise fashion, beginning with situations that provoke moderate anxiety and gradually progressing to more challenging situations. After creating the in vivo hierarchy, Monnica and her therapist agreed on two specific in vivo assignments that she would work on for homework that week. In vivo exposure can also be used to promote behavioral activation, which was indicated for Monnica given her depressive symptoms. In vivo assignments were broadened to include several behavioral activation that focused on physical activity and social connection (e.g., doing yoga videos at home, talking with her friends on the phone). This focus was applied to “rebuilding life” tasks later in therapy, including pursuing her General Educational Development and reestablishing relationships with family.

In the beginning of the third session, Monnica reported that she had practiced the breathing retraining often and that she found it very helpful. She had worked on only one of her in vivo homework exercises but had not repeated it as often as planned. The therapist explained the importance of repetition of in vivo exercises so that Monnica has an opportunity to benefit from the exercise. Next, Monnica’s therapist presented a detailed rationale for imaginal exposure. Monnica expressed some concern that her lack of memory of the assault would mean that imaginal exposure would not be helpful. The therapist discussed with her that because Monnica recalls what happened immediately before and after the assault, and has information about at least some of the details that occurred while she was unconscious, she would likely still benefit from imaginal exposure. Monnica’s therapist reminded her of the agreed upon beginning and end points of the trauma. The therapist then asked Monnica to close her eyes and describe aloud what happened during that trauma, while visualizing the event as vividly as possible. Monnica was encouraged to recount the trauma in as much detail as possible, including the thoughts, feelings, and physical sensations that occurred during the traumatic event, using the present tense. Imaginal exposure was continued for a prolonged period (usually 35–45 min) and included three repetitions of Monnica’s memory. Monnica was increasingly emotionally engaged with the traumatic memory during the imaginal exposure as evidenced by her facial expression, occasional tearfulness, and reported SUDS (50 at pre, 90 at peak, and 70 at post). After the imaginal exposure, she reported that the details were very vivid for her. Monnica occasionally included perspectives and information that were not present at the time of the trauma (e.g., knowing that the person behind her was going to hurt her) and the therapist encouraged her to share the thoughts and feelings that she had at the time the events were occurring.

Imaginal exposure was followed immediately by 15–20 min of processing, which aims to help patients integrate new information and insights into their memory, thereby promoting a more realistic perspective. The therapist praised Monnica for her courage in approaching a very distressing memory and sticking with the exercise despite the fact that it elicited emotional distress. The therapist then asked Monnica what the revisiting experience was like for her. Monnica acknowledged that although it was difficult, she was able to stay with it the whole time. Monnica

described feeling guilty that she had not acted upon her feelings of nervousness when she realized that someone was approaching her from behind on the street. However, she also acknowledged that she could not have known that she was about to be attacked. Monnica also acknowledged that she didn't have any options once the knife was in her back and that she did what she needed to do to take care of herself once she was able to. Homework in vivo exposure exercises for the coming week were assigned at the end of the session. Monnica was also asked to listen to the audio recording of the entire session once and to listen to the imaginal exposure narrative daily.

Monnica participated in 12 sessions of PE. Session 4 onward followed a standard agenda that began with reviewing the preceding week's homework. Monnica did not always complete the assigned in vivo exposure homework, but she did make steady progress. Likewise, she did not listen to the imaginal exposure audio every day but regularly listened to it 2–3 times per week. During in-session imaginal exposure, Monnica's peak SUDS rating decreased steadily, but remained over 60 for the course of treatment. Her pre-SUDS and post-SUDS ratings also decreased. Monnica reported that revisiting the memory was getting easier for her with repetition, and this report matched the therapist's behavioral observations of (lack of) distress. Monnica reported that she did have a very faint and unclear memory of the sexual assault when she briefly regained consciousness. She described the details she could, including realizing that she was being raped and that she might die. In session 7, the therapist introduced "hot spots," which he explained to Monnica as moments of the trauma memory that continued to cause the most distress. Monnica identified two hot spots: the first was when she felt the knife pressing up against her from behind, and the second was when she awoke in extreme pain and realized what had happened to her. These hot spots were the focus of the imaginal exposure for session 7–11. During the processing, Monnica and her therapist discussed her perception that she should have known that she would be attacked when she heard someone walking behind her, and the accompanying feelings of guilt. As therapy progressed Monnica became more confident in an alternate perspective, namely that most people walking down the street do not attack you, and she could not have reasonably predicted the trauma to occur. Revisiting the memory repeatedly helped Monnica realize that there wasn't anything she could have done differently and that it could have happened to anyone. She also expressed the belief that losing consciousness the second time was adaptive—it was her body shutting down so that she didn't have to consciously experience the rape as it happened. This perspective helped Monnica feel that she had protected herself as best she could given the circumstances. Learning to tolerate the distress that accompanied the exposure exercises and experience the reduction in distress that came with repetition helped Monnica feel more competent in managing her PTSD symptoms and changed her view that she couldn't cope with life and the difficult situations that go with it.

During the final treatment session, the therapist and Monnica reviewed progress, discussed lessons learned, and made a plan for how Monnica could maintain the gains made during treatment. At the end of treatment, Monnica's PTSD symptoms had decreased significantly (PSS-I = 7, indicating minimal PTSD symptoms) as had

her depressive symptoms (BDI = 5 indicating no depression). Monnica had decided to discuss the trauma with a trusted friend, as well as the family member that she recently moved in with. She reported that these conversations had gone well, and that it was a relief to finally share the trauma with them. Monnica also took an initial step towards pursuing her GED. In contrast to the guilt feelings she described at the beginning of treatment, at the end of treatment Monnica recognized that while bad things can happen, she was a survivor, and she had the skills she needed to live a full life, one that was no longer ruled by fear.

8.3 Special Challenges to Implementing Prolonged Exposure Therapy

Given the high rates of comorbidity associated with PTSD, it is typical for patients with primary PTSD to present with additional psychiatric and/or physical health problems. Fortunately, as reviewed below, evidence suggests that PE is effective for individuals with PTSD who also suffer from co-occurring disorders with little or no modification.

As with any treatment, not all patients benefit from PE. Not all patients complete treatment, and even among those who do, not everyone achieves a good clinical outcome. As we discuss below, studies have sought to understand these challenges, with the goal of minimizing dropout and nonresponse. Finally, we discuss some guidelines for when PE might be contraindicated.

8.3.1 Comorbid Depression

There is now considerable evidence that PE can effectively reduce PTSD symptoms among patients with comorbid depression. PE has been found effective in reducing symptoms of depression in numerous trials (Asukai et al. 2010; Foa et al. 1991, 1999a, b, 2005, 2013; Marks et al. 1998; Nacasch et al. 2011; Paunovic and Ost 2001; Resick et al. 2002; Rothbaum et al. 2005; Taylor et al. 2003). Moreover, PE has also been found effective in reducing PTSD symptoms among patients with comorbid major depressive disorder (Hagenaars et al. 2010). Patients with current major depression, past major depression, and no history of major depression all seem to benefit equally from PE (Hagenaars et al. 2010). Interestingly, one study even showed that patients with higher levels of depression pretreatment who received either cognitive processing therapy (CPT) or PE showed greater improvement in PTSD symptoms from pre- to posttreatment than those with lower depression (Rizvi et al. 2009). Symptoms of PTSD and depression are closely linked, which may explain why reductions in PTSD severity tend to be accompanied by reductions in depressive symptoms. Indeed, PE tends to significantly reduce PTSD as well as depressive symptoms (e.g., Foa et al. 1999a, b; Paunovic and Ost 2001; Aciermo et al. 2017).

In sum, when PTSD is the primary disorder comorbid depression should not be considered a contraindication to use PE. Depending on the patient's level of depression, therapists may want to incorporate more behavioral activation exercises when planning the in vivo hierarchy as recommended in the PE manual (Foa et al. 2019a). In cases where major depression is clearly primary, or when depressive symptoms are significantly interfering with treatment participation (e.g., session attendance, homework completion), therapists should consider delivering an evidence-based treatment for depression, at least until the patient is able to participate in PE.

8.3.2 Comorbid Substance Use

Traditionally, PTSD treatment studies have excluded patients with comorbid substance use disorders (e.g., Foa et al. 2005; Resick et al. 2008) based on the notion that PTSD treatment would be ineffective for patients with comorbid substance use or, worse, that it would exacerbate patients' substance use. However, studies have shown that PTSD and comorbid substance use can be treated successfully with concurrent or integrated treatment that include PE. In civilians with comorbid alcohol dependence, naltrexone and medication counseling with and without PE were all equally effective in reducing PTSD symptoms (Foa et al. 2013). Alcohol consumption reduced significantly in all groups, but only those who received PE maintained reduced levels of drinking 6 months after treatment ended (Foa et al. 2013). Several studies of an integrated treatment called Concurrent Treatment of PTSD and Substance Use Disorders Using Prolonged Exposure have found it to be superior to other integrated treatments in reducing PTSD and similarly efficacious in reducing substance use (e.g., Back et al. 2019; Norman et al. 2019). Similarly, in a study of PTSD and comorbid smoking dependence, PE plus varenicline was superior to varenicline alone in reducing PTSD, but there were no group differences in smoking cessation (Foa et al. 2017). In sum, most trials of combined or integrated PE and substance use treatment have found that although PE does not contribute to substance use improvement itself, it is safe, tolerable (i.e., no increases in craving), and effective in reducing PTSD symptoms in these populations.

As with comorbid depression, substance use and PTSD symptoms can be closely linked. In fact, it is commonly held that PTSD patients use substances, in part, to self-medicate their PTSD symptoms (e.g., Leeies et al. 2010). Thus, by encouraging patients to approach trauma-related stimuli and process the traumatic memories, PE may lead to decreased substance use indirectly by reducing PTSD symptoms. Therapists should carefully assess for substance use before implementing PE. Patients with substance use disorders should be referred for concurrent substance use treatment. Even patients who do not meet criteria for substance use may be using the substance as a subtle avoidance strategy, and this should be addressed in the context of PE (see also Chap. 16).

8.3.3 Comorbid Traumatic Brain Injury

Traumatic brain injury (TBI) is common among PTSD patients, especially among military service members and assault survivors, who often experience head injuries during traumatic events. Fortunately, there are data showing that mild to moderate TBI does not interfere with successful PE (Ragsdale and Voss Horrell 2016; Sripada et al. 2013; Wolf et al. 2015). In fact, because PE procedures are relatively simple and easy to individualize to each patient, it may be particularly well suited for adapting it to patients with comorbid TBI. Therapists should screen for and assess cognitive impairment in patients reporting a history of TBI and should adapt the PE protocol (e.g., incorporating homework reminders, enlisting help from someone close to the patient, shorter sessions) as needed.

8.3.4 Comorbid Borderline Personality Disorder

Borderline personality disorder (BPD) is another condition that has been an exclusion criterion in some studies on PTSD treatment (Clarke et al. 2008; Feeny et al. 2002; Mueser et al. 2008). The concern being that BPD would interfere with PTSD treatment or that PE would trigger or increase self-injurious behaviors (Merrill and Strauman 2004). However, there is some evidence suggesting that individuals with comorbid BPD and PTSD can also safely benefit from PE. Building on positive findings from a small open trial (Harned et al. 2012), Harned et al. (2014) compared dialectic behavior therapy (DBT; Linehan et al. 2006) alone with a combined treatment (DBT + PE) among women who had received DBT alone and met BPD-related stability criteria. Those who received the combined treatment experienced significantly greater reduction in PTSD severity and self-injurious behavior compared to those who received DBT alone. Thus, introducing PE to patients in this clinical context was not only safe (no increased self-injury urges or behaviors, treatment dropout, or crisis service use) but it was also effective in reducing PTSD and self-injurious behavior compared to DBT alone.

There is also evidence that PE is safe and effective for those subclinical to mild severity of BPD without the addition of DBT. Feeny et al. (2002) found that women with BPD characteristics who received PE, stress inoculation training (SIT), or their combination benefited as much from treatment (reduction in PTSD, depression, anxiety, and improved social functioning) as those without the BPD symptoms.

In summary, standard PE can be effective for patients with BPD characteristics who don't meet full criteria. For those with comorbid BPD, PE is effective when delivered concurrently with DBT and after delivering DBT alone. When working with this population, therapists should carefully assess the presence and severity of self-injurious behavior and suicidality on an ongoing basis and coordinate care with a DBT therapist as appropriate (see also Chap. 18).

8.3.5 Symptoms Associated with PTSD

Related to the concern about comorbid BPD, there has been a long-held concern that patients with high levels of dissociative symptoms are not good candidates for PE because dissociation would reduce the efficacy of treatment by limiting emotional engagement. However, studies have shown that pretreatment levels of trait/state dissociation, depersonalization, and numbing are not related to PTSD symptom improvement or dropout from PE (Hagenaars et al. 2010; Harned et al. 2012; Jaycox and Foa 1996; Shalev et al. 1996). That is, patients with high levels of dissociative symptoms showed a similarly large reduction in PTSD severity as patients with low levels of dissociative phenomena. However, one study showed equivalent symptom improvement/dropout from PE with high and low dissociation, and found that individuals with high levels of dissociation were significantly more likely to meet criteria for PTSD (69%) at follow-up than those with low dissociative symptoms (10%) (Hagenaars et al. 2010). Among women with high dissociation whose PTSD was related to sexual abuse, Cloitre et al. (2012) found that preceding modified prolonged exposure with emotional regulation skills training led to better outcomes than preceding modified prolonged exposure with supportive counseling.

When working with patients who dissociate when distressed, therapists should discuss the issue with the patient and develop a plan for managing dissociation ahead of implementing exposure. It may be helpful to discuss why dissociation is unhelpful for recovery (prevents activation of the emotion network), and identify some strategies to help support and ground the patient when needed. The PE manual offers a number of suggestions for promoting optimal engagement (and minimizing the probability of dissociation) such as writing the trauma narrative or incorporating grounding techniques.

8.3.6 Dropout

A recent meta-analysis of clinical trials estimates an overall dropout rate from PE of 22%, which is similar to other trauma-focused treatments for PTSD (13–30%; Lewis et al., 2020). Dropout from PE in routine care settings is estimated to be higher (30–45% of Veterans, Kehle-Forbes et al. 2016; Eftekhari et al. 2020).

We still know very little about factors that predict treatment dropout. Idiographic approaches to identifying patient demographic and clinical characteristics that predict dropout are needed. Early work in this area has identified univariate (e.g., Gros et al. 2018) and multivariate models (Keefe et al. 2018) of patient factors that predict differential risk of dropout from PE; replication across PTSD samples is needed. Connecting patients to a trained peer who support them during in vivo exposure assignments appears to be a promising strategy to reduce dropout of PE (Hernandez-Tejada et al. 2017, 2020). While offering peer support is not always feasible, providers can encourage patients to identify persons in their support network who could offer support and accountability for treatment activities.

8.3.7 Contraindications to PE Implementation

Like any treatment, there are contraindications to implementing PE. When deciding whether or not to use PE, therapists should consider the following: first, PTSD symptoms must be the primary presenting problem. PE is a treatment for PTSD; therefore, a history of trauma in the absence of clinically significant PTSD symptoms is not sufficient to indicate the use of PE. Second, there must be no safety problems such as imminent risk of suicide, homicide or current moderate to severe self-harm behavior, or current severe partner abuse. If present, PE should be withheld until the safety issues are addressed through crisis management or treatment. Third, there must be no comorbid disorders that might significantly interfere with implementing PE including unmanaged bipolar disorder or active psychosis. Although PE has been found to be safe and effective in reducing PTSD symptoms among individuals with psychosis receiving medication management (van den Berg et al. 2015), more studies are needed with these patient populations. Finally, although some research has found that benzodiazepines interfere with exposure therapy for PTSD (Davidson 2004, presumably by interfering with extinction learning, see Otto et al. 2005), other work has found that PE effectiveness is not significantly impacted by benzodiazepine use (Rosen et al. 2013). Therefore, while PE should not be withheld based on benzodiazepine use, providers may encourage patients to work with their prescribing physician to discontinue this medication if appropriate, or, if unwilling, to refrain from using the medication prior to or during in vivo or imaginal exposures. Concurrent pharmacotherapy is not a contraindication to PE; however, as a general rule it is best if medication dosage remains stable during therapy so that the patient and therapist can accurately gauge the efficacy of therapy (see also Chap. 27).

8.4 Evidence Supporting Prolonged Exposure Therapy

A large number of randomized controlled trials indicate that PE is effective in reducing PTSD symptoms (see Galowski et al. 2021) and is associated with rapid change and maintenance of treatment gains over time (see Powers et al. 2010), even 5–10 years posttreatment (Resick et al. 2012). PE has been found to be effective across a wide variety of trauma types and has been examined by independent research groups around the world (e.g., Israel: Nacasch et al. 2007, Japan: Asukai et al. 2008, Australia: Bryant et al. 2008, Netherlands: Hagenaars et al. 2010). As noted above, PE has demonstrated efficacy for PTSD sufferers with a number of common comorbid disorders (e.g., Foa et al. 2013; Harned et al. 2014; van den Berg et al. 2015). PE has also been found to have a positive effect on associated symptoms of PTSD, including depression (e.g., Acierno et al. 2017), general anxiety (e.g., Foa et al. 2005), trauma-related guilt (e.g., McLean et al. 2019), and state anger (e.g., Cahill et al. 2003; Ford, Grasso, Greene, Slivinsky, & DeViva, 2018), as well as wellbeing and functioning (e.g., Foa et al. 2005; Goodson, Lefkowitz, Helstrom, A., & Gawrysiak, 2013). In sum, PE often has a broad impact on the lives of PTSD sufferers.

PE has been found superior to nonspecific active controls (e.g., Marks et al. 1998; Resick et al. 2002; Rothbaum et al. 2005) and treatment-as-usual (Asukai et al. 2010). Studies indicate that PE is efficacious, though not superior to other active treatments, including trials comparing PE to SIT (Foa et al. 1991, 1999a, b), cognitive processing therapy (CPT, Resick et al. 2002), and eye movement desensitization and reprocessing (EMDR, Rothbaum et al. 2005); PE was found non-inferior to interpersonal therapy (Markowitz et al. 2015) and transcendental meditation (Nidich et al. 2018). Exceptions include Taylor et al. (2003), who found that exposure therapy with imaginal and in vivo exposure implemented sequentially (early sessions focus on imaginal exposure and later sessions focus on in vivo exposure) was superior to relaxation and to EMDR, and Schnurr et al. (2007), who found that PE was superior to PCT in reducing PTSD severity among women veterans. Few randomized trials have compared PE to medication: Zoellner et al. (2019) found that PE and sertraline both significantly reduced PTSD severity, but that PE was superior to sertraline on several secondary outcomes (loss of PTSD diagnosis, responder status, and self-reported PTSD symptoms). Similarly, Rauch et al. (2018) found that PE + sertraline, PE + placebo, and sertraline + enhanced medication management were all efficacious in reducing PTSD, with no significant differences across groups.

Overall, the evidence in support of the efficacy of PE is extensive. Indeed, PE is recommended as a first-line treatment in all major clinical practice guidelines, including the Department of Veterans Affairs and Department of Defense (VA/DoD 2017), the American Psychological Association (2017), the International Society for Traumatic Stress Studies (ISTSS) (2018), and the National Institute for Health and Care Excellence (NICE) (2018).

8.5 Augmentation of Prolonged Exposure Therapy

Despite the impressive track record of PE, not all patients achieve a good outcome; there is room for improvement. Several studies have therefore explored whether the effects of PE can be augmented. Studies testing the therapeutic value of augmenting PE with additional psychotherapy procedures have not yielded positive results (e.g., Foa et al. 1999a, b, 2005; McDonagh et al. 2005); In contrast, Bryant et al. (2008) found that adding cognitive restructuring to exposure therapy improved outcomes. However, the exposure program used omitted post-imaginal exposure processing, making the relevance of the finding to PE without processing unclear. One study found that PE + an antidepressant medication (paroxetine) was more efficacious than PE + placebo (Schneier et al. 2012), but other studies have not found evidence that adding pharmacological treatment to PE improves outcomes over PE alone (Popiel et al. 2015; Rauch et al. 2018).

Studies of a so-called “cognitive enhancer” D-Cycloserine hypothesized to enhance extinction learning have demonstrated a small augmentation effect across anxiety-related disorders (Mataix-Cols et al. 2017) but have generally not been found to augment PE (e.g., de Kleine et al. 2012). Alternate cognitive enhancers

have shown promise as PE augmentation strategies in pilot work (e.g., oxytocin: Flanagan et al. 2018, yohimbine: Tuerk et al. 2018), but replication is needed.

One strategy to improving PTSD outcomes is to engaging patients in treatment selection: patients who receive PE tend to do better when PE is the treatment they prefer (Zoellner et al. 2019; Watts et al. 2015). Starting PE shortly after seeking treatment and providing sessions regularly, without long multi-week gaps between sessions, have also been associated with better outcomes in routine care settings (Maguen et al. 2019). In terms of therapeutic techniques however, PE augmentation studies have not identified strategies to improve outcomes. Research that aims to minimize dropout or improve outcomes for select patients identified as probable non-responders may be more effective than approaches that aim to boost overall efficacy.

8.6 New Models of Prolonged Exposure Therapy Delivery

Researchers are testing new formats and schedules for delivering PE, with the goal of increasing access to PE by addressing barriers to standard care (i.e., 8–15 weekly 90-min sessions). One study recently found that ten daily sessions of PE delivered over 2–3 weeks was non-inferior to ten weekly sessions among active duty service members (Foa et al. 2018). “Massed” PE was also found efficacious in an open trial among civilians with PTSD (Hendriks et al. 2018). These findings suggest that providing PE in daily sessions appears to be both acceptable (low dropout rates), tolerable (no increase in adverse events), and efficacious in significantly reducing PTSD symptoms in a relatively short period of time. Other research suggests that PE sessions can also be shortened from 90 min to 60 min without decreasing the efficacy of the treatment (Nacasch et al. 2015; van Minnen and Foa 2006), although results from a larger non-inferiority trial testing this hypothesis are pending (Foa et al. 2019b).

PE for primary care (PE-PC) is a brief, 4–6 session version of PE developed for implementation in primary care mental health settings (Rauch et al. 2017). Building on positive findings in pilot work (Cigrang et al. 2011, 2015), results of a randomized clinical trial showed that PE-PC was superior to minimal control in reducing PTSD in US military service members (Cigrang et al. 2017). Additional trials are underway, but PE-PC appears to be a promising approach to providing access to a sufficient dose of PE for many patients with PTSD presenting to primary care settings.

PE has been found efficacious when delivered via home-based telehealth (Yuen et al. 2015) and non-inferior to in-person PE delivery (Acierno et al. 2017). A self-guided web-version of PE with asynchronous therapist support was recently shown to significantly reduce PTSD severity in veterans and active duty military personnel (McLean et al. 2021). Telehealth and web-treatment can address barriers to in-person treatment such as lack of available services, distance from clinics, difficulty scheduling during work hours, and stigma associated with mental health problems (Morland et al. 2017).

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Cognitive Therapy for PTSD: Updating Memories and Meanings of Trauma

9

Anke Ehlers and Jennifer Wild

9.1 Understanding PTSD from a Cognitive Perspective

In the initial days and weeks after a traumatic event, most people will experience at least some symptoms of posttraumatic stress disorder (PTSD) such as intrusive memories, sleep disturbance, feeling emotionally numb, or being easily startled (Rothbaum et al. 1992). Most people will recover in the ensuing months, but for some the symptoms persist, often for years. What prevents these people from recovering? A lesson that we learned in treating and interviewing many trauma survivors is that what people find *most* distressing about a traumatic event varies greatly from person to person. Understanding the *personal* meanings of trauma and their relationship with *features of trauma memories* appears key to helping people with PTSD.

9.1.1 A Cognitive Model of PTSD

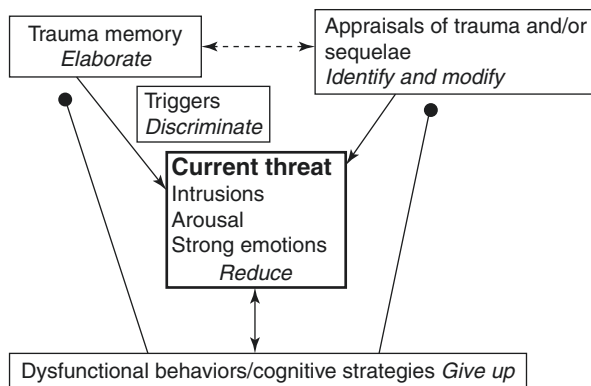
Ehlers and Clark (2000) suggested a cognitive model that explains why persistent PTSD develops. It guides the individual case conceptualization in the corresponding treatment approach, cognitive therapy for PTSD (CT-PTSD). This model suggests that PTSD develops if individuals process the traumatic experience in a way that produces a sense of a *serious current threat*. Once activated, the perception of current threat is accompanied by reexperiencing and arousal symptoms and strong emotions such as anxiety, anger, shame, or sadness. It is proposed that two key processes lead to a sense of current threat (see Fig. 9.1), namely, personal meanings of the trauma and the way traumatic experiences are laid down in memory.

A. Ehlers (✉) · J. Wild

Department of Experimental Psychology, University of Oxford, Oxford, UK

e-mail: anke.ehlers@psy.ox.ac.uk

Fig. 9.1 Treatment goals in cognitive therapy for PTSD (Ehlers and Clark 2000). *Pointed arrows* stand for “leads to.” *Round arrows* stand for “prevents a change in.” *Dashed arrows* stand for “influences.” (Reprinted with permission from Ehlers 2013)



First, it is suggested that individual differences in the personal meaning (appraisal) of the trauma and/or its consequences (e.g., reactions of other people, initial PTSD symptoms, physical consequences of the trauma) determine whether persistent PTSD develops. For people with PTSD, the trauma and/or its aftermath have highly threatening personal meanings that go beyond what other people would find horrific about the situation. The perceived threat can be external or internal and leads to a range of negative emotions that are meaningfully linked with the type of appraisal. Perceived external threat can result from appraisals about impending danger (e.g., “I will be assaulted again,” “I cannot trust anyone”), leading to excessive fear, or a preoccupation with the unfairness of the trauma or its aftermath (e.g., “I will never be able to accept that the perpetrator got away with a minor sentence”), leading to persistent anger. Perceived internal threat often relates to negative appraisals of one’s behavior, emotions, or reactions during the trauma and may lead to guilt (e.g., “It was my fault,” “I should have prevented it”) or shame (e.g., “I am inferior,” “I am a bad person,” “My actions are despicable”). A common negative appraisal of consequences of the trauma in PTSD is perceived permanent change (e.g., “I have permanently changed to the worse,” “My life is ruined”), which can lead to sadness and hopelessness. People who experienced multiple interpersonal traumas also tend to show generalized negative self-appraisals (e.g., “I am worthless,” “I do not matter,” “I deserve bad things happening to me”), leading to an enduring sense of degradation, defeat, or low self-worth (Ehlers et al. 2000).

Second, it is suggested that the worst moments of the trauma are poorly elaborated in memory, namely, inadequately integrated into their context (within the event and within the context of previous and subsequent experiences/information). This has the effect that people with PTSD remember the trauma in a disjointed way. While they recall the worst moments, it may be difficult for them to access other information that could correct impressions they had or predictions they made at the time. In other words, the memory for these moments has not been updated with what the person knows now. This has the effect that the threat they experienced during these moments is reexperienced as if it were happening right now rather than

being a memory from the past. For example, when John¹ nearly drowned during a ferry disaster, he thought that he would never see his children again. Whenever he recalled this particularly distressing moment, he was not able to access the fact that he still lived with his children and reexperienced the overwhelming sadness he had experienced at that moment.

Ehlers and Clark (2000) also noted that intrusive trauma memories are easily triggered in PTSD by sensory cues that overlap perceptually with those occurring during trauma, for example, a similar sound, color, smell, shape, movement, or bodily sensation. They suggested that cognitive processing that focuses on perceptual features of the experience (data-driven processing) leads to strong perceptual priming (a reduced threshold for perception) for stimuli (and their sensory features) that occurred at the time of the traumatic event. Through learned associations, the stimuli also become associated with strong affective responses. This increases the chances that similar cues evoke distressing reexperiencing symptoms after the trauma.

In line with a role of associative learning, reexperiencing includes strong affective responses that are clearly related to the trauma, without the person recognizing that a trauma memory has been triggered (*affect without recollection*). For example, Anna, whose trauma involved being chased by a bull, felt an overwhelming urge that she had to “get out of here” when going for a walk in the country and jumped into an icy river. She was unaware of what had triggered this urge. Her partner spotted that she had responded to a cow grazing at a distance. Together, the proposed memory processes (poor elaboration, priming, and associative learning) explain why trauma memories remain so threatening in people with PTSD and why parts of these memories can be easily triggered by sensory reminders.

Why do the negative appraisals and the problematic nature of trauma memories persist in PTSD? Ehlers and Clark proposed that the negative appraisals and emotions prompt cognitive and behavioral responses that have the short-term aim of reducing distress but have the unhelpful long-term consequence of preventing cognitive change and therefore maintain the disorder. Common examples include rumination about the trauma, avoidance of trauma reminders, suppression of trauma memories, excessive precautions (safety behaviors), substance use, and hypervigilance.

These maintain PTSD in three ways. First, some behaviors directly lead to increases in symptoms, for example, suppression of trauma memories leads to paradoxical increases in intrusion frequency. Second, other behaviors prevent changes in the problematic appraisals, for example, constantly checking one’s rear mirror (a safety behavior) after a car accident prevents change in the appraisal that another accident will happen if one does not check the mirror. Third, other behaviors prevent elaboration of the trauma memory and its link to other experiences. For example, avoiding thinking about the event prevents people from updating the memory of the worst moments with information that could make them less threatening, for example, that they did not die or are not paralyzed, or that it was not their fault.

¹Names and some details are changed in case examples to preserve anonymity.

9.1.2 Empirical Studies Testing the Proposed Factors

Studies have (1) compared trauma survivors with and without PTSD on the factors specified in Ehlers and Clark's (2000) model, (2) measured these factors soon after trauma and tested whether they predict PTSD later, and (3) tested them experimentally.

9.1.2.1 Negative Appraisals

Studies have found strong empirical support for a relationship between PTSD and negative personal meanings (appraisals). Trauma survivors with PTSD endorsed negative appraisals of the trauma and its aftermath more strongly than those without PTSD and negative appraisals correlate highly with the severity of PTSD symptoms. It is noteworthy that negative appraisals about the self (e.g., "What happened showed that I am a bad person," "My reactions since the event show that I am going crazy") correlate more strongly with PTSD severity than those about external danger (e.g., "The world is unsafe") (e.g., Duffy et al. 2013). Negative appraisals also help identify who is at risk of chronic PTSD after trauma. Prospective studies recruited trauma survivors soon after their trauma and found that early negative appraisals strongly predicted PTSD 6 months or 1 year later (e.g., Beierl et al. 2019; Ehring et al. 2008). Again, negative appraisals about the self were the most predictive.

9.1.2.2 Memory Processes

There is evidence from prospective studies of trauma survivors that a predominance of *data-driven processing* during trauma (i.e., predominantly processing perceptions and sensations as opposed to conceptual processing) predicts subsequent PTSD (e.g., Ehring et al. 2008; Halligan et al. 2003). Similar results were found in studies that experimentally induced intrusive memories of analogue traumatic pictures in healthy volunteers (e.g., Sündermann et al. 2013).

The hypothesis that cues are strongly *primed* during trauma and therefore more easily spotted afterwards has also gained empirical support. In a series of experiments, volunteers saw unpleasant picture stories that included some neutral objects that were unrelated to the content of the stories and parallel neutral stories. When participants were later asked to identify blurred pictures, they were better at identifying neutral objects that they had previously seen during a trauma story than those that they had seen in a neutral story (for a review, see Ehlers et al. 2012). Similarly, Kleim et al. (2012b) found that accident and assault survivors with PTSD identified blurred trauma-related pictures, but not general threat pictures, with greater likelihood than neutral pictures. The lower perceptual threshold in identifying trauma-related pictures also predicted PTSD 6 months later.

There is some evidence that PTSD is related to slow extinction learning of *conditioned associations* between neutral stimuli and fear responses, enhanced generalization and poor discrimination learning. Individual differences in the degree to which such learned associations generalize to related stimuli also seem to play a role in the persistence of PTSD symptoms (for a review, see Ehlers et al. 2012).

The nature of trauma memories has been a matter of considerable debate (see Ehlers 2015, for a review). There is some evidence from questionnaire studies and analyses of trauma narratives that people with PTSD recall the trauma in a disorganized and incoherent way, for example, gaps in memory and/or problems remembering the temporal order of events (e.g., Halligan et al. 2003). Five prospective longitudinal studies showed that objective measures of trauma memory disorganization taken in the initial weeks after the trauma predicted the severity of PTSD symptoms at follow-up (see Ehlers 2015, for a review). It is less clear whether the observed memory disorganization is specific to trauma narratives in PTSD, as some studies found that people with PTSD also recall other events in a disorganized way.

Some of the inconsistencies in the literature may be due to the fact that not all parts of the trauma memory are equally disorganized. The hypothesis that trauma memories are disjointed from other autobiographical information concerns moments of the trauma that are reexperienced (Ehlers et al. 2004). There is indeed some evidence that the memory for the worst moments of trauma is particularly disorganized (e.g., Evans et al. 2007). People with PTSD experienced intrusive memories to a greater extent as more disconnected from their context than those without PTSD (e.g., Michael et al. 2005). In an experimental study, assault survivors with PTSD took longer than those without PTSD to retrieve autobiographical information when imagining the worst moment of their trauma, but not another negative life event (Kleim et al. 2008). In line with the hypothesized role of disjointed memories in reexperiencing, volunteers exposed to a trauma film reported greater disjointedness, but better recall, than those who had seen a neutral film. Memory disjointedness, but not recall, was related to subsequent intrusions and PTSD symptoms and mediated the relationship between cognitive processing and intrusions (Sachschaal et al. 2019).

9.1.2.3 Behaviors and Cognitive Responses That Maintain PTSD

Several prospective studies of trauma survivors found that rumination, suppression of trauma memories, and safety behaviors predicted chronic PTSD over and above what could be predicted from initial symptom levels (e.g., Ehling et al. 2008; Kleim et al. 2012a).

Experimental studies investigated whether suppression of trauma memories and rumination play a causal role in maintaining PTSD symptoms. Most of the results are consistent with this hypothesis (for a review, see Ehlers et al. 2012).

9.2 How to Do Cognitive Therapy for PTSD

9.2.1 Theory-Informed Individual Case Formulation

Cognitive therapy is a formulation-driven treatment. Treatment is tailored to the individual formulation and focuses on changing cognitions and cognitive processes that are directly relevant to the individual's problems. In CT-PTSD, Ehlers and Clark's cognitive model (2000) serves as the framework for an individualized

formulation of the patient's problems and treatment. This model suggests three treatment goals that are targeted in treatment (Fig. 9.1):

- *To modify excessively negative appraisals of the trauma and its consequences.*
- *To reduce reexperiencing by elaboration of the trauma memories and discrimination of triggers.*
- *To reduce behaviors and cognitive strategies that maintain the sense of current threat.*

Therapist and patient collaboratively develop an individualized version of the model, which serves as the case formulation to be tested and revised in therapy. The core of the formulation is the patient's experience of current threat, such as threat to safety or self-worth, and the therapist helps identify the processes that maintain this. The maintaining processes are addressed with the procedures described below. The relative weight given to different treatment procedures and their order is tailored to the case formulation.

Videos demonstrating how to carry out CT-PTSD treatment components (including remote delivery), questionnaires to assess cognitive and behavioral processes that maintain PTSD, and other therapy resources can be accessed free of charge at www.oxcadatresources.com.

9.2.2 Therapeutic Style

Guided Discovery is central to the therapeutic style in cognitive therapy. Patient and therapist can be compared to a team of detectives that set out to *test* how well the patient's perceptions and ideas match up with reality. Together, they consider the patient's cognitions like hypotheses, exploring the evidence the patient has for and against them. A commonly used treatment technique is *Socratic questioning*. The therapist gently encourages the patient towards considering a wider range of evidence or alternative interpretations by asking questions that help the patient consider the problem from different perspectives, with the aim to generate a less threatening alternative interpretation. For example, after being assaulted, Derek believed that he looked weak and was likely to be attacked again. In therapy, he considered the alternative hypothesis that his flashbacks gave him the impression that another assault was likely. Generating an alternative interpretation (insight) is usually not sufficient to generate a large emotional shift. A crucial, but sometimes neglected, step in therapy is therefore to facilitate *experiential* learning. Examples include demonstrating experientially that certain coping strategies such as thought suppression are unhelpful, testing the patient's appraisals in behavioral experiments, which create *experiential* new evidence against the patient's threatening interpretations, or conducting surveys to find out what other people think about the patient's behavior during the trauma or their present appearance to address appraisals related to shame or perceived physical disfigurement.

CT-PTSD follows these general principles, with some modifications. Therapists need to take extra care to establish a good therapeutic relationship with the patient (as many patients with PTSD feel they can no longer trust people) and make sure the patient feels safe in the therapeutic setting (as subtle trauma reminders can make the patient feel unsafe in many situations). CT-PTSD is a focused intervention that concentrates on changing cognitions that induce a *sense of current threat* (external or internal) after trauma. Careful assessment of the relevant appraisals is necessary. Patients may have other unhelpful negative thoughts that are not relevant to their sense of current threat and thus do not need to be addressed in treating their PTSD, unless they hinder the patient's engagement and progress in therapy.

Importantly, the main problematic appraisals that induce a sense of current threat are usually linked to particular moments during the trauma. The patient's evidence for their problematic appraisals typically stem from what they remember about their trauma. Disjointed recall makes it difficult to assess the problematic meanings by simply talking about the trauma and has the effect that insights from cognitive restructuring may be insufficient to produce a large shift in affect. Thus, work on appraisals of the trauma is closely integrated with work on the trauma memory in CT-PTSD.

9.2.3 Individual Case Formulation and Treatment Rationale

At the start of treatment, therapist and patient discuss the patient's symptoms and treatment goals. The therapist normalizes the PTSD symptoms as common reactions to an extremely stressful, overwhelming event and explains that many of the symptoms are a sign that the memory for the trauma is not fully processed yet.

The therapist asks the patient to give a brief account of the trauma and starts exploring the personal meanings ("What was the worst thing about the trauma?" "What were the worst moments and what did they mean to you?"). The *Posttraumatic Cognitions Inventory* (PTCI, Foa et al. 1999) can help with identifying cognitive themes, such as overgeneralized sense of danger that will need to be addressed in treatment. The therapist also asks the patient about the content of their intrusive memories and their meaning, as the moments that are reexperienced are often omitted from trauma narratives and the intrusions point to moments that are important for understanding the sense of current threat.

The therapist asks the patient what strategies they have used so far to cope with their distressing memories. Suppression of memories, avoidance, and numbing of emotions (including substance use) are commonly mentioned, as well as rumination (dwelling on the memories). The therapist then uses a *thought suppression experiment* (asking the patient to try hard not to think about an image such as a green rabbit or a black and white cat sitting on the therapist's shoulder) to demonstrate that suppressing mental images has paradoxical effects. After discussing this experience, the therapist encourages the patient to try to experiment with letting intrusive memories come and go during the next week (an exception to this homework

assignment are patients who spend much time ruminating about the trauma, as they need to learn the distinction between intrusive memories and rumination first).

The therapist then uses the information gathered so far to develop an individual case formulation with the patient. This formulation contains the following core messages (in individualized form, using the patient's words as much as possible):

1. Many of the patient's current symptoms are caused by problems in the trauma memory. Therapy will help the patient in getting the memory in a shape where it no longer pops up as frequent unwanted memories and feels like a memory of the past rather than something that is happening now.
2. The memory of the trauma and what happened in its aftermath influences the patients' current view of themselves and the world. The patient perceives a threat; a threat from the outside world, a threat to their view of themselves, or both. In therapy, the therapist and patient will discuss whether these conclusions are fair representations of reality and consider the possibility that the trauma memory colors their perception of reality.
3. Some of the strategies that the patient has used so far to control the symptoms and threat are understandable but counterproductive and maintain the problem. In therapy, the patient will experiment with replacing these strategies with other behaviors that may be more helpful.

The graphic presentation of the treatment model shown in Fig. 9.1 is usually not presented to the patient, because it is quite complex as patients usually have several maintenance cycles between specific appraisals of moments from the trauma or its aftermath and corresponding behaviors. Instead, individual maintenance cycles, such as the vicious circle between intrusive memories and memory suppression, or the relationship between beliefs about future danger, safety behaviors, and hypervigilance may be drawn out for the patient to illustrate particular maintenance cycles that the patient is trying to change.

9.2.4 Modifying Excessively Negative Appraisals of the Trauma and Its Sequelae

9.2.4.1 Reclaiming or Rebuilding Your Life Assignments

People with PTSD often feel that they have permanently changed for the worse and have become a different person since the trauma (e.g., Dunmore et al. 2001). Related to this perceived permanent change, patients with PTSD often give up activities and relationships that used to be important to them. This usually goes beyond avoidance of reminders of the traumatic event and may include activities that were previously a significant part of the patient's life. Some activities may not have been possible in the immediate aftermath of the event and have just dropped out of the patient's repertoire. Giving up these activities maintains the perception of permanent change by providing confirmation that they have become a different person and that their life is less worthwhile since the trauma.

Each treatment session contains a discussion of what the patient can do to reclaim their life and corresponding homework assignments are agreed. In the first session, the rationale for these assignments is introduced. The therapist refers to the patient's treatment goals, which usually include an improvement in their ability to work and to have satisfying relationships. The initial discussion aims to map the areas where patients would like to reclaim their lives and to agree on an achievable first step in one area, and the first homework is agreed. This intervention helps install hope that therapy will help the patient get back on track. It is also helpful for the therapist to get an idea of the patient's life and personality before the trauma so that they can build on their previous strengths and interests.

The therapist will address "blocking thoughts" to carrying out reclaiming/rebuilding life activities by discussion, in-session role plays if indicated or by planning behavioral experiments to test the accuracy of the patient's thoughts. For example, for thoughts like "I don't deserve to sit still or relax" or "All the memories will come flooding back in if I don't keep myself busy," the therapist may suggest a behavioral experiment for the patient to take a tea break for 5 min rather than keeping busy to see what happens. The therapist and patient may create a flashcard of useful information that will help the patient to try the experiment, such as "I deserve a short break, it's only 5 minutes and will give me helpful information. If memories come back, I will treat them like a train going through a station: let them come and go, not push them out and not dwell on them." The patient is encouraged to try the experiment before the next session and to note afterwards what happened, how they felt, and what they learned.

9.2.4.2 Changing Meanings of Trauma by Updating Trauma Memories

CT-PTSD uses a special procedure to shift problematic meanings (appraisals) of the trauma and their linked emotions, termed *updating trauma memories*. This involves three steps and depending on the number of hot spots and cognitive restructuring needed to generate updating information requires between one and several sessions:

- *Step 1: Identifying threatening personal meanings.* To access the personal meanings of the trauma that generate a sense of current threat, the moments during a trauma that create the greatest distress and sense of "nowness" during recall (hot spots) are identified through *imaginal reliving* (Foa and Rothbaum 1998) or *narrative writing* (Resick and Schnicke 1993) and discussion of the content of intrusive memories. The personal meaning of these moments is explored through careful questioning (e.g., "What was the worst thing about this?" "What did you think was going to happen?" "What did this mean to you at the time?" "What does this mean to you now?" "What would it mean if your worst fear did happen?"). It is important to ask direct questions about patients' worst expected outcome, including their fears about dying, to elicit the underlying meanings, as this guides what information is needed to update their trauma memory.

Imaginal reliving and narrative writing both have particular strengths in working with trauma memories, and can be used in conjunction. The relative weight

given to each in CT-PTSD depends on the patient's level of engagement with the trauma memories and the length of the event. *Imaginal reliving* is particularly powerful in facilitating emotional engagement with the memory and accessing details (including emotions and sensory components). In our experience, it usually takes about 2–3 imaginal relivings of a traumatic event to access the hot spots sufficiently to assess their problematic meanings, although it may take longer if patients suppress their reactions or skip over difficult moments because, for example, they are ashamed about what happened.

Writing a narrative is particularly useful when the traumatic event lasted for an extended period of time and reliving the whole event would not be possible. The narrative covers the whole period and is then used to identify the moments or events with the greatest emotional significance so that their meaning can be explored further. Narrative writing is also particularly helpful for patients who dissociate and lose contact with the present situation when remembering the trauma or those who show very strong physical reactions when remembering the trauma (e.g., patients who were unconscious during parts of the trauma may feel very faint). Writing a narrative on a whiteboard or computer screen with the support of the therapist can help introduce the necessary distance for the patient to take in that they are looking back at the trauma rather than reliving it. Narrative writing is also especially helpful when aspects of what happened or the order of events are unclear, as it can be easily interwoven with a discussion about possible scenarios. Reconstructing the event with diagrams and models and a visit to the site of the trauma (which provides many retrieval cues) can be of further assistance in such instances. The narrative is useful for considering the event as a whole and for identifying information from different moments that have implications for the problematic meanings of the trauma and for updating the memory (see steps 2 and 3). After therapy, patients at times find it helpful to refer back to their updated narrative when memories are triggered, for example, around anniversaries of the trauma.

- *Step 2. Identifying updating information.* The next step is to identify information that provides evidence against the problematic meanings of each hot spot (updating information). It is important to remember that some of the updating information may be about what happened in the trauma. It can be something that the patient was already aware of, but has not yet been linked to the meaning of this particular moment in their memory, or something the patient has remembered during imaginal reliving or narrative writing. Examples include knowledge that the outcome of the traumatic event was better than expected (e.g., the patient did not die, is not paralyzed); information that explained the patient's or other people's behavior (e.g., the patient complied with the perpetrator's instructions because he had threatened to kill him; other people did not help because they were in shock); the realization that an impression or perception during the trauma was not true (e.g., the perpetrator had a toy gun rather than a real gun); or explanations from experts of what happened (e.g., explanations about medical procedures).

For other appraisals, cognitive restructuring is necessary, for example, for appraisals such as "I am a bad person," "It was my fault," "My actions were disgraceful," "People will look down on me if they knew what happened," "If I stop

thinking about the event, justice will never be done,” or “I attract disaster.” Cognitive therapy techniques such as socratic questioning, systematic discussion of evidence for and against the appraisals, behavioral experiments, discussing of hindsight bias, pie charts, or surveys are helpful. Imagery techniques such as looking at the scene from a different perspective (e.g., bird’s eye perspective) can also be helpful in widening the patient’s awareness of other factors that contributed to the event or in considering the value of alternative actions. For example, assault survivors who blame themselves for not fighting back during the trauma may visualize what would have happened if they had. This usually leads them to realize that they may have escalated the violence further and the assailant may have hurt them even more. Please see www.oxcadat.resources for guidance on cognitive techniques that are particularly helpful for different cognitive themes.

- *Step 3. Active incorporation of the updating information into the hot spots.* Once updating information that the patient finds compelling has been identified, it is actively incorporated into the relevant hot spot. Patients are guided to bring the hot spot to mind and emotionally engage with it (either through imaginal reliving this moment or reading out aloud the corresponding part of the narrative) and to then—while holding the hot spot in mind—remind themselves (prompted by the therapist) of the updating information either (a) verbally (e.g., “I know now that ...”), (b) by imagery (e.g., visualizing the perpetrator in prison; looking at a recent photo of the family or of oneself; visualizing a deceased person at peace), (c) by performing movements or actions that are incompatible with the original meaning of this moment (e.g., moving about or jumping up and down for hot spots that involved predictions about dying or being paralyzed), or (d) through incompatible sensations (e.g., touching a healed arm). This helps the updating information “sink in” emotionally, and often an emotional shift is observed in the session. To summarize the updating process, a written narrative is created or extended that includes and highlights the new meanings in a different font or color (e.g., “I know now that it was not my fault”). Hot spots are addressed one at a time once their meaning and the updating information has been identified. Updates may generalize to hot spots with similar meanings. For longer hot spots, there may be several meanings that may need to be updated and linked to the relevant precise moment in memory.

Case Example Updating Hot Spots

Zahra lost her sister Keisha to cancer. When she received the phone call that Keisha had died, she had an image of Keisha in the hospital bed struggling to breathe. Through imaginal reliving and the discussion of this hot spot and its meaning in the previous session, the therapist and patient had discovered this moment meant to Zahra that Keisha died alone and suffered greatly (Step 1). However, Zahra has learned later that day that Keisha did not die alone and a nurse had been with her and had held her hand. Keisha had also been on morphine which had reduced her suffering (Step 2). The therapist asked Zahra to call to mind a new image, which represented the updating information. Zahra chose to picture Keisha with her eyes closed,

as if sleeping peacefully, and the nurse holding her hand. The therapist then guided Zahra to link the hot spot with the updating information and the new image (Step 3). First, Zahra brought to mind the phone call and the image of her sister alone and in distress. The therapist then prompted her to bring in the new information and run the image onto the updated image. Zahra reminded herself of what she knew now, that Keisha had been on morphine which eased her pain and a nurse had held her hand when she died. She did not die alone. Zahra transformed the distressing image of Keisha alone in the hospital bed to the updated image, the nurse holding her hand in her last moments, Keisha's eyes closed as if sleeping peacefully.

9.2.4.3 Changing Appraisals of Trauma Sequelae

For some patients, a main source of current threat comes from threatening appraisals of the aftermath of the traumatic event. For example, some patients believe that intrusive memories are a sign they are going crazy. Their failed attempts to control the intrusions are seen as further confirmation of their appraisals. Others interpret some people's responses after the event as signs that no one cares for them or understands them or that other people see them as inferior (e.g., Dunmore et al. 2001). Such appraisals are modified by the provision of information, Socratic questioning, and behavioral experiments.

9.2.5 Memory Work to Reduce Reexperiencing

9.2.5.1 Imaginal Reliving and Narrative Writing

The *updating trauma memories* procedure described above helps elaborate the trauma memory. Retrieving the memory and talking about it helps making it appear less vivid and intrusive. Patients may describe that some of the sensory impressions from the trauma fade away (e.g., colors or taste fading). When the hot spots have been successfully updated, patients usually experience a large reduction in reexperiencing symptoms and improvement in sleep.

9.2.5.2 Identification and Discrimination of Triggers of Reexperiencing Symptoms

Patients with PTSD often report that intrusive memories and other reexperiencing symptoms occur "out of the blue" in a wide range of situations. Careful "detective" work usually identifies sensory triggers that patients have not been aware of (e.g., particular colors, sounds, smells, tastes, touch). To identify these subtle triggers, patient and therapist carefully analyze where and when reexperiencing symptoms occur. Systematic observation in the session (by the patient and the therapist) and as homework is usually necessary to identify all triggers. Once a trigger has been identified, the next aim is to break the link between the trigger and the trauma memory.

This involves several steps. First, the patient learns to distinguish between "Then" versus "Now." The therapist guides the patient to consider similarities and differences between the trigger and its current context and the original stimulus during the trauma. Often this is summarized in a table format with column headings

“Then” and “Now” and row headings “Similarities” and “Differences.” This leads the patient to realize that there are more differences than similarities and that they are responding to a memory, not to current reality. The patient learns to focus their attention on how triggers and their context (“Now”) are different from the trauma (“Then”).

Second, intrusions are intentionally triggered in therapy so that the patient can learn to apply the “Then” versus “Now” discrimination. For example, traffic accident survivors may listen to sounds that remind them of the crash such as brakes screeching, collisions, glass breaking, or sirens. People who were attacked with a knife may look at a range of metal objects. People who were shot may listen to the sounds of gunfire generated on a computer. Survivors of bombings or fires may look at smoke produced by a smoke machine. People who saw a lot of blood during the trauma may look at red fluids. The discrimination can be facilitated by carrying out actions that were not possible during the trauma (e.g., movements that were not possible in the trauma, touching objects or looking at photos that remind them of their present life).

Third, patients apply these strategies in their natural environment. When reexperiencing symptoms occur, they remind themselves that they are responding to a memory and spot the trigger. They then focus their attention on how the trigger and present situation is different from the trauma and may carry out actions that were not possible during the trauma to remind themselves of how different the situation is.

9.2.5.3 Site Visit

A visit to the site of the trauma completes the memory work. Visiting the site can help correct remaining problematic appraisals as the site provides many retrieval cues and helps access further information to update the appraisals. The site visit also helps complete the stimulus discrimination work. The therapist guides the patient to look for differences between the site and their own state at the time of the trauma (“Then”) and “Now” (e.g., cold weather, door has different color, no noise, not injured, no taste of blood, can move about), focusing on differences in a range of senses. Patients realize that “Now” is very different from “Then,” which helps place the trauma in the past.

If it is not possible to visit the site in person or to prepare the patient for the visit if needed, virtual site visits can be conducted on Google Street View. The virtual visit gives therapist and patient the opportunity to walk the route of the patient on the day of the trauma virtually and look at a recent view of site, and spot differences between “Then” and “Now.” For parts of the world where Google Street View is unavailable, Google Earth can be used to allow the therapist and patient to view the site from above and then to zoom in. For traumas that happened inside, such as in hospitals or other buildings, the therapist may be able to source images of the outside of the buildings, and sometimes the interior, or virtual tours of similar buildings. It is also helpful that Google Street View frequently shows images taken at different dates, and changes over time reinforce the message that the trauma is in the past.

Taking photos helps to consolidate learning from the site visit. Patients can take a “selfie” if they visited the site in person or, for virtual site visits, screenshots of important images.

9.2.5.4 Imagery Work

Section 9.2.4.2 mentioned imagery as a helpful way to generate updating information (e.g., visualizing the scene from a bird’s eye perspective, exploring actions not taken) and to update meanings linked to hot spots, i.e., bringing to mind an image that represents the updated meanings. The content of the images is generated collaboratively with the patient to address the patient’s idiosyncratic meanings of the hot spots. For example, a patient who felt “dirty” after a rape visualized how her body had shed all the cells that had come in contact with the perpetrator and being in a steam room, which made her feel all fresh and clean. Imagery transformation is also particularly helpful with intrusions that represent images of things that did not actually happen during the trauma. For example, a patient who reexperienced an image he had during an accident where he saw his body broken in pieces, visualized reassembling his body and walking home.

Imagery work is also helpful to transform distressing images and meanings (including a felt sense) linked to the traumatic loss of a loved one as in the case example above. To update the sense that the loved one is still suffering, the therapist may guide the patient to run the image of suffering onto an image of them in a place of peace. The therapist will need to first discuss the patient’s beliefs about the after-life and where they would like to picture their loved one in peace. Imagery that represents how the patient may take the loved one and the meaning they brought to their lives with them in an abstract way (images connected to joy, warmth, love, kindness, nurturing) is also very helpful to update meanings related to loss (see case example below). Imagery can also be used to help the patient when they are struggling with things that have been left unsaid to their loved one who passed away. The therapist would encourage the patient to close their eyes and call to mind a place where they enjoyed time with their loved one. The therapist would then ask the patient questions, such as “Is there anything you would like to say to your loved one? Is there anything she would like to say to you? Is there anything she needs? Is there anything you need?” The process continues in imagery until it feels complete for the patient.

Imagery transformation is also helpful if reexperiencing symptoms persist after successful updating of the patient’s hot spots and trigger discrimination. The patient transforms the remaining trauma image into a new image that signifies that the trauma is over. Transformed images can provide compelling evidence that the intrusions are a product of the patient’s mind rather than perceptions of current reality.

9.2.6 Dropping Unhelpful Behaviors and Cognitive Strategies

Work on dropping unhelpful behaviors and cognitive strategies that maintain PTSD is integrated with the work on reclaiming/rebuilding life and on the appraisals that

motivate the behaviors (e.g., overestimation of current risk). The first step is usually to discuss the problematic consequences of the behaviors/strategies. Sometimes these can be demonstrated directly by a behavioral experiment (see also thought suppression experiment above). For example, the effects of selective attention to danger cues can be demonstrated by asking the patient to attend to possible signs of danger unrelated to the trauma, e.g., an assault survivor may be asked to stand by a busy road for a few minutes and attend to signs of potentially risky driving. Patients find that this exercise makes them more aware of possible dangers. They then reflect on what this means for their own efforts to scan for signs of danger and consider the possibility that the world may not be as dangerous as they assumed. The next step involves dropping or reversing the problematic strategy, usually in a behavioral experiment.

When addressing rumination, the overall goal is to help patients to disengage from rumination. The therapist will first make the distinction between rumination and intrusive memories. Whereas intrusive memories are about reexperiencing the trauma, rumination is unproductive thinking around the trauma. Patients learn to spot when they are ruminating, label it with a label that captures the circular style of ruminating, such as “my hamster wheel thinking” or “my spaghetti thinking,” and then take steps to disengage from rumination, usually by an activity, which may include a reclaiming/rebuilding life activity.

9.2.7 Ending Therapy: Blueprint

Towards the end of therapy patient and therapist collaboratively develop a blueprint that summarizes what they have learned in treatment and how they would apply the learning points to any setbacks. The questions are: How did my problems develop? What kept my problems going? What did I learn during treatment that helped? What were my most unhelpful thoughts? What are the helpful alternatives/updated thoughts? How will I continue to build on what I have learned? How will I deal with any setbacks in the future? Prompts are provided for each question to prompt retrieval.

9.2.8 Flexible Order of Interventions

The order in which the core treatment procedures in CT-PTSD are delivered, depends on the individual formulation. The memory updating procedure usually has a fast and profound effect on reexperiencing and hyperarousal symptoms, and is generally conducted in the first few sessions, if possible. For patients with severe dissociative symptoms, training in trigger discrimination is conducted first, and narrative writing is preferred over imaginal reliving. In addition, for certain cognitive patterns, the memory work is prepared through discussion of the client’s appraisals and cognitive processing at the time of the trauma. For example, if patients blame themselves for a trauma, and their shame and/or guilt prevents them from being able to describe it fully to the therapist, therapy would start with addressing these

appraisals. If a patient experienced mental defeat (the perceived loss of all autonomy) during an interpersonal trauma, therapy would start with discussing the traumatic situation from a wider perspective to raise the patient's awareness that the perpetrators intended to control and manipulate their feelings and thoughts at the time, but that they no longer are exerting control now.

9.2.9 Considerations for Remote Delivery of CT-PTSD

With the COVID-19 pandemic, many services delivering psychological treatments moved to remote working with treatments being offered over video conferencing or telephone. Guidance on how to deliver CT-PTSD over video conferencing or the telephone is described in Wild et al. (2020). For video illustrations, see www.oxcaddatresources.com.

9.2.10 Duration of Treatment

If clients reexperience a small number of traumas, cognitive therapy for PTSD (CT-PTSD) is typically delivered in up to 12 weekly face-to-face sessions lasting between 60 and 90 min with the option of up to three monthly booster sessions. If they reexperience multiple traumas, more sessions are often needed (usually around 18–24 sessions).

Note that sessions that include work on the trauma memory such as imaginal reliving, updating memories, or the site visit, the therapist needs to allow sufficient time for the memory to be processed. Before going home, the patient needs sufficient time to refocus on current reality and their further plans for the day. These sessions would usually last around 90 min. Variations of treatment delivery are also effective. A 7-day intensive version of the treatment (delivered over 7 consecutive working days, with 2–4 h of treatment per day, plus a few booster sessions; Ehlers et al. 2014) and a self-study assisted brief treatment are similarly effective (Ehlers et al. 2022b), as is a therapist-assisted, internet-delivered version of CT-PTSD (Ehlers et al. 2020).

Case Example

Paul was a 45-year-old paramedic of mixed ethnic background. He was referred for therapy by his family doctor as he felt very depressed and had problems sleeping. He felt also very worried that his family could be harmed in an accident or act of violence. He had quit work and spent most of the day at home.

The assessment showed that Paul suffered from PTSD and major depression. The symptoms had started about 2 years ago after a distressing incident at work that involved a teenager being killed in a gang-related stabbing. Symptoms included frequent unwanted images of the dying teenager and other distressing incidents he had encountered at work; nightmares about his son or wife being in danger, harmed, or dying; avoiding work colleagues and social activities; feeling uninterested in things he used to enjoy; feeling emotionally numb; being hypervigilant for danger;

and problems concentrating and sleeping. He sometimes thought about ending his life but would not do it because of his family. He used cannabis to cope with his distressing memories, but was not dependent. He agreed that he would not use cannabis on the days of his treatment sessions.

Paul's treatment goals were (a) to sleep better, without nightmares and at least 6 h per night, (b) to enjoy activities with his family again, and (c) to be able to work again.

Case Formulation

The cognitive assessment revealed the following factors that contributed to Paul's sense of current threat.

Appraisals

Paul blamed himself for not being able to save the teenager's life. He believed that he was a failure (belief rating: 100%) and that the teenager's family would permanently suffer and never again feel close to their son (100%). Paul also believed that his son and wife were in danger of being harmed either in an attack or an accident (90%). He believed he was never going to be able to work again (70%).

Trauma Memories

Paul's main reexperiencing symptoms included two images that he experienced daily. The first was an image of the dying teenager trying to say something to him. To Paul, this image meant that he was a failure, as he believed that if he had understood what the teenager was saying, he could have saved him. It also meant that he was responsible for the permanent suffering of the teenager's family as they would never again feel close to their son. The second intrusive image was of a body bag. When he had seen the body bag, Paul had immediately thought of his son and thought that he would not survive if his son died.

Paul also had intrusive memories of other distressing incidents he had encountered at work such as suicide and cot death, but he did not think he needed help with those memories.

When Paul described in the first session how he tried to help the dying teenager, he became distressed and tearful. He remembered most of what happened quite clearly but was unclear about some aspects that bothered him. He was unsure whether the teenager had actually spoken and why he could not understand him. He was also unsure whether he had followed the procedures correctly.

Paul had noticed that the intrusive images and physical symptoms were sometimes triggered when he saw teenagers or his own son. But he also experienced them "out of the blue," suggesting that there were other triggers that Paul had not spotted yet.

Maintaining Behaviors and Cognitive Strategies.

Several behaviors and cognitive strategies that contributed to the maintenance of Paul's PTSD were identified:

- Rumination and worry.
- Safety behaviors and hypervigilance.
- Withdrawal from social life and other activities.
- Cannabis use.

Paul ruminated, sometimes for hours at a time, about what he should have done differently to prevent the teenager's death. He also ruminated about what would happen to his family if he could never work again. He spent a lot of time worrying about bad things that could happen to his family, including vivid images of his son or wife being hurt.

Paul took many unnecessary precautions to keep his family safe (safety behaviors). For example, he did not allow his teenage son to go to school or other places unaccompanied. When his son was at school, he frequently called him to make sure he was OK. This had led to tensions with his son. At night, he often checked whether his son and wife were still breathing. At home, he was hypervigilant for sounds that could indicate possible intruders, and outside his home, he scrutinized teenagers he saw for signs that they may be carrying knives.

Paul had given up his job and had lost touch with his friends, many of whom were work colleagues. He believed that his former colleagues now looked down on him because they knew he was a failure. He had also given up other activities he used to enjoy such as running.

Paul regularly tried to calm himself down by using cannabis, which he believed helped him "stop worrying" and fall asleep.

Comorbid Conditions

The cognitive assessment further suggested that Paul's comorbid depression was closely linked with many of the above factors, namely, his appraisal that he was a failure, his rumination, his social withdrawal, his lack of exercise, his restricted lifestyle (staying at home most of the time), and his inability to work. It was also likely that his cannabis use was a maintaining factor. Paul felt hopeless about his symptoms ("I will never get better," "I will never be able to work again"), which contributed to his suicidal ideation.

Thus, the case formulation suggested that working on Paul's appraisals of the trauma, updating the worst moments of the trauma memory, identification and discrimination of triggers of reexperiencing symptoms, and reversing his maintaining behaviors would be helpful in reducing both PTSD and depression symptoms. The therapist checked during therapy whether Paul's depression and suicidal ideation changed in parallel with his PTSD symptoms so that additional interventions could be considered if necessary.

Treatment

Paul attended 11 therapy sessions lasting between 60 and 90 min.

Work on Appraisals

Some of Paul's appraisals concerned *interpretations of his symptoms* (e.g., "I will never get better," "I will never be able to work again"). These were addressed with the following interventions in Session 1: *Normalization of symptoms* (e.g., "Nightmares are a sign that the trauma memory is being triggered. Working together on the trauma memory will help to process it and put it in the past, which will help to reduce nightmares"), *information about the nature of trauma memories* (e.g., "Trauma memories often feel like they are happening now and give you the sense that there is immediate danger. For example, one of your trauma memories is seeing

the body bag. This makes you think of your son and gives you the sense that he is in danger. This feeling comes from the trauma memory”), and the introduction of *reclaiming your life assignments*. Examples of the assignments Paul completed over the course of therapy included: (a) building up exercise and by the end of treatment, running in a charity race; (b) watching football with his son; (c) inviting an old friend over to his house; (e) attending a computing course; (e) seeing an advisor about job options; and (f) volunteering in a charity shop. These activities helped reduce Paul’s conviction in his appraisals of not recovering and raised his hope that he would be able to lead a less restricted life and eventually be able to work again.

“I am a failure.” As Paul’s belief that he was a failure stemmed from a moment during the trauma when he could not understand what the teenager was trying to say, the *updating trauma memories* procedure was used. In Session 2, Paul went through the event in imaginal reliving and identified two relevant hot spots that corresponded to his intrusive memories, namely, the moment when the teenager died and the moment he saw the body bag, which made him think of his son.

To identify updating information for the first hot spot, the therapist and Paul wrote a narrative and reviewed carefully what had happened (Session 3). The therapist used guided discovery to help Paul realize that not understanding what the teenager had said was probably due to the teenager’s injuries and fading consciousness rather than his own incompetence. Paul wrote down what he knew about the teenager’s injuries and what he had done to help him. Considering what he had written carefully, he realized that he had followed the protocol. However, some doubts remained. The therapist discussed with Paul how best to test his concern that he may not have followed the protocol. They decided to ask for an expert opinion. The therapist arranged for Paul to have a discussion with an experienced paramedic in Session 4. The expert agreed that Paul had done everything that was possible and that the injuries had been too severe to save the teenager’s life.

Paul then updated the memory of this hot spot with a summary of his conclusions from the discussion with the therapist and the expert feedback (Session 4). The therapist guided Paul to visualize the moment when he could not understand the teenager and had felt incompetent. While holding this moment in mind, Paul reminded himself that the teenager was fading in and out of consciousness and was not speaking properly. He also reminded himself that the expert had confirmed that Paul had done everything possible. Paul also included the updating information in his trauma narrative so that he could refer back to the updating information when he found himself ruminating about the event.

“The teenager’s family will permanently suffer and never again feel close to their son.” To reduce the distress linked to Paul’s appraisal of the family’s suffering and loss, the therapist used imagery (Session 5). She first had Paul describe qualities he would associate with the teenager, having had a few brief, important moments with him. Paul said that the teenager represented strength and positivity despite his suffering after being stabbed. When asked what he thought could represent strength and positivity today, Paul thought of a ray of sunshine and how the sun generally makes people smile. He then imagined the teenager’s family being touched with

rays of sunshine, connecting them to qualities they loved about their son. Paul brought this imagery to mind when the trauma memory and thoughts about the family's loss were triggered.

"Something terrible will happen to my son or my wife." Paul's belief that his family were at risk was contrasted with the alternative hypothesis that his strong memory of the trauma, especially the intrusive images of the body bag, was giving him the impression that his son was in danger. The updating trauma memories procedure was used to update this hot spot. Paul realized that when he had seen the body bag, it had felt as if his son was inside. Updating this moment in memory in Session 3 with the information that his son was alive felt "like a surprise and relief."

The therapist also guided Paul to consider that his safety behaviors contributed to his sense of threat. Paul conducted a series of behavioral experiments that involved dropping his safety behaviors and hypervigilance. For example, he experimented with letting his son go to school and come home on his own without telephoning him on one day of the week. He predicted that it was 90% likely that his son would have an accident or be attacked and not make it home. This never happened and Paul then experimented with increasing the number of days his son went to school on his own. With the help of his therapist and these experiments, he learned that the actual likelihood of his son having an accident was no more likely now than before the trauma and that the likelihood was extremely low. At home, he experimented with focusing on danger and checking that his wife and son were still breathing several times an evening and contrasting that to an evening when he focused his attention on assignments for his computer class. He discovered that when he focused on danger and checking for safety, he felt more frightened and worried than when he focused on his tasks for his class. He concluded that focusing on danger made him feel as though danger was imminent and that checking on his wife and son kept him focused on thoughts of accidents, illness, and death.

Memory Work to Reduce Reexperiencing

As described above, imaginal reliving and writing a narrative, together with detailed discussions with the therapist and an expert, helped Paul identify hot spots and helped him understand that he had done everything possible to help the teenager. Updating Paul's hot spots led to a significant reduction in his intrusive memories and nightmares.

In sessions 5 and 6, Paul explored with his therapist possible triggers of his intrusive memories. Through systematic observation and attention to sensory similarities between possible triggers and the trauma, he spotted a range of triggers that he had not noticed before. Examples included: objects the same color as the body bag, ambulance sirens, blood, and seeing his son asleep. He practiced discriminating these from the stimuli he encountered in the trauma by focusing on differences in both the stimuli and context, both during the session (e.g., listening to recordings of sirens, objects of the same color) and at home (e.g., looking at his son in bed).

After Paul had made good progress with the stimulus discrimination training, he went to the site where the stabbing had taken place with the therapist (Session 8). They focused on the differences between "Then" and "Now." When an ambulance drove by, Paul focused on that no one was hurt at present and the ambulance was

driving past. He felt very relieved, as he had felt apprehensive about the site visit and had felt as if he would again find a dying child there. Paul remembered an important detail about the event. He remembered holding the teenager's hand, and the teenager briefly squeezing his hand. This made him realize that the teenager had acknowledged his efforts to help him and was unlikely to have experienced his efforts as incompetent. He felt a sense of relief. After the site visit, Paul felt that he could now look back at the event, rather than reexperience it.

Work on Maintaining Behaviors and Cognitive Strategies

To address Paul's *rumination*, the therapist guided Paul to distinguish between having a memory of the event and ruminating about it. They discussed the advantages and disadvantages of ruminating. Paul concluded that it had not helped and had made him feel even worse. He decided that the best time to think about what he should have done during the assault was in the therapy sessions and to ruminate less at home. He discussed triggers of rumination and found that during the day, a common trigger was sitting at home alone doing nothing, and at night, lying in bed when he woke up. He agreed that when he found himself ruminating, he would remind himself that this style of thinking was unhelpful. During the day, he would do one of his reclaiming your life assignments instead.

As discussed above, Paul's *hypervigilance, safety behaviors, and avoidance* were addressed by considering the hypothesis that Paul's trauma memory made him feel his family was in danger and with a series of behavioral experiments, both in the session and as homework. Hypervigilance was replaced with stimulus discrimination, focusing his attention on differences between the current situation and the trauma.

Paul experimented with having cannabis-free days to see if this helped his sleep. He found it difficult to fall asleep in the short term, but after 2 weeks of cannabis-free days and further therapy sessions, his sleep had improved. Paul also discovered that he felt more energetic on days when he did not use cannabis and had fewer intrusive memories. He concluded that cannabis actually did not help him feel less worried.

Outcome

At the end of treatment, Paul no longer suffered from PTSD or depression. He no longer had suicidal thoughts. He occasionally still felt sad when he thought about the tragic death. His relationship with his son had improved. He slept 7 h per night. He had resumed contact with some former work colleagues and was applying for work. At follow-up 1 year later, he had maintained his treatment gains and was working as a paramedic again.

9.3 Special Challenges

9.3.1 Comorbidity

Many patients with PTSD have comorbid conditions that need to be taken into account and addressed in treatment.

Depression that is secondary to PTSD will usually reduce with treating PTSD. However, in some cases, depression may become so severe that it needs immediate attention (i.e., suicide risk) before PTSD treatment can commence. In some trauma survivors (especially after multiple trauma), depression may dominate the clinical picture to the extent that it makes a treatment focus on the trauma impossible and warrants treatment first. Depressive symptoms most likely to interfere with PTSD treatment are severe suicidal ideation, extreme lack of energy, social withdrawal, inactivity, and poor concentration. As in cognitive therapy for depression, the first goal in treatment will be to lift the patient's mood sufficiently so that cognitive therapy can commence, for example, with behavioral activation or antidepressant medication.

Anxiety disorders such as agoraphobia, obsessive-compulsive disorder, generalized anxiety disorder, or social anxiety disorder may be preexisting conditions or develop as a complication of PTSD. The therapist needs to determine whether the comorbid anxiety disorder needs treatment in its own right. If this is the case, the case formulation and treatment plan will need to integrate the treatment of both the PTSD and the other anxiety disorders. It is not always easy to determine in the initial assessment whether patterns of avoidance are part of the patient's PTSD or part of another anxiety disorder. An important question is "What is the worst thing that could happen if you ... (encounter the feared situation, do not take special precautions)?" In PTSD, the patient's concern would usually be another trauma ("I will be attacked again," "I will die in another accident"). Other concerns suggest other anxiety disorders, for example, panic disorder ("I will have a heart attack," "I will faint") or social anxiety disorder ("I will make a fool of myself," "People will think I am weird"). It is also often difficult to determine initially whether or not a panic attack or strong anxiety response in a certain situation constitutes a reexperiencing symptom (as patients are usually not aware of the subtle sensory triggers of reexperiencing). In these cases, an ongoing assessment of the need for separate work on the other anxiety disorder is needed as treatment progresses.

In most cases with comorbid anxiety disorders, treatment starts with the CT-PTSD program. An important exception are patients with panic disorder who believe that a catastrophe will happen if they become very anxious or put their body under stress, for example, believing that they will have a heart attack, they will faint, or they will go crazy. These misinterpretations will often need to be addressed *before* working on the trauma memories as these patients are unlikely to engage in treatment or may drop out if their concerns are not addressed.

Many patients with PTSD use alcohol, cannabis, or other substances to numb their feelings or distract themselves from trauma memories. This may include heavy smoking or even consumption of caffeinated beverages in large quantities. Substance misuse is not a contraindication for treatment. Treatment of the PTSD will help patients to reduce their substance use. The therapist will need to incorporate the substance use as a maintaining behavior in the case formulation and address it together with the other maintaining factors in the overall treatment plan. However, if physical substance dependence has developed (i.e., the patient has withdrawal symptoms, tolerance, and acquiring and consuming the substances takes up much of

the patient's life), withdrawal is usually necessary before the patient can benefit from the treatment described here. A useful strategy is to explain to patients with very high substance use that the treatment will only work if they are not intoxicated and do not have a hangover in the session, so that they can process fully what is being discussed and benefit from the treatment. The therapist will need to educate patients about the negative effects of the substance on their symptoms (e.g., alcohol may help the patient get to sleep but will lead to more awakenings at night and feeling irritable and emotional the next day; cannabis may make the patient feel more unreal or more paranoid; smoking leads to brief relief and then increased anxiety; caffeine can lead to irritability, poor sleep, and concentration). The therapist should then ask whether patients would be willing to try to reduce their substance consumption before treatment commences. Many patients will agree to give it a try if they have the prospect of receiving help for their PTSD. These patients often find that the reduction in substance use in itself has a positive effect on their PTSD symptoms. If the patient does not feel able to reduce the substance consumption, treatment will need to target the dependence first.

9.3.2 Dissociation

Patients with PTSD differ in the extent to which they dissociate when trauma memories are triggered. Some feel unreal, feel numb, or have “out-of-body” experiences but remain aware of their current environment. Therapeutic interventions for this milder form of dissociation include normalization of the experience as a common response to trauma (the therapist may want to link dissociation to freezing in animals who face predators) and work on interpretations of the experience such as “I am going crazy,” “I live in a different reality to other people,” or “The real me died and I am an alien/ghost now.” It can also be helpful to guide patients who had “out-of-body” experiences during imaginal reliving to return to their body and perceive the event from the perspective of their own eyes.

Other patients may lose awareness of current reality completely and feel and behave as if the trauma were happening again. This severe form of dissociation can involve significant risk to self and others and needs to be assessed carefully. Adaptations of the treatment procedures include a strong emphasis on trigger discrimination from the outset of therapy and the use of reminders of the *here and now*, i.e., (grounding) objects or strategies that help them stay aware of the present (e.g., touching a small toy or pebble from a beach, using room perfume, consuming a sour sweet or a strong mint, or listening to music when memories are triggered). The therapist explains that strong emotional reactions linked to the trauma can occur without any images of the event itself (e.g., strong urge to leave a situation, strong anger) and guides the patient to become increasingly aware that these are signs that trauma memories are being triggered. The work on trauma memory elaboration is done in a graded way that allows the patient to remain aware of the present safe environment. For example, the therapist and patient may write a narrative in small steps in combination with stimulus control strategies, taking many breaks to remind

the patient of their present safe situation. Precautions that minimize risk to self and others are agreed if indicated, for example, talking to family members about how to spot dissociation and how to bring the patient's attention back to the present. For some patients, for example, survivors of prolonged childhood sexual abuse, training in emotion regulation strategies before the trauma memory work commences can be helpful (Cloitre et al. 2010).

9.3.3 Multiple Trauma

Many patients with PTSD have experienced more than one trauma but not all traumas are necessarily linked to their current PTSD. In order to determine which traumas need to be addressed in therapy, the therapist and patient discuss which traumas are represented in reexperiencing symptoms or are linked to personal meanings that trouble the patient at present. The discussion also involves a first assessment of problematic meanings that link several traumas. For example, Laura who was raped and physically assaulted on several occasions concluded "People can spot that I am an easy target." Patient and therapist discuss which trauma to start with. This would usually be either a trauma that the patient currently finds the most distressing or a trauma when an important problematic meaning originated. A narrative with a time line of the different events or drawing a time line of traumatic and positive life events can be helpful in this discussion. Exploration of which traumas are currently reexperienced guides which ones are addressed with the updating memories procedure. The therapist also notes whether elements from other traumas come up when the patient relives the identified trauma, as these may have influenced its personal meanings. Once the hot spots from the identified trauma have been updated, the therapist checks whether this decreases the reexperiencing of other traumas that carry related meanings. The remaining traumas that are still distressing or relevant for problematic appraisals are then addressed in turn. Dissociation may be pronounced and will need to be addressed with the methods described above.

Work on reclaiming/rebuilding the patient's life is especially important after multiple trauma since these patients may lead very restricted lives and may need much support from the therapist with problem solving about how to best build up a social network, reengage in the job market, etc. Patients may show extreme forms of unhelpful behaviors that need to be addressed, for example, chronic hypervigilance and complete social withdrawal. For patients with long-standing multiple traumas, additional work on self-esteem may be helpful (e.g., keeping a log of things they did well or positive feedback from others).

9.3.4 Physical Problems

The injuries contracted in the traumatic event may lead to ongoing health problems that significantly affect the patient's life. Chronic pain is common (see Chap. 19). Sometimes the traumatic event leads to a permanent loss of function, for example,

difficulty walking, inability to have children, or blindness. Patients often need help in adjusting to these physical problems and the impact they have on their lives. This may require additional treatment strategies such as pain management or using coping strategies similar to those for coping with chronic illness.

For other patients, the physical injuries may have compromised their appearance, which may have negative effects on their job or social life. They may need support in learning to adapt to these changes. It is also not uncommon for patients to perceive a loss of attractiveness or a disfigurement that is greater than the objective change. For these patients, video feedback is helpful as it helps patients update the image of how they believe they appear to others (which is influenced by the trauma memory) with a more accurate image. Patients watch themselves in a short video recording, with the instruction to watch themselves objectively as if they were another person they do not know. For example, a patient who believed that his facial scars were repulsive saw bright red scars when he visualized how he would appear to others. His face was filmed with different red objects in the background. Comparing his face with the objects made him realize that the scars did not look red any longer and were much less visible than he had imagined. Surveys are helpful in testing patients' beliefs about what other people think about their appearance. For example, the patient agreed with the therapist for some other people to watch the video recording and answer a series of questions about his appearance, starting with neutral questions and ending with direct questions about the patient's concern: "Did you notice anything about this person's appearance?" "Did you notice anything about this person's face?" "Did you notice that he had scars?" "What did you think about the scars?" "Did you think he looked repulsive?" The therapist fed back the responses in the following week, and the patient was relieved to find that no one thought he looked repulsive and most people had not even noticed the scars.

Physical injury can lead patients to develop appraisals linked to vulnerability, which can result in hypervigilance and excessive precautions. These are addressed with behavioral experiments where patient drops safety behaviors, such as scanning for danger, to discover the effects on their anxiety. Since the patient may have experienced a loss of ability that does objectively increase their vulnerability, the therapist will ask the patient to consider how much checking would be necessary if they believed they were safe. That is, how much checking is the just right amount? This will likely be much less than the patient has been doing since the trauma, yet more than what they engaged in before the trauma. The therapist will also address memory triggers with trigger discrimination and may encourage the client to use imagery of being safe now.

Other health problems that existed before the traumatic event may influence the course of treatment. For example, patients with some medical conditions, such as poorly controlled diabetes, may find it hard to concentrate for long periods of time and require shorter sessions or sessions with frequent breaks. Patients with chronic heart conditions may require a graded approach in recalling the trauma and visiting the site.

9.4 Evaluations of Cognitive Therapy for PTSD

The efficacy of CT-PTSD has been evaluated in several randomized trials in adults (Ehlers et al. 2003, 2005, 2014, 2022b) and children (Smith et al. 2007; Meiser-Stedman et al. 2016). Table 9.1 gives an overview of key results. A series of randomized controlled trials found that CT-PTSD is highly acceptable to patients

Table 9.1 Evaluations of cognitive therapy for PTSD

	Patient sample	% Dropouts	Intent-to-treat pre- to posttreatment effect size for PTSD symptoms (PDS) ^a	Intent-to-treat % patients in full remission ^b	% Patients with symptom deterioration (PDS)
<i>Randomized controlled trials</i>					
Ehlers et al. (2003)	Adults, acute PTSD following road traffic accidents	0	2.46	78.6	0
Ehlers et al. (2005)	Adults, chronic PTSD, wide range of traumas	0	2.82	71.4	0
Ehlers et al. (2014)	Adults, chronic PTSD, wide range of traumas	3.2	2.53	77.4	0
Smith et al. (2007)	Children, wide range of traumas	0	3.43	92.0	0
Meiser-Stedman et al. (2016)	Children, wide range of traumas	7.1	2.65	71.0	0
<i>Open trials, consecutive samples</i>					
Ehlers et al. (2005)	Adults, chronic PTSD, wide range of traumas	5.0	2.81	85.0	0
Gillespie et al. (2002)	Adults, PTSD following Omagh bombing		2.47		0
Brewin et al. (2010) (subsample treated with CT-PTSD)	Adults, PTSD following London bombings	0	2.29	82.1	0

Table 9.1 (continued)

	Patient sample	% Dropouts	Intent-to-treat pre- to posttreatment effect size for PTSD symptoms (PDS) ^a	Intent-to-treat % patients in full remission ^b	% Patients with symptom deterioration (PDS)
<i>Effectiveness studies</i>					
Duffy et al. (2007)	Adults, chronic PTSD, wide range of traumas, multiple traumas common	20.0	1.25	63.0	1.8
Ehlers et al. (2013)	Adults, chronic PTSD, wide range of traumas, multiple traumas common	13.9	1.39	57.3	1.2

N/A not assessed, PDS Posttraumatic Diagnostic Scale, BDI Beck Depression Inventory

^aCohen’s *d*, pooled standard deviation

^bPatient recovered from PTSD according to diagnostic assessment or clinically significant change on PDS (within two standard deviations of nonclinical population)

(as indicated by very low dropout rates and high patient satisfaction scores). It led to very large improvements in PTSD symptoms (intent-to-treat effect sizes of around 2.5), disability, depression, anxiety, and quality of life. Over 70% of patients fully recovered from PTSD. Outreach trials treating consecutive samples of survivors of the Omagh and London bombings replicated these results (Brewin et al. 2010; Gillespie et al. 2002). It was noteworthy that the percentage of patients whose symptoms deteriorated with treatment was close to zero and smaller than in patients waiting for treatment (Ehlers et al. 2014). This suggests that CT-PTSD is a safe and efficacious treatment.

Ehlers et al. (2013, 2022a) assessed CT-PTSD in consecutive patients in routine care. The samples treated in these studies included a very wide range of patients including those with complicating factors such as serious social problems, living currently in danger, very severe depression, borderline personality disorder, or multiple traumatic events and losses. Therapists included trainees as well as experienced therapists. Outcomes remained very good, with large intent-to-treat effect sizes of 1.25 and higher for PTSD symptoms. Around 60% of the patients who started therapy remitted from PTSD. Dropout rates were somewhat higher than in the trials of CT-PTSD (14–15%), but still below the average for trials of trauma-focused cognitive behavior therapy of 23% (Bisson et al. 2013). Hardly any patients experienced symptom deterioration.

Does CT-PTSD work by changing problematic meanings of the trauma? Kleim et al. (2013) analyzed the time course of changes in symptoms and appraisals. As predicted from the treatment model, changes in appraisals predicted subsequent symptom change, but not vice versa.

Ehlers et al. (2013) investigated whether patient characteristics influence treatment response. Encouragingly, very few did. Only social problems and having re-experiencing symptoms from multiple traumas were associated with a somewhat less favorable response. This was because treatment was less trauma focused, that is, patients and therapists spent more time discussing other problems, such as housing and financial problems, and spent less time working on the patient's trauma memories and their meanings. It remains to be tested whether an extension of the treatment duration (the mean was ten sessions) would have led to better outcomes in these cases. Higher dropout rates were associated with patients' social problems and inexperienced therapists. This suggests that attention to skills that help engage patients in trauma-focused work is needed in therapist training.

Overall, the evaluations showed encouraging results and support CT-PTSD as an evidenced-based treatment.

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Cognitive Processing Therapy

10

Tara E. Galovski, Jennifer Schuster Wachen,
Kathleen M. Chard, and Candice M. Monson

Cognitive processing therapy (CPT) is an evidence-based, cognitive-behavioral treatment designed specifically to treat posttraumatic stress disorder (PTSD) and comorbid symptoms. This chapter will first review the theoretical underpinnings of the intervention and then provide more details about the actual protocol including a clinical case description. We then will review several special considerations and challenges in administering the protocol to specific groups of trauma survivors and finally end with an overview of the published randomized controlled clinical trials demonstrating the efficacy of the therapy.

10.1 Theoretical Underpinnings

The theoretical basis of CPT is cognitive theory, one of the most prominent theories explaining the onset and maintenance of PTSD. A predominant notion underlying cognitive theory of PTSD is that PTSD is a disorder of non-recovery from a traumatic event (Resick et al. 2008b). Thus, PTSD is not a condition with a prodromal phase or one in which early signs and symptoms are observed. Rather, in the majority of cases, the widest variety and most severe symptoms of PTSD are experienced in the early days and weeks after exposure to the traumatic event has ended. With

T. E. Galovski (✉) · J. S. Wachen
Women's Health Sciences Division, National Center for PTSD, Boston, MA, USA
e-mail: tara.galovski@va.gov; jennifer.wachen@va.gov

K. M. Chard
VA Medical Center, Research Service, Cincinnati, OH, USA
e-mail: kathleen.chard@va.gov

C. M. Monson
Department of Psychology, Ryerson University, Toronto, ON, Canada
e-mail: candice.monson@psych.ryerson.ca

time, the majority of individuals who have been exposed to a traumatic event(s) will experience an abatement of PTSD symptoms, or a natural recovery from the trauma. In a substantial minority of cases, individuals will continue to experience symptoms consistent with a diagnosis of PTSD. In other words, for this minority of all trauma survivors, natural recovery from the trauma has been impeded.

According to cognitive trauma theory of PTSD, avoidance of thinking about the traumatic event, as well as problematic appraisals of the traumatic event when memories are faced, contributes to this non-recovery. More specifically, individuals who do not recover are believed to try to assimilate the traumatic event into previously held core beliefs that are comprised of positive or negative beliefs about the self, others, and the world. Assimilation serves as an attempt to construe the traumatic event in a way that makes it fit, or to be consistent, with these preexisting beliefs. A common example of assimilation in those with PTSD is just-world thinking, or the belief that good things happen to good people and bad things happen to bad people. In the case of traumatic events (i.e., bad things), the individual assumes that he/she did something bad that may have led to the event or that the event is punishment for something he/she may have done in the past. An example of this type of thinking by a sexual assault survivor: "If I just hadn't been drunk that night (i.e., bad behavior), then I wouldn't have been assaulted (i.e., bad consequence)." Another common type of assimilative thinking is hindsight bias, or evaluating the event based on information that is only known after the fact (Fischhoff 1975). At its essence, assimilation is an effort to exert predictability and control over the traumatic event after the fact that paradoxically leaves the traumatized individual with unprocessed traumatic material that is perpetually reexperienced.

Another tenant of cognitive trauma theory is that problematic historical appraisals about traumatic events (i.e., assimilation) lead to, or seemingly confirm, over-generalized maladaptive schemas and core beliefs about the self, others, and the world after traumatization. In other words, individuals over-accommodate their beliefs based on the traumatic experience. Over-accommodation involves the modification of existing schemas based on appraisals about the trauma, but these modifications in schemas are too severe and overgeneralized. A common example of over-accommodation is when a traumatized individual comes to believe, based on his/her appraisals of his/her trauma, that the world is a completely unsafe and unpredictable place when he/she previously believed that the world was relatively benign or at least that bad things would not happen to him/her. Alternatively, traumatized individuals may have preexisting negative schemas, usually a result of a history of prior traumatization or other negative life events, that others cannot be trusted or that they have no control over bad things happening to them. In these cases, traumatic experiences are construed as proof for the preexisting negative schemas. Borrowing from earlier work by McCann and Pearlman (1990), cognitive trauma theory identifies beliefs related to the self and others that are often over-accommodated and contribute to non-recovery. These beliefs are related to safety, trust, power/control, esteem, and intimacy. A strength of cognitive trauma theory of PTSD is that it accounts for varying preexisting beliefs in each area that may have been positive or negative based on the client's prior trauma history. In CPT,

assimilated and over-accommodated beliefs are labeled “Stuck Points,” describing thinking that interferes with natural recovery, thereby keeping people “stuck” in PTSD. Stuck Points are targeted in therapy.

According to cognitive trauma theory, clients must allow themselves to experience the natural emotions associated with the event that are typically avoided in the case of PTSD. Natural emotions are emotions that are considered to be hardwired and emanate directly from the traumatic event (perhaps sadness of loss of a loved one during trauma, fear of the danger associated with the trauma, etc.). Natural emotions that have been suppressed or avoided contribute to ongoing PTSD symptoms. According to cognitive trauma theory, natural emotions do not perpetuate themselves and, thereby, contrary to behavioral theories of PTSD (Foa and Kozak 1986), do not require systematic exposure to achieve habituation to them. The client is encouraged to approach and feel these natural emotions, which have a self-limiting course once they are allowed to be experienced.

In contrast, maladaptive misappraisals about the trauma in retrospect (i.e., assimilation), as well as current-day cognitions that have been disrupted (i.e., over-accommodation), are postulated to result in manufactured emotions. Manufactured emotions are the product of conscious appraisals about why the trauma occurred and the implications of those appraisals on here-and-now cognitions. In the case of a natural disaster survivor who believed that the outcomes of the disaster occurred because he/she or others did not do enough to protect himself/herself and his/her family (self or other blame), he/she is likely to feel ongoing guilt and/or anger and be distrustful of himself/herself or others. In this way, trauma-related appraisals are manufacturing ongoing negative emotions that will be maintained as long as he/she continues to think in this manner. The key to recovery with regard to manufactured emotions is to foster accommodation of the information about the traumatic event. In other words, clients are encouraged to change their minds enough to account for the event in a realistic manner without changing their minds too much resulting in overgeneralized and maladaptive beliefs.

Based on the results of a clinical trial (Resick et al. 2008a, b) that sought to dismantle the original CPT protocol, the cognitive component of CPT was given primacy in the most recent iteration of the treatment manual (Resick et al. 2017a). This conceptual evolution resulted in a shift in the protocol. Historically, the full treatment protocol had included a written trauma narrative that was termed “written exposure.” Prior to this study, CPT was often classified as an exposure therapy in systemic reviews and practice guidelines. As the therapy evolved, it was noted that the “written exposure” that was standard in the original protocol did not meet the definition of an exposure intervention, typically described as repeated, sustained repetitions of the trauma memory in significant detail with the goal of habituation. Because this element of CPT did not meet the dose requirement of a true exposure, this terminology was changed to “written account” (Resick et al. 2017a). The dismantling trial (Resick et al. 2008a, b) sought to compare the full original CPT protocol (which included the written account) to each of the theorized active elements, cognitive therapy-only (termed CPT-C), and a version of the therapy that included only the written account (termed WA). The results of this trial revealed that the

cognitive-only version of the therapy resulted in the lowest drop-out rates and the fastest, most straightforward recovery. Essentially, more time is available to focus on the cognitive work over the course of the therapy in the cognitive-only condition. As a result of this study and others, CPT (without the written account) is now the standard protocol and clinicians have the option of adding a written account (CPT + A). This evolution is described in more detail in the latest published treatment manual (Resick et al. 2017a).

The shift in the standard format of the original protocol (making the written account optional) does not diminish the focus on the trauma. Notably, this shift affords the providers more opportunity to more quickly hone in on the trauma memory and less time spent in re-directing clients' avoidance of the trauma details which is often particularly pronounced in the writing of the trauma account. Clients engage in a number of avoidance strategies around this particular therapy element including simply not completing the assignment, writing effusively about events leading up to and following the trauma, but including very little detail about the trauma itself, writing about something else entirely, or writing the account as one would write a police report—in a very detached fashion (Galovski et al. 2020a). All of these avoidance strategies result in lost time within and between sessions. Relying more on cognitive techniques like Socratic questioning can facilitate a more expedient path to engaging with the trauma memory and, ultimately, recovery from PTSD (Farmer et al. 2017). That said, some clients may benefit from writing the trauma account. There is little data to predict for whom the addition of this element of therapy will be most effective, although one secondary analysis of the dismantling study (Resick et al. 2008a, b) found that women with higher levels of dissociation responded better to CPT with the written account (Resick et al. 2012a, b). Current guidelines recommend that clinicians offer the option of writing the trauma to the client. This shared decision-making may optimize client engagement in therapy irrespective of the choice.

10.2 Clinical Description of CPT

CPT has historically been administered over 12 sessions in individual, group, or combined formats. However, research (Galovski et al. 2012) has suggested that a more variable course of treatment may be most beneficial to clients. As a result, the length of therapy is dictated by client's progress and can end prior to session 12 if the patient has recovered or can continue for several additional sessions in the event the client has not yet achieved meaningful change. The administration of CPT can be most briefly explained in terms of phases of treatment. During the pretreatment phase (Phase 1), the clinician will assess the presence of PTSD as well as consider the host of usual treatment priorities (suicidality, homicidality) and the presence of potentially interfering comorbid conditions such as current mania, psychosis, and substance dependence. Special challenges to treatment will be discussed later in this chapter. The next phase (Phase 2, sessions 1–3) consists of education regarding

PTSD and the role of thoughts and emotions in accordance with cognitive theory described above. Phase 3 (sessions 4–5) consists of engaging with the memory of the actual traumatic event (as opposed to avoiding the memory) and providing the client the opportunity to feel his/her related natural emotions. The goals are the discovery of Stuck Points preventing the client's recovery and the expression of natural affect associated with the trauma memory. In Phase 4 of treatment (sessions 6 and 7), the clinician uses Socratic Dialogue to begin to aid the client in challenging Stuck Points. This process is complemented by clinical tools (a series of worksheets) that aid the client in implementing formal challenging of Stuck Points between sessions at home. Phase 5 (sessions 8–12) often marks the transition to a more specific focus on over-accommodated Stuck Points with individual sessions dedicated to the trauma themes of safety, trust, power and control, esteem, and intimacy. Phase 5 also includes "facing the future" and focuses on relapse prevention, specifically targeting Stuck Points that might interfere with the maintenance of therapeutic gains. The following provides an overview of a recent case in our clinic. Given the recent evolution of CPT to include the written account as optional versus standard, we provide an example of how Socratic Dialogue can help a patient engage fully with the trauma memory, elicit natural emotions associated with the event, and process assimilated Stuck Points that are keeping the client stuck in PTSD.

Heidi is a 48-year-old, divorced, White mother of two adult children who live outside the home. She had been employed as a long-haul trucker with her national trucking company for 20+ years prior to taking an extended leave. She sought treatment following an assault by her husband of 26 years. She described this relationship as full of "ups and downs" and that they had always been rough with each other. Over the years, the violence had escalated, particularly since her children had moved out and usually when her husband and she had been drinking. The last year had been particularly violent and had culminated in her husband nearly strangling her to death approximately 8 months ago. She was currently separated from her husband and living apart from him, although she reported that he was pressuring her to return home.

Heidi was diagnosed with PTSD and began CPT. She chose not to write the trauma account because she "hated writing" in general. Heidi understood the rationale for the therapy and the rest of the information provided in session 1. She wrote a fairly sparse Impact Statement and read it to the therapist in session 2. The goal of this assignment is to understand *why* the client thinks the trauma happened (and any assimilated Stuck Points) and the impact that the trauma has had on beliefs about oneself, the world, and others especially in terms of safety, trust, power/control, esteem, and intimacy (over-accommodated Stuck Points). The over-accommodated Stuck Points were readily apparent in Heidi's Impact Statement and centered largely around the meaningfulness of being diagnosed with PTSD and fears for her safety. Specifically, Heidi stated: "I must be weak," "The world is an unsafe place," "I clearly can't trust anyone, not even myself." Assimilated Stuck Points were less evident in her Impact Statement. Time was spent in session 2 to further develop the

Impact Statement and elicit assimilated Stuck Points. This discovery process is particularly important as it is critical to prioritize the challenging of assimilated Stuck Points before working on over-accommodated Stuck Points (Farmer et al. 2017; Galovski et al. 2020a).

Therapist (after Heidi reads her Impact Statement): *This is really good work. I can see how this trauma has clearly impacted your beliefs. I am hearing a lot of Stuck Points in here. Let's go back through and add these Stuck Points to your Stuck Point Log.* [Therapist and Heidi add to the Stuck Point Log.]

Therapist: *Looking down this list of Stuck Points, I am seeing several beliefs about yourself such as "I can't trust myself." and "I am weak." Can you give me a sense of when you started considering yourself to be weak?*

Heidi: *Well, I actually have always thought of myself as a tough person, have always been one of the guys. I actually have set several records at the local rodeo – I beat men regularly at some of the toughest events. Even with my husband, Joe, I was always able to take my knocks and even defend myself pretty well.*

Therapist: *That's really amazing – I don't know much about the rodeo but from what I've seen, those events are no joke! Where does this idea that you are weak come from?*

Heidi: *For the most part, I was pretty tough no matter what life threw at me. I needed to be tough in my job – I'm usually the only woman driver and those guys can be rough – great guys but you really can't show weakness. I could tell you some stories.*

Therapist (realizing that Heidi is avoiding the question a bit): *I can see that, for sure! It really does sound like you have extraordinary examples of being tough. I'm not hearing why you would consider yourself weak. Where was this idea of you being weak born?*

Heidi: *Honestly, feeling wound up and scared these last months, not sleeping, not being able to go to work, having nightmares – it's like I am falling apart. Tough guys don't fall apart.*

Therapist: *These last months? So since the last attack by Joe? This makes sense because the things you describe are symptoms of PTSD which we know developed from that attack. But can you explain to me where seeing yourself as weak comes from? Before Joe attacked you that night, you saw yourself as tough and now you see yourself as weak? What changed your view of yourself?*

Heidi: *Partly having PTSD, I think. It's hard for me to see myself as having a mental illness or being "fearful".*

Therapist: *Have you ever been fearful before?* [Heidi nods.] *And did you think of yourself as weak?*

Heidi: *No, not really.* [pauses for some time] *I think I'm weak because I didn't handle it. I didn't handle him that night. I didn't fight hard enough. I wasn't strong enough.*

Therapist: *OK. I am starting to understand. It sounds you are saying the reason why this attack happened the way it did on that night was because you were weak?*

Heidi [tearful for the first time]: *Yeah, I let it happen. I should have handled it. I was weak.*

Therapist: *I'm hearing what I think may be some Stuck Points here. Let's add some of these thoughts to your Stuck Points log so we can think more about them down the line a bit.*

Over the remainder of the session, the therapist and Heidi add a number of assimilated Stuck Points to the log including: "This happened because I was weak. I should have handled him. I should have fought harder. I should have known this would happen that night. I was not strong enough." In session 3, Heidi returned, and the process of gentle challenging of these Stuck Points began.

Therapist: *I'm really interested in this idea that you were quite strong in lots of ways prior to this assault and then this belief in your strength was shattered during and after the attack. Can we talk a bit more about this Stuck Point of "I am weak?" It might be helpful to start at the moment when this belief was born...*

Heidi: *It's hard to name the "moment" I started thinking this way. That whole night is a blur. Things just got out of control.*

Therapist: *Let's take it step by step. How did the evening start?*

Heidi [shifts a bit uncomfortably in her chair and looks away]: *I don't know – like any other night I guess.*

Therapist (getting Heidi started): *I remember you saying it was a Friday night and you had been on the road for the last three nights. Had you just gotten home?*

Heidi: *Yup, it had been a long week but nothing special. I was feeling a little run down and I remember that I was hoping to just grab something to eat and call it a night. But, as usual, when I'm on the road, nothing gets done and there was no food in the house. Joe wanted to go out to a dive bar that we often go to in the neighborhood and eat there. That usually means drinking and closing the place down. I was not really up for it but I wanted to avoid a fight so we went. [softly] Should've stuck to my guns.*

Therapist: *Hmmm, maybe. But it sounds like, at the time, you were choosing to go to avoid trouble? [Heidi considers and nods.] So you head over to the bar. What happened next?*

Heidi: *Not much – we order food and beers. I started feeling worse and worse and barely touched either. Joe made up for it and it was looking like he was making it an all-nighter. A bunch of his buddies showed up and he went over to the bar to drink with them. I realized I was running a fever by then and told him I was headed home. He was clearly pissed off and looked like he was itchin' to fight, but his friends were watching. I took the opportunity to get out of there.*

Therapist: *What happened next?*

Heidi: *I got home, took some aspirin for my fever, and crawled into bed and passed out. Next thing I knew, I was being dragged out of bed and the rest is history. I had never even locked the door. How stupid could I be?*

Therapist: *Did Joe have a key? [Heidi does not look up but nods.] Probably doesn't matter too much if you had locked the door then, right? [Therapist inserts this gentle Socratic question to challenge the notion that this happened because Heidi was stupid, but wants Heidi to continue with her story. Heidi had clearly stopped at the most difficult part of the memory. The therapist wants her to be able to push through avoidance, experience any natural affect, discover any additional*

assimilated Stuck Points, and gather information that will be helpful in challenging these Stuck Points.] *Do you remember much about being dragged out of bed?*

Heidi (continues to avoid eye contact and speaks slowly and quietly): *Yes. I was dead asleep at the time and woke up by being dragged by my hair in one of his hands and the other around my neck. My back was against him and my arms were pinned down. I remember kicking and twisting but not being able to loosen his grip. He dragged me the full length of the hall screaming at me. When we got to the top of the stairs, he flung me down. I remember the sensation of flying and then crashing down.*

Therapist: *That's awful. Were you badly hurt?*

Heidi (visibly crying and not making eye contact at all): *I didn't know it at the time. I actually remember thinking, "Now's my chance. I can escape out the front door." But when I tried to stand, I realized my leg was fractured. And then he was on me again. I blew my chance.*

Over the course of the next few minutes, Heidi describes the rest of her assault during which Joe repeatedly beat and choked her for nearly 30 min during which she lost consciousness at least twice. The second time, she played dead and he finally stepped away from her. She waited about 20 min and was able to drag herself to her neighbor's house. Her neighbor called the police.

This case example shows how a therapist can help a client engage with the trauma memory in a detailed manner. When avoidance is apparent, the therapist can help the client stay trauma-focused. The therapist provides ample opportunity for the client to feel the natural feelings that recalling the trauma evokes. At the same time, the therapist is able to discover new assimilated Stuck Points and even begin the process of gentle challenging. Finally, the therapist develops a complete picture of the details of the trauma. These can be very helpful in crafting Socratic questions to challenge the client's Stuck Points. In Heidi's case, evidence against the idea that the assault happened because she was weak or didn't "handle it" included the fact that she was woken from sleep in her own bed, was feverish, had her leg broken in the assault, and was choked to the point of loss of consciousness twice (all preventing her from fighting back). Despite all of this, she had the wherewithal to trick her husband and play dead in order to escape. She then had the strength to drag herself badly injured including a broken leg and crushed larynx to safety. In fact, there was little in her story to suggest that she was weak at all. Quite the opposite, she came to recognize that she showed enormous strength and fortitude despite great odds.

10.3 Special Challenges

We are frequently asked how long a therapist should work with a client prior to starting CPT. The answer changes depending on a number of variables. If this is a new client, CPT can start right away after an initial assessment definitively determining a diagnosis of PTSD. If the therapist has been working with the client for a long time using more supportive or unstructured therapy, it may be necessary to discuss how CPT will look different in terms of the structure of the session and the homework expectations than what was previously being done in therapy. We often

find that delaying the start of trauma treatment causes the client's avoidance to increase and reduces the likelihood that he/she will stay committed to the protocol. In fact, we commonly see that the therapist's avoidance or belief that the client "cannot tolerate" CPT is more often the reason for the delay of treatment than the client's desire to hold off.

Because the efficacy of CPT was tested with women who described complex trauma histories as well as a variety of comorbid psychological disorders, most clients can complete the treatment protocol as designed. For example, in clinical and research settings, we have implemented the protocol with individuals who were recently traumatized (days) and those who were 70 years posttrauma. In addition, the protocol has been utilized with those who are sub-threshold for PTSD diagnosis as well as those individuals who meet the full criteria for PTSD. Finally, we have successfully implemented the full protocol with individuals who have been additionally diagnosed with many Axis I and all Axis II disorders and comorbid conditions (Galovski et al. 2020a). Several examples include sleep impairment (e.g., Galovski et al. 2016a, b), traumatic brain injury (Chard et al. 2011), repeated head injuries and depression (Galovski et al. 2020b), alcohol use disorders (Kaysen et al. 2014; Pearson et al. 2019a, b), and personality disorders (Walter et al. 2012; Galovski et al. 2016a, b). Most typically, in our research trials, individuals can have a diagnosis of bipolar disorder or schizophrenia; however, we first stabilize any manic or psychotic symptoms prior to commencing the trauma-focused work. A recent non-randomized trial of CPT with individuals with a comorbid severe mental illness diagnosis demonstrated that it is possible to reduce PTSD symptoms in the context of these co-occurring disorders (Feingold et al. 2018). To our knowledge, CPT has not been tested with individuals diagnosed with dementia.

There are a few situations in which delaying the start of trauma-focused work, such as CPT, may be warranted (such as stabilizing a client physically or psychologically). Ensuring that the individual is not a danger to self or others and in personal danger due to a current abusive relationship is an important consideration before beginning any kind of therapy. If danger is a concern, then safety planning needs to be prioritized before CPT is considered. Conversely, we have successfully treated individuals who are likely to face trauma in their near future with CPT, e.g., military service members, police, and firefighters. The likelihood of experiencing trauma in the future is a universal risk, so the possibility of future violence or trauma exposure should not be a reason to delay trauma treatment but should be an area where additional Stuck Points can be identified and challenged. Additional areas of physical safety that may delay treatment include those individuals with an eating disorder (see Trim et al. 2017 for a review of treating comorbid PTSD and eating disorders with CPT) that places them at a severe health risk or those engaging in potentially lethal self-injurious behaviors. In both of these cases, attempts to stabilize the client should be made prior to starting CPT.

Another factor that may delay the start of CPT treatment is the client's psychological functioning. For example, if depression is so severe that the client is rarely attending sessions, if dissociation is so significant that he/she cannot sit through most of a therapy hour, or if severe panic attacks are preventing discussion of the

trauma even in remote detail, then other therapeutic interventions may need to precede CPT (e.g., coping skill building, panic control treatment (see Chap. 18 and Part IV “comorbidities”). With respect to concurrent substance use disorders, we have commonly implemented the CPT protocol with those who are abusing substances with great success, but typically not in an outpatient setting if they are substance dependent and requiring detoxification (Kaysen et al. 2014). However, once someone has stabilized after detoxification, the individual is typically able to engage in CPT. Recent clinical trials have demonstrated improvements in PTSD and substance use outcomes among PTSD/SUD patient populations (Haller et al. 2016; Pearson et al. 2019a, b). These results suggest that treating PTSD in the context of SUD is safe and effective. Both research studies and clinical effectiveness trials have found that symptoms of depression, anxiety, substance use, anger, and guilt all decrease after CPT and individuals maintain these gains at treatment follow-up (see Galovski et al. 2020a for a review of the relevant studies). If an individual has an unmedicated psychotic disorder or unmedicated bipolar disorder, it will likely be necessary to stabilize the individual on a medication regimen prior to starting CPT. Finally, an emerging literature also demonstrates the success of treating PTSD with CPT in the context of co-occurring medical complexities including elevated health-related concerns (Galovski et al. 2009), traumatic brain injury (Chard et al. 2011; Walter et al. 2012; Galovski et al. 2020b), sleep impairment (Galovski et al. 2016a, b; Pruiksma et al. 2016), and chronic pain (Galovski and Resick 2008).

Several studies have shown that individuals with comorbid personality disorders (including borderline personality disorder; BPD) do very well in CPT. Although their initial PTSD score may start higher than individuals without a comorbid personality disorder, participants with BPD features (Clarke et al. 2008) and with full BPD (Walter et al. 2012; Galovski et al. 2016a, b; Holder et al. 2017) show equivalent gains in therapy as compared to those without personality disorders. The challenge for many therapists working with clients who have a personality disorder and PTSD is keeping the treatment on track with the protocol and not getting derailed by non-trauma-related topics and issues that are salient to the client, but may detract from the PTSD recovery process. We have found that clients often have developed maladaptive cognitions and coping strategies to manage their reactions to the trauma. These beliefs and behavioral patterns most likely served a functional purpose at some point in the person’s life and eventually became dogmatic schemas about the world. The client then began to view all experiences through these schemas, ignoring or distorting information that challenges these beliefs. Our goal is to remain trauma-focused and provide the client with additional skills for specifically challenging trauma-related cognitions in an effort to reduce posttraumatic distress.

Modifications of the protocol are most often not recommended. That being said, our studies have shown that specific modifications may occasionally be necessary to achieve optimal outcomes (Galovski et al. 2012; Resick et al. 2008b; Galovski et al. 2016a, b; Angelakis et al. 2020; Jak et al. 2019; Kozel et al. 2018; Pearson et al. 2019a, b). For example, we have used the protocol with individuals who have minimal formal education (fourth grade) and those with an IQ around 75. However, in several of these cases, we have had to simplify the protocol. In addition, with the

number of returning veterans with a history of traumatic brain injury (TBI), many clients with PTSD are also coping with post concussive symptoms that resulted from their injury. Clinical data supports the use of CPT or CPT-C in their current formats with a majority of these clients, but if the client is struggling to comprehend the purpose of the assignment, the worksheets have been simplified for different levels of understanding (Resick et al. 2017a; Chard et al. 2011). For example, we have created versions of the worksheets that can be used throughout the treatment instead of moving on to the more advanced sheet. Bass et al. (2013) completed a randomized controlled trial of group CPT-C (cognitive-only version without accounts) in the Democratic Republic of Congo, in which the clients were illiterate and had no paper and the therapist had only a few years of education beyond elementary school. The worksheets and concepts had to be simplified so that the clients could memorize them.

In summary, therapists should not assume that CPT cannot be implemented with clients who have extensive trauma histories or be daunted by comorbid disorders accompanying PTSD. The decision the clinician must make in collaboration with the client is whether the comorbid disorder is so severe that it will preclude the client's participation in PTSD treatment. For the most part, however, the treatment of PTSD will improve the comorbid symptoms and may even eliminate the necessity of further treatment for those symptoms. Thus, decisions on when to start CPT, and with whom, should be made on a case-by-case basis in collaboration with the client.

10.4 Empirical Support

There is a large body of literature supporting the efficacy and effectiveness of CPT in diverse populations. The first randomized controlled clinical trial (RCT) compared CPT, prolonged exposure (PE), and a wait list (WL) control group in a sample of 171 female rape survivors (Resick et al. 2002). Results showed that both the CPT and PE groups demonstrated significant reductions in PTSD and depressive symptoms between pretreatment and posttreatment compared to the WL condition. There were very few differences between the two active treatments with the exception of significantly more improvement on guilt (Resick et al. 2002), health-related concerns (Galovski et al. 2009), hopelessness (Gallagher and Resick 2012), and suicidal ideation (Gradus et al. 2013) reported by the participants who received CPT. These improvements were sustained at the 3-month and 9-month follow-up points. A subsequent long-term follow-up assessment of these participants (Resick et al. 2012a, b) revealed no significant change in PTSD symptoms 5–10 years following original study participation, indicating that treatment gains were maintained over an extended period of time.

In an effort to more fully understand the possible individual contributions of the theorized active ingredients in the full CPT protocol, a dismantling study of CPT (Resick et al. 2008a) next compared the full protocol to a cognitive-only version (CPT-C) that does not include the written account and a written account-only (WA) condition. One hundred and fifty adult women with histories of physical and/or

sexual assault were randomized into one of the three conditions. Participants in all three conditions showed significant improvements in PTSD and depressive symptoms during treatment and at the 6-month follow-up. Following these two initial RCTs conducted with female survivors of interpersonal violence, additional studies within the civilian population were conducted with results continuing to demonstrate the efficacy of CPT when compared to memory specificity training (MeST; Maxwell et al. 2016) and written exposure therapy (WET; Sloan et al. 2018).

CPT also is shown to be effective in veteran populations. Monson et al. (2006) conducted the first RCT with a veteran sample and found that veterans receiving CPT demonstrated significant improvements in PTSD symptoms compared to treatment as usual through 1-month follow-up. Improvements in co-occurring symptoms including depression, anxiety, affect functioning, guilt distress, and social adjustment also were found. Forbes et al. (2012) examined the effectiveness of CPT compared to treatment as usual in three veterans' treatment clinics across Australia. Results showed significantly greater improvements in PTSD and secondary outcomes including anxiety and depression for the CPT group. In the first RCT examining CPT in a sample of veterans with military sexual trauma, CPT was compared to present-centered therapy (PCT), an active control group (Suris et al. 2013). Results revealed that both the treatment groups showed significant improvement through 6-month follow-up in PTSD and depression, although veterans who received CPT showed significantly greater reductions in self-reported PTSD symptom severity at the posttreatment assessment compared to those who received PCT. No differences were observed between the two treatments on clinician-measured PTSD as assessed by the Clinician-Administered PTSD Scale (CAPS). Morland et al. (2014) conducted an RCT in a sample of 125 male Vietnam era combat veterans in Hawaii comparing group CPT delivered via telehealth technology to in-person treatment. Results found that both groups had significant reductions in PTSD symptoms following treatment and maintained through 6-month follow-up. There were no significant between-group differences in clinical or process outcome variables. This same group of investigators then tested the telehealth method of service delivery within female veterans, reservists, National Guard and civilians (Morland et al. 2015), and Maieritsch et al. (2016) tested CPT via telehealth in post 9/11 veterans. These two later studies also demonstrated the effectiveness of this type of service delivery. These findings support the feasibility and effectiveness of using telehealth technology to deliver CPT, which would greatly extend the reach of CPT and improve access to care for those with geographic limitations. During the global pandemic of 2020, knowledge gained from these research trials was critical in continuing mental health delivery for both veterans and civilians nationwide (Moring et al. 2020).

CPT has also demonstrated effectiveness in active duty studies. The first RCT to test CPT in a US active duty sample compared CPT to present-centered therapy (PCT) in a sample of primarily male service members with PTSD secondary to combat trauma (Resick et al. 2015). PTSD and depression both significantly reduced in both the therapy conditions. A second study in active duty service members

compared CPT delivered individually to group CPT. Differences emerged such that participants who received CPT in an individual format showed significantly more improvement in PTSD than did those who received treatment in group format (Resick et al. 2017b), although service members in both conditions demonstrated significant symptom reductions.

Modifications and adaptations of the original CPT protocol have served to advance the overall effectiveness of the intervention. Chard (2005) developed an adaptation of CPT (CPT-SA) for survivors of sexual assault consisting of 17 weeks of group and individual therapy specifically designed to address issues salient to abuse survivors, such as attachment, communication, sexual intimacy, and social adjustment. In an RCT of this treatment, 71 women were randomized to CPT or a minimal attention (MA) wait list control group. The CPT group showed significant improvements from pretreatment to posttreatment compared to the MA group on PTSD, depression, and dissociation. PTSD symptomatology continued to improve from posttreatment to the 3-month follow-up and remained stable through 1-year follow-up. Galovski and colleagues flexibly administered a variable-length protocol of CPT (modified cognitive processing therapy, MCPT) in which the number of sessions is determined by client progress toward a predetermined good end-state functioning (Galovski et al. 2012). Results of an RCT in a sample of 100 male and female interpersonal trauma survivors found that MCPT demonstrated greater improvement on PTSD and depression, as well as secondary outcomes such as guilt, quality of life, and social functioning, compared to a minimal contact control group. Moreover, 58% of participants receiving MCPT reached good end-state in fewer than 12 sessions, while only 8% reached session 12 and 34% required 12–18 sessions. Gains were maintained at the 3-month follow-up. These results suggest that the CPT protocol may be shortened for early responders, while adding additional sessions may improve outcomes for those previously deemed nonresponders after the standard 12-session protocol. Numerous augmentation trials also have been conducted to target commonly co-occurring conditions that may be impeding holistic outcomes such as sleep impairment (Galovski et al. 2016a, b), depression (Angelakis et al. 2020; Kozel et al. 2018) and cognitive symptoms associated with TBI (Jak et al. 2019).

CPT also has been adapted to meet the needs of traumatized populations outside of the United States, international populations. Bass et al. (2013) conducted a controlled trial with female sexual assault survivors in the Democratic Republic of Congo. Sixteen villages were randomly assigned to provide CPT-C (157 women) or individual support (248 women). CPT-C was delivered in a group format following an initial individual session. Results showed that participants in the CPT-C groups had significantly greater improvements in PTSD, depression, and anxiety symptoms than those in the individual support group, with effects maintained at 6-month follow-up. In a sample of civilian survivors of violence in Southern Iraq, Weiss et al. (2015) found that CPT was more effective when compared to a waitlist control condition. Finally, in a study conducted in Germany with female civilians, Butollo et al. (2016) compared CPT and dialogical exposure therapy in a sample of civilians exposed to different types of trauma and found both therapies to be equally

effective. These findings demonstrate that CPT can be effectively implemented in diverse and challenging settings.

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EMDR Therapy for Trauma-Related Disorders

11

Deany Laliotis and Francine Shapiro

11.1 The Adaptive Information Processing (AIP) Model

More generally, the AIP model explains the development of personality and pathology and predicts successful clinical outcomes, while guiding EMDR therapy case conceptualization and clinical procedures. Central to the model is the widely recognized notion that the brain's information processing system is designed to make sense of current life situations by linking it to related extant memory networks with one or more similar components. For example, the experience of falling off a bicycle will link to networks containing memories of other accidents and a larger category of being physically hurt. A conflict with a loved one will likely be associated with memories of other significant interpersonal relationships and more specifically with other conflicts they experienced or witnessed. Also pivotal is the recognition that another fundamental purpose of the information processing system is to alleviate emotional distress and a subsequent return to homeostasis. In most circumstances, disturbing experiences will be successfully processed and resolved by linking with networks containing mitigating or qualifying information, such as "similar kinds of experiences have occurred before" or "I have already successfully dealt with this kind of difficulty and it turned out okay." Whether through the passage of time, thinking about it, talking about it, or dreaming about it, the information processing system may be said, metaphorically, to "metabolize" or "digest" the experience. What is useful is encoded in the appropriate memory networks and serves as a functional guide for future perception, responses, and behavior; what is no longer useful is discarded. The more memories we have that are adaptively

D. Laliotis (✉)

The Center for Excellence in EMDR Therapy, Washington, DC, USA

e-mail: info@emdrtherapy.com, info@deanylaliotis.com

F. Shapiro

Mental Research Institute, Palo Alto, USA

stored, the greater our capacity to be in the present and respond adaptively and flexibility to our current life circumstances. In short, processed memories are the foundation of good mental health.

According to the AIP model, an adverse life experience can be so disturbing that it overwhelms the information processing system. The memory becomes “stuck” in time, and when that happens, the association with other memory networks of adaptively encoded life experiences is disrupted. These disturbing experiences are neurophysiologically maintained in a separate memory network that often include disturbing images, distorted thoughts about self and others, difficult affects, and sensations that are part of the original event. According to some memory researchers, the failure to process a traumatic event involves the lack of integration of episodic memory into the semantic memory system (see Stickgold 2002). These inadequately processed memories of disturbing events are easily triggered by both internal and external stimuli, resulting in a variety of clinical symptoms that may include inappropriate or disproportionate emotions, distorted beliefs, and maladaptive behaviors. Flashbacks, nightmares, intrusive thoughts, and avoidance behaviors typically associated with PTSD are the most striking examples. However, as predicted by the AIP model, disturbing adverse life experiences that do not qualify as “Criterion A” events can also be dysfunctionally stored and contribute to a foundation of memories that inform a wide range of pathologies that include negative affective, cognitive, and somatic reactions. In fact, general adverse life experiences have been found to generate even more PTSD symptoms than major traumatic events due to the personal nature of these experiences as they involve people who are familiar and with whom they have an attachment (Mol et al. 2005).

All previous life experiences inform how we perceive situations in the present. When these previous experiences remain unresolved, these disturbing experiences shape the individual’s perceptions and experiences in the present, resulting in a vicious cycle of emotional and cognitive distortions and dysfunctional actions. As indicated previously, an important aspect of inadequately processed memories often includes emotions and physical sensations that occurred at the time of the critical event. For example, when a child undergoes a traumatic experience such as being sexually abused, the associated feelings of shame and defectiveness related to this set of experiences, persist into adulthood. Their perceptions of current situations that have similar aspects to them automatically link into the associated memory networks of the abuse and trigger the stored associations. These unprocessed cognitive, emotional and somatic reactions emerge and inform how they react to the present. Their history of being sexually abused, in relationship to their partner, can get triggered into feeling the same sense of shame and defectiveness they experienced as a child, even when they know it is not the same situation. The recent trigger event becomes stored in turn, solidifying the maladaptive learning of being shameful and defective, adding to the memory network of painful, inadequately processed experiences. This cycle reinforces a negative sense of self, others, and a misunderstanding of current life circumstances that makes it harder to navigate the self-other continuum of daily life demands and experiences. Similarly, EMDR therapy can be used to treat symptoms such as depression, anxiety, and chronic pain when they are

considered to be symptoms of unprocessed traumatic memories which will be discussed in greater detail later in the chapter.

According to the AIP model, self-characterizations such as “I’m not good enough” are considered byproducts of inadequately processed memories, a distorted conclusion about self, and one’s role in the experience that is based on affects and sensations encoded at the time and a lack of information and misinformation. These distorted conclusions are referred to as informational plateaus, that is, beliefs about the self that continue to be reinforced by subsequent experiences with similar conclusions. For example, a client may experience a boss as critical and demanding, but this perspective may be driven by childhood experiences with parents who were harsh in their demeanor. In both past and present, the client walks away from these experiences feeling anxious and insecure and wrongly concludes that they have caused the other person’s harsh and critical behavior. As an adult, they have a similar experience of self in the present, leading to the same conclusions about themselves that they did as a child. This tenet is integral to EMDR therapy and contrary to therapies that view negative beliefs and dysfunctional behaviors as the cause of pathology rather than the effect and the restructuring of beliefs or prescriptions of alternative patterns of behavior as agents of change.

Research has validated EMDR therapy as an effective trauma treatment across the lifespan and joins trauma-focused cognitive behavioral therapy as the only two psychotherapies recommended in the World Health Organization (2013) practice guidelines for the treatment of PTSD in children, adolescents, and adults. These two forms of therapy share certain characteristics but also differ in significant ways. As noted in the WHO (2013) practice guidelines, “[EMDR] therapy is based on the idea that negative thoughts, feelings and behaviours are the result of unprocessed memories. The treatment involves standardized procedures that include focusing simultaneously on (a) spontaneous associations of traumatic images, thoughts, emotions and bodily sensations and (b) bilateral stimulation that is most commonly in the form of repeated eye movements. Like CBT with a trauma focus, EMDR therapy aims to reduce subjective distress and strengthen adaptive cognitions related to the traumatic event. Unlike CBT with a trauma focus, EMDR does not involve (a) detailed descriptions of the event, (b) direct challenging of beliefs, (c) extended exposure, or (d) homework” (p. 1).

While CBT utilizes behavioral, narrative, or cognitive tasks as agents of change, therapeutic change with EMDR therapy, as posited by the AIP model, is viewed as a byproduct generated by spontaneous associations that are accessed and reprocessed to resolution. During this process, it is hypothesized that the inherent information processing system of the brain is being activated through the use of dual attention bilateral stimulation, bringing into conscious awareness the unprocessed information that includes images, thoughts, feelings and sensations of the targeted memory, and other similar associations. These associations, which are at times intense and disturbing, are being observed as happening in the past, not the present. With a focus on facilitating dual awareness between past and present, the therapist ensures that processing is occurring, and the client’s felt experience moment to moment continues to evolve. Depending on the client’s responses, the therapist

guides the client's focus of attention according to standardized procedures to ensure that the targeted memory and the associated memory network is processed to resolution.

11.1.1 Mechanisms of Action from an AIP Perspective

Memory processing progresses rapidly, as each set of bilateral stimulation yields greater client awareness and subsequent shifts in their perceptions, emotions, sensations, and other experiences associated with the targeted memory. The AIP model hypothesizes that the observed changes are due to the linkages forged between adaptive memory networks and the targeted memory during EMDR processing, and the disturbing episodic memory and its associations become integrated within semantic networks (Stickgold 2002, 2008). Thus, as a result of successful EMDR therapy treatment, the memory is no longer isolated and emotionally disconnected, but fully integrated and assimilated into adaptive networks of previous experiences. The original disturbing memory of the event, with all of its negative components, is resolved with appropriate thoughts, feelings, and conclusions based on what actually occurred with a new, more adaptive perspective and without the emotional and physical sensations that were previously experienced.

Shapiro also hypothesized that EMDR therapy results in memory reconsolidation (Solomon and Shapiro 2008; Shapiro 2014), in which the original memory is transformed and stored in an altered form. As illustrated in the treatment section, this distinguishes EMDR therapy from trauma-focused cognitive behavioral therapies (TF-CBT) that rely on habituation and extinction where it appears that a new memory is created during the therapeutic process while leaving the original one intact. As described by Craske et al. (2006), "... recent work on extinction and reinstatement... suggests that extinction does not eliminate or replace previous associations, but rather results in new learning that competes with the old information" (p. 6). Significantly, research has indicated that the lengthy exposures used in TF-CBT cause extinction, while short exposures such as those of EMDR therapy cause memory reconsolidation (Suzuki et al. 2004). The distinction between extinction and reconsolidation has important clinical implications. As discussed in the research section below, memory reconsolidation may be responsible for a variety of EMDR treatment effects (e.g., elimination of phantom limb pain) not found with extinction-based therapies.

11.2 Treatment Overview

EMDR therapy is an eight-phase treatment approach that addresses the adverse life experiences that are the basis of a wide range of pathologies to include problems in daily living (Shapiro 2001, 2018). During memory processing, the client is asked to focus on aspects of a past memory that continue to be disturbing for short intervals of time (e.g., 30 s) while simultaneously engaging in dual attention bilateral

stimulation. The client is asked to give feedback in between the sets of bilateral stimulation, briefly reporting on their experience to ensure that processing is taking place. This set of procedures are repeated until the targeted memory is resolved, i.e., the client reports that bring the memory to mind no longer generates distress. The number of sessions and the length of the various phases depend upon the goals of treatment and the degree of complexity. For instance, single-trauma PTSD may be successfully treated within three to five sessions (e.g., Wilson, Becker & Tinker 1995, Wilson et al. 1997). In such cases, history-taking and preparation phases may take place during the first session, and the assessment, reprocessing phases, and closure (desensitization, installation, body scan, and closure) could be applied in one to three subsequent sessions. The closure phase returns the client to a state of equilibrium and ends each therapy session with a brief discussion about the progress made and the likelihood that processing will continue, and the application of self-soothing techniques can be used as needed. The reevaluation phase begins each session subsequent to memory processing and is used to identify micro as well as macro changes that have occurred in the client's life since the last session, as well as changes that have occurred in the context of the targeted memory. There is always a reevaluation process before initiating any further memory processing. For those with complex PTSD, the history-taking and preparation phases will likely span over a longer period to ensure a comprehensive assessment of the case and to ensure that the client has sufficient affect stability, available resources, and readiness to commence with memory processing. Likewise, reprocessing will entail additional sessions to adequately treat the multiple traumas. Table 11.1 provides an overview of the goals and tasks and procedures used in the various phases.

The three-pronged approach of considering the past, present, and future in EMDR therapy is the cornerstone to this approach. As informed by AIP theory, the client's present-day difficulties are informed by past, adverse experiences that have not been adequately processed to resolution. These past-present connections are identified and become the focus of treatment. Often, there is a generalization effect from reprocessing past memories, shifting the client's present-day experience so they are no longer triggering to the client. However, there are current situations that remain challenging due to second order conditioning and will need to be targeted separately. Once the present situations are successfully resolved, adaptive responses to similar situations in the future are generated to ensure the client has the necessary skills and patterns of response going forward. Bringing resolution to these past memories that inform the client's current difficulties results in spontaneous shifts of emotions, cognitions, physical sensations, and behaviors. As a result, the client is no longer activated by associating to the memory and other similar experiences. Instead, they have a new perspective on what happened, their role in it, and will assign a new meaning to the experience that informs how they will likely respond to similar situations in the future. As demonstrated in the treatment section, standardized procedures are used to access the dysfunctionally stored memories while simultaneously activating the information processing system in the brain, bringing into consciousness the associations of past experiences connected to the targeted memory during sequential sets of dual attention bilateral stimulation. This

Table 11.1 Overview of the eight-phase model of EMDR therapy

Phase	Purpose	Tasks and procedures
1. History taking	<ul style="list-style-type: none"> Identify symptoms; presenting problem; AIP case formulation to identify predominant clinical themes and collaborate with client to develop a mutual understanding of the goals of therapy and the tasks involved 	<ul style="list-style-type: none"> Review of client selection criteria
	<ul style="list-style-type: none"> Collect background information. Determine appropriateness of timing and readiness to approach 	<ul style="list-style-type: none"> AIP-informed history taking to identify past–present connections through direct questioning, Floatback, affect scan
	<ul style="list-style-type: none"> Identify relevant memories for processing connected to the client’s current difficulties 	<ul style="list-style-type: none"> Identify past formative experiences, current triggers and situations, and future goals Explore factors such as other life demands, available or needed resources; previous therapy experiences, motivation for change, establishing a contract for treatment to include the client’s participation both during and in between sessions Identify ancillary resources if needed
2. Preparation	<ul style="list-style-type: none"> Prepare clients for EMDR memory processing by assessing client skills and readiness 	<ul style="list-style-type: none"> Establish mechanics of dual attention BLS
	<ul style="list-style-type: none"> Obtain informed consent/ psychoeducation about the process 	<ul style="list-style-type: none"> Establish resources for self-regulation and self-soothing (e.g., safe/calm place) for use in and out of sessions and client’s ability to apply these practices
	<ul style="list-style-type: none"> Address questions, concerns, fears about the process, impact on relationships with significant others and make plans accordingly 	<ul style="list-style-type: none"> Establish metaphors to establish client stance for processing Engage as appropriate with significant others to assure support
3. Assessment	<ul style="list-style-type: none"> Access current components of the target memory to be processed as the client currently experiences it at baseline 	<ul style="list-style-type: none"> Elicit current components of the target memory to include: An image of the most disturbing part; negative belief currently held about the self; desired positive belief, emotions, and physical sensations; and baseline measures to measure progress
4. Desensitization	<ul style="list-style-type: none"> Sets of bilateral stimulation (BLS) (eye movements, tactile, or auditory tones) are administered to activate the client’s information processing system toward an adaptive resolution 	<ul style="list-style-type: none"> Therapist checks in between sets of bilateral stimulation to ensure the process is moving. Tracks byproducts of processing to include additional associations, spontaneous emergence of insights, shift in emotions and physical sensations, and a more adaptive perspective about the client’s role in the experience

Table 11.1 (continued)

Phase	Purpose	Tasks and procedures
5. Installation	<ul style="list-style-type: none"> Strengthen the connection of the processed memory to adaptive information and experiences in adaptive memory networks 	<ul style="list-style-type: none"> Hold the memory in mind and the positive belief to strengthen the validity of the new adaptive belief about the self, allowing other positive associations to be made; facilitate integration of the processed memory into the adaptive memory network to strengthen access to positive learnings
6. Body scan	<ul style="list-style-type: none"> Ensure that the felt sense experience in the body is congruent with the processed memory and the adaptive positive belief about the self 	<ul style="list-style-type: none"> The client is instructed to scan their body while holding in mind the processed memory and the positive, adaptive belief about the self to ensure the body is clear of any residual disturbance, and the client's felt sense is congruent with the memory
7. Closure	<ul style="list-style-type: none"> Focus of attention shifts from memory work to present orientation to debrief the experience; inform client that processing may continue after session 	<ul style="list-style-type: none"> Debrief client about likelihood of continued processing subsequent to the session. Encourage use of self-soothing strategies as appropriate Instruct client to observe, record, and report experiences between sessions in preparation for next session
8. Reevaluation	<ul style="list-style-type: none"> Elicit client feedback about treatment effects and changes since the last session, both globally and specific to the targeted memory. Review treatment plan to determine next course of action Over the course of therapy, client goals are revisited as issues that have been addressed recede into the background and other issues become foreground. Overall treatment objectives are reviewed and reinforced 	<ul style="list-style-type: none"> Check results of previous processing session to evaluate treatment effects. Therapist asks for changes in the client's daily life as it relates to the overall issue being addressed. Check treatment results of targeted memory to determine next course of action, i.e., whether to continue processing on current memory or target another past memory, present trigger, or generate a template of future actions if present trigger has resolved due to generalization effects or being targeted separately

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stimulation is applied by asking the client to follow a light or the therapist's finger back and forth in horizontal sweeping movements while tracking their internal responses. If memory processing is being administered virtually via telehealth, the client can either self-administer tactile stimulation by tapping alternate sides of their body, use two points from which to move their eyes back and forth from, or purchase apps specifically designed for virtual EMDR therapy. After approximately

10–30-s intervals, the therapist pauses the bilateral stimulation to inquire as to what the client is experiencing, ensuring that processing is taking place.

Rather than maintaining sustained attention on the original incident that characterizes exposure-based therapies, or attempting to reinterpret the experience, the client is encouraged to “let whatever happens, happen” and instead is instructed to “just notice” what comes to mind. Often, the initial associations are similar to the disturbing components of the targeted memory; over the course of the processing session, however, these negative associations are processed, and other more adaptive connections become available. These associations are manifestations of an accelerated learning process that evolves to an adaptive resolution where the information the client now has available is adaptive and congruent with their felt experience. The processing effects foster positive treatment outcomes that include a new, more accurate understanding of the memory, thereby assigning new meaning to the experience, which can generalize to other life contexts. Two detailed case descriptions illustrate the clinical procedures and outcomes.

11.3 Single Trauma

Jennifer, a 31-year-old married woman with a 15-month-old toddler, underwent a traumatic experience while delivering her second child, Jake, 6 months earlier. Jennifer had told the doctors that she could actually feel what they were doing in preparation for the C-section and needed more anesthesia. The anesthesiologist, however, denied that Jennifer could feel anything given the dose he had administered and made a unilateral decision to proceed with the C-section despite her protests. As she was cut open, Jennifer screamed from the intensity of the pain. It was only then that the doctors stopped, administered more medication and waited until she was sufficiently anesthetized before proceeding. She also described how disoriented she felt in the recovery room from the effects of the anesthesia that was ultimately administered.

The history-taking phase of EMDR therapy during the first appointment revealed that Jennifer was happily married, with no previous trauma history, and a stable childhood. However, her clinical complaints were textbook symptoms of PTSD: nightmares of the event, flashbacks, avoidance of reminders of the event, hyperstartle response, hypervigilance, irritability, and difficulty concentrating. She ruminated about the event often, wondering how things could have gone so wrong in the delivery room despite her best efforts to communicate. She was upset that her doctors had ignored her feedback and that her husband, who was there at the time, failed to intervene on her behalf. She reported having difficulty bonding with Jake, since being with him brought on feelings of anxiety and fear. She also reported being short-tempered and irritated with her husband since the birth.

During the preparation phase, Jennifer was given a brief overview of trauma and the AIP model. She was then taught a safe place, one of the EMDR therapy self-control techniques (Shapiro 2001, 2012, 2018) to ensure that she was able to regulate her own emotional experience and shift from a state of relative distress to a state

of calm both during and between sessions. Using this technique, the client is asked to identify a real or imagined place of safety or calm and concentrate on deepening the experience until it is fully developed. The client is then asked to think of a mild irritant, focus on it for a few moments and then shift back to their safe place. This technique is often taught with short, slow sets of bilateral stimulation, both to facilitate a deepening of the experience as well as to introduce the client to the stimulation itself. The goal of this technique is to assess the client's ability to effectively shift states on demand as well as increase access to positive affective states. The client is encouraged to apply this technique on their own as a self-regulation tool to manage uncomfortable arousal states.

Based on multiple factors, including the client's readiness and motivation for treatment, no previous trauma history, and mastery of affect regulation skills, it was decided to proceed with memory processing at the next scheduled session. Another important factor is the time-sensitive need for Jennifer to forge a secure bond with her son. At the beginning of the session, Jennifer was further prepared for processing by orienting her to the clinical situation; that she was in complete control, and if she needed to take a break, she had only to raise her hand as a signal to pause. This was especially important given the nature of the memory that was being targeted which was about not being listened to by her doctor and having the experience of being powerless in that situation. For the processing portion of the session, she was encouraged to "let whatever happens, happen." A standard metaphor was used to help her allow for the process, i.e., to imagine she was watching a movie and to be curious to see what would come up on its own, rather than trying to make it happen.

In the assessment phase, the *current* components of Jennifer's target memory of childbirth were identified. She was also asked to choose a positive belief she would prefer to have about herself at the end of the session:

Image (that represents the worst part of the experience in the present): *Seeing myself strapped down on the hospital bed screaming.*

Negative cognition: *I am powerless.*

Positive cognition: *I have power now in my life.*

Validity of the positive cognition (VOC) on a scale of 1–7, with 1 being completely false, 7 being completely true: 2

Emotions: anger, fear, sadness

SUD (Subjective Units of Disturbance Scale) from 0 no disturbance to 10 highest: 10

Body sensations: tension in her throat, jaw, stomachache.

The desensitization phase is initiated by asking the client to bring to mind the image, the negative belief, and noticing the emotions and body sensations. Jennifer started with the image in the delivery room, the words, "I am powerless" and the negative sensations in her throat, jaw, and stomach. She was instructed to maintain a dual awareness, i.e., one foot in the present with the other in the past, while noticing what came to mind during the sets of bilateral stimulation. She followed the therapist's fingers for a set of approximately 24–36 bilateral repetitions of eye movements, for about 20 s. The length of each set is customized to the client's process by observing nonverbal responses.

At the end of each set of stimuli, the therapist routinely asks, “*What are you noticing now?*” The therapist is looking for indicators of change in the client’s experience, making sure that processing is taking place. These range from changes in the initial memory (e.g., less emotional distress, unclear visuals, a change in reference point or a new insight) to associations with other similar experiences. For example, if Jennifer or someone else close to her had previous negative experiences in childbirth, those associations would likely emerge. Other associations might involve experiences of powerlessness having nothing to do with childbirth per se. Depending on the client’s response, the therapist may offer emotional support to the client by reminding them that it is not happening now, or simply instructing them to “Go with that (association or experience)” and continue with subsequent sets of bilateral stimulation. At various times during the session, clients may be asked to attend to various components of their experience, periodically redirecting their attention back on the original memory to ensure that the entire memory has been fully processed.

Below is the transcript of Jennifer’s EMDR reprocessing session, which encompasses phases 4 through 6 (desensitization, installation, and body scan). While every reprocessing session is structured to include the reprocessing phases through to closure, not all reprocessing is completed within the time frame of a single clinical session. In this case, the processing was completed in this one session. After each set of bilateral stimulation, Jennifer reports her experience: Jennifer: “*I’m just seeing myself in the room, frozen.*”

Therapist: “*Ok, go with that...*”

Jennifer: “*Now, I’m hearing myself screaming. I’m not saying anything in particular, just screaming. My throat is hurting more now.*”

Therapist: “*Ok, just notice that you’re not actually there as you continue.*”

Jennifer: “*I can’t see what’s going on behind the curtain...now I’m really scared because no one is listening to me and I don’t know what they’re going to do!*”

Therapist: “*You’re doing fine, you’re doing fine...just continue to notice what is happening now, keeping in mind that it’s just a memory.*”

Jennifer: “*Now I’m hearing the anesthesiologist tell me that it’s impossible for me to be feeling any sensations...oh, my god, now I can feel them cutting into me!*”

Therapist: “*Okay, just hang in there, remember that the worst is over and you’re okay now.*”

Jennifer: “*Oh my god, I don’t know if I can bear this again...I can’t stand it! It feels like I’m going to die!*”

Therapist (during the BLS): “*I know this is hard; notice that you’re here and that you’re safe and that nothing is actually happening to you. You’re in complete control of this situation.*”

Jennifer (during the BLS): “*Okay, okay!!! (hyperventilating). This is so awful! When is it going to end???*” (Long set of BLS to get through emotional response until intensity shifts).

Therapist: “*Just remember that it DID end and that it will end again, once and for all. You’re doing just fine.*”

Jennifer: *“Okay, okay.”* (Minutes later): *“The pain in my abdomen is lessening now.”*

Therapist: *“That’s great. Stay with that.”*

Jennifer: *“Now I’m seeing my husband’s face. He looks shocked; his face is white. He’s not moving.”*

Therapist: *“Okay, just notice that and whatever sensations you might still be having.”*

Jennifer: *“Oh my god, I’m realizing that he (husband) was frozen with shock and that it was happening to him, too! (Pause.) I’m a little calmer now.”*

Therapist: *“Good. Stay with it. You’re doing fine.”*

Jennifer: *“I’m getting now that he was being traumatized, too. No wonder he couldn’t do anything to help me! It wasn’t because he was weak or that he didn’t get what was going on.”*

Therapist: *“That’s right. Stay with that. Notice how that feels in your body...”*

Jennifer: *“I feel soooo much better knowing that! My body is really calming down now.”*

Therapist: *“Good. Let’s give your body plenty of time to process through all the leftover sensations...”* (Longer set to make sure all residual body sensation was being processed).

Therapist: *“So, how are you doing?”*

Jennifer: *“Much better. It feels like it’s over.”*

Therapist: *“Good. Stay with that.”*

Jennifer: *“It really feels done...my body feels that way, too.”*

Therapist: *“Okay, great. So, let’s go back to the memory of what actually happened. What are you noticing now?”*

Jennifer: *“I’m still upset that it happened, but it seems more distant than when we started.”*

Therapist: *“Okay, go with that.”*

Jennifer: *“Now I’m feeling really woozy. (Long pause) I guess I’m in the recovery room now.”*

Therapist: *“Okay, go with that.”*

Jennifer: *“Now I’m getting a really bad headache; I feel disoriented. I guess this is the anesthesia.”*

Therapist: *“Sounds like it. Just keep going. You’re doing fine.”*

Jennifer: *“Okay, I’m starting to feel better now.”*

Therapist: *“Good. Stay with it. We’re almost done.”*

Jennifer: *“Okay, good. The headache is gone, and my head is clearing up. I can even see more clearly than I could just a minute ago.”*

Therapist: *“That’s great. Just stay with it a little bit longer to make sure it’s all cleared out.”*

Jennifer: *“It feels pretty good now.”*

Therapist: *“Okay. So, let’s go back to the memory as a whole. What are you noticing now?”*

Jennifer: *"I can't believe that the doctor didn't listen to me! I'm so angry! How could he do that?"*

Therapist: *"Good question. Go with that."*

Jennifer: *"I just can't believe it. I can't believe that this actually happened to me. I'm so relieved that nothing happened to Jake and that he is okay."*

Therapist: *"That's right. Just notice that."*

Jennifer: *"I guess there's a happy ending to this nightmare after all, isn't there?"*

Therapist: *"Yes, there is. Notice that. Notice how THAT feels in your body."*

Jennifer: *"I feel calm. It's over."*

Therapist: *"Yes, it IS over. So, when you think of the memory now, on a scale of 0–10, where 0 is no disturbance and 10 is the highest disturbance you can imagine, how does it feel to you now?"*

Jennifer: *"It's about a 1. (Pauses with disbelief) Wow!"*

Therapist: *"Okay. So, notice what's left in your body right now..."*

Jennifer: *"I had a shadow of pain in my abdomen. Now it's completely gone."*

Therapist: *"That's great."*

The reprocessing illustrates both the power of memory and the "reliving" of the sensory experience of the trauma, which is a common symptom of PTSD. The byproducts of the processing resulted in changes in cognitive, emotional, and somatic domains, including insight regarding her husband's reactions, a recognition that the event is in the past, and an elimination of the disturbing physical sensations. In the installation phase, the desired adaptive belief that is about the self is selected and linked to the newly resolved memory. This links the new learning about the self in the context of the memory and strengthens the affective connection to the client's adaptive memory networks.

Therapist: *"When you think of the memory of giving birth to Jake, do the words, 'I have power in my life now,' still fit? Or is there another statement that fits even better?"*

Jennifer: *"Yes, that still fits."*

Therapist: *"On a scale of 1–7, where 1 feels completely false and 7 is completely true, how true do the words, 'I have power now in my life,' FEEL to you now?"*

Jennifer: *"It's a 7."*

Therapist: *"Good! Bring to mind the memory and the words, 'I have power now in my life.' Hold them together and follow my fingers."* Therapist applies a set of eye movements while the client holds in mind the newly resolved memory and the adaptive belief about the self that serves as a correction to the initial negative belief about the self. *"What are you noticing now?"*

Jennifer: *"I'm now thinking about other times in my life that I've had a sense of power and control, like the decision to have Jake."*

Therapist: *"That's great! Let's keep going! Clearly your brain is making other positive associations."* Therapist applies another set of eye movements. *"What are you noticing now?"*

Jennifer: *"I feel empowered, like I have my sense of control back, which feels great!"*

Therapist: *“That’s great! So, when you think about the memory and the words, ‘I have power now in my life,’ on a scale from 1–7, where 1 feels completely false and 7 feels completely true, how true does the statement FEEL to you now?”*

Jennifer: *“It still feels like a 7.”*

Therapist: *“That’s great!”*

During the body scan phase, Jennifer was asked to hold the positive belief and what remained of the memory of the delivery room in her mind as she scanned her body to identify any residual negative sensations. She reported that her body felt, “clear and relaxed.”

During the closure phase at the end of the session, Jennifer was informed of the likelihood that additional associations could emerge in the days ahead as processing often continues subsequent to the session and to jot down her associations in a log to be reviewed in the next session. She was also reminded to use her self-control techniques if needed to manage any distress that might arise.

At the next session, in the reevaluation phase, the memory is reaccessed to evaluate the treatment effects and whether further processing is needed. The client is asked to identify any changes that have occurred since the last session. In this subsequent session, Jennifer reported that she was no longer preoccupied with the events of the delivery, nor hypervigilant or hyperaroused about potential danger and uncertainty. There were no more flashbacks, nightmares, or avoidance of stimuli that reminded her of the incident. When asked about the relationship tensions with Jake and her husband, she reported that they were no longer an issue. She went on to describe that not only was she no longer experiencing anxiety or fear when she was with Jake, she actually described enjoying her time with him and could feel her joy at having him. Further, the irritation she had felt with her husband over various random events had completely vanished. Instead, she actually had a long talk with him about her perception of his role which she had not disclosed to him before, and how her orientation to the experience and his part in it had shifted. When she considered the thought of having another baby, she remarked, “If we decide to have more children, it will be because it’s what we want. This experience has nothing to do with what we decide for ourselves and our family.” She confirmed in a telephone follow-up that she felt “like herself” again.

Additional procedures, which were not indicated in this case, are often applied to complete the three-pronged protocol to include processing current triggers and generating templates for positive future actions. They will be described in the next case.

11.4 Developmental Trauma

Developmental trauma refers to the category of early life experiences that are formative, pervasive, and have a significant negative impact on self and psyche (van der Kolk 2005). As illustrated in this case, the eight phases of EMDR therapy and standardized three-pronged approach involve a thorough evaluation of the comprehensive clinical picture, client preparation, and the processing of (a) past events that

set the foundation for pathology, (b) current situations that trigger disturbance, and (c) skills needed to address future challenges.

Carla is a 30-year-old woman, twice divorced, who came for EMDR therapy to deal with anxiety and depression due to her off-again, on-again relationship with John, her current boyfriend of 5 years, who often ignored her needs. She had struggled during this time to do “whatever it takes” to make the relationship work. After two failed marriages, she believed that this was her last chance to have a family of her own.

Carla grew up as the youngest of four children, with three older brothers. Her parents both worked full-time, leaving her at home with her grandfather who lived with them until he died when she was 6 years old, devastating her. Subsequently, she spent a great deal of time at home alone with the family dogs. Even when others were home, she experienced an overwhelming sense of loneliness. She gave up asking, she gave up wanting, she gave up needing. She would dress herself in the mornings to get herself to school, often forced to wear the same clothes day after day to the point where the school called to see if her family needed financial assistance. Her mother never took an active interest in parenting her. When she paid attention to Carla, it was to scold her or blame her for her unhappiness. Her father was passive and detached. Her brothers bullied her or ignored her altogether.

From an AIP-informed perspective, Carla’s symptoms of anxiety, depression, low-self-esteem, and poor relationship skills stemmed from her inadequately processed memories of neglect and abuse as well as the loss of a primary attachment figure early in life. As an accidental pregnancy, she was unwanted as a child, and her mother resented having to care for her. When her boyfriend ignored her or put her down, it triggered the childhood experience of feeling not good enough to warrant his attention and affections, causing her to shut down emotionally rather than considering that there may be something wrong with the situation or with him. Reacting the same way in the present as she did when she was a child, feeling not good enough, and powerless to do anything about it, she again gave up asking for what she wanted and needed.

In the history-taking phase, the therapist evaluates the overall clinical picture in order to understand the nature of the client’s current difficulties and the formative experiences that inform them as well as the client’s strengths and capacities. Using the floatback technique, the therapist uses a recent experience such as the one where Carla finds herself feeling alone and unimportant while at home with John after being ignored. She is then asked to bring that experience to mind, noticing the image, thoughts, feelings and sensations that emerge, and to allow her mind to “float back” to earlier, similar experiences in her life where she may have experienced something similar. Carla’s floatback revealed several experiences in her memory network, some of which were remarkable while others were more typical but nonetheless had a lasting negative impact: scenes of being alone in her two previous marriages; her grandfather’s death when she was 5 years old; being pinched by her brother at the family dinner table with no one responding to her protests; seeing herself alone as a child with her family dogs; being 8 years when no one was home and getting in trouble for going to the neighbor’s house because she was scared.

While these associations are not by the usual definition “traumatic,” in and of themselves, Carla had early and pervasive experiences that had a lasting negative impact on her sense of self, her relationships with others, and her ability to effectively regulate her own emotional responses. These experiences are reprocessed in EMDR therapy by systematically targeting memories that represent a cluster of similar experiences (being ignored, bullied, criticized, etc.). Successful processing of a targeted memory often results in a generalization of treatment effects to other memories within the cluster of associated experiences in a memory network.

It is important in the early phases of EMDR therapy to identify the client’s desired goals and readiness to address the formative experiences that are connected to their current difficulties. Many clients enter psychotherapy for symptom relief but with little understanding of the larger emotional landscape that lies beneath. Creating a sense of safety and a climate of collaboration to bring about a mutual understanding of the problem(s) is critical. Carla understood that her early childhood experiences contributed to her low self-esteem and her relationship difficulties. However, she was less clear about the degree of neglect she had endured and the profound impact it has had on her. Part of the effect of those experiences was to cause her to shut down and act as if everything was okay when it was not. As a coping strategy developed early in life, she learned instead to compartmentalize her feelings and her needs to the point where she had difficulty accessing her true emotional experience. Understanding these developmental deficits in the early phases of treatment helps to establish the treatment frame and identify the memories to be targeted. For example, Carla’s proclivity to abandon her needs and defer to the desires and needs of others at her personal expense were best addressed by targeting the childhood memory of getting in trouble for going to the neighbor’s house while at home alone during a thunderstorm. That experience was emblematic of her lack of worth and that bad things will happen when you try to get your needs met. When that memory and other similar associations were successfully reprocessed, Carla learned to have a say in her life as she was able to identify her felt experience in the moment, could communicate it effectively to an “other,” and negotiate how to get her needs met within the context of the relationship.

During the Preparation Phase, the clinician evaluates the client’s readiness and affect regulation skills. As a memory-focused approach that relies on addressing disturbing experiences, it is important in EMDR therapy to establish that the client can:

(a) access the felt sense experience of a memory and tolerate it for a brief period of time; (b) maintain a dual focus of attention between past and present while keeping the memory in mind; (c) shift from one emotional state to another; and (d) access memory networks of adaptive experiences. A variety of self-control and resource development techniques (e.g., Safe Place) can be used, depending on the client’s need. In addition, as with many clients with developmental trauma, it was important to help Carla access her full emotional response since she was so accustomed to suppressing her feelings. Although earlier experiences are generally targeted in the early phases of therapy, the Life Stress Protocol (see Laliotis 2020) a modification to the standard protocol, was applied by targeting a current situation

which enabled her to better access her emotional experience to being ignored. As indicated below in a transcript excerpt of the Desensitization Phase, a variety of childhood experiences emerged during the first processing session, using a recent disagreement with John as the target memory. After each set of eye movements, Carla reported to the therapist the associations that emerged:

Carla: *“I’m a kid sitting on the couch while everyone is running around and I’m just sitting there.”*

Carla: *“I remember being in school and the school calling to ask if we had enough money to buy clothing. At that point, they could afford to buy me clothing, but I wore the same thing every day...and sometimes I would dress myself and I would wear something crazy...my grandfather had died, and he was the one who really took care of me...”*

Carla: *“I was in the playground and I was playing, and a bee stung my finger and it really hurt, and I didn’t do anything about it. I didn’t scream, I just didn’t do anything. I knew at the time, I was thinking, “Why aren’t you screaming?” I just shoved it down, and then it didn’t hurt anymore.”*

Carla: *“I see myself with my mother criticizing me as she always did. I wasn’t pretty enough, and I wasn’t smart enough...that I was doing it all wrong.”*

After multiple sets of negative associations or if the processing gets stuck, the therapist uses a clinical interweave (see Laliotis & Korn in Hensley 2021), which is a statement or a question to elicit adaptive information the client has but is unavailable to them in the moment. Guided by AIP principles, the therapist intervenes only as needed, eliciting just enough information to jumpstart the processing:

Therapist: *“So, if this were a girlfriend telling you these things, what would you say to her, knowing her as well as you do?”*

Carla: *“I would say to her that she is good enough, that it was her mother who had problems!”*

Therapist: *“That’s right. Go with that.”*

Carla: *I can see that my Mom used to do that to everyone. She was just not a happy woman.*

After further processing of the target memory, the adaptive information continues to automatically link in:

Carla: *I just saw myself bouncing around to different people, asking them, “Who is good for me?” I saw quick flashes throughout my life asking my parents who’s good for me; asking friends, going to fortune tellers, psychics, and not listening to me. That’s why I don’t trust my intuition because I’ve always looked outside for whoever else is the expert other than me. But I also have a knack for picking the wrong guy. It’s like the bee sting: I feel it, but I don’t do a thing!*

The resultant insight about the bee sting and its correlation to how she responds when in relationships is a revelatory moment as she realizes that her response is a childhood adaptation to being neglected, not “how she is as a person.”

Therapist: *“That’s right. Focus on that.”*

Carla: *“Wow, that was cool! I went through this journey in my mind imagining someone [herself] strong, independent, successful, with self-esteem, not arrogant. I just felt like that for a little bit. And I imagined feeling that way going back to my*

house and talking to Joe. I tried that for a while, and I felt like just saying what I needed to say. It was about what I was feeling, not about what he was feeling and that felt really good!”

Carla’s positive image of seeing herself as strong is an association that is spontaneously accessed from her adaptively stored memory network, a typical byproduct of processing as the negative arousal diminishes.

Therapist: “That’s really great. So, just notice that.”

Carla: “And now I’m remembering times as a little girl when I did have these feelings of self-worth and now, I feel like they were squashed, but I feel like I have rekindled that feeling a little bit.”

Therapist: “Yes, it’s like reconnecting to that younger self that really did feel good about herself and bringing her forward.”

Carla: “I feel like it’s a miracle!”

Therapist: “Let’s go back to thinking about what actually happened that night on the couch with Joe. What are you noticing now?”

Carla: “Oh my god, hang on! It’s weird because it feels like there are shifting gears going on in my head. I feel this physical reaction. I know what I need to tell him and I’m nervous because of it. So, I actually feel it now. That’s wild!”

Therapist: “Great. Are you okay with that?”

Carla: “Yes! And this is the anxiety I feel whenever I have to give a presentation at work, and it’s probably all that bottled up stuff!”

Therapist: “Yes. It’s all that bottled up stuff. Focus on that.”

Carla: “I just feel exhilarated! I think that’s the right word. I haven’t felt this before.”

Therapist: “Going back to the other night at home with Joe, on a scale of 0–10, how much does it bother you?”

Carla: “1 or 2, but actually it’s a 0 because I feel worth it!”

At the following session, Carla reported that her mood had improved, and that she was beginning to feel better about herself as a person, almost like she did when she was little and adored by her grandfather. She was discouraged about her relationship with John, but that seemed “ecologically” appropriate. There were no outward signs of change in his behavior toward her and she continued to struggle in her ability to speak up for herself. She described that, instead of feeling numb and shut down, she felt anxious and insecure because she knew what she had to say would likely generate conflict between them which triggered her anxiety that she would be abandoned. While discussing her reluctance to speak up for herself, other childhood memories were revealed and tagged for processing.

As is often the case when treating clients who suffer from developmental trauma, resolving one type of experience brings up other issues and experiences that were previously unknown or unavailable before. In this case, processing her response of numbness revealed the underlying anxiety and fear of being alone which was connected to her grandfather’s death at the age of 5 years, and a memory network of experiences of being left alone too often as a child. While her early overwhelm and dissociation was pervasive, it was not extreme, which made it possible to approach, particularly because her capacity to tolerate affect had significantly improved as a

byproduct of her reprocessing sessions. Her treatment continued for over a year where she was able to respond in a moment-to-moment way to her current life circumstances and the emotional and relational demands that accompanied it. As was illustrated in Carla's case, the interplay between past, present, and future is the cornerstone of the three-pronged protocol of EMDR therapy which ensures a comprehensive and robust treatment that optimizes the client's capacity to respond adaptively to future life demands once the past-present connections are resolved.

Additionally, the absence of distress and the associated distortions about self and others do not necessarily translate into an adaptive set of responses to meet future demands, especially when the client has incurred significant developmental deficits based on their history of abuse and neglect. For clients with complex developmental trauma, it is likely that the therapist will need to help them learn appropriate relational and other life skills so they can navigate the relational domain of self and other. Through the application of the third prong of EMDR therapy's three-pronged approach, Carla was able to develop more adaptive patterns of response by asking for what she wanted and needed, rather than accepting that it was not going to happen. John unfortunately was not able to meet her requests, despite months of trying to negotiate a more mutual and reciprocal dynamic between them. She eventually ended the relationship and began dating men more suitable to her newfound sense of self-worth.

11.5 Clinical Challenges

As with every psychotherapeutic approach, therapists must factor into effective treatment plans a variety of clinical challenges. While it is beyond the scope of this chapter to review all of the cautions and strategies articulated in comprehensive treatment guidelines for specialty populations, some specific observations will be made regarding EMDR therapy and the implications for treatment.

11.5.1 Children and Adolescents

The standard three-pronged EMDR therapy protocol has been made developmentally appropriate for children by the incorporation of simplified language and the potential use of art and play strategies. Children tend to be enormously resilient and responsive to EMDR therapy. However, there are inherent challenges in the treatment of this population since the presenting problem is often defined by a third party, and the therapist's primary sources of information are family members, who may play a role in the child's symptoms. For example, a child whose parents have divorced may experience severe anxiety about leaving the house, refusing to go to school or play with friends out of fear that the remaining parent will not be home when they return. Thus, it may be necessary to treat both child and parents by reprocessing the experiences associated with the disruption of the family (Shapiro et al. 2007). In the absence of this adjunctive treatment that includes the family, the

continued emotional pain of the parents may inadvertently reinforce the child's anxieties. For children with pervasive developmental trauma, resource development techniques are crucial, along with specific protocols to treat severely traumatized children, which includes memory processing in the presence of a supportive caregiver (Wesselmann et al. 2012).

Children with language and communication deficits can benefit greatly from the use of EMDR therapy since it does not require the creation of a narrative or a verbalized story. Clinicians can use a wide range of strategies to assist these children in processing their experiences of trauma and adversity in EMDR therapy through play, drawings, art, and the use of figures and symbols from sand tray therapy (Gómez 2012). All strategies are geared to the child's level of cognitive and emotional development and their communication capacities. Without words, children may be invited to use art or music to express what they are experiencing as processing takes place.

11.5.2 Complex PTSD

A broad range of presenting complaints are rooted in trauma during the developmental years. Client history can reveal problems stemming from single episodic instances of adverse childhood events to those suffering from pervasive experiences of abuse and neglect that are more debilitating and complex. Clearly, it is important to evaluate each client's ability to effectively manage arousal states, which may be compromised due to traumatic experiences in early life. However, while this is a legitimate concern for any therapist treating complex developmental trauma, it is also important not to underestimate the client's capacities. The challenge is to evaluate the client's actual skills through clinical observations and client self-reports. Careful attention must be paid to forging a supportive therapeutic relationship and stabilizing the client sufficiently to undertake memory processing, as this in turn will reduce emotional turmoil. Integration of emotional regulation and interpersonal/social support interventions can be introduced to improve overall psychosocial functioning either before or after the memory processing and possibly alongside it is involved in an intensive outpatient or residential program (Cloitre et al. 2020).

EMDR therapy utilizes self-control and resource development techniques to enhance access to memories of positive experiences (e.g., feeling confidence, mastery, hope) or skills that the client has in other areas of life (see Shapiro 2001, 2012, 2018). These strategies are designed to foster the client's ability to self-monitor and self-regulate on their own both during and between sessions. While these strategies can be introduced at any point in therapy depending on the need, they are often applied in the preparation phase in order to help stabilize the client and optimize their capacity to manage stressful situations until the memories that are triggering their reactions can be processed. So, for example, the client with a long history of medical trauma is likely to need a specific self-soothing strategy such as a safe place visualization to help manage the stress response to an upcoming medical procedure. While the usual cautions prevail, e.g., confirming the client's ability to use social

supports and shift states, the fact that EMDR therapy does not demand detailed descriptions of the event or homework assignments means that preparation time can be adjusted accordingly. Since all treatment takes place in-session with the regulating presence of the therapist, clients' readiness to proceed with processing can generally be determined by observing their level of arousal and capacity to manage and shift emotional states on demand, particularly as they bring to mind a disturbing experience. This is particularly important since the diagnosis of complex PTSD suggests the presence of dissociative processes, as well as a pervasive belief that one is defective or unsafe in the world. The clinical challenge when processing traumatic memory in EMDR therapy is to manage the arousal states and potential peritraumatic dissociation by tracking the client's ongoing ability to maintain dual awareness of past and present conditions, particularly during intense emotional responses. Since research has indicated that a single memory can generally be completely processed within three processing sessions, stability can also be enhanced through the use of extended or consecutive-day sessions to allow a rapid resolution of highly disturbing memories at a time the client and therapist are mutually available and appropriate safeguards are in place to support the client in their experience both in and out of sessions.

11.5.3 Addictions

A common notion in the field of addictions is that clients must be abstinent from all substances before trauma treatment can proceed. However, using the evaluation criteria discussed in the previous section, it has been reported that introducing targeted EMDR trauma reprocessing early on, before full abstinence has been achieved, can reduce the client's emotional distress, while increasing motivation and the capacity to respond to the treatment demands (Brown et al. 2011). Clients struggling with addictions often experience significant ambivalence and denial about the severity of their disorder, despite the fact that by the time they seek help, they have suffered major adverse consequences as a direct result of their destructive behaviors. As negative as these consequences can be, their addiction has also been a "solution" to otherwise unmanageable emotional states. These clients experience both positive and negative effects from their substance abuse or other addictive/compulsive behavior. For example, a woman suffering from an eating disorder may report it to be highly pleasurable for her to binge on sugary foods because she feels she is giving herself a "treat," which in turn results in a state of euphoria. This behavior also serves as an escape from the feelings of emotional pain and deprivation rooted in her childhood experiences. The avoidance of the underlying distress, coupled with euphoria, makes sugar consumption enormously compelling and difficult to resist, especially when the client is guaranteed to feel good every time they engage in a binge. The Adverse Childhood Experience study (Felitti et al. 1998) demonstrates a strong correlation between early adverse life experiences and later health problems, including addictions, which is a result of maladaptive strategies for coping with the negative effects of these unprocessed traumatic experiences. Therefore, processing

the memories that are fueling the addiction is a high priority, as is uncoupling the appropriate need for positive affective states, e.g., to feel lovable, in control, confident from the destructive addictive behaviors that are linked to positive affective states. In addition to using the standard PTSD protocol of EMDR therapy, the therapist should specifically target the urges and positive states and develop alternative, more adaptive affect management strategies to prevent a relapse (see also Chap. 17).

11.5.4 Military Personnel

Combat veterans' exposure to trauma is rarely a single event, and hence, the need for self-regulation skills is critical to effective treatment. They may also be over-identified with the emotional pain from their wartime experiences as an important way to honor their dead comrades. This challenge can be addressed by separating the emotional pain and suffering from the need to remember, assuring the veteran that they will never forget. Moreover, successful reprocessing of these disturbing memories results in greater positive recall of the deceased (Sprang 2001). Additionally, their need to maintain control over their circumstances is paramount, as they have often endured many situations where a loss of control resulted in serious and irreparable consequences. Specific preparation time may be required with the combat veteran to allow the therapist and client to establish the "rules of engagement" to allow access to difficult and sometimes unspeakable experiences of horror. The kinds of experiences that haunt veterans can include events that resulted in one or more people being killed. Military personnel who observed or participated in acts that violated their personal values experience "moral injury" (Nash et al. 2013). While all acts of moral injury are hauntingly painful when they involve people dying, it can be particularly challenging when these people are unarmed civilians such as women and children as an unintended consequence of military operations. EMDR therapy can effectively treat shame, guilt, and other wounds of moral injury along with other aspects of combat trauma. However, shame over their involvement makes it challenging to address, especially because they will invariably be concerned about how the therapist will perceive them. In addition to demonstrating an open and nonjudgmental therapeutic stance, the client can be offered the option to process these experiences without recounting the details of these events to the therapist.

Veterans are also challenged by their difficulty in distinguishing between real and perceived threats to their safety or the safety of others as they continue to suffer from the hyperarousal and hypervigilance that kept them alive in combat conditions. In these cases, it is often necessary to first address the intrusive symptoms such as sleep-disrupting nightmares that make it difficult to meet the demands of daily living. The nightmare image and accompanying affects can be directly targeted and processed, which generally results in an adaptive resolution of the dream and subsequent cessation of the nightmares. Additionally, veterans suffering from phantom limb pain or medically unexplained physical complaints can often be relieved of

these symptoms by directly targeting the traumatic event and the physical sensations associated with the somatic complaint (Russell and Figley 2012).

Another challenge in working with combat veterans is treating “anniversary reactions,” where the client becomes acutely symptomatic leading up to an anniversary of a significant event. While such reactions are not unique to this population, it is almost a universal phenomenon in this group to “remember” significant events where people close to them died. This is compounded by the repeated admonition that soldiers “do not leave anyone behind.” While facing the demands of their military service, veterans are frequently faced with lingering issues regarding the loss of friends either in combat operations or suicide afterwards. Anniversary dates involving the death of a battle buddy are further complicated by survivor’s guilt, a sense of personal responsibility that a friend died while the veteran lived. The impact of such losses is amplified in the event another fellow veteran dies that they served with together. These intense, emotional reactions can be averted if the event(s) associated with these losses can be reprocessed with EMDR therapy prior to the anniversary date itself. Further, since the emotional responses associated with anniversary dates may not be accompanied by visual cues, unexplained spikes in emotional lability can be identified with EMDR memory retrieval techniques such as the floatback or affect scan to identify the memories that need to be targeted for processing. Finally, in addition to processing these nodal events in the past, it is important to help the veteran find a way to ritualize these anniversaries in a way that proactively addresses honoring those who have died (see also Chap. 23).

11.6 Research

Over 44 randomized controlled trials (RCT) have demonstrated the effectiveness of EMDR therapy for PTSD with a wide range of trauma populations: 30 in adults, 7 in traumatized children, and 7 for early traumatic stress (Maxfield 2019). Many meta-analyses have confirmed its robust evidence as an empirically supported treatment for adult PTSD (e.g., Lewis et al. 2020; Mavranouzouli et al. 2020a). There is compelling evidence that it is effective for depression (Sepehry et al. 2021) and as an early intervention (Roberts et al. 2019; Matthijssen et al. 2020), and preliminary evidence that it may reduce pain (Tesarz et al. 2019). EMDR therapy may be helpful for many other disorders and presenting problems which had their onset in a traumatic or disturbing incident (Valiente-Gomez et al. 2017).

11.6.1 Research on EMDR’s Efficacy for PTSD in Adults

EMDR therapy is recommended as a first-line treatment for PTSD by many international organizations including the International Society of Traumatic Stress Studies (ISTSS 2019), and the National Institute for Health and Care Excellence (NICE 2018). Results from several meta-analyses strongly suggest that EMDR therapy is at least as effective as trauma-focused cognitive behavioral therapy (TF-CBT) for

the treatment of PTSD, and some preliminary studies indicate that EMDR therapy may yield significant results in fewer sessions (Matthijssen et al. 2020). The network meta-analysis that was the foundation of the NICE PTSD guidelines (2018) compared EMDR therapy to 11 other types of interventions and found that it was the most cost-effective for treating adult PTSD (Mavranouzouli et al. 2020b).

Research suggests that the appropriate dose of treatment varies with both the number of traumatic events and age of onset. For instance, in a study funded by Kaiser Permanente (Marcus et al. 2004), a mean of six 50-min sessions resulted in the remission of PTSD diagnoses in 100% of single-trauma survivors, but only 77% of multiple-trauma survivors. An RCT comparing eight sessions of EMDR therapy with fluoxetine and with waitlist (van der Kolk et al. 2007) recommended a lengthier course of EMDR therapy for adults with childhood trauma. At a 6-month follow-up, 91.7% of participants with adult-onset trauma lost their PTSD diagnosis and 75% achieved asymptomatic end-state functioning compared to those with childhood trauma, of whom 88.9% lost their diagnosis and 33.3% achieved asymptomatic end-state functioning. These findings underscore the value of more extensive targeting and reprocessing for adults with child-onset complex PTSD in order to sufficiently address the comprehensive clinical picture, due to the pervasive nature of early experiences as well as the time needed for them to develop a healthier sense of self (see Shapiro 2001, 2018; Wessellmann et al. 2012).

11.6.2 Research on EMDR's Efficacy for PTSD in Children and Adolescents

EMDR therapy is recommended as a first-line treatment for children with PTSD by some international organizations including the International Society of Traumatic Stress Studies (ISTSS 2019). Out of the 25 studies to date on treating traumatized children and adolescents, all but one found EMDR therapy to be effective in reducing symptoms of PTSD. In their meta-analysis of eight RCTs for children and adolescents with PTSD, Moreno-Alcázar et al. (2017) reported that EMDR therapy was significantly superior to waitlist and placebo and that it produced similar results to CBT in reducing symptoms of PTSD and anxiety. Studies have also shown improvement in comorbid symptoms such as anxiety, depression, and behavioral problems (e.g., Meentken et al. 2020). De Roos et al. (2017) conducted an RCT on treating children and adolescents comparing EMDR therapy to TF-CBT and found both to be equally effective but found EMDR therapy to be significantly more time efficient.

11.6.3 Research on EMDR's Efficacy for Treatment of Recent Trauma

Early intervention after a traumatic event is recommended to eliminate current symptoms, restore premorbid function, and prevent the development of PTSD and other disorders. It is typically applied within a 3-month window after the occurrence

of the traumatic event(s) (ISTSS 2019). EMDR therapy is recommended as a first-line early intervention to treat PTSD symptoms by the International Society of Traumatic Stress Studies (ISTSS 2019). After Shapiro published the first early intervention protocol in her first book (1995) referred to as a recent events protocol, many other protocols for individuals and groups have been developed and published on early interventions. Twenty-three studies have been conducted to investigate the effectiveness of these early intervention protocols for individuals and groups (see Matthijssen et al. 2020 for a complete listing). Overall, the results show significant effects and provide support for the application of EMDR early intervention protocols to reduce symptoms of PTSD as well as comorbid symptoms of anxiety and depression.

11.6.4 Research on EMDR's Efficacy for Depression

EMDR takes a unique approach in treating depression—it focuses on processing the distressing or traumatic memories related to the onset of the disorder, rather than changing cognitions or behaviors. The research on EMDR's treatment of depression shows it to be a promising treatment for this diagnosis. A meta-analysis by Sepehry et al. (2021) analyzed results from 39 studies reporting results for EMDR's treatment of primary and secondary depression. They reported a large significant effect size for EMDR in comparison to other treatments and for EMDR as an adjunctive treatment. Another meta-analysis by Carletto et al. (2021) evaluated nine controlled studies and reported a moderate effect size for EMDR therapy.

11.6.5 Research on EMDR's Efficacy in the Treatment of Pain

EMDR therapy is being used in the treatment of pain by targeting memories of disturbing experiences and anticipated future situations. EMDR appears to be highly effective when used for phantom limb sensation (e.g., De Roos et al. 2010), substantially reducing or completely eliminating phantom pain. From an AIP model perspective, phantom pain is viewed as part of the unprocessed traumatic memory, and therefore, it is resolved when the memory is resolved. There is also preliminary evidence from some recent RCTs that EMDR may reduce chronic pain severity (e.g., Arias-Suárez et al. 2020; Brennstuhl et al. 2016; Gerhardt et al. 2016). In this treatment application, the pain may derive from a traumatic incident, or the pain itself may be treated as a “trauma.”

11.7 Research on the Effects of Eye Movements

Research on EMDR's mechanisms of action has focused primarily on the eye movement component. A meta-analysis of 26 trials demonstrated that the eye movement component of EMDR therapy, in and of itself, had a significant therapeutic effect in

clinical studies (Lee and Cuijpers 2013). However, a recent large study by Sack et al. (2016) concluded that it was not eye movements but rather dual attention that was responsible for the treatment effect. They found that EMDR with dual attention (eye movement or focusing on a non-moving hand) was significantly more effective than EMDR with no eye movements. More research is needed to clarify these findings.

Laboratory studies have found that eye movements have specific effects, all of which may be beneficial in clinical treatment. These include the reduction of memory vividness and emotionality, physiological de-arousal, and increased cognitive flexibility. Three theories seek to account for these effects. According to working memory theory, working memory capacity is taxed by EMDR's dual attention task of holding a memory in mind while moving the eyes. This taxation results in a degradation of performance, with the targeted memory losing its visual quality and emotional power (van den Hout and Engelhard 2012). The second theory relates to the orienting response. The orienting response is the activation of the parasympathetic nervous system that occurs when the brain orients to a new sensory experience. This theory explains the immediate de-arousal effects caused by initiating eye movements, such as the significant decrease in heart rate and increase in skin conductance reported by Schubert et al. (2016). A third theory is that eye movements may stimulate the same neurological processes that take place during rapid eye movement (REM) sleep (Stickgold 2002). It is thought that the increased cognitive flexibility shown with EMDR therapy (e.g., Kuiken et al. 2001) may be similar to the loose associations in dreams.

The various documented memory effects (e.g., desensitization, emotional de-arousal, increased recognition of true information, episodic retrieval) suggest that the three mechanisms may be active at different times in the therapy process. Therefore, clinicians may observe a rapid decrease in emotional disturbance, reduction in the vividness of the trauma image, emergence of associated memories, and increased insight along with the spontaneous emergence of positive emotions and beliefs.

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Narrative Exposure Therapy (NET): Reorganizing Memories of Traumatic Stress, Fear, and Violence

12

Thomas Elbert, Maggie Schauer, and Frank Neuner

this is my story, I am

12.1 The Theoretical Basis of NET: Trauma-Related Disorders Are Disorders of Associative Memory

The question “Who are we and how did we become what we are?” has remained one of the oldest questions of mankind. We can ask this question in a somewhat different manner: what shapes us as individuals and what are our cultural memories? Evolution has equipped us with various forms of memory, however, only to handle the future not the past. To imagine future scenarios, our mind can reshuffle the memory traces of experiences in playing and replaying past and future scenarios. Memory thus means remodeling the mind and body in order to adapt to a future that is to be expected on the basis of past experience. With any ability to adapt, however, one runs the risk of becoming inept. For example, it may not be adaptive for stored carbohydrates to be converted into blood sugar for a soldier who, at a family picnic, spends

T. Elbert (✉)

Department of Psychology, Clinical Psychology and Behavioural Neuroscience, University of Konstanz, Konstanz, Germany

e-mail: Thomas.Elbert@Uni-Konstanz.de

M. Schauer

Department of Psychology, Clinical Psychology and Centre for Psychotraumatology, Konstanz, Germany

e-mail: Maggie.Schauer@Uni-Konstanz.de

F. Neuner

Department of Psychology, Clinical Psychology and Psychotherapy, University of Bielefeld, Bielefeld, Germany

e-mail: Frank.Neuner@Uni-Bielefeld.de

the entire evening hiding under a pickup truck because the fireworks trigger the memory of battles that he fought in Afghanistan, and with it, the emotions and cognitions from then. While earlier psychological models of PTSD had characterized such symptoms primarily as a disorder of learned anxiety, a change occurred at the turn of the century, with trauma-related symptoms coming to be understood as a disorder of memory (Ehlers and Clark 2000; Brewin and Holmes 2003). Memories are formed from emotionally arousing experiences, that is, those with strong positive or negative valence, activating either approach or avoidance responses. And they then develop their own intrinsic dynamics, driven not only by the original experiences themselves but also by the memories thereof, thus remodeling cognition, emotion, and behavior to the extent that clinical symptoms may arise. From episodic threats to social exclusion to the continuous wear and tear associated with living in adverse situations, stressors not only cause a set of responses but also modify the body's defensive systems. In other words, we argue that the inability to properly separate current sensations from associated memories of past events lies at the core of posttraumatic stress disorder (PTSD). A therapeutic intervention must therefore assign the perception of horror to where it belongs to, i.e., to the past, to a different time and place. Only then, the cues will lose their power to cause fear and despair in the presence.

We will therefore, in this chapter, first present the specific structure of traumatic memories before we present the logic of NET and then detail its procedure. Finally, we will present a case as an example.

12.1.1 The Structure of Traumatic Memories

A traumatic stressor (such as rape, serious injury, or social exclusion) is a threat to life and/or biological fitness. During a traumatic event, information from the senses (e.g., the sound of gunshots, the smell of blood) is stored in memory, not necessarily attaining awareness. The mind and body become extremely aroused (rapid heart-beat, sweating, trembling) and are braced for actions such as hiding, fighting, or escape. The sensory elements, together with the related cognitive, emotional, and physiological responses, then form associations in memory related to the traumatic experiences. We refer to the storage of this information as *hot memory* (Metcalfe and Jacobs 1996; Elbert and Schauer 2002); it has also been termed situationally accessible memory or sensory perceptual representation (see Brewin et al. 2010; Schauer et al. 2011; Neuner et al. 2008a). For a new type of experience, this hot memory is connected to the contextual information, the *cold memory* (which has been referred to also as verbally accessible memory or contextual representation): the individual will be able to consciously remember the event and can assign it to its context, that is, where and when it has happened. For a cue of danger, however, it is not important to recall when and where this has been learned. Rather a rapid response is important for survival. Therefore, evolution has prearranged the organization of memory such that sensory and emotional experiences are stored in brain circuits separate from those relevant for contextual information. Following principles of associative learning, any important experience is stored in an interconnected

neural network, which, for repeated adversities, may establish a “trauma network” (Fig. 12.1). This trauma network encompasses sensory, cognitive, and physiological representations and includes the emotional response related to the experience (hot memory). In PTSD, the hot memories have lost their association to the contextual cold memory system (Fig. 12.1). Environmental stimuli (e.g., a smell or noise) and internal cues (e.g., a thought) can still activate the trauma structure, but the related various times and places, when this memory has formed are not recalled. The survivor will experience this as intrusive recollection or even a “flashback,” that is, the perception that one is back in the traumatic situation with its sound of bullets, smell of fire, feeling of fear, defensive response propositions, and thoughts (Fig. 12.1).

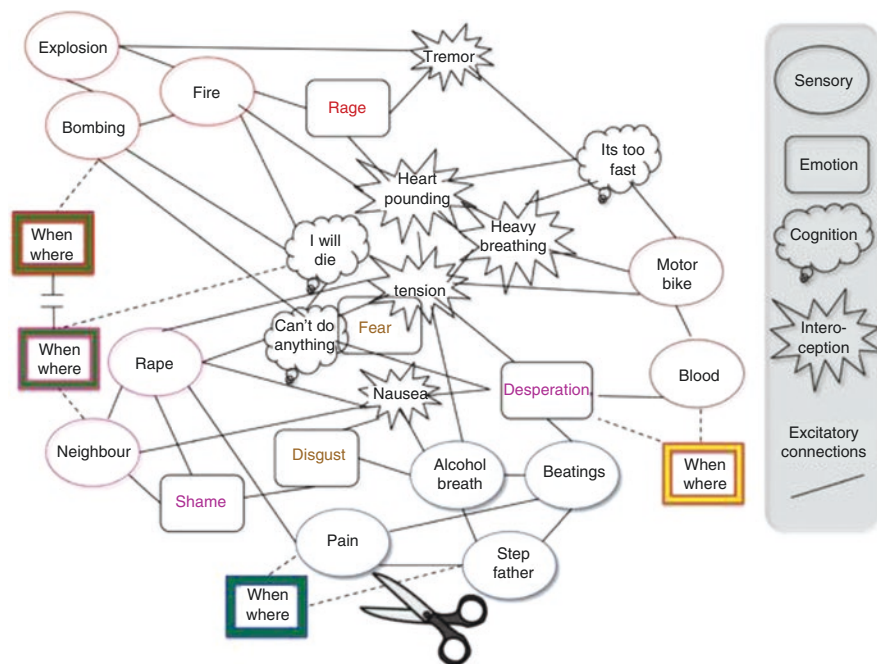


Fig. 12.1 A fear/trauma network is composed of mutually excitatory connections. It results from multiple fearful experiences: the representation of a single event may well connect to the particular context, the “when” and “where” it happened. If, however, an additional stressful experience cues an already existing network of traumatic hot memories, the cold memory gets generalized and eventually lost, while sensory, cognitive, emotional, and physiological representations interconnect with increasingly mutual excitatory power. Cold, contextual memories, that is, codes of the “where” and “when,” however, are no more coactivated as the brain’s architecture does not support the simultaneous activation of two different places (coded by “place cells” in the hippocampus) (Elbert et al. 2006). Thus the fear/trauma network becomes disconnected (symbolized by the scissors) from time and place, and the fear generalizes, giving rise to feelings of impending threat. Narrative Exposure Therapy is thought to reverse this process by reconnecting hot and cold memories while segregating the memory traces of the different events. (Figure modified from Schauer and Elbert 2010)

Since the activation of the trauma network serves as a frightening and painful recollection, many PTSD patients learn to avoid cues that act as reminders of the traumatic event. They attempt not to think or talk about any part represented in the trauma network and to stay away from persons and places that remind them of the frightening event. In contrast to their prominent hot trauma memories, survivors who suffer from PTSD have difficulties with autobiographical cold context; that is, they are unable to orient the fear associated with the events appropriately in time and space or to clearly structure these traumatic events in chronological order (Schauer et al. 2011). Such challenges, in conjunction with the avoidance of activating the trauma structure, make it difficult for PTSD patients to narrate their traumatic experiences (Neuner et al. 2008a). It is likely that these mechanisms of traumatic memories are not restricted to PTSD. Individuals suffering from other anxiety disorders, depression, or eating disorders frequently also report repeated vivid intrusive recollections abounding in highly distressful content but lacking cold memory contextual elements (Brewin et al. 2010).

Note that the network connects to response dispositions (= emotions), which can be either an alarm response involving fight and flight or a dissociative response (up to the extent of fainting, i.e., playing dead (Schauer and Elbert 2010). Thus, dissociative amnesia or “shutdown” can occur, replacing intrusions and hyperarousal with dissociation and passive avoidance. Both response types are evolutionarily prepared, and a patient may show either one, depending on the cues that activate the related memory. Narrative Exposure Therapy is thought to reverse these detrimental conditions by strengthening connections to the context.

We conclude that repeated exposure to traumatic events results in the distortion of not merely the content of events but also the overarching organization and structure of both memory storage and retrieval; the greater the number of threatening or damaging experiences, the greater the degree of disorganization.

12.1.2 The Building Block Effect of Traumatic Load for Trauma-Related Mental Illness

With cumulative adversities and stressors, the trauma network becomes enlarged, ultimately leading to forms of trauma-related suffering (Fig. 12.1): survivors are unable to contextualize cues, and thus the past becomes the present. The writer and Holocaust survivor Primo Levi describes such experiences in his work *The Truce*: “...I am sitting... in a peaceful relaxed environment, apparently without tension or affliction; yet I feel a deep and subtle anguish, the definite sensation of an impending threat. And in fact ...slowly and brutally... everything collapses, and disintegrates around me, the scenery, the walls, the people, while the anguish becomes more intense and more precise. I am alone in the centre of a grey and turbid nothing, and I know what this thing means, and I also know that I have always known it: *I am in the Lager* (death camp)..., *and nothing is true outside the Lager. All the rest was a brief pause, a deception of the senses, a dream.*”

All symptoms of traumatic stress (PTSD) and depression have repeatedly been shown to correlate in their severity with the cumulative exposure to traumatic stress (Neuner et al. 2004a; Kolassa and Elbert 2007; Kolassa et al. 2015, Chap. 4). More recently, it has become obvious that childhood adversity is the other major dimension in predicting trauma-related mental illness (Catani et al. 2009b, c, 2010; Neuner et al. 2006; Nandi et al. 2014). In this way, stressors and adversities become building blocks of mental illness.

12.2 The Rationale and Logic of NET

Given the structure of traumatic memory representations, the goal of an etiologically oriented trauma therapy must be to disentangle the trauma network by assigning its hot memory elements to the respective cold memory. Therefore, in NET, the client, with the assistance of the therapist, constructs a chronological narrative of her/his life story with a focus on the most arousing traumatic experiences. Within a predefined number, usually about 4–12, of 90-min sessions, the fragmented reports of the traumatic experiences will be transformed into a coherent narrative. Empathic understanding, active listening, congruency, and unconditional positive regard are key components of the therapist's behavior and attitude. For traumatic stress experiences, the therapist explores sensory information, resulting cognitions, affective and physiological responding in detail and probes for respective observations. The patient is encouraged to relive these experiences while narrating, without losing the connection to the "here and now." Using permanent reminders that perceptions, feelings, thoughts, and physiological responses result from activation of (hot) *memories*, the therapist links these mnemonic representations to episodic facts, that is, time and place (cold memory). The imagined exposure to the traumatic past is not terminated until the related affection, especially the fear presented by the patient, demonstrably decreases. In this way, the therapist is supportive yet directive in eliciting the narrative in order to recover the implicit information of the trauma in its entirety. For survivors of domestic or organized violence, the testimony can be recorded and used for documentary purposes.

Narrative Exposure Therapy (NET) starts with a checklist of both adverse childhood experiences and threats to life across the life span. An assessment of the individual's mental health status follows. Then a *psychoeducational introduction* is presented to the survivor, focusing on the explanation of his or her disturbance and symptoms, and, if appropriate, a statement about the universality of human rights, followed by an outline of the treatment rationale tuned to the cognitive capacity of the survivor (age, formal education, etc.). Narrative exposure is offered to clients with lasting clinical symptoms.

NET then continues with a biographical overview of the life span. Figure 12.2 schematically indicates the goal of the therapist: to determine arousal peaks across the life span. Lifetime periods and important biographical events of the survivor are symbolized in a ritual called *the lifeline*. The *lifeline* exercise consists of placing positive and negative life events, symbolized by flowers and stones, along a "line"

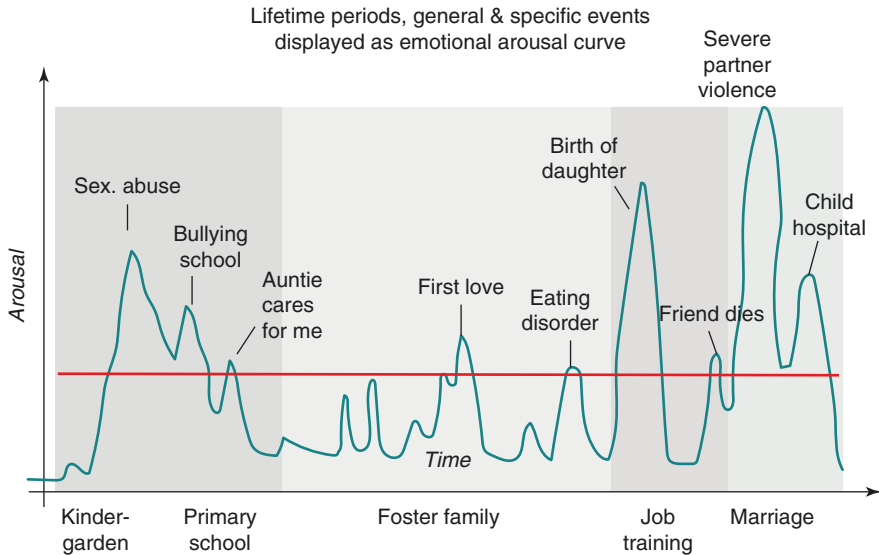


Fig. 12.2 Emotional arousal varies greatly across the life span. The lifeline exercise marks the arousal peaks above a threshold with a symbol, negative valence with a stone and positive valence with a flower, and assigns them to a place (e.g., “hometown”) and a time, ideally a specific event (like “the night before my 12th birthday”) or at least a general event (“when my uncle visited us”). A life period (when I went to school, college; when I was working in New York) can always be assigned. From the checklist, the therapist knows major arousing events and thus can guide the client to set the threshold, i.e., to place the most arousing events on the line (for more details, see Schauer et al. 2011; Schauer and Ruf-Leuschner 2014)

(e.g., cord) in chronological order. With the guidance of the therapist, the patient places the symbols next to the line while classifying them only briefly—just a label or one sentence will do. The purpose of the *lifeline* is the reconstruction of subjectively significant life events in their chronological order. It is an initial, cursory overview of the times and locations in which events occurred within the overarching context of the individual’s life, and it serves as an introduction to the logic of the therapeutic process. The therapist asks questions concerning the “when” and “where” an event took place, that is, focuses on cold memory and moves on before hot memory contents become strongly activated. The therapist attends to the body language of the patient. When the patient shows any signs of emotional arousal or begins to recall pictures or other sensations, the therapist reminds the patient that a detailed processing and narration of the event will be constructed later, beginning in the next session. The lifeline exercise should be concluded within one session. Otherwise, an avoidance conspiracy between client and therapist may delay the essential healing agent, that is, the imagined exposure of the traumatic experience.

In the next session, the narration starts with essential background information and then the earliest arousing events in life and continues sequentially over time. A pre-trauma period may be used as the time during which a foundation for the therapeutic core process is laid, and a good rapport between therapist and patient is

established. In this phase, for example, the telling of emotional, warm, or exciting moments in the patient's early life offers themselves as a training ground for emotional processing and communication between the patient and therapist.

During the narrative procedure, the survivor continues recounting his/her life story in chronological order. Wherever a "stone" (traumatic incident) occurs, the event is relived in a moment-by-moment reprocessing of the sensory, cognitive, emotional, and bodily details of the traumatic scenes, ensuring the interweaving of hot and cold memory elements, meaning-making, and integration. During the telling of the events, the therapist structures the topics and helps to clarify ambiguous descriptions. The therapist assumes an empathic and accepting role. Inconsistencies in the patient's report are gently pointed out and often resolved by raising in-depth awareness about recurring bodily sensations or thoughts. The patient is encouraged to describe the traumatic events with sensory details and to reveal the perceptions, cognitions, and emotions that had been experienced at that time. During or after the session, the therapist either writes down a version of the patient's narration or drafts brief notes next to the *lifeline* that has been sketched or photographed.

In the subsequent sessions, the autobiography is briefly repeated, now emphasizing the cold memories of the event. The patient may add details that may have been missed and that he/she feels are important. Then subsequent emotionally arousing peaks (the next stones and flowers) are processed, that is, additional traumatic experiences are added to the narration. The procedure is repeated in subsequent sessions until a final version of the patient's life span and complete biographical highlights is created.

There are several options for the closing session. The *lifeline* may be completed and used as review of the patient's life. In cases where the narration has been fully recorded in written form, the document may be read aloud to the patient. The patient, the translator, if present, and the therapist sign the lifeline and/or written narration. A copy of the signed document is handed to the patient. With the agreement or upon request of the patient, another copy may be passed on to lawyers or (in anonymized form) to human rights organizations as documentation of these events. In addition, rituals can be used to ease the mourning and grief. Lastly, the patient may be counseled how to go on with life and is potentially offered further, but now future-oriented sessions (such as adjusting to a new role for a refugee or coping with relationships for a battered woman).

12.3 NET Step by Step

The following procedure follows the treatment manual by Schauer et al. (2011).

12.3.1 Session 1: Diagnosis and Psychoeducation

Prior to the diagnostic assessment for trauma-related disorders, we recommend an extensive checklist of family violence and other traumatic stressors encompassing

the entire life span. For adversities during childhood, we recommend the MACE (*Maltreatment and Abuse Chronology of Exposure*) and for organized violence the *vivo* checklist (for both see Schauer et al. 2011; German version of the MACE in Isele et al. 2014, Norwegian version in Fosse et al. 2020) and for the assessment of traumatic stressors in general the *Threats to Human Life and Fitness* (available from the authors). The checklists provide the therapist with an indication of the traumatic history of the patient and suggest which events might and should appear on the *lifeline*.

For survivors of trauma, it is vital that they learn to conceptualize and understand their condition. Moreover, they need an explanation about the motivation of the therapist and her/his ability to listen to the worst stories (“I am here to assist people who have experienced extremely stressful conditions such as war (rape, forced migration, torture, massacre, natural disaster) and to document the human rights violations that have taken place. . . . We hope to use what we learn from you to improve the way survivors of extreme stress are supported and respected in the future. . .”).

If the person suffers from symptoms of trauma-related illness, it is advisable to proceed with psychoeducation immediately following the diagnosis. It is important to explain to the patient that alarm and/or dissociative responses are part of the defense repertoire of all humans and that trauma symptoms result when extreme and harmful events have been repeatedly experienced. Explain that memories of the trauma are intrusive memories, which may be triggered by single sensory cues, or internal states, in the mind and body. Provide information that these intrusions are perceived as a current threat, keeping the survivor in a state of vigilance as long as the trauma remains unresolved. The intrusive pictures, sounds, and smells, together with the feelings they elicit, require conscious processing before they can be assigned to the past. This will occur during the course of therapy. The therapeutic procedure is outlined to the patient as an offer. At times, some patients believe that they are an “ill-fated creation of God” or “cursed” and are unworthy of treatment. The reasoning that documentation of human rights violations alone justifies the joint effort involved in therapy is often helpful in these cases. Others found joy in the violence they committed and were proud of the team spirit in gangs or armed groups. There are several reasons that a survivor might feel ashamed or guilty or believe that the therapist will not like what they hear about certain details of the individual’s life. As the therapist, it is important to assure the individual that they have the professional skill to support testifying and that their main job is to provide a beneficial experience, regardless of the details, controversial or otherwise.

12.3.2 Session 2: The Lifeline Exercise

The *lifeline* in NET displays the emotional highlights of the individual’s life in a ritualized and symbolic way. Hereby the survivor places objects that symbolize major events along a cord or string that symbolizes the continuous flow of biographical time (Fig. 12.3). Flowers designate happy major events and the good times in life, for example, for positive, empowering occurrences; moments of

Fig. 12.3 Lifeline put by a former child soldier. Flowers symbolize positive events, stones symbolize negative events (traumatic, stressful, or sad experiences), and sticks are used for combat experiences and perpetrated violent acts



achievement; important relationships; experiences of bliss and acceptance. In this way, flowers can serve as resources. Stones symbolize fearful ordeals, especially traumatizing experiences such as life-threatening events or anything that triggers an alarm response or evokes a dissociative response, like abuse, rape, assault, injury or harm, captivity, natural disasters, accidents, etc. Survivors usually also place stones for difficult moments in life, such as times of hardship (divorce, dismissal, sickness). The use of just two symbols (flowers and stones) carries a clear message and provides structure to the chronology of arousing experiences. Nevertheless, additional symbols may meet the needs for special cases: For very sad experiences that cause continuous grief, like the death of a loved one, a candle can be placed and lit. The violent acts committed by the person creating the narrative, such as a victory after a massacre, might not necessarily be associated with a negative valence, and thus a stone may not be an appropriate symbol, neither would a flower be adequate for a manhunt. A more neutral symbol may thus be introduced for these cases: we use a small stick to symbolize participation in any form of

aggression or violence, including combat (Elbert et al. 2012; Hermenau et al. 2013; Crombach and Elbert 2014; Robjant et al. 2019). It is good to offer a variety of differently sized, colored, and shaped stones and flowers, so as to give choices for the representation of events.

When the rope/string is put on the floor, the therapist encourages the individual to start placing the symbols along the line. The therapist guides the patient to name and mark important events and turns in life, following a chronological order. For each arousing event, the questions “when?” “where?” and “what?” should be answered with only a few words, without going into the details (e.g., “in secondary school, living in my hometown, I was raped by my neighbor,” “a few months ago, living here in this town, a car hit me,” “during the birth of my first child named ‘Jonnie,’” “at the hospital, I was forced to undergo a Cesarean section,” etc.). The therapist affixes a name to each symbol and notes the where and when. Clear brief naming of the symbol and appropriating it a title is important to build confidence in approaching the hot memories. However, it is crucial to not go any deeper at this point, as the lifeline exercise is not the designated time to begin confronting the content of the event. During this stage of the lifeline procedure, the therapist guides the individual in staying on the *cold memory* side (questions focus on facts, names, dates, etc., rather than on emotions, sensations, physiology, etc.). The lifeline exercise is only an *overview* of important life events—a “roadmap.” In this regard, it is helpful to settle and cool down after each symbol placement, especially stones, before placing the next event. The focus remains on the “when?”—naming the lifetime period—and “where?” not on the “what?” Otherwise, feelings “pile up” toward the end of the lifeline and emotions get mixed up and confused. In this way, the *lifeline* tool in *Narrative Exposure Therapy* is a useful first step toward discussing the traumatic material (Schauer and Ruf-Leuschner 2014; Schauer et al. 2014).

The *lifeline* was first introduced in trauma therapy with children: KIDNET (Schauer et al. 2004; Onyut et al. 2005) and continues to be utilized as such (Schaal et al. 2009; Catani et al. 2009a; Ruf et al. 2010; Ertl et al. 2012; Hermenau et al. 2012; Crombach and Elbert 2014). Later, the classic *lifeline* method was adopted in NET for different groups of adult survivors of multiple and complex trauma (Bichescu et al. 2007; Neuner et al. 2008b, 2010; Schaal et al. 2009; Halvorsen and Stenmark 2010; Hensel-Dittmann et al. 2011; Pabst et al. 2012, 2014; Steuwe et al. 2016; Stenmark et al. 2013), sometimes as a paper-and-pencil version, in which the patient marks the biographical highlights along the timeline on a piece of paper (Dömen et al. 2012; Ejiri et al. 2012; Zang et al. 2013). There is clear evidence for the effectiveness of Narrative Exposure Therapy (NET) with the *lifeline* being included in the treatment plan. However, treatment success has also been confirmed for Narrative Exposure Therapy *without* the *lifeline* module (Neuner et al. 2004b; Schauer et al. 2006; Hijazi 2012) and also, alternatively, with the *lifeline* module at the end of the therapy (Zang et al. 2014). Conversely, clinical efficacy of the lifeline as a stand-alone procedure in the treatment of traumatized individuals has not been demonstrated and would not be predicted on the basis of the theoretical assumptions presented at the beginning of this chapter.

12.3.3 Session 3: The Narration

The narration begins during the third session, starting at the very beginning of life. The chronology of the narration should address the most arousing events of the patient. The family background should not be neglected: how the patient grew up, what the relationship to his parents was, and what other attachment figures and bonds played a role during the early stages of development (“When are you born and where? Who was bringing you up? Which people were your family? What did they tell you about your first years of life, before your own memory sets in? Any pictures, documents?”). Depending on the resources in terms of the amount of sessions, discussion of the pre-trauma period should remain limited, so as not to avoid narrating the more difficult material later on. Usually time is allocated to work through the first traumatic experience during the same double session (90–120 min) that the narration is initiated. Full expression of the fearful and defensive responding is desirable now during the imagined exposure, allowing for the individual to subsequently experience the reduction in arousal that occurs while narrating the period that followed the most threatening “hot spot.”

The contextual information must first be clearly recollected, and then the event is reported in detail, and, finally, it is put into the past from its present perspective:

- *WHEN? Time and setting:* Establish *when* the incident took place. Lifetime period? Season of the year? Time of day?
- *WHERE? Location and activity:* Establish as precisely as possible *where* the incident took place. Where was the person at that time? Begin asking for sensory details of the scenery, the house, the road, etc.
- *WHAT? Begin the narration, when the arousal begins to rise.* Only then, the therapist shifts to *slow motion*. It may take some courage for both the client and the therapist to deliberately slow down and recall in detail what happened. The therapist supports the processing of the material by allowing the emotional responses to run their course. *Hot memory* (the associated elements of the fear/trauma structure) is activated involving the following sequence: *sensation* (what did you see, hear, smell... body position...), *cognition* (what did you think?), *emotion* (what did you feel? Note that a therapist will not be able to understand the feelings of a client, as long as the respective thoughts are not known), *physiological responses* (heartbeat, sweating, cold hands, etc.), and *meaning content* (Fig. 12.1). The therapist helps to put the hot memory into words and connect them to autobiographical flow, that is, fit them into the narrative. Basically, the therapist keeps pushing on until the experience, especially the emotions, have been put into words and the client starts to feel relief. Stopping any time before that point is detrimental. The therapist has reached the goal when a good movie could be made from the client’s descriptions. For the therapist, it is a good idea to let this little film play in one’s mind, although only as if moving together, shoulder by shoulder with the survivor through the scene.

- *NOW!* Let the patient contrast the past and present feelings together with the current bodily sensations: Individual: “At the time of the disaster, I felt horrified, now as I look back, I am getting sad.” Therapist: “I can see you are sighing.” “Your eyes are tearing up now.” “Can you feel the fear now? Where in your body do you feel it?” This will allow the individual to develop better sensorial awareness. There is no need for hesitation when attempting to label the patient’s affective responses: a patient will inform the therapist immediately if the feelings have been labeled incorrectly. Once the fear has been put into words, the client realizes that there is no current danger and that the source of arousal is the memory of a threat rather than an instant threat itself. Consequently, the arousal will decrease.

After the arousal has noticeably reduced, be sure to bring the narrative to a close for this session. Even if time in the session is running out, it is of utmost importance to establish a clear ending to the traumatic event that has been worked on. The way to bring this closure is by transitioning to the time that occurred immediately following the event. To do this, the therapist wants to have the client verbalize in at least a few sentences what happened in the time period following the incident. In case it seems difficult to let go of the emotions of the imagined exposure, a question helpful for moving forward can be to ask how the survivor subsequently managed to live through the aftermath of this event (the hours, days, weeks, and months afterward). This strategy assists in transitioning from stress and discomfort of the hot memory toward session closure by aligning with the directionality of the NET life-line to which the individual is already accustomed. It is important to clarify the time period following the traumatic event in order to enable the patient to integrate the incident into the greater life story. During “exposure,” arousal and negative emotions are escalating. During “closure,” arousal is decreasing, and the therapist supports this calming down process. Always be clear about the direction in which you are headed.

- *BOND!* The therapist attends to the healing of social pain. The warm, empathic, and nonjudgmental attitude of the therapist while processing the events allows for the healing of attachment wounds. This undertaking invites the establishment of corrective relationship experiences by revisiting old social pain situations in the presence and with the support of a therapeutic relationship.

Hence, the arc of tension within a session begins with storytelling prior to the trauma, proceeds to the details constituting the trauma itself, and then extends to the period occurring shortly after the traumatic event concludes. This allows for the trauma to be contextually situated and for the patient to orient in time and space, as well as the reflection of the emotional and meaning context, of the event. Before drawing the session to a close, the therapist will ascertain through observation and questioning as to whether the patient’s arousal level has subsided and that the individual once again has their bearings in the present reality.

12.3.4 Session 4 and Subsequent Sessions: Completing the Narration

In the subsequent session, the narrative elaborated in the previous session will be summarized, and the narration of subsequent life and traumatic events is continued. The number of sessions (usually 10–12) required depends on the setting and the severity of PTSD. In complex cases, e.g., in patients with borderline personality disorder, a greater number of sessions may be required (see the case presentation). However, a limit to the number of exposure sessions should be set early on so to circumvent avoidance or delaying of the narration of the worst events.

12.3.5 Cognitive Restructuring and the Days After

At the end of a session, patients often begin to reflect on the meaning content. A more formal *cognitive restructuring* process may be supported by explicitly pointing out the following:

- *New insights about the meaning of the event* for the patient's life. Patients may realize how the everyday emotions and unhealthy behavioral patterns (such as general anxiety, mistrust, rage, outbursts of anger) have their origins in the traumatic experience.
- The detailed narration leads to a *more thorough understanding of a person's behavior during the event*. This might help to modify feelings of guilt and shame.
- The recognition of interrelated life patterns and incidents, allowing integration.

Much of the beneficial process of increased awareness of what has happened takes place between sessions. When the therapist and patient meet again, the therapist should be open to positively receiving any thoughts and considerations the patient might have had since they last met.

12.3.6 Final Session of the NET Module

During the final session the events constituting the individual's life are reviewed as a contextualized and integrated narration. The patient might look at the narrative with a sense of distance (it's a sad but true story), or she/he might look at the document as a tool for peace building or educational purposes (awareness raising). Laying out the complete *lifeline* at the end of the NET treatment—this time including all the formerly inaccessible memories—enables the person to oversee the biographical work done and to perceive the “Gestalt” of the course of life. After the completion of the NET, patients are less preoccupied with their past and now focused on how to find their way back to life and how to construct a livable, productive future.

12.3.7 Follow-Up Period

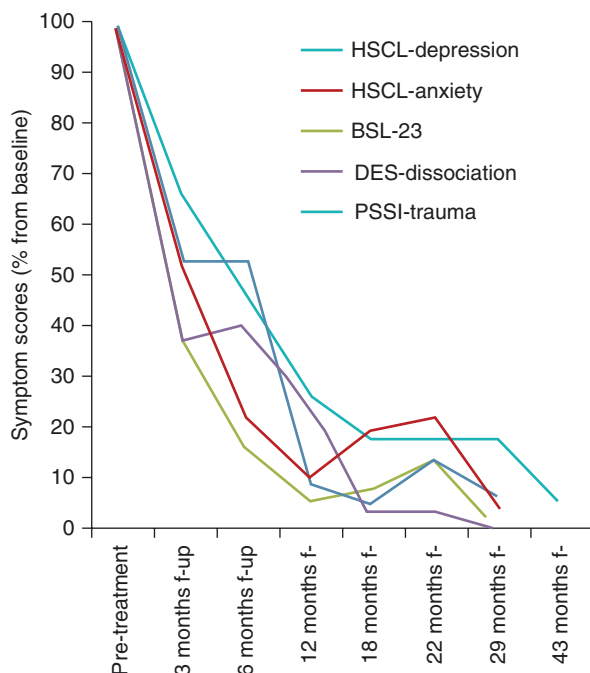
Ideal times for evaluation are at 4–6 months and 1 year posttreatment. Over time, one can anticipate symptom remission to a degree at which PTSD is no longer diagnosable. NET initiates a healing process that requires months, if not longer, to fully unfold (see case presentation and Fig. 12.4).

12.3.8 Overview of the Therapeutic Elements of NET

Several elements of NET have been identified as contributing to its efficacy that the clinician may wish to keep in mind (c.f. Schauer et al. 2011). They are summarized below.

1. Active chronological reconstruction of the autobiographical/episodic memory.
2. Extended exposure to the “hot spots” and full activation of the fear memory in order to modify the emotional network (i.e., learning to separate the traumatic memory from the conditioned emotional response and understanding triggers as cues, which are just temporarily associated) through detailed narration and imagination of the traumatic event.
3. Meaningful linkage and integration of physiological, sensory, cognitive, and emotional responses to one’s time, space, and life context (i.e., comprehension

Fig. 12.4 Change in symptom scores (in %, baseline = 100%) during the follow-up period of survivor Sue S (HSCL Hopkins Symptom Checklist, BSL Borderline Symptom List, PSSI Posttraumatic Diagnostic Scale—PDS—in interview form, DES Dissociative Experiences Scale assessing dissociative symptoms)



of the original context of acquisition and the reemergence of the conditioned responses in later life).

4. Cognitive reevaluation of behavior and patterns (i.e., cognitive distortions, automatic thoughts, beliefs, responses) as well as reinterpretation of the meaning content through reprocessing of negative, fearful, and traumatic events—completion and closure.
5. Revisiting of positive life experiences for (mental) support and to adjust basic assumptions.
6. Regaining of one's dignity through satisfaction of the need for acknowledgement through the explicit human rights orientation of "testifying".

Case Report

This case indicates that Narrative Exposure (NET) can be helpful also for individuals with complex PTSD which frequently include serious comorbid disorders, such as depression or borderline personality disorder (Pabst et al. 2012, 2014; Steuwe et al. 2016). While just a few sessions may be sufficient for survivors with limited exposure to traumatic stressors, such as survivors of natural disasters, substantially more sessions may be needed for those with complex trauma-related disorders, i.e., those who had experienced multiple or continuous traumatic stressors.

When Sue S. sought treatment at our outpatient clinic, she was 33 years old. She had been referred with PTSD, recurrent major depression, and borderline personality disorder. Her symptoms were being managed with medication including SSRI and benzodiazepines. Medication was stable for more than 3 months. She had been unemployed for many years and was receiving support through social welfare. She had to be admitted to inpatient care frequently (several acute admissions per year). She had received repeated in- and outpatient treatment by experts for borderline personality disorder (largely DBT-based, but also cognitive interventions). Due to her severely compromised functionality, she was placed in an assisted living unit and assigned a state guardian and a social worker.

The previous therapist indicated that while Sue stated a desire to detail her traumatic experiences, she would not yet be stable enough to do so. The psychiatrist recommended further stabilization prior to trauma-focused therapy. Self-injurious behavior, such as forearm cutting with a razor blade, anorexic, self-induced starvation, bulimic binging with gastrointestinal purging, and suicidal acts were cited as reasons that no exposure therapy had been previously offered to the client. In addition, Sue was severely dissociative with spells of vasovagal shutdown syncope (Schauer and Elbert 2010), for example, during therapeutic group settings.

Procedure

After a detailed diagnosis that included a checklist of traumatic events and also childhood adversities (the MACE [Maltreatment and Abuse Chronology of Exposure] as listed in Schauer et al. (2011), psychoeducation prepared Sue for treatment with NET. Informed consent was obtained, and a pretreatment evaluation was conducted by an independent assessor, confirming a borderline personality disorder diagnosis, DSM-IV PTSD diagnostic criteria, and manageable suicidal ideation.

There was no current substance abuse. At the beginning of treatment, Sue had been staying in an inpatient ward at the center for psychiatry for already 3 weeks. She had been admitted to emergency inpatient treatment due to her unstable conditions. The last documented serious suicide attempt was about one and a half years ago, and the interview revealed that Sue chronically suffered from suicidal ideations up to the current examination. At treatment beginning with Narrative Exposure Therapy, she still showed self-injurious behavior (in particular: cutting the skin of her arms and legs with sharp objects and anorectic eating patterns). Sue showed severe symptoms of dissociation with spells of fainting. After the sixth session, she was released from the psychiatric ward and completed the treatment in an ambulatory setting.

Treatment

Treatment was delivered in fifteen 90-min individual sessions conducted weekly over a 5-month period. Session 2 was devoted to the *lifeline* exercise (as described above). The *lifeline* was a new experience for Sue, initially piquing both interest and insecurity. Once settled into the process, she became fully engaged in the exercise but had obvious difficulties chronologically recalling and labeling biographical events. The therapist emphasized respective lifetime periods and explained that it would be sufficient in the first step to place the events of the most frequently intruding aversive memories (symbolized as stones) within their corresponding time periods. The therapist also reminded the patient to include any highlights (flowers) that could be recalled and suggested candles be used to symbolize losses and grief.

In session 3, the narration proper started and proceeded in chronological order throughout the subsequent 15 double sessions. Sue disclosed her most emotionally charged experiences, both positive and negative, beginning from her earliest memories. Along the way working through the periods of childhood and adolescence, Narrative Exposure was facilitated (different instances of childhood sexual abuse, being sold in child pornography and experiencing severe violence and social interpersonal victimization). Whenever dissociative detachment from reality or first signs of *tonic* or *flaccid immobility* occurred, the therapist grounded Sue using sensation and perceptual contrasting of the “here and now” (dual awareness) as well as motoric counter-maneuvers. Active muscle tension appears the frontline treatment of reflex syncope, inducing significant blood pressure increase to avoid a dissociative shutdown response. Motor activation (using, e.g., applied muscle tension, leg crossing, external pressure to the lower extremities) helped Sue staying conscious with good enough circulatory function while working on her trauma material. In this way, the therapist responded to prodromal fainting symptoms by engaging in context-contrasting grounding activities to counteract the incipient syncope. Keeping a good contrast between the imagined trauma reality and the reality in the therapy room is an anti-dissociative strategy facilitated through continuous shifting of attention between the presence and the exposed scene by recalling reality and sensory stimulation during the exposure session, for example, tactile stimulation, presentation of positive fragrances like lemon or tasting samples like peppermint oil or chili gum, switching on bright light, allowing to notice the body position, letting describe the room, touch textures or feel the cold of an ice pack, leading

attention to auditory stimuli (further practical examples to counter dissociation are presented in Schauer and Elbert 2010, p. 121).

Working through the biography from session to session, the complete testimony was transcribed by the therapist and read to the survivor, providing a full reprocessing without dissociation and adding more details to the traumatic scenes and their meaning contents, that is, most importantly, allowing integration by examining the intertwining of events and emotional contexts. Since Narrative Exposure Therapy aims at targeting all of the traumatic events (–types), a one-time narrating of the events and the active participation and engagement in the reexperiencing through rereading and complementing of the text often are enough. But some of Sue’s experiences of sexual violence in prostitution were so horrific that a second extensive in sensu exposure in slow motion was needed to allow habituation and to complete a comprehensive narrative of the scene. After this, the therapy process proceeded chronologically along the lifeline heading toward the next symbol.

Whenever the patient seemed amnesic for an entire time period, the therapist carefully helped Sue explore the different contexts and spatial environments, that is, locations, rooms, and typical scenes (Example: “In which street did you live when you were 14 years old? How did the apartment/school/sports club look like? Let’s walk through the rooms. What do you see? Let us open the doors. Which furniture is there? How does it smell? How do you feel in the environment?...”). In vivo exploration of these worlds of the past allows activation of the associative network elements (trauma/fear structure). Subsequently, in conjunction with an onset of physiological arousal, impressions and images appeared in Sue’s mind. Once prompted to describe thoughts, feelings, and perceptions associated with these newly intruding images, typically the full trauma material evolved from disconnected “snapshots” into a fluid motion scene. The therapist in NET accompanied the patient step-by-step through the experience and assisted in verbalizing the accompanying emotions of the events in great detail. In this autobiographical context, Sue managed to retrieve memories of traumatic and sadistic abuse scenes that had taken place, and she was able to confront the material. She could reprocess the incidents and as well revisit the “flowers” (positive moments, successes, loving relationships, resources, etc.) of the different lifetime periods. Whenever we came to “candles” in the lifeline, she recounted how it was for her and what it meant to lose her dear grandmother and a beloved pet in childhood. All of these experiences were included in the autobiographical testimony of her life.

In the last session, Sue felt competent in delineating her *lifeline* once again. This time it was a much faster exercise; stones and flowers were quickly named and marked on small notes next to the symbols—divisions between major lifetime periods were also indicated. In addition, she added sticks as symbols for her delinquent acts. In a small ritual, the therapists handed a picture of the final *lifeline* and the transcription of the biography to a very proud survivor. In honor of her hopes for the future, Sue memorialized her accomplishments of the courageous recounting of the trauma with flowers, which she took home as a symbol of her hopes for the future.

Instruments and Assessment

In addition to a complete pre- and follow-up diagnosis of an independent assessor from a different clinic, a set of clinician-rated measures were incorporated to track the course of symptoms (see Fig. 12.4). Assessments were conducted pretreatment and across subsequent 3-month periods (as indicated in Fig. 12.4). The patient did not receive any monetary compensation for participating in a research study.

Results and Discussion

The change in symptom scores from pretreatment to posttreatment and an extended follow-up period are illustrated in Fig. 12.4. A marked decline in response to treatment was observed for all measures. By 3 months posttreatment, the self-injurious behavior had completely ceased, and the eating behavior normalized. By 6 months, PTSD symptoms, including dissociative symptoms, largely subsided, and the borderline score indicated a substantial reduction in symptoms. The quality of life began to increase when Sue started to plan her future. To realize her goals, she utilized social assistance, allowing for her to find her own apartment and a job. After 3 years, an independent assessor confirmed that she no longer met criteria for any mental disorder, including borderline personality disorder or PTSD. Sue wrote to her NET therapist: “I am finally in my own flat, and things have worked out. I am doing quite well and like my job. I can go out shopping and meet my friends for coffee. I don’t cling to people so much anymore. And the best part: I haven’t fainted since and have never cut myself after I said goodbye to you. I am so glad that there are no more admissions to those psychiatric wards. Yes, I really enjoy my autonomous life. Although, sometimes I miss all the people that have helped me so much over the years. But, you know, it was their job. Now I found some real friends who hopefully like me for who I am!”

12.4 NET as an Evidence-Based Treatment

In their systematic review and meta-analysis, Siehl et al. (2020) analyzed 56 studies from 30 countries comparing 1370 participants with NET to 1055 controls. The authors report large between group effect sizes regarding the reduction of PTSD symptoms in favor of NET. Even more important is the finding of large effect sizes in the long term in RCTs with active controls. In particular, NET reduces the suffering caused by interpersonal or organized violence. These worst detrimental effects often result from stressors experienced during adulthood in combination with childhood abuse and neglect. Both issues are directly addressed in NET. By the very nature of NET, it is constructed to counter the impact of multiple and complex traumatic stress experiences that have occurred across an entire lifetime. NET provides a proven treatment option to complex trauma survivors (Pabst et al. 2012, 2014; Steuwe et al. 2016) and survivors of repeated torture as evidenced by large effect sizes (Hensel-Dittmann et al. 2011; Neuner et al. 2010). The most pronounced improvements are observed at follow-up (Siehl et al. 2020), suggesting a sustained change in psychopathological symptoms, physical health, functioning, and quality of life. NET has effectively been applied in situations that remain volatile and insecure,

such as in continuous trauma settings, like war zones (e.g., Neuner et al. 2004b, 2008a, b, Köbach et al. 2017, Robjant et al. 2019) or during ongoing intimate partner violence (Orang et al. 2018). It effectively reduces PTSD symptoms in the individual including children (Ruf et al. 2010) while bearing witness to the atrocities endured. Recently Stevens et al. (2020) demonstrated that NET can be successfully implemented during pregnancy. Based on reading the manual (Schauer et al. 2011), a number of studies showing the effectiveness of NET have been independently conducted (Zang et al. 2013, 2014; Hijazi 2012, 2012; Gwozdziewicz and Mehl-Madrona 2013; Ejiri et al. 2012; Dömen et al. 2012; Hijazi et al. 2014), and thus, the NET procedure has been taken up in a variety of countries (e.g., Zech and Vandebussche 2010; Jongedijk 2012, 2014). Manuals have appeared in print in Arabic, Dutch, English, Farsi, French, Italian, Japanese, Korean, Portuguese, and Slovak.

Substantial support for the effectiveness of NET is provided by the association of change in symptoms with markers from neurophysiological and molecular biology. Successful psychotherapeutic interventions reorganize memory and, with it, modify the architecture of the brain. Imaging of corresponding changes may indeed be possible, even on a macroscopic level: in a controlled trial, NET was compared to treatment as usual of traumatized asylum seekers (Schauer et al. 2006). The success was not only demonstrated in symptom scores but also in parameters of magnetic brain activity. During the 6-month follow-up, oscillatory neural activity in the NET group, but not in the control group, became more similar to that of healthy controls. Moreover, using magnetic source imaging of the brain, Adenauer et al. (2011) observed that NET causes an increase of activity associated with cortical top-down regulation of attention toward aversive pictures. The increase of attention allocation to potential threat cues obviously allowed treated patients to reappraise the actual danger of the current situation, thereby reducing PTSD symptoms.

PTSD is a well-documented risk factor for various somatic diseases, including chronic pain (Chap. 19), cancer, cardiovascular, respiratory, gastrointestinal, and autoimmune diseases (Boscarino 2004; Kolassa et al. 2015). The poor physical health found in individuals with PTSD seems moderated by altered immune functions and inflammatory processes (Pace and Heim 2011) (Chap. 4). The study of Neuner et al. (2008b) indicated that NET reduced the frequencies of cough, diarrhea, and fever. Improvement of insomnia has been demonstrated by Park et al. (2020). Morath et al. (2014a) showed that symptom improvements were mirrored in an increase in the originally reduced proportion of regulatory T cells in the NET group at the 1-year follow-up. These cells are critical for maintaining balance in the immune system, regulating the immune response, and preventing autoimmune diseases. Moreover, NET is able to reverse in individuals with PTSD the increased levels of damaged DNA back to a normal level (Morath et al. 2014b). These findings may have implications for physical health, in particular for carcinogenesis. The reversibility of pathophysiological processes in individuals with PTSD via psychotherapy indicates that there is a therapeutic window not only to revert the psychological burden of the disease PTSD but also to reduce the long-term, and potentially lethal, somatic effects of this mental disorder. However, it should also be noted that other deviant immune parameters (like the proportion of naïve T lymphocytes) have

not changed and thus might render these patients more susceptible to diseases across extended periods even after the completion of successful treatment.

Two decisive strengths of NET include its very low dropout rate and its high potential for dissemination, including to counselors in low-income countries and war and crisis regions (Catani et al. 2009a; Neuner et al. 2008b; Ertl et al. 2012; Jacob et al. 2014; Schauer and Schauer 2010). Stenmark et al. (2013) showed that with NET, in the case of central Norway, refugees as well as asylum seekers can be successfully treated for PTSD and depression in the general psychiatric healthcare system.

12.5 Challenges

Some survivors of childhood abuse, continuous trauma or personality disorders are utterly unable to retrieve reliable memories of their past. This often results from severe dissociative responding when attempting to retrieve autobiographical memories (Schauer and Elbert 2010). Laying the *lifeline* at the opening of the NET procedure therefore takes place without requiring completeness. It is worth the effort to attempt to structure the autobiography at the beginning of treatment, even when voluntary retrieving of hot memories is a serious challenge. The laying of the *lifeline* should be concluded within one session of up to 120 min, regardless of level of completion. Narration must begin in the following session for the following reasons: delaying the exposure may strengthen the avoidance and reject a patient who finally is prepared to talk about the worst drama. Alternatively, it is possible to start with the narration immediately and have the *lifeline* exercise only at the very end of the treatment (Zang et al. 2014).

Like any other imagined exposure procedure, dissociation as well as avoidance of either the client or the therapist, or both, may be a topic to be aware of. Furthermore, social (self-conscious) emotions such as shame, experiences of social pain, or feelings of guilt may cause a challenge for the narrative work. Particularly shame, with its confusion of mind, downward cast eyes and lowered head, but most of all its silence and speechlessness may create a formidable challenge to any story telling. Pathological shame-proneness is ultimately the fear of being rejected and socially excluded because deep inside it feels impossible to meet the (moral) requirements of the community. A client thus hides everything deep inside as showing it will cause others to dislike and reject the individual. NET is then like a behavioral experiment: as a client reveals portions of the true inner self, she/he will expect rejection. The therapists respond with the opposite, showing true and honest compassion—that is, sets an inclusive social signal. At times, socially traumatized (e.g., raped) individuals may be so sensitive that they will suspect that the therapist may not be honest. Thus, shame caused by social threat cannot be treated by either exposure or compassion alone, but only by the combination of both. Attempts to cure shame with self-compassion will not work; individuals need to feel included by others not by themselves. Obviously, relief from shame requires knowledge of cultural values by the therapist.

If a patient is acutely intoxicated, abuses drugs, or suffers from a severe, current eating disorder, the facilitation of narrative exposure is neither possible nor

advisable. Trials have shown that NET during detox is promising (e.g., Hinsberger et al. 2020).

Ideally, a patient may have regularly eaten prior to a treatment session, and water is offered during the session. A therapist may routinely ask about nutrition.

Serious complications, such as an uncertain asylum status of refugees in the host country or living in a conflict zone with continuous traumatic stress conditions, do not necessarily undermine positive treatment outcomes. Even under unsafe conditions, survivors can benefit from narrative exposure treatment owing to the symptom remission and enhanced functionality. A corresponding behavioral change may reduce the exposure to further traumatic stressors (Orang et al. 2018). Newly emerging traumatic stressors, however, may negatively impact the longer-term outcome success.

A particular challenge for therapists is to unconditionally accept those emotions of a client that have driven his/her violent behavior. Aggression can have an appetitive flavor, and thus intrinsic enjoyment may have motivated the violence (Elbert et al. 2010, 2018). Appetitive aggression appears in the form of playing violent computer games, the hunting of large prey, in murder and massacres. In the latter case, it is not enough to defeat the enemy—the enemy must bleed, must scream (Weierstall and Elbert 2011). Neither a stone nor a flower may be an adequate symbol for the mixture of enjoyment and fear, governing a violent clash. Sticks can be added as symbols on the lifeline when the client has been involved in the perpetration of violent acts. In addition to reprocessing these events from the past, for perpetrators, it is important to control their appetitive aggressive potential in their new and hopefully peaceful settings. To this end, FOR-NET (Elbert et al. 2012) introduces a set of additional weekly sessions (if possible in group format). These sessions aim to develop skills and motivation to avoid engaging in violence within the community. Thoughts and feelings that may arise with the role change from a member of a gang or an armed group to a civilian are discussed in the first session (Hermenau et al. 2013). According to Robjant et al. (2019) and Köbach et al. (2021), the next sessions include psychoeducation and basic skills in anger recognition, emotion regulation, and behavioral change to avoid violence. Session two introduces a “buddy system,” whereby clients are encouraged to form pairs to help each other cope with frustrations and attempting to find nonviolent methods to resolve conflicts. Sessions 3 through 6 focus on deconstructing experiences of violence and violence avoidance in the previous week. Group members are encouraged to support each other’s attempts to avoid violence, suggest alternative methods of conflict resolution, and problem solve concerning practical difficulties.

12.6 Conclusion

The healing attributed to NET extends well beyond the alleviating of core PTSD symptoms. Empathic listening creates a unique and secure venue in which survivors can provide testimony and bear witness to human rights violations, contribute to collective memories via their individual narrative, and reap and confirm the benefits

of autobiographical storytelling. These additional assets cumulate and pave the way to not only an honorable tribute to a survivor's experience but also the restoration of their dignity.

On a personal level, successful NET treatment can lead to quite practical changes and developments in an individual's life. While scientifically sound documentation of these changes remains a challenge, the informal evidence abounds: Former trauma inpatients go on to successfully complete job training. Go shopping in a crowded mall without panicking or fainting. Begin wearing skirts and earrings after decades of avoiding attention by hiding beneath bulky clothes. Meet friends at a public café after years of isolation. Establish a romantic relationship. Or even simply apply lotion to their body without feelings of disgust. Survivors may be able to experience moments of sudden joy again. Take a leisurely stroll out in nature. Or as one survivor put it in her own words: "... *It already helps to tell myself that the scary and unpleasant feelings probably have nothing to do with the current moment and perception. Already to explore the dates and time, when things happened gives me support and – finally – a feeling of identity! Even bad experiences, as long as you can locate them can give you the feeling of **this is my story, I am.**' Without that, every day is a gauntlet – and when a day gets worse, you have NOTHING to hold against it. If you have a past, this defuses immensely and it is a huge relief. Also to describe things reduces the bad feelings often truly enormous... And I keep on working through my own story...*"

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Mirjam J. Nijdam, Marie-Louise Meewisse, Geert E. Smid,
and Berthold P. R. Gersons

13.1 Introduction

Brief eclectic psychotherapy for PTSD (BEPP), developed since the 1980s, has proven to be efficacious in the treatment of PTSD with effects similar to other trauma-focused treatments (Gersons et al. 2000; Lindauer et al. 2005; Schnyder et al. 2011; Nijdam et al. 2012). What makes BEPP special is that it is a comprehensive treatment especially developed for PTSD in which effective elements from various psychotherapy schools have been integrated into a logical sequence. In contrast to other trauma-focused treatments, BEPP focuses on the expression of strong emotions such as grief and anger which stem from the traumatic event and on learning from the way the event has changed someone's life. Some trauma-focused

M. J. Nijdam (✉)

Arq National Psychotrauma Center, Diemen, The Netherlands

Department of Psychiatry, Center for Psychological Trauma, Amsterdam University Medical Centers, Amsterdam, The Netherlands

e-mail: m.j.nijdam@amsterdamumc.nl

M.-L. Meewisse

Abate, Centre of Expertise in Anxiety and Psychotrauma, Grootebroek, The Netherlands

e-mail: m.l.meewisse@abate.nl

G. E. Smid

Arq National Psychotrauma Center, Diemen, The Netherlands

Department of Humanist Chaplaincy Studies, University of Humanistic Studies, Utrecht, The Netherlands

e-mail: g.smid@arq.org

B. P. R. Gersons

Department of Psychiatry, Center for Psychological Trauma, Amsterdam University Medical Centers, Amsterdam, The Netherlands

e-mail: b.p.gersons@amsterdamumc.nl

treatments disregard that the losses a trauma involves bring forth a lasting change and therefore seem to give the message that the patient will be the same as before the trauma, whereas the message in BEPP is that one becomes “sadder and wiser” and finds a new equilibrium with the surrounding world. BEPP is structured and delivered in 16 sessions.¹

This chapter starts with the theoretical underpinnings of BEPP, followed by a description of the protocol which is illustrated with a case description and special challenges and adaptations for specific populations. The next part is devoted to the scientific evidence for BEPP. It ends with conclusions and practical suggestions.

13.2 Theoretical Underpinnings of BEPP

Acceptance of emotions, understanding the meaning of feelings, and facing the often horrific reality of the traumatic event(s) and its consequences are the three central themes of BEPP.

13.2.1 Acceptance of Emotions

A patient with PTSD is still struggling with strong emotions that originate from the trauma and its aftermath. When treating PTSD with BEPP, it is crucial to focus on tolerating and accepting emotions that are strongly avoided and are caused by the trauma. This will lead to new information and self-compassion when one faces what they have been through.

A man of 43 tells about a terrible incident when he was 10 years old. His sister of 3 fell in the milking machine and was chopped into pieces. He had always felt guilty about the loss of his little sister because he was older and therefore thinks he should have prevented her death. During imaginal exposure, he held the small red dress of his sister on his lap, and he could let go all the sorrow and grief and feel relieved.

Originally, BEPP was based on the neoanalytic work of Mardi Horowitz (1986). Psychoanalysts like Horowitz (1976) and Davanloo (1987) tried to shorten psychoanalytic treatment in order to adapt it for specific brief disordered states that resulted from negative life events (Erikson 1968). For the person involved, these states cause insecurity about oneself leading to anxious and/or negative mood reactions. When the environment of the person subsequently enforces the feeling of insecurity by a lack of understanding or care for this person, the disordered state could spiral down toward a more chronic condition. This justified development of interventions to stop worsening the condition and to find a way back up. Names of such interventions were *crisis intervention* and *short-term dynamic psychotherapy*.

¹The BEPP protocol can be requested from the authors and through the BEPP website www.traumatreatment.eu. The protocol is available in Dutch, English, German, Lithuanian, and Georgian and will be also translated in Rumanian, Italian, and Polish.

To know at which point an intervention was necessary, one needed to understand how healthy processing of negative life events differed from pathological processing. Mardi Horowitz has been a pioneer in the study of traumatic stress. In his book *Stress Response Syndromes* (Horowitz 1976), he showed a model for steps in healthy and pathological processing (see Fig. 13.1).

As in the work of Lindemann (1944), the loss of a loved person and following mourning was seen as analogous to processing a traumatic event. The normal process starts with an *outcry* of emotions like fear, sadness, and rage. This is followed by *denial*, refusing to face the memory of the disaster which subsequently leads to *intrusions*. Horowitz hypothesized a dynamic alternation between intrusions and avoidance (Gersons 1989). The next step is *working through*, facing the reality of what happened which ends in *completion*, going on with life. In principle, a person is capable of processing a loss of a loved one without professional mental healthcare.

On the right side of the figure, pathological responses are summarized in hierarchical order. It is interesting to carefully study the wording used by Horowitz. It starts with *overwhelmed* directly after the event. He then described *panic or exhaustion* “resulting from escalated emotional reactions.” The ability to tolerate extreme emotions is the key hypothesis of Mardi Horowitz for healthy processing of trauma. When emotions are suppressed, this will result in panic and exhaustion that disturbs the daily life of a person. This is in accordance with psychoanalytic theory stating that feeling and accepting emotions is essential for coping with negative events. This is the central hypothesis in BEPP. In learning theory, the central hypothesis is that PTSD is a conditioned response in which a person is still irrationally fearful for recurrence of a traumatic event from the past. In BEPP, however, it is hypothesized that the irrational fear of repetition of the traumatic event is in fact a subconscious anxiety for the suppressed intense emotions. This is in line with the model of Horowitz in which panic and exhaustion are explained as results from escalated emotional reactions. In earlier days, Erich Lindemann (1944) described the diversity of grief reactions after a huge fire in a night club in which 500 people died. His observations were not limited to the consultation room but came directly from stories of mourning families, friends, and colleagues in the Boston area as he himself was part of the community. Besides a healthy process of mourning, he also described more pathological routes. Like Horowitz, he also showed that denial and suppression of emotions are the driving force of unhealthy patterns.

13.2.2 Understanding the Meaning of Emotions

Tolerating and accepting extreme emotions is the key toward a healthy outcome after negative life events. When no energy is taken up for suppression and avoidance anymore, the dysfunctional high level of arousal will diminish and one will be able to relax. Unnecessary scanning for danger that results from high levels of arousal will subsequently stop. Acceptance of strong emotions like grief and anger helps to understand the effect of the traumatic experiences on one’s life and often gives a new perspective on the meaning of life itself. Tolerating strong emotions will help

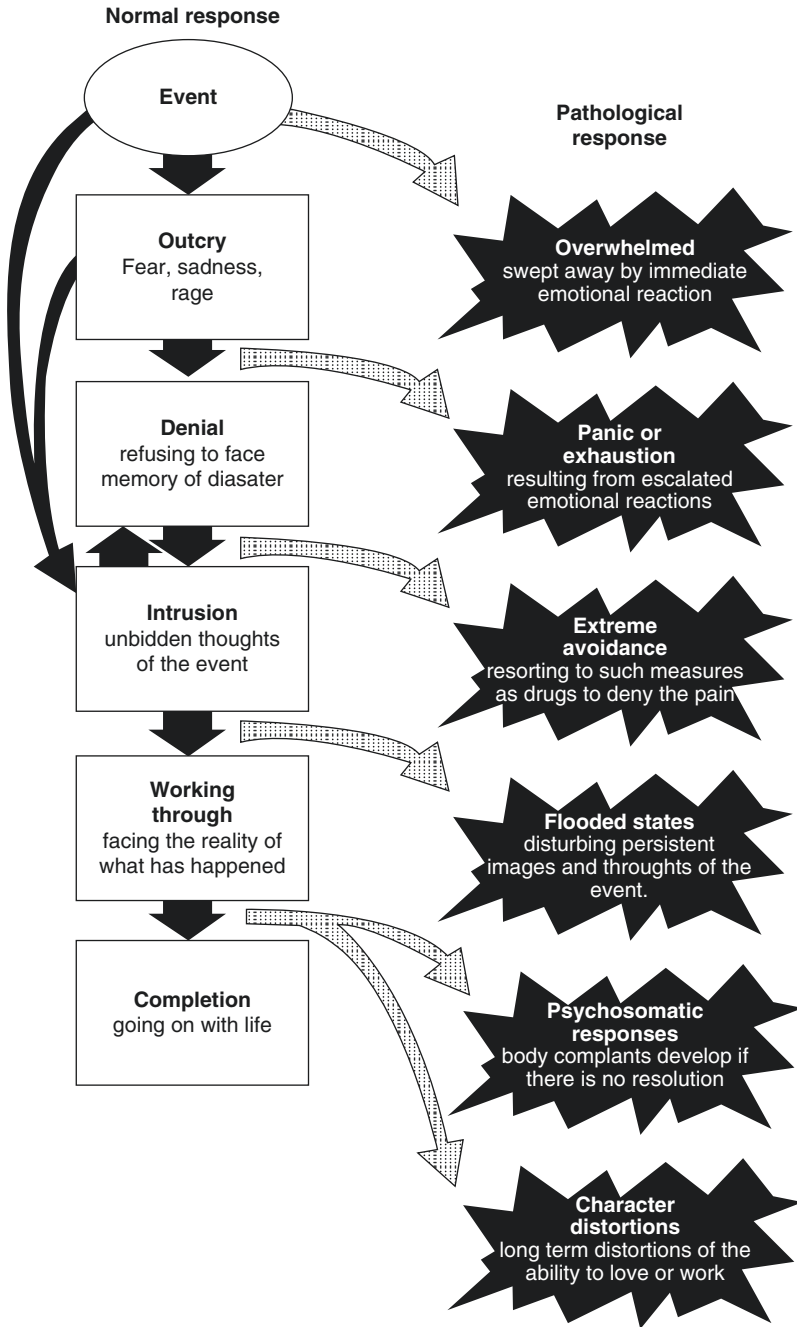


Fig. 13.1 Normal and pathological phases of poststress response. (From Horowitz 1986)

to feel self-compassion for what one went through and also self-acceptance as someone who survived and wants to go on with life. Remembering the traumatic event and just feeling powerless will not lead to improvement; however, contact with underlying emotions of healthy anger because of the terrible experiences will activate the patient to feel in control of one's personal territory. Feeling anger is also very valuable because it helps to accept one's own reaction toward evil. When someone expresses anger in a controlled manner, it helps to prevent the acting out of aggression because the idea of being powerless vanishes. Subsequently, others will no longer be pushed away. Commonly, it also helps patients to get in touch with underlying emotions of sorrow as this promotes attachment to others.

Notwithstanding the negative consequences of avoiding emotions after trauma, patients with PTSD have their reasons to do so. When people become highly emotionally aroused, they need others for their psychological support. Intense emotions in themselves become a danger when they lead to distancing from important others and to abandonment. Research findings emphasize the role of past and current attachment relationships in trauma-related psychopathology. Parental neglect for instance is a risk factor for enduring psychopathology after a traumatic event in adulthood (Meewisse et al. 2011), and the most important predictor for PTSD is a lack of perceived social support after trauma (for reviews, see Ozer et al. 2003; Brewin et al. 2000). When one has experienced a life-threatening event and there is no one to share this horrific threatening experience with, the danger continues and one will feel terribly lonesome.

Patient: "I am haunted by my son's accident. I have a loving relationship with my wife, but I am afraid to lose her when I reveal the details of what is troubling me as she will learn that I am a monster as part of it was my fault."

Patient: "I cannot allow myself to think about what has happened as it is pointless and painfully repelling. I'd better forget it all because when I open up about the sexual acts my father did, others will be disgusted by me and it will drive my family apart."

Intense emotions become overwhelming when they are perceived as a threat for the self and the relationships with others.

13.2.3 Facing the Often Horrific Reality of the Trauma

Rebuilding one's life after trauma implies that one faces reality and stops denying the current circumstances even if this means risking rejection or abandonment. After a crisis, people frequently reevaluate their relationships with others. Some people are valued much more than before because of their unexpected support; others who have been disappointing are set at a distance.

Lindemann (1944) also paid attention to the context of loss of a loved one. This is not only a personal emotional process but also a process in which one has to deal with the reaction of others like family or community members. For instance, someone's children will miss their deceased brother and sister or react to the loss of the other parent. When a loved one has died, the daily life and routines have changed.

Positions and responsibilities of family members shift, and unexpected financial problems can arise due to loss of income. The method of crisis intervention was based on Lindemann's paper (1944). Crisis intervention combines working through the emotions and uses problem solving until a new equilibrium has been found and established.

In BEPP, the first part of the treatment is devoted to the expression of emotions which helps to diminish the symptoms of PTSD. The second part which is called "finding meaning" is focused on the awareness and realization of fundamental change in daily life.

After imaginal exposure, patients often use words like "it is as if I wake up and see the world again, but differently." Ulman and Brothers (1988) and also Wilson et al. (2001) have pointed to the importance of loss of trust in the world and changes in the view on oneself after traumatic events. Without severe traumatic events, one experiences a constant safety of the surrounding world and usually one feels trust in others, the government, employers, doctors, and police. Traumatic experiences like floods, earthquakes, traffic accidents, and especially interpersonal events like murder, rape, and assaults dissolve trust in others and in the world. Subsequently, a person will blame himself or herself for the tragedy he or she has experienced and for not having been prepared enough to avoid the horror. In trauma-focused treatments like EMDR and CBT, this self-blame is targeted by cognitive restructuring to let people realize that the self-blame is irrational. In BEPP, these feelings are more often accepted as such while their origin is explored. Memories of similar feelings in childhood might surface which can help patients understand why they cling to such interpretations. Going back to childhood is not a prerequisite in BEPP; however, it is often helpful to understand that expectations about others, the world, and oneself originate from critical experiences in childhood. Ulman and Brothers (1988) described how traumatic events can destroy feelings and fantasies of invulnerability and how this may lead to a shattered self. Self-blame, which is frequently felt, is often a shield for feelings of anger caused by failure and deception about oneself. When the pain of the loss of illusions is felt and understood in the second part of BEPP, it helps to redefine oneself as vulnerable and resilient at the same time. It also helps to adopt a realistic view on the world, one that is not totally safe, nor completely dangerous. This helps a person to be aware of future negative life experiences and also motivates to enjoy the gift of life more. Posttraumatic growth is seen as a very valuable opportunity in BEPP to learn from trauma and to overcome the sadness.

From crisis theory, we know that a period of uncertainty follows an unknown or unexpected incident or situation. This will result in stress and in loss of control. People suffering from PTSD excessively try to keep control over everything around them because they expect danger to strike again. In BEPP, we therefore start the treatment with psychoeducation to restore the feeling of being in control. By explaining the symptoms of PTSD as resulting from the traumatic experiences, people start to understand they are not "mad" and that the symptoms have a function in the face of real danger.

In developing BEPP, we have discovered that solely talking about the traumatic incident and emotions resulting from the experience will help to better understand what happened to the patient. However, this will not lead to a decrease in PTSD symptoms.

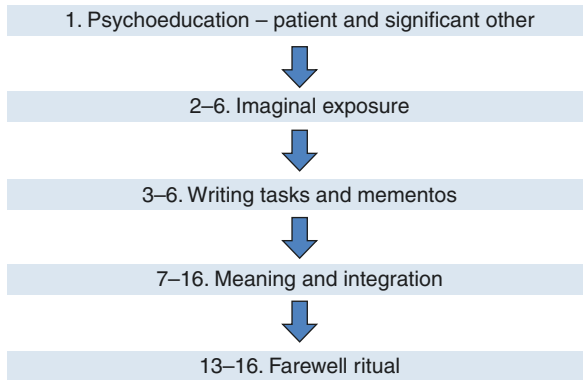
Patient: "I have told over a hundred times how I was robbed, but that did not help me."

Involuntary vivid reexperiencing symptoms which spontaneously arise or are evoked in response to triggers need more specific intervening. Theories about memory representations (Brewin 2014) help to give some explanation of these special memories. It is remarkable how patients with PTSD easily forget ordinary things like groceries, while specific details of an assault vividly stay present in memory. It seems that a traumatized person is not able to forget the details of the traumatic incident because information about danger is extremely important for survival.

In BEPP, imaginal exposure is applied as the method by which the traumatic memories are treated and changed to become a memory of a past event instead of an overly significant one for the present. After a brief relaxation exercise, imaginal exposure is started. The therapist helps the patient to return to the traumatic events with eyes closed for a detailed and vivid mode. This results in feeling tense and frightened. Just bringing a person back to such a nasty memory is not helpful. In BEPP, we therefore focus on feelings of sorrow about what happened. Commonly, patients start to cry intensely or show "silent" grief. When they open their eyes after exposure, they feel sad and tired but relieved that they felt the pain and that they accepted to feel this as it led to self-compassion. We discovered that it is necessary to go back in such vivid details to discharge the emotions. In 4–6 exposure sessions, we follow the chronological course of the event in great detail until all moments with an affective load have been addressed. The result is that patients may still feel sad about what has happened but that it is not so overwhelming anymore. This outcome is similar to other trauma-focused treatments like trauma-focused cognitive behavioral therapy (TF-CBT) and EMDR. The method of exposure however is different in these three treatment modalities for PTSD. In all three, the patient has to go back to the worst images of the event. In TF-CBT, the result of the exposure is explained by the extinction of fear by repetitive confrontation with the trauma memories. In EMDR also, a repetitive confrontation is used directly followed by a distractive task. Therapists report that such forms of exposure are also often accompanied by crying or sadness, but it is not considered to be the essential ingredient like it is hypothesized in BEPP.

13.3 BEPP Protocol

The BEPP protocol consists of 16 weekly sessions of 45 min each. The sessions are structured in the following order (Gersons and Olff 2005):



The overlapping numbers indicate that the separate elements of the therapy may both be the focus in a single session. In practice, the number of sessions needed for the different modules can vary dependent on the complexity of the case and the experience of the therapist.

13.3.1 First Session: Psychoeducation

Psychoeducation is a powerful tool to help patients understand the relationship between the traumatic event(s) and their PTSD symptoms. Symptoms of PTSD are explained as a psychological and physiological state which is functional when danger looms but is dysfunctional and exhausting when there is no threat anymore. For instance, to avoid walking on the grass because one fears mines under the surface, like in Afghanistan, is not functional in most other countries. Most symptoms are beyond control and triggered by conscious and unconscious associations related to past traumatic experiences. One is hyperalert, agitated, and easily startled and has difficulty sleeping and concentrating on the daily routines, because one cannot relax and does not feel safe due to experiencing ongoing danger. By explaining the symptoms of PTSD as resulting from the traumatic experiences, people start to understand that they are not crazy and that the symptoms have had their function in the face of real danger. Avoidance of triggers of the trauma helps to briefly suppress emotions but is counterproductive in the long run. When a traumatized person wants to process the trauma, it is necessary and very helpful to feel, accept, and understand the strong emotions. Being overwhelmed by remembrances of the traumatic event and the feeling as if this is going to happen again creates the feeling of being powerless and being in desperate need of control. Psychoeducation helps to regain part of that feeling of control. The next step in this first, or sometimes second, session is to explain the rationale of the BEPP treatment. The imaginal exposure, the letter writing, and the use of memorabilia are explained as tools to return to the terrible experiences in a vivid way in order to feel and accept the intense emotions and connect them to the trauma. It concerns emotions like sorrow, grief, anger, hate, shame,

disgust, and horror. After this phase, which is emotionally heavy, the meaning-making part will start. The patient learns that the world is not as safe as we want it to be and that we are not invulnerable. It will take time and effort to start trusting others again. Finally, the farewell ritual will be explained as the last confrontation with the frightening memories of the trauma and one's suffering from the experiences for closure, followed by celebrating the comeback to normal life. In fact, it is a transitional ritual as well, to end the treatment and to go on without the therapist from this point on. Prediction of the difficult processes involved in the various parts of the therapy will motivate the patient for the hard work, especially during imaginal exposure. As dropout is a significant problem during trauma treatment (Bisson et al. 2013; Schnyder 2005; Bradley et al. 2005), therapists explicitly draw attention to avoidance as a serious pitfall. Significant others are also asked to attend this first session of psychoeducation, as they usually play a supportive role in keeping patients motivated. Agreements are made in collaboration with the patient on how to act when they struggle badly and wish to stop therapy.

13.3.2 Sessions 2–6: Imaginal Exposure

The following five sessions are aimed at accepting and expressing emotions to process the trauma using several interventions: imaginal exposure, mementos of the trauma, and letter writing. During imaginal exposure, patients recount their trauma in the first person and present tense while having their eyes shut. This is preceded by a brief muscle and breathing relaxation to facilitate focus and concentration. In every session, a part of the trauma narrative is recounted in chronological order. The therapist helps patients to experience and label feelings by focusing on sensory information. What is happening, and what do patients see, hear, feel, and think? The moments with a high emotional load are specifically explored during imaginal exposure. These so-named hotspots can be recognized by a change in intonation of the patient's voice, body language, lack of detail due to speeding up the story, a change of subject, or suddenly opening the eyes. The responsibility of the therapist is to locate the hotspot, reflect on the feelings of the patient, and, if necessary, slow down the pace of the exposure when encountering such a moment.

During exposure, arousal has to be at an optimal level for the patient to be able to process the trauma emotionally and make sense of one's reactions. When arousal is too low, for instance in the case of dissociation, information processing does not take place, as emotions are lacking. To help patients get in touch with their feelings, therapists prompt for sensory information. Following these prompts, they focus on physical awareness of emotions to make the bridge to the feelings.

Patient: (in a calm voice) "He just grabs my bag and walks away."

Therapist: "Stop for a second and rewind a bit. Look at him; watch his face when he grabs your bag. What do you see?"

Patient: "His face has no emotional expression. His eyes are dead."

Therapist: "You seem to shiver. What do you feel now?"

Patient: "I am so afraid."

Therapist: "What scares you so much about his appearance?"

Patient: "It is like I am nothing to him. One wrong move and he will shoot me."

When arousal is too high, information processing also stops because it blocks the possibility to think logically. In this case, the therapist helps the patient to label the current feelings as this will downregulate the arousal. Following a reflection on the patient's feelings, the therapist prompts a new perspective in order to let the feeling emerge in a controlled way. In the case of repression of sorrow, this could be worked out during a session in the following way:

Patient: "My heart is beating. He tries to suffocate me and I am powerless. I am afraid to die" (silently crying).

Therapist: "You almost died? You were so scared. It is really upsetting to realize what you went through, isn't it?"

In the case of repression of aggression, it could be done like this:

Patient: "I am 12 years old and I am held down by this man. I cannot move. It leaves me no choice but to let him do what he wants" (patient shivers).

Therapist: "He is so much stronger than you are. You shiver by what he does to you. You despise him, am I right? (pause)."

The usual course in BEPP is that the perspective turns from fear, as was experienced during the actual traumatic event, to feelings of grief in the present. This is accomplished by looking back from the present how awful it has been. The result is that the trauma is experienced as an event that happened in the past, which is crucially different from flashbacks that lack context and feel as if the traumatic event happens in the here and now. During exposure, patients usually remember details of the trauma that were forgotten and that shed a new perspective on the event.

In BEPP, the focus is on the meaning of the trauma for the sense of self and the view on others. Since it is not aimed at habituation of fear or decrease of arousal as such, exposure is not prolonged. The first half of the session is spent on imaginal exposure, while the second half of the session is spent to elaborate on issues that patients become aware of during exposure.

After imaginal exposure, patients feel sad and tired but also relieved as they start to understand their anguish. It feels awful to remember how helpless one has been during the traumatic event, but at the same time it helps to realize that there was no choice but to act during the trauma as they did. This is essential to modify one's perspective on guilt and self-blame. Feelings of sadness arise as patients experience the loss of cherished beliefs, particularly, the illusion of safety and of a sense of self as master of one's own experiences.

Recounting a personal trauma narrative can be retraumatizing when it leads to rejection and distancing in the therapeutic relationship, as arousal levels are high and subsequently attachment needs to increase. In therapy, patients often start recounting little bits of a horrifying experience. Usually patients attend carefully to how a therapist reacts to hearing the story. The interpretation of the reaction of the therapist may affirm the meaning of the trauma. For instance, seeing an aversive reaction on the

therapist's face when recounting a sexual trauma could confirm the patients' idea that they themselves are disgusting as a person. On the other hand, an assertive reaction of the therapist that this traumatic event is horrible may be interpreted as a sign that the trauma is too cruel and scary for others to hear, which leaves the patient alone once again. In BEPP, therapists use their own emotions as a guideline to understand internal states of patients. The therapist's own emotions are also used to encourage patients by normalizing their fears, such as in the following example:

Therapist: "I get goose bumps now that you tell me. I am touched; you are so brave to tell me as it has been so awful for you."

When therapists show compassion about what happened, patients will start crying commonly. The task of the therapist is to stay present and available, since this moment could become a breakthrough. Crying leads to relief when there is someone who cares. It opens a window to a new perspective on attachment to others: from rejection and abandonment to compassion and a willingness to be close. Consolation and support was not available at the time one needed it the most, and this is a first experience that someone is able and willing to stand next to the person, without taking over control. A result is that the trauma loses its intensity.

13.3.3 Mementos and Letter Writing

Another way to work on acceptance and expression of emotions to process the trauma is by the use of mementos and letter writing. Mementos with a specific meaning in the context of trauma like police reports, newspaper articles, pictures, or clothes that the person wore at the time are frequently kept by survivors for years, although these usually are stored far from sight. Taking such an item to therapy opens a tangible perspective to the trauma and its sequelae and helps to relive it. The patient is invited to elaborate on the meaning of the item while they watch or hold the memento closely.

Patient: "After the assault I took this bag along for a while as I wanted to overcome the horror. I stopped doing it as I was so ashamed of these tiny bloodstains. Probably they aren't even visible to others, but it felt so degrading that all of this had happened to me. Like I am a beast of prey and I do not count. I still feel like that, and as such it pisses me off every time someone takes me for granted."

It is desirable to further explore the meaning of intense emotions that spring from imaginal exposure or discussion of mementos. Therefore, the therapist prompts the patient to start writing a letter. In this letter, which is addressed to a particular person or institute, patients express their repressed feelings of anger or grief. This homework assignment is performed in the form of an uncensored letter, which will never be sent. Expression of the meaning of the trauma in written words promotes acceptance of emotions and confronts the person with the reality and the consequences of the trauma. As such, letter writing will bring about self-compassion and activates

patients to act and stand up for themselves. Yet, painting or drawing is a good alternative to writing if the patient expresses himself or herself better in that way.

In the case of repressed anger, the letter is written to someone who is held responsible for the trauma, such as the perpetrator. However, it is worth to note that patients with PTSD frequently experience the biggest shock by the way they are treated by people whom they expected support from in the aftermath, like family, friends, colleagues, employers, police, government, or bystanders. Therefore, letters are usually addressed to others who did not show any interest in what patients went through.

In the case of repressed grief, the letter is written to the person they lost due to the traumatic event.

Patient writing: "Dear Jon, my chest aches every time I see your empty chair at the table. I still set the table for you and imagine you are here with me. I feel so guilty to go on with life; it is as if it doesn't mean anything to me that you are gone"

13.3.4 Sessions 7–15: Finding Meaning and Integration

The first part of the treatment in which we work on the catharsis and acceptance of the strong emotions has the effect that PTSD symptoms diminish substantially. Subsequently, patients become more at ease and regain energy to work on the important second part named "finding meaning." Traumatic events not only bring about feelings of fear and horror but also challenge trust in others, in oneself, in institutions, and sometimes in society as a whole. Subsequently, people have to redefine themselves, others, and society. There is often no place anymore for a naïve trust in the world, in honesty, and in high morale. Because of the loss the person experienced, these views on life often become much more fundamental and important than before. This is what we call learning from traumatic experiences, to give the traumatic experiences meaning by looking at the consequences and by integrating a changed view of oneself and the world. This is often referred to as posttraumatic growth (Tedeschi and Calhoun 1996). Often patients relate their traumatic experiences to significant events in their childhood that resemble aspects of the trauma or to how one coped with the horror. This part also focuses on the realization of change in daily life. Current real-life issues regarding social functioning, work, and the way patients relate to others are addressed. Moreover, patients are encouraged to investigate fundamental issues regarding their core beliefs, coping style, and subsequent choices in life and make changes accordingly.

13.3.5 Session 16: Farewell

In the last session, an evaluation of the therapy is performed to consolidate its effect with a relapse prevention plan. To mark the end of therapy and specifically the difficult period in the life of patients, a farewell ritual is advised. During this ritual, patients and their loved ones explicitly dwell on the traumatic event and its

aftermath one more time. Patients mourn what they have lost and share what they have learned from it. The ritual is worked out in a way that does justice to the meaning of the trauma. The therapist encourages the patient and his or her partner to work out the plans together as it is time for the therapist to withdraw from the patient's life and for others to step in. During the ritual, patients usually burn their mementos of the trauma and letters they have written during the therapy. Regularly, they write a speech to read out loud to their loved ones during a special dinner. The ritual also marks the end of the therapy and the therapeutic relationship, and as such it is a transition to show significant others that they feel better and are no longer preoccupied by the past. They are ready for the future.

Case Description

Mr. B is a 45-year-old police officer and veteran. He is married and has five children and is known as someone who can be relied upon. He had experienced many critical incidents during work with which he had been able to cope. However, since he had been involved in a raid as the officer in charge in order to detain illegal refugees 5 years ago, he started to have intrusions and nightmares. He felt emotionally unstable, restless, and continuously on guard which affected both his social life and work. During a clinical assessment, PTSD was diagnosed and an indication for brief eclectic psychotherapy for PTSD (BEPP) was given.

Psychoeducation

Mr. B and his wife both attended the first session on psychoeducation. Mr. B recognized the feeling of being constantly alert while the actual danger had passed. He felt preoccupied by the trauma and said it stood in his way to focus on his five children. He also felt guilty about letting down his subordinates due to his loss of energy. Mr. B said that one of the reasons he had avoided speaking about the traumatic incident was that he did not want others to worry about him or to be a burden. His wife had experienced an unsafe childhood herself and also recognized the symptoms of PTSD. She struggled with issues from the past herself and had been in therapy unsuccessfully several times. She was supportive toward Mr. B, and she was pleasantly surprised to hear that this therapy had predefined steps for specific goals as it was much different than the unstructured form of therapy she had been in. Mr. B stated that he was looking forward to treatment even though he heard the therapist say that it would have an emotional impact. He wanted to get over his issues as soon as possible to be able to be more supportive to his family and colleagues.

Imaginal Exposure

In the following session, imaginal exposure was performed after a brief relaxation and breathing exercise. As Mr. B just hurried from work to be in time, the exercise helped him to shift his attention from rush hour to being in the here and now. During imaginal exposure, Mr. B remembered how reluctant he was to go and raid homes in order to bust illegal refugees. He did what he had to do and coordinated his team to enter a suspicious apartment. The moment they entered it, one man fled away to the balcony. Mr. B went outside and saw this man holding on to a railing 6 floors high.

Mr. B: There is a glass window between me and this man. I see him hanging there, and I am worried that his hands will slip and that he will fall. I am afraid to scare him, but I need to act due to the urgency of the situation.

Therapist: Look at the man's face, what do you see?

Mr. B: He looks me in the eye. I see the panic in his face, but also some sort of decisiveness when he looks down. I see him open his hands deliberately and let go.

Therapist: What do you feel now that he lets go?

Mr. B: My energy floods away. I am nailed to the ground. I see him hitting the balconies below like a ragdoll. I am completely powerless.

Therapist: I see you are touched now you are telling me this.

Mr. B: I know he won't survive (crying while holding his face in his hands). It was so unnecessary.

Following imaginal exposure, Mr. B felt sad. He felt relieved also, because he became aware that the man made the decision to let go. He felt less responsible as he now remembered that his hands did not slip. In the next session, imaginal exposure continued where it was stopped last time. Mr. B recounted that he ran down the stairs, even though he knew that it was a hopeless situation. His fear was confirmed when he saw the man lying as a sack of bones in a pit caused by the speed of his fall. He had no hope that medical aid could be of any use. This man would die any minute. His final job was to protect bystanders from the sight of the scene. When citizens of the neighborhood came closer, they turned their anger toward him and his colleagues. After imaginal exposure, Mr. B said that the anger of the crowd had hit him hard as he already felt guilty and ashamed of what had happened. Mr. B furthermore expressed that he detested this part of his job in which he had to chase people who were not criminals but just sought asylum. It felt as if he haunted people, some of whom were really scared due to war experiences in their country of origin. He had been in charge of the operation. However, due to the new government policies, they had to act increasingly forceful, and refugees had become very frightened of the police.

Mementos and Letter Writing

Upon request of the therapist, he brought a memento to the next session. It was a newspaper report on the death of the man, and it stated that it was caused by the police who were racists. It felt so unfair, and it raged him to be seen as a racist. He himself was happily married to a colored woman. Moreover, after the incident, the locals had put up banners on the spot stating that the police were scum. Mr. B said that the worst thing about it was that he felt completely unprotected by his superiors. They did not set things straight in the media or pull down the banners as the spot was seen as a memorial place. Ever since, he had felt unsafe in the streets in his job uniform as he felt the anger of the citizens. As a homework assignment, Mr. B wrote an angry letter to his superiors whom he held responsible for the situation. The situation reminded him of his time in the army in former Yugoslavia where he had been powerless to stand up for his safety and rights. Mr. B and the therapist jointly decided to postpone this important subject to the later phase of meaning making in therapy. He also wrote a letter to a minister whom he held responsible for the policies regarding refugees. These letters helped him to express his anger. He wrote a third letter to the mother of the man who deceased. He expressed his condolences and regret. He had never intended for this to happen. The three letters helped him to describe his ideology clearly. He had joined the force in order to stand next to those in need and to help to create a safer world for everyone, and he mourned that things had turned out otherwise. Bit by bit Mr. B felt relief of what was bothering him.

Midterm Evaluation

During a brief evaluation at session 7, Mr. B said that he started to sleep much better and felt much more at ease. His mind was less preoccupied by the event, and it was time for the next phase of therapy of meaning and integration of the trauma in his life.

Finding Meaning and Integration

The following several sessions were spent on his peace mission during the war in former Yugoslavia as it had been a meaningful period in his life. He had felt powerless in several situations at the time and learned that it was better not to rely on those who are in charge. It had changed his view on authorities that claimed to offer safety but instead were pretty ignorant and inconsiderate to the well-being of their subordinates. Repeatedly, his force was not allowed to act when they got robbed by persons who had put up a roadblock. They were an army which one could disregard and humiliate without any consequences. The situation at the time had motivated him to work hard and get in a responsible position where he would be in charge. It had felt bitter to be in a similar situation in his current position at work as he had decided at the time never to be part of an operation in which he had no control and had to be submissive to others again.

Just an hour before the start, session 10 was canceled. His wife called that Mr. B was sleeping because he had worked a double shift. Since it was the second time that Mr. B canceled a session because he felt obliged to help out others, the therapist put this topic on the agenda of the next session.

Mr. B said that he always considered where he was needed the most as he felt competent and responsible to help out. His priorities were set in this way. However, in his function as officer in charge and as a father of five children, this meant that he hardly had any time left to relax. On the other hand, it helped him to focus on others when he was not feeling well. While he reflected on the last 5 years, he noticed that he had been increasingly busy with the well-being of others while at the same time he felt less and less like he did a meaningful job. He wanted to change his behavior that seemed to serve as a defense against awareness of his disturbed self-image as an incompetent person. He now realized that the gratitude he received after helping out others was his way to counterbalance his self-image and instead feel competent. However, his pattern of solving everything for others had frustrated him and had led to exhaustion in the past 5 years. In the following weeks, Mr. B stopped taking over responsibilities of others. A positive side effect was that he was better able to listen to others; he did not get agitated as much anymore as he did not need to keep everything under control. The urge to jump in as soon as someone mentioned a problem disappeared, as he learned that others were able to take responsibility also. It changed his view on his kids from helpless to reliable persons, when he saw that they took over some of the duties at home he had been doing for years. He now no longer felt guilty when he did not help out everyone, as he started to rely on others to be competent to do the job themselves.

Farewell Ritual

The therapy came to an end, and as a farewell ritual, Mr. B and his wife visited the site of the incident. They went up to the floor of the apartment where he had seen the refugee fall down 5 years ago. His heart pumped while he told his wife exactly what happened that day, but it felt good also to share this life-changing event with her. During the dinner that followed, which they had planned just for the two of them, he told his wife about his plan to apply for a job within the police force in which he could work on rebuilding the lives of hardened criminals.

Six-Month Follow-Up

At the follow-up session half a year later, Mr. B said he was feeling good. He did not suffer from PTSD symptoms anymore. He felt at ease even though his life continued to be hectic and demanding. He had changed his job, and his wife had decided to seek psychotherapy herself. She was hopeful for the future, now that she had seen the positive effect on her husband.

13.4 Special Challenges

Commonly, therapists face special challenges in BEPP of which several are described below.

13.4.1 Choice of Trauma for Imaginal Exposure

Often patients report multiple traumata. It is not necessary and even logical to address every single trauma with imaginal exposure. The content or theme of reexperiencing symptoms and the memory that is currently most upsetting are leading in choosing the right traumatic experience. The patient himself or herself often helps to choose which experience has been the most upsetting and also which aspect has

caused the ongoing fear. When one or sometimes two traumatic experiences have been focused on in the exposure, the irrational fear disappears. The impact and meaning of the various other traumatic events will be addressed extensively in the finding meaning and integration phase.

13.4.2 Understanding the Rationale Is Vital

Patients with PTSD have difficulties concentrating, and treatment is less beneficial among those with poorer pretreatment performance on verbal memory (Nijdam et al. 2015a). As such, it seems wise to deliver psychoeducation on PTSD and the rationale of the treatment repeatedly and in several modalities: spoken, written, and visual. During imaginal exposure, it is essential that patients understand the purpose of reliving the traumatic experience. The therapist checks whether patients have understood the rationale of why it is necessary to tolerate and accept intense emotions related to the trauma. When patients continue to avoid intense emotions during imaginal exposure, it is necessary to explain again that repression of intense emotions is the driving force for their fear in the present. The therapist opens the conversation to explore why the patient keeps avoiding. In the worst case, patient and therapist mutually decide to stop therapy when the timing appears to be wrong in this moment in the patient's life.

13.4.3 Avoidance of Writing

Patients may avoid the homework assignment of writing an angry letter to someone they hold responsible for the trauma or to someone who let them down in the aftermath. It is necessary to trace and understand the reason of the avoidance. Fear of becoming overwhelmed with anger and subsequently acting in a completely irresponsible way are examples of a reason to avoid writing. Awareness of this fear can help patients to start writing. When patients think they will harm themselves or others when they get in touch with their anger, in-session writing is helpful to let them feel safe and experience that expressing anger relieves tension. Another reason to avoid writing can be strong feelings of guilt and self-blame instead of anger toward others. Those feelings are also important to face and to discuss in the treatment. One may write the angry letter as if they are an advocate that defends the self. It is written to the part of the self that criticizes the self and keeps oneself small and down.

Patient writing: "To the blamer in me, Stop calling me names. I know I ran away while Sarah was in trouble. If I could turn back time and had the information I have now, I would have done things differently. At the time it seemed best to get off and look for help. I feel terrible that Sarah is gone. I miss her daily. It hurts me and depresses me that you keep pointing at me like I am to blame. It is unfair that you call me selfish. It holds me down and it scares me to get near to others as it gives me the impression that I am a danger to everyone.

I do care for others, and I have always been that way. Do not bother me anymore as it affects me and everyone I love.”

Sometimes patients like to first write a letter in which they can express feelings of grief about people who died and were loved. Writing can also be helpful in reporting all events in a timeline with all the connected details.

13.4.4 Therapist Skills

BEPP requires specific skills of the psychotherapist. The attitude of the therapist in the beginning of the treatment is like a teacher, followed by the attitude of a listener who visualizes the events the patient went through and feels sympathy for him or her. It is also vital to offer hope and determination that one can overcome the horror and trust the treatment. This is essential especially when the therapy is intense and difficult for the patient. The confrontation with the gruesome details of traumata is intense in BEPP treatment, and feelings of powerlessness and hopelessness of the patient may be transferred to the therapist. In the phase of meaning, the therapist becomes someone who understands, explains, and interprets in a mutual process with the patient. The therapist and patient will reflect and find new understandings and solutions. At the end, the therapist should show trust in the patient and end the treatment. Since patients usually are very positive about the therapeutic relationship, it may be hard for the therapist to lose this gratifying contact. The person who suffered from PTSD explicitly stops being a patient and will go on in life with more experience, trust, and capacity to cope with difficulties in the future. The richness of these processes makes BEPP a valued treatment for people who appreciate depth and contextualization in the processing of traumatic events. Furthermore, the interpersonal processes and social context of trauma processing are explicitly addressed during the treatment by involvement of the partner during the different phases of BEPP.

13.5 BEPP in Different Populations

BEPP is extensively used for the treatment of PTSD in police officers (Smid et al. 2018) and other first responders. Other patient groups in which BEPP has been applied include refugees, veterans, patients with complex PTSD, and patients with traumatic grief (i.e., comorbid PTSD and prolonged grief disorder following the loss of a loved one under violent circumstances). BEPP has been applied in men and women as well as with people of different nationalities and across a range of ages; however, systematic analyses comparing various groups have not been conducted. BEPP has been applied to many different populations with a variety of trauma exposure in clinical practice (e.g., inpatient, day clinic, outpatient and ambulatory settings, private practice) in many countries all over the world.

The BEPP framework allows integration of grief-focused exposure techniques, resulting in a treatment known as brief eclectic psychotherapy for traumatic grief (BEP-TG; Smid et al. 2015). The BEP-TG protocol contains various modules that can be integrated in the BEPP components described above. An adaptation of the BEPP protocol to serve the needs of patients with PTSD and moral injury, called brief eclectic psychotherapy for moral trauma (BEP-MT), has recently been described along with a case description of a successful application in a refugee patient (De la Rie et al. 2021). Both adaptations of the BEPP protocol are described in more detail below. Two fictional, composite case descriptions serve as illustrations of BEP-TG and BEP-MT treatment, respectively.

13.5.1 Brief Eclectic Psychotherapy for Traumatic Grief (BEP-TG)

The loss of loved ones may lead to separation distress, comprising feelings of yearning and longing for the deceased, preoccupation with the deceased person or the circumstances of the death, emotional pain, guilt, and anger. Losses of loved ones may therefore lead to manifestations of psychopathology other than PTSD. Prolonged grief disorder (PGD) will be included in the upcoming text revision of the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association 2013)*. PGD has also been included in the 11th edition of the International Classification of Diseases (ICD-11; World Health Organization 2018). Per *DSM-5*, nonviolent or nonaccidental losses of loved ones do not qualify as traumatic events potentially leading to PTSD. This highlights the need for clinicians to focus diagnostic assessments on grief symptoms consistent with PGD and to consider specifically targeting grief-related psychopathology in the presence of these diagnoses. BEP-TG may be applied if a patient endorses PGD in addition to (symptoms of) PTSD. In BEP-TG, psychoeducation includes information about grief reactions as well as posttraumatic stress.

Esther, a 29-year-old, single woman from Ethiopia, had experienced years of war violence. Rebels had killed several family members before Esther managed to escape and fled to the Netherlands as a teenager. Esther sought help because she reexperienced the moment she had last seen her father, experiencing intense grief, sadness, guilt and regularly “seeing” her deceased father. In addition to PTSD and major depressive disorder, prolonged grief disorder (PGD) was diagnosed, and BEP-TG was agreed upon. The therapist explained to Esther how the symptoms of PTSD and traumatic grief arose from her traumatic past: dwelling on the reality of the loss and admitting the grief about it can be overwhelming and people may fear not being able to stand it, going “crazy” or losing control. This often leads to suppression of these feelings and subsequent exhaustion. Esther recognized this and was eager to learn to better deal with these feelings.

Imaginal exposure to the events surrounding the death of the loved one is complemented by general grief-focused exposure, focusing on the person of the deceased. In BEP-TG, grief-focused exposure may include situational exposure, such as visiting the grave or the place where the loved one died if avoidance of grief-related stimuli appears to play a role in blocking emotional processing. Conversely,

if excessive grieving behavior is present, whereby the deceased person is symbolically kept alive in order to avoid confronting and accepting the reality of the loss, diminishing such behavior may be necessary to catalyze emotional processing of the loss.

Grief exposure was used to allow Esther to tell the story of her father's loss, to allow for the grief and help her accept the loss. The night the rebels killed her father was discussed in detail. Esther was very sad during the exposure because she realized that she had never said goodbye to her father. The memories of the invasion of the rebels and the torture of her father led to a lot of anger in addition to fear. When she told how the rebels tortured her father, she expressed her thoughts of revenge. Normalizing this by the therapist helped her express her anger.

Writing assignments are useful tools to enable patients to evaluate meanings and to help bereaved individuals to confront painful aspects of the loss at their own pace. An ongoing farewell letter is a letter to the deceased person in which the patient may write what he or she had always wanted to say and what he or she misses most.

Esther also wrote down everything she wanted to say to him. She decided to also write an angry letter to the rebels, which gave her much relief. She was able to place the responsibility for this event on the rebels, which lessened her guilt and shame.

Finding meaning includes a focus on important others, as well as values, priorities, goals, and activities. The therapist explores what kind of activities a patient undertakes and to what extent these activities are satisfactory to the patient. What has changed since the traumatic event? During the finding meaning phase, other symbolic interactions with the deceased may take place in addition to letter writing. Imaginal conversations allow the client to reconstruct cultural intersubjective realities (Smid and Boelen 2021) by symbolic means. Different social meaning systems that are implicated in the relationship with the deceased person may be strongly culturally influenced. Thus, imaginal conversations may support finding meaning in a culturally sensitive way (Smid and Boelen 2021). The therapist may guide the imaginal conversation with the person who died, in which the patient talks to the deceased person and also answers. The role of the therapist is to encourage the bereaved individual to articulate meaningful questions, thoughts, and feelings toward the lost person, and to validate emotions that may arise during the conversation. Imaginal conversations represent experiential techniques that may mitigate feelings of guilt and may foster disclosure of things that still need to be expressed to the lost person ("unfinished business").

Esther kept on feeling guilty for not having been able to bury her father and wanted to ask forgiveness from her father. The therapist guided an imaginary conversation with Esther's father. Her father forgave her and expressed his hopes that Esther would live on happily.

In grief following bereavement, finding meaning encompasses the bereaved individual's evaluation of the loss of the loved person and its implications for the future, a cognitive, emotional, and spiritual process aimed at strengthening the individual's

ability to live with the loss within his or her personal and cultural context. The therapist challenges the patient to look ahead and encourages him or her to think of important social, recreational, and, if relevant, work-related goals in the near future.

Between the sessions, Esther increasingly felt the intense pain of having lost her father, and learned to tolerate this better, and positive memories of her father came back. She started to feel more space to look to the future and signed up for volunteer work.

Rituals provide powerful and affirming experiences for bereaved individuals in mediating the transition of the individual from one social status to another (e.g., from spouse to widow), offering vehicles for continuity and social cohesion of the social community. The loss of loved ones under traumatic circumstances often coincides with an impossibility to perform culturally appropriate rituals. In BEP-TG, the farewell ritual symbolizes a revised attachment bond with the deceased. Rituals can be a bridge to the patient's culture or spirituality. They may symbolize both continuity and transition and serve both reconciliation and affirmation. The client designs a farewell ritual that he or she finds appropriate. Examples of farewell rituals include visiting a special place, creating a symbol of remembrance, performing a culturally appropriate ritual, and renouncing things related to the traumatic circumstances of the death. The therapist is not present at the ritual, as it also constitutes the end of the treatment.

Esther performed a ritual in the church where she shared the story of her father and said goodbye to him. Esther felt relieved and later reported "seeing" her father less often.

The feasibility and potential effectiveness of BEP-TG as part of a 1-year treatment program for patients (mostly refugees) with extreme PTSD as well as PGD following multiple and traumatic losses have been extensively documented (De Heus et al. 2017; Djelantik et al. 2020).

13.5.2 Brief Eclectic Psychotherapy for Moral Trauma (BEP-MT)

A moral trauma occurs when a person is exposed to a potentially traumatic event that is related to perpetrating, failing to prevent, or bearing witness to morally disruptive acts and that leads to symptoms consistent with a diagnosis of PTSD. Emotions of remorse, guilt and shame are prominent next to anxiety. BEP-MT enables to focus on specific aspects of a moral trauma.

Amir, a 35-year-old married man, was born in Iraq. From the age of 17, he had to serve in the army, and after several years of fighting on the frontline, he fled to the Netherlands. He developed PTSD after he lost his job. At intake, Amir was diagnosed with PTSD and major depressive disorder, and initial treatment consisted of Narrative Exposure Therapy. He experienced extreme shame and guilt, which prevented him from sharing a specific part of his trauma that involved things he had witnessed during the war. When he built confidence, he agreed to continue treatment with BEP-MT. The goal of the treatment was explained:

learning to speak about the event, confronting related emotions and alleviating symptoms related to post-traumatic stress and moral trauma.

During imaginal exposure, the slow pace fosters a corrective experience within the therapeutic alliance that alleviates shame.

Amir's moral trauma was explored in detail throughout the next sessions. He talked about witnessing torture and execution of civilians during the war. He felt ashamed and guilty for not taking action to stop the atrocities, as well as grief over the deaths of defenseless people. He felt relieved after expressing his emotions.

Other tools to address the different emotional aspects of the moral trauma in BEP-MT include experiential techniques, such as the use of mementos, writing assignments, rituals, and imaginary conversation with a moral authority/victims (De la Rie et al. 2021). Exploring the appraisal of the event and discussing different viewpoints may contribute a nuanced meaning to an event, other than for example "all good, all bad." A non-judgmental therapeutic alliance and fostering positive moral emotions, such as (self-)compassion may alleviate the feelings of guilt and shame. The therapist may use an imaginary conversation with a moral authority, in which the patient decides who he regards as moral authority, for example, a higher power, a tribunal or judge, or a leader of the community (Litz et al. 2017).

Amir started writing letters. The first letter was to the commander, expressing his anger. A second letter was to ask the victims for forgiveness. He experienced sadness, fear, guilt, and shame while writing this letter. In the session, he read the letters to the therapist. During a subsequent session, Amir entered into an imaginary conversation with a higher authority. He imagined a conversation about the situation with the Dutch judge who had helped him with his residence permit. He also imagined a conversation with a bereaved relative of the innocent civilians. He took the views of the judge and the victim's relatives, which he found both very painful and insightful.

Strong feelings of guilt can be addressed using experiential and cognitive techniques that may help discriminate between real and perceived, exaggerated guilt. In case of "real" guilt, options for real or symbolic compensation can be discussed. Acts intended as compensation may be part of the farewell ritual. After exposure and finding meaning, inactivity can be addressed. The therapist explores what kind of activities a patient used to like and which activities the patient would like to start again. The therapist encourages the patient to think of new goals.

Amir decided to tell his wife what kept him awake at night. Her understanding response made him feel less ashamed of what had happened. He could start doing normal daily activities and shift the focus from his past to the here and now and his future. During the last treatment sessions, Amir devised a way to make amends and commemorate the victims. He decided to do volunteer work for Amnesty International.

In the last sessions of treatment, the patient thinks of an appropriate farewell ritual suitable for his or her situation. Examples of a farewell ritual include visiting the place where the moral trauma took place, visiting a memorial to commemorate

the event, making a donation or doing community service or volunteer work for a related charity, and renouncing objects related to the traumatic circumstances of the moral trauma.

13.6 BEPP Research

13.6.1 BEPP in the Police Force

Since BEPP was originally developed for police officers, its efficacy has first been investigated in this population. A randomized controlled trial showed a significant difference on clinician-assessed PTSD after treatment in favor of BEPP compared to wait list (Gersons et al. 2000). PTSD symptoms further diminished during the follow-up period of 3 months. BEPP yielded large treatment effects (Cohen's d 1.30) on PTSD and had significant effects on return to work, clinician-rated agoraphobia, and several indices of self-reported symptoms, with no drop out from treatment.

After its efficacy had been established, BEPP became the first-line treatment for police officers with PTSD who were referred to the Police Outpatient Clinic of the Psychotrauma Diagnosis Center, the Dutch national center for trauma-related mental health problems for police officers. Analysis of the charts collected during the first 16 years of existence of this center showed that 96% of the policemen and policewomen who received BEPP lost their diagnosis of PTSD with a very large effect size regarding symptom decrease (Smit et al. 2013; Smid et al. 2018). This study thus confirmed that BEPP is a highly efficacious treatment for the police population. Sixty percent of the police officers reported some residual symptoms after their treatment. The most frequently endorsed residual symptom was difficulty concentrating, present in 17.7% of the police officers after treatment. Police officers reporting more losses of loved ones or colleagues had smaller reductions in PTSD symptoms during treatment as well as more persistent concentration problems post-treatment (Smid et al. 2018), which gives indications that specific grief-focused interventions in BEPP (see Sect. 13.5.1) may be useful for this group.

13.6.2 BEPP in General Outpatient Populations

As BEPP was increasingly applied in the general population of patients who had developed PTSD as a result of various other traumatic events, a second randomized controlled trial was conducted in a general outpatient setting. Lindauer et al. (2005) found a significant difference between BEPP and wait list on clinician-assessed PTSD diagnosis and symptoms with large treatment effects for BEPP (Cohen's d 1.62). Five patients dropped out before or during treatment. Besides diminished PTSD symptoms, BEPP also led to significant improvement in self-reported general anxiety symptoms. No differences were found between BEPP and wait list on self-reported depressive symptoms, sick leave, or relationship problems.

An independent research group in Zurich, Switzerland, took the initiative to conduct a randomized controlled trial that compared BEPP to a minimal attention intervention in outpatients with PTSD. Besides a replication of the effects of BEPP on clinician-assessed PTSD, this study also found that treatment effects were stable after a follow-up of 6 months (Schnyder et al. 2011). Treatment effects were large sized (Cohen's d 1.5). In this trial, significant differences were found between the groups on self-reported depressive and general anxiety symptoms and post-traumatic growth. The authors attributed the increased posttraumatic growth to a strong focus on meaning making and integration during the second phase of BEPP treatment.

The largest randomized controlled trial to date compared BEPP to another active trauma-focused psychotherapy, Eye Movement Desensitization and Reprocessing therapy (EMDR), in outpatients with PTSD. BEPP and EMDR were found to be equally effective in reducing PTSD symptom severity, but the speed of change was different in these treatments (Nijdam et al. 2012). EMDR led to a significantly faster decrease in self-reported PTSD symptoms than BEPP, also when we corrected for the difference in session duration in the analyses. Dropout rates were similar for both treatments (around 30%). Since a considerable number of BEPP treatments were conducted by psychiatrists in their clinical training, BEPP proved to be effective even when therapists had little treatment experience or trauma expertise. Both the treatments yielded large effects for both self-reported PTSD (Cohen's d 1.55 for BEPP) and clinician-rated PTSD (Cohen's d 1.95 for BEPP), indicating that the majority of the patients drew benefit from these treatments. The PTSD diagnosis remained present for 14% of BEPP patients posttreatment. Large improvement effect sizes were found for self-reported depressive and general anxiety symptoms, and the treatments also had positive effects on comorbid major depressive disorder, anxiety disorders other than PTSD, and posttraumatic growth (Nijdam et al. 2018a). Patients with lower pretreatment verbal memory performance showed less PTSD symptom reduction during BEPP and EMDR (Nijdam et al. 2015a). Over the course of BEPP and EMDR, significant improvements were found on measures of memory and executive functioning (Nijdam et al. 2018b).

A small pilot study assessed the impact of attending to hotspots on BEPP treatment outcome. In this pilot, hotspots in imaginal exposure sessions were coded in ten successful and ten unsuccessful BEPP treatments according to a manual. We found that the number of hotspots did not differ between the successful and unsuccessful BEPP treatments, but hotspots were more frequently addressed by the therapist in successful treatments, as compared to unsuccessful ones (Nijdam et al. 2013). Furthermore, more characteristics of hotspots, such as an audible change in affect, were present in successful treatments than in unsuccessful ones. Although we cannot draw causal inferences from this study, we concluded that it seems important for successful BEPP therapy to carefully and repeatedly address the most difficult moments of the trauma memory and to observe characteristics of hotspots during imaginal exposure. This may not only be important in BEPP but also in other trauma-focused psychotherapies.

13.6.3 Neurobiological Research

Lindauer and colleagues assessed various neurobiological parameters before and after BEPP treatment as part of their randomized trial (2005) and in a related study. Civilian patients with PTSD, police officers with PTSD, and trauma-exposed healthy control participants were asked to listen to personalized scripts that were neutral, stressful, or trauma-related in nature. Lindauer et al. (2004, 2006) assessed their heart rate, blood pressure, and subjective anxiety ratings during the scripts. Both civilians and police officers with PTSD proved to have significantly higher heart rate responses when listening to the trauma script, as compared to healthy controls. Normalized heart rate responses in reaction to the trauma scripts were seen in those civilians with PTSD who were treated with BEPP, while patients on wait list showed no difference. The civilian patients also underwent trauma script-driven PET scans before and after BEPP to investigate functional alterations in the brain. Lindauer et al. (2008) found significant alterations after BEPP in several PTSD-related frontal and temporal brain areas. It seems that the higher cortical regions, responsible for conscious thinking about a situation and making a thorough judgment, regain more control over the limbic system (known to be responsible for a fast response in case of danger). In another open trial with civilian PTSD patients, various neuroendocrine parameters were assessed in plasma before and after BEPP treatment. Successful BEPP treatment led to an increase in the levels of the anti-stress hormone cortisol (Olf et al. 2007). Cortisol functions to inhibit the stress response via a negative feedback loop to the brain. It also regulates bodily functions and is therefore very important for a good regulation of stress over a longer period of time. A more sensitive neuroendocrine stress-system also proved to be associated with better treatment response in BEPP and EMDR (Nijdam et al. 2015b).

13.7 Conclusion

Brief eclectic psychotherapy for PTSD offers a trusted effective treatment protocol. Since the effect sizes of PE/TF-CBT, EMDR, and BEPP are equal, other factors are important to indicate which specific treatment to offer to patients. The principle of stepped care in mental health may be helpful. When a person had a stable life but got PTSD after a single event, one of the short trauma-focused treatments should be offered. When the effect of the traumatic events is more severe and complex and when a person needs or wants to learn from it, BEPP offers more than the other trauma-focused treatments. A more severe clinical picture and more comorbidity may require to intensify the frequency of the treatment, or even consider a day clinic where BEPP can be combined with group treatment. Adaptations of the BEPP protocol may serve the needs of patients with traumatic grief and moral injury and have been successfully applied to various populations, including refugees.

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Marylène Cloitre and Janet A. Schmidt

14.1 Introduction

Skills Training in Affective and Interpersonal Regulation (STAIR) Narrative Therapy is an evidence-based treatment for trauma-exposed individuals who are suffering from PTSD and related symptoms such as depression and dissociation. STAIR Narrative Therapy is comprised of two modules. The first module focuses on skills training in emotion regulation and relational/social functioning (STAIR) and is comprised of 8–12 sessions. The second continues practice in skills training but focuses on processing of traumatic memories using a combination of exposure and cognitive re-appraisal techniques over 8–12 sessions. The primary goal of adding skills training to trauma memory processing in this program is to improve day-to-day functioning. Not unlike patients with many other psychiatric disorders, patients who resolve their PTSD diagnosis still suffer significant functional impairment and poor quality of life (Westphal et al. 2011). There are only a limited number of PTSD treatment studies that have assessed functional status as an outcome; however, a recent meta-analysis indicates that while trauma-focused treatments provide some improvement in functional impairment, it is substantially less than that obtained for PTSD symptoms (Coventry et al. 2020). Functional impairment erodes critical support systems, creates financial hardship (e.g., job loss, or inability to obtain gainful employment (Blanchard et al. 1996), and creates risk for relapse and return to treatment (Fontana and Rosenheck 2010; Vittengl et al. 2009). Thus, the integration of

M. Cloitre (✉)

National Center for PTSD Dissemination and Training Division, Palo Alto, CA, USA

Department of Psychiatry and Behavioral Sciences, Stanford University, Stanford, CA, USA

e-mail: marylene.cloitre@nyumc.org

J. A. Schmidt

Division of Dissemination and Training, National Center for PTSD, Menlo Park, CA, USA

interventions directed specifically to improve functioning provides a meaningful therapeutic complement to trauma-focused work. The second motivation for adding a skills training component, particularly in preceding rather than following trauma-focused work, is to build a therapeutic alliance and develop emotion regulation skills that can contribute to more effective use of trauma-processing work. Indeed, there is some evidence of the benefits of this approach (see Cloitre et al. 2002, 2004).

In the following sections, we will present the theoretical rationale for STAIR Narrative Therapy, an overview of the protocol, description of its delivery, and a case presentation. We will also identify and provide recommendations regarding special challenges in the delivery of the treatment. Lastly, we will provide a summary of research findings about STAIR Narrative Therapy and its variants, i.e., STAIR as a stand-alone treatment.

14.2 Theoretical Underpinnings: A Resource Loss Model of Trauma Recovery

The dominant theoretical models for trauma treatment over the past 20 years have been built on cognitive-behavioral principles. Exposure therapy, one of the most well-tested PTSD therapies, proposes that PTSD is essentially a conditioned fear response and that resolution of symptoms can be brought about through repeated imaginal or in vivo exposure to the feared stimulus in a safe environment. Cognitive therapy, another efficacious treatment for PTSD, views PTSD essentially as a disorder of maladaptive cognitions generated by the traumas and that trauma recovery essentially involves reappraisal and adjustment of trauma-generated beliefs to more adaptive and realistic assessments. The rationale for the development of STAIR is organized within a resource loss model of stress initially developed by Hobfoll (1989). Applied to traumatic stress (Hobfoll 1991), this model broadly proposes that traumatic stressors result in the loss of important resources for living among which the most important are social resources (e.g., relationships and social support), emotional resources (e.g., ability to manage negative emotions or experience positive ones), and a diminished or loss of sense of self (e.g., self-efficacy). Trauma-related loss of resources substantially contributes to diminished functioning (e.g., Chipman et al. 2011). Repeated exposure to traumatic stressors results in continuing loss of resources, further increasing the risk for responding less well to future adversities and greater risk for development or worsening of PTSD symptoms, a phenomenon called the “spiral of loss” (Hobfoll et al. 2011).

STAIR was developed as a resource development and rehabilitation program with a focus on trauma survivors who had experienced interpersonal violence. Attention to emotion regulation and interpersonal skills was the result of observing the perceived needs of patients as well as their impact on overall functioning (Cloitre et al. 2008; Stevens et al. 2013). An initial study investigating the “presenting symptoms” of treatment-seeking women who had experienced childhood abuse indicated that the most frequent complaints were interpersonal problems and emotion management difficulties, with PTSD symptoms being the third most frequently reported difficulty (Levitt

and Cloitre 2005). Notably, emotion regulation and interpersonal problems have been identified as significant contributors to functional impairment. PTSD symptoms represented about 50% of the identified contribution to impairment indicating their importance. However, the presence of emotion regulation and interpersonal problems made an additional and equal contribution to impairment, above and beyond that resulting from PTSD (Cloitre et al. 2005). These problems, distinct from those described in PTSD included difficulties such as problems with naming and expressing emotions and problems with assertiveness, sociability, and power dynamics.

Further research has indicated that emotion regulation and interpersonal difficulties make significant contributions to functional impairment in populations extending beyond early onset interpersonal trauma. These include individuals exposed to the 9/11 attack in New York City, even when controlling for childhood trauma (Malta et al. 2009), trauma-exposed college students (Silverstein et al. 2019) and military Veterans (Klemanski et al. 2012). Definitions of functioning cover many domains of life experience including work/school achievement, management of home/household chores, satisfaction with relationships, and the presence of social networks. However, STAIR was developed with a specific focus on interpersonal and social adjustment and the emotion regulation skills that support this adjustment.

Research has indicated that social adjustment which includes the presence of social support as well as the development and maintenance of relationships is predicted by interpersonal skills (Cohen et al. 1986). More recent prospective research has found that interpersonal skills are, in turn, supported by the development of emotion regulation skills (e.g., Aldao and Nolen-Hoeksema 2012; Bonanno et al. 2004; Bonanno and Burton 2013; Lopes et al. 2005). The emotion regulation skills training in STAIR includes techniques that facilitate downregulation of highly charged emotions (e.g., anxiety, anger) as well as upregulation of low affect states (e.g., depression, numbing) with the goal of creating an optimal window of euthymic states that allow the individual to attend to and engage in the moment, interact effectively with others, and achieve goals. Emotion regulation skills are used to support changes in social and interpersonal patterns. Interpersonal dynamics which receive attention in STAIR include improvement in effective assertiveness, management of power dynamics, challenges in the experience of intimacy and closeness, and growth in respect for oneself and others.

The emphasis on developing or rehabilitating skills leading to improved interpersonal relationships and social support networks is purposeful. Social support has been consistently identified in the trauma research literature as a protective factor against the development of PTSD. Its absence has been identified as a risk factor in the development and maintenance of PTSD, with negative social support (e.g., criticism, blaming of a trauma victim) being a particularly powerful risk factor (see Brewin et al. 2000; Charuvastra and Cloitre 2008 for reviews). The literature on general health and well-being reports similar associations. The importance of social bonds, whether they be called social support, belongingness, or attachment, has been a consistent and significant contributor to well-being, morbidity, and mortality (Bowlby 1980; Cacioppo and Cacioppo 2012; Cohen and Syme 1985). In fact, perceived loneliness is a significant risk factor for mortality, equal to or exceeding

smoking, not exercising and excessive drinking (Polt-Lunstad et al. 2010; Holt-Lunstad et al. 2015; Luo et al. 2012). Loss of control or influence over the strength and health of one's social and interpersonal environments is an integral and inevitable part of traumatic stress (e.g., environmental disasters, warfare, childhood sexual abuse). However, developing or strengthening the capacities that contribute rebuilding of interpersonal relationships and social networks is an option available to trauma survivors and part of recovery.

14.3 Description of the Protocol

STAIR Narrative Therapy is a 16-session treatment. The first half of the program, STAIR (sessions 1–8) focuses on the development of emotion regulation and social/interpersonal skills while the second half, Narrative Therapy (sessions 9–16) introduces the narration of traumatic experiences. The sequence of interventions are organized, so that the skills learnt and insights developed during STAIR can be applied to the narrative work. Emotion regulation skills are learnt and applied to daily activities during STAIR and continue to be applied during the narrative phase of the treatment. The interpersonal problems identified during STAIR receive additional discussions during the trauma memory work and often are recognized as having their source in traumatic experiences. The linkage between current interpersonal difficulties and past interpersonal traumas supports the creation of a more coherent sense of self and provides explanation or “validation” for current behaviors that even to the patient can seem nonsensical or maladaptive. Trauma-generated interpersonal patterns are distilled into schemas or “working models of relating” that are interpreted as guidelines for effective adaptation in the traumagenic context which have outlived their purpose. For example, a child experiencing physical abuse might develop the working model that “If I come close to people, I will be hurt.” Distancing himself from people during an abusive childhood allowed him to be safe but as an adult makes him lonely. A soldier in a combat zone might operate with the belief that “If I get emotional, I will not be able to do my job properly and people could get hurt,” but this belief now leads to difficulty sharing feelings with family and friends. The program highlights the ways in which the beliefs developed in a traumatic context had some adaptive function particularly in protecting the individual and those around them. When the individual transitions to a new and nontraumatizing environment, the beliefs are likely to no longer be optimally effective. In STAIR, alternative more adaptive models are considered and experientially explored. The success of these alternative models often relies on improvement in emotion regulation skills and on a shift in the feelings experienced as generated by the alternative models.

The narrative work in the second module is based on a combination of exposure therapy and cognitive reappraisal. The creation of the trauma narrative is based on prolonged exposure (PE) in which the client organizes a narrative or story of the

traumatic events experienced with a beginning, middle, and end. Traumatic memories from across the lifespan are identified, and a hierarchy of the memories is organized according to the distress they elicit. The first memory selected is one which elicits the maximum distress that can be manageable. In addition, the memory is selected according to the relevance it has to the patient's symptoms and current difficulties. The selection of additional memories is made in a similar fashion by the patient in collaboration with the therapist. The number of memories reviewed typically ranges from 3 to 6 traumas, with patients working with a single memory from one to three sessions, until emotional distress related to the memory is substantially reduced.

After each narrative is completed, therapist and client identify generalized beliefs about self and others embedded in the narrative. Often interpersonal themes emerge across the different memories. The identified relationship models are reviewed for their adaptive function in the past environment. Often a model or a similar version of it has been identified in the STAIR module, but the model identified in the narrative work tends to be more precise and "emotionally real" than its earlier version. The trauma model is then contrasted with a new alternative relationship model which has typically been proposed and tested during the STAIR module.

The comparison of the old and new models is conducted in a way that provides validation of both old and new expectations, respecting the old trauma-generated models but allowing room for the development of alternative interpersonal expectations in a new social context. The concept of multiple relationship models is based on the notion of multiple "working models of relating" proposed by Bowlby (1988), which suggests that different social contexts and different relationships are associated with different expectations, feelings, and actions. The larger goal is for the client to develop greater flexibility in their thoughts, feelings, and actions, to function in more adaptive ways.

Table 14.1 provides a summary of the topics for the 16 key content sessions of STAIR Narrative Therapy. We have found that a flexible approach to the number of sessions in each module works well for both therapist and patients. The number of sessions needed to learn skills varies from patient to patient, and it is important that patients experience a sense of accomplishment and mastery. Often, session 3 (Emotion regulation) is broken down and extended into three sessions, one for each of the emotion channels (cognitions, body, and behavior). In addition, there may be several sessions dedicated to a specific interpersonal difficulty (e.g., assertiveness, flexibility), so that the client can take his or her time to practice and build up a good foundation of skills that are consistent with a new interpersonal model. Lastly, during the narrative work, clients vary regarding how long it takes to pull together a coherent story of key memories, how difficult it is to appraise the meaning of key events, and how many memories are important to discuss. Altogether, the protocol may reasonably take up to 24 sessions to complete both the STAIR and the narrative components (for a detailed summary of STAIR Narrative Therapy, see Cloitre et al. 2020).

Table 14.1 Session-by-session overview

<i>Module 1</i>
<i>Session 1:</i> Introduction to treatment. Treatment overview and goals; introduction to focused breathing; building the therapeutic alliance
<i>Session 2:</i> Emotional awareness. Psychoeducation and identification of impact of childhood abuse on emotion regulation; importance of recognizing feelings; exploration and guidance in feeling identification; practice of self-monitoring
<i>Session 3:</i> Emotion regulation. Focus on connections among feelings, thoughts, and behaviors; identification of strengths and weaknesses in emotion regulation; tailoring and practicing emotion coping skills; identification of pleasurable activities
<i>Session 4:</i> Emotionally engaged living. Acceptance of feelings/distress tolerance; assessment of pros and cons of tolerating distress; awareness of positive feelings as a guide to goal identification
<i>Session 5:</i> Understanding relationship patterns. Introduction of interpersonal models and relationship between feelings and interpersonal goals; guided use of Interpersonal Schemas Worksheet
<i>Session 6:</i> Changing relationship patterns. Therapist introduces the use of role-plays to practice relevant interpersonal situations with alternative behaviors; generation of alternative model
<i>Session 7:</i> Agency in relationships. Psychoeducation on assertiveness; discussion of alternative models and behavioral responses; role-plays requiring assertiveness; review and expansion of alternative models
<i>Session 8:</i> Flexibility in relationships. Focus on flexibility in interpersonal relationships with a focus on power dynamics and process of increasing respect for oneself and others regardless of power balance; continued role-playing on interpersonal situations requiring flexibility using client material; discussion of transition from phase I to phase II of treatment
<i>Module 2</i>
<i>Session 9:</i> Motivating and planning for memory work. Rationale for narrative work and creation of traumatic memory hierarchy
<i>Session 10:</i> Introduction to exposure. Review rationale for narrative work; practice with neutral memory; conduct and tape record first narrative; therapist and client listen together and explore emotions and beliefs about the self and others revealed in the narrative; therapist reinforces patient's learnings and behavior changes
<i>Session 11:</i> Deepening exploration of memories and contrasting with the present. Emotional check in; review analysis of last memory; conduct narrative (same or new memory); review and revise narrative-based interpersonal models; practice role-plays relevant to new models; review trauma in context of present life
<i>Session 12–15:</i> Exploration of other affective themes. Continue selection of memories; explore affective themes other than fear, such as shame, grief, and loss; identify and revise models related to shame and loss.
<i>Session 16:</i> Closure. Summary of patient's gains in skills and changes in self/other models; discussion of future goals and challenges as well as relapse risks

14.4 Case Description

In the following section, we use the case example of Virginia to put STAIR Narrative Therapy into clinical context and highlight specific key points in the therapy process.

Virginia, a 50-year-old divorced African American woman who worked as a hospital maintenance manager, came into treatment after being referred by her primary

care physician whom she had been seeing for years and with whom she had a trusting relationship. A routine HIV test had come back positive. The news had shocked Virginia and had led to her revealing to her physician that she had been raped a year earlier but had told no one about it and had “put the event in a closet and closed the door.” She also disclosed she has been repeatedly sexually assaulted by her stepfather as a child, something she had never told anyone else. While relieved to share this history, after the HIV diagnosis, Virginia began experiencing nightmares about the abuse, the rape, and being sucked into a deep dark dirty pit that suffocated her. Virginia understood that being HIV positive was not the “death sentence,” it once was, but that her health required that she adhere to the medication regime in a strict fashion. Despite this knowledge, Virginia and her doctor noticed that she was missing quite a lot of her doses. Her nightmares were worsening, and she was becoming angry with herself and getting into arguments with her coworkers. She had told no one about her HIV status. Upon her doctor’s recommendation, she decided to visit a therapist so that she could better manage her moods, deal with her HIV diagnosis, and be able to function at her job.

At the end of her evaluation visit with the therapist, Virginia was surprised to find out that she had PTSD. Both the rape and the HIV diagnosis were traumatic events for her. And indeed, she had nightmares about the assault and about the moment she was told she was HIV positive. Most importantly, it became clear that going to the clinic and taking the medications were traumatic reminders not only of her HIV status but the assault that led to it. Her avoidance was understandable but life-threatening. However, given an explanation for behavior that had otherwise seemed counterintuitive, Virginia felt supported and understood by the therapist and agreed to try treatment.

14.4.1 History and Symptoms/Commitment to the Treatment (Session 1)

In the first session, the therapist took time to review more about Virginia’s relationships and early life. Typical of many patients who are referred for STAIR Narrative Therapy, Virginia suffered betrayals by both her primary caretakers: her stepfather abused her from age 5 to 11 with the knowledge of her mother. Virginia married at age 19 to a man 15 years older and who had been married previously and had two teenage children. While they remained married for over 10 years, repeated infidelities by her husband and his drinking and financial difficulties within the family finally resulted in their divorce. The therapist and Virginia concluded that she had not had many people to confide in or to trust. Based on these experiences, there was little reason for Virginia to believe that she could disclose a difficult truth and expect a supportive or concerned response. The therapist used direct language to confirm that the doctor had told her about Virginia’s HIV status and expressed her support for Virginia and willingness to help her reduce her avoidance in taking her medications. The therapist also mentioned she had worked with other HIV-positive individuals and was informed about medications and their actions. She also told Virginia

she would follow up with the physician as needed with newer medications with which she might not be as familiar. They agreed that one practical goal of the therapy would be to help Virginia manage the emotional reactions she was having to the HIV diagnosis, resolve her PTSD and depression, and identify barriers that were keeping her from managing her medications better.

14.4.2 History of Emotional Expression (Session 2)

Virginia's first task was to focus on her emotions so that she could become more aware of the sources of distress and adopt coping strategies to manage them better. A simple tracking form was introduced to identify emotions, triggers, thoughts, and actions. Before this work began, however, the therapist asked Virginia to review how emotions were handled in her family when she was growing up.

Virginia's home life had been one in which emotions had no place, children were to be seen and not heard. As far as her mother was concerned, feelings were to be happy ones or otherwise swept under the rug. Virginia had the sense her mother did not really like her or have any genuine interest in her well-being. During this session, Virginia spontaneously disclosed about some aspects of her abuse, an unusual action for her. Virginia described that her stepfather would come into her bedroom at night and put his hand over her mouth. He told her to be quiet and tell no one and everything would be alright. The therapist did not dwell on the details of the trauma but rather focused on explicitly acknowledging the disclosure ("I am so sorry to hear that happened to you") with compassion and neither going into details nor moving too quickly away from the disclosure. The therapist did explore the impact of those experiences on her emotional expression stating "You learnt in your childhood from your mother that feelings were to be dismissed. Your stepfather told you that 'everything would be alright' even though you were actually suffocating. No wonder you tend to disregard your feelings. That is what you learnt would keep you and your family safe. This therapy takes the opposite view: that being aware of your feelings is an important resource for healthy living. In this therapy you will learn to identify your feelings and their meaning as well as skills to manage them and share them with others. This ability will lead to greater physical health and psychological well-being as well as better interpersonal and social relationships."

14.4.3 Emotional Regulation and Tailoring of Coping Skills (Sessions 3–4)

The therapist asked Virginia to track the feelings and thoughts she had when she was taking her medications. The tracking form was also used to identify situations that gave her peace and pleasure, in order to recognize and engage in them in a purposeful and planned way when they might be used to change a mood or protect her from the dark moods she could feel coming on some days.

Virginia wrote down her feelings and thoughts to the experience of taking her first set of pills of the day. She logged fear (I have HIV, and am sick and going to die), nausea (I am stuffing poison into my body), disgust (I am a bad person), and shame (I deserve this). The therapist broke down these reactions into the three channels of experiencing (feeling, thoughts, and behaviors) and for each one explored coping strategies that would be a good fit for Virginia to act as an “antidote” to the negative experience.

14.4.3.1 Flexibility in Ordering of Emotion Regulation Interventions

In reviewing the tracking sheets, it became clear that the medications had become a traumatic stimulus, a reminder to Virginia of her HIV status, which elicited fear and avoidance. Virginia viewed herself as a “no nonsense” kind of person and operated from the perspective that emotions were harmful and could get in the way of appropriate and effective functioning. She also prided herself on being a rationale and intelligent person. Given that no or low affect was core to her positive sense of self, the therapist began intervention work with a focus on the thought channel leveraging her patient’s strength and confidence in her thought processes. Exploration of feelings, a more unfamiliar and potentially more confusing and disturbing task was ordered second, so that changes in cognition could frame and support exploration of emotions. Behavioral interventions were then introduced.

14.4.3.2 Emotion Regulation Through the Cognitive Channel

Virginia agreed that the pills were intended to help her stay healthy and would indeed keep her healthy if she took them. She also agreed that she was not taking them because they reminded her that she had a chronic disease. The therapist proposed that Virginia could revise some of her negative reaction by thinking differently about the pills, particularly in developing specific, clear, and acceptable thoughts about their benefits.

Therapist: OK, let’s start with your fear reaction to the pill. Let’s take out one. How about the blue and white ones?

Virginia: Here they are.

Therapist: Now it is true that you have HIV, but it is also true that these pills will get you and keep you healthy. These pills will improve your white blood cell count, the important healthy cells of your body. Do you want to try a statement about these pills while looking at them?

Virginia: OK. This is crazy, talking to a pill, but here goes: “Pill, every time I take you, I take a step towards health.”

Therapist: Excellent! Repeat that and really look at the pill. Add any elaborations you might like that come to mind about what you hope for in managing your HIV and about a positive future for yourself.

Virginia: “Pill, every time I take you, I take a step towards health. I imagine you in my body lighting up the way, fighting my enemies.”

Therapist: How about your nausea? Can you take the pills with something tasty? Think about the soothing tea you like. Take them together ...

Virginia used this exercise effectively. The above exchange focuses on changing beliefs but along with certain visual and gustatory associations that were involved in taking the medications. The therapist also explored positive associations of the pills to other sensory modalities (e.g., the blue and white colors of the pills like blue sky and clouds on a beautiful day).

14.4.3.3 Emotion Regulation Through the Body Channel

Focus on Naming Feelings

The exercise in revising cognitions, emotions/sensations, and actions (taking the pills) engaged Virginia's curiosity in linking sensations with names of feelings and with the idea that feelings could be helpful rather than to be ignored and avoided. The therapist introduced the STAIR "feelings wheel" to help Virginia learn to identify and label more feelings. Virginia was initially amazed at the number of feelings on the wheel and used them to complete the feelings monitoring form typically using at least three feeling words for every situation. New coping strategies were introduced that were targeted for each channel that was feasible and acceptable to Virginia.

Focus on Experiencing Feelings

As Virginia became more interested in attending to her feelings, the therapist introduced the idea that she could not only think about feelings but she could experience them in her body. Virginia said her body had "shut-down" in her adolescence as a way of coping with (avoiding) the terror and fear she would feel. The therapist introduced positive sensory exercises that were not threatening so that Virginia could experience positive sensations and become more in touch with her body and attend to physical experience. The therapist helped her learn how to breathe in a steady and regular fashion and attend to her heartbeat. This helped Virginia develop a sense of the health and strength of her body and comfort in her own skin. The therapist identified activities in which Virginia already engaged that were soothing to her and brought her psychological benefits and encouraged her to do more often. This included knitting for her step-grandchildren, which she found highly enjoyable. This activity also promoted more social engagement with her stepchildren with whom she had maintained a good relationship. She reported that she could see the happiness in the grandchildren's eyes as they looked at her, crawled on her lap, and hugged her. She wrote down these experiences in her feelings monitoring form, allowing herself the pleasure of acknowledging their affection (emotional awareness).

14.4.3.4 Emotion Regulation Through the Behavior Channel

A final part of emotion regulation is engaging in social activities that are positive and provide a sense of emotional support. The therapist proposed that she attend an HIV support group (at a different hospital) but Virginia turned this down because she did not want to take the risk of being recognized by someone in her community. However, Virginia did make a commitment to call, e-mail, or visit the grandchildren

at least once a week. Virginia initially felt some distress in reaching out to her daughter, fearing she would be rejected or ignored. However, her daughter was pleased that her mother and children were spending more time together and this improved the relationship with her daughter. As she was making progress with her family, Virginia realized that she could possibly do better in her relationships at work as well.

14.4.4 Interpersonal Models (Sessions 5–8)

Sessions 5–8 have several goals one of which is the identification of interpersonal patterns and the underlying “working models” of expectations about how relationships should go.

Guided by the Relationship Patterns worksheet, the therapist and Virginia considered a specific recent interpersonal interaction that had been distressing. Virginia and a male coworker had an argument about how to conduct an inventory check. Together they considered what happened (“I blew up, yelled at him, and then left the room”), how Virginia felt (“I am out of control; I should not have screamed; no one really wants to listen to me; I am ashamed of myself”), and how she expected her colleague to act (“He should respect my 25 years of experience but he doesn’t”). The therapist asked how the interaction ended. Virginia admitted that she was more stressed about the increase in tension and felt ashamed about her behavior. Virginia and her therapist considered the situation in light of her childhood abuse. Virginia had learned to believe “no one listens to her,” so in order to achieve her goals, she would hold back on her thoughts and feelings, until they exploded. The resulting consequence was actually the thing she feared and was trying to prevent. She had been minimizing her effectiveness on the job and the respect of her coworkers by screaming. Virginia’s therapist asked her to consider what she might do differently, a step toward beginning to change core beliefs about herself and her expectations about how others viewed her.

14.4.5 Role-Playing (Sessions 5–8)

An important therapist skill in STAIR Narrative Therapy is the ability to engage patients in role-playing with the primary objective of developing and testing alternatives to old trauma-generated working models. Role-playing commonly encountered relationship dynamics (assertiveness, power, intimacy) creates opportunities to practice new behaviors in a safe environment, explore how they feel, and revise as needed. The therapist acts as regulator of the patient’s emotions, pulling for the contextually salient emotions, helping the patient sustain or reduce emotional intensity as needed, and helping the patient identify alternative emotions (e.g., joy, or sadness, instead of guilt, or shame) through the use of collaborative exploration.

At the next session, Virginia’s therapist asked about how her problem with her coworker and completion of the inventory process was going. Virginia said that her

colleague had avoided her during the week and she was handling the inventory on her own. She was angry but felt unable to ask for help. The therapist suggested role-playing the situation as a way to practice some alternatives in a safe environment. Before the role-play, the therapist normalized Virginia's anger in light of the stress of her diagnosis and all that it had churned up. The therapist also suggested that Virginia have a bit more compassion for herself under these circumstances. While the behavior was rude and not particularly effective, it was also not necessary for Virginia to feel so shamed by it. Virginia had difficulty accepting that her behavior was not a product of her being a bad person but rather a situation in which a good person engaged in some bad behavior. While Virginia agreed she should apologize, she could not find a way to do it without feeling like she was groveling and humiliating herself as she believed she would be exposing her essential "badness." The therapist then modeled a statement of apology in tones of mutual respect for both the apologizer and the one being apologized to and asked Virginia to "try it out." Once Virginia had practiced the statement, the therapist and Virginia practiced an exchange in which the therapist infused some humor.

Therapist: Let's start by you playing yourself and I will be your colleague Jim. My part is easy, I don't have to say anything, I just walk right by you because I am really mad at you! Imagine steam coming out of my ears and a really sulky face.

Virginia (Starting role-play): Hey Jim, can you stop for a minute, I would like to talk to you about the inventory.

Therapist: No thanks, just send me an e-mail, I don't want to get my head chewed off again.

Virginia: Yes, I know I was having a bad day and took it out on you. That inventory project has me really on edge. If you can pitch in, it will be easier for everyone, but especially me.

Therapist: You have a lot of bad days, if you were more relaxed, people around here would help out more. But sure ...

The therapist used a bit of humor ("I just walk on by") to reinforce that the role-play was not "real." The therapist's affective approach and responses, particularly expressions of curiosity and playfulness can shape the meaning of these experiences to the patient. Playfulness and humor are incompatible with feelings of fear, and their presence in skills practice such as role-plays conveys the idea that the patient can explore or "try on for size" feelings and attitude that approximate and finally represent a skilled presentation of the message that the patient wishes to give. Playfulness also recognizes that there is both a pretend and real aspect to role-playing. In the pretend aspect, the emotional experience is not as intense because the context does not elicit it (e.g., "I am just pretending to be angry at you, but you are not really Jim"), while the real aspect pulls for a more genuinely felt emotion (e.g., "If I really imagine you are my coworker, it is scary to feel this much anger sitting here in your office"). While this brand of humor will not work with every patient, the goal is to give the individual an authentic emotional experience in which they feel positive self-efficacy in the context of safety and acceptance provided by the therapist.

14.4.6 Change in Core Relationship Models

At the beginning of the work identifying interpersonal patterns, Virginia had identified that a core belief driving her interactions with others was: “If I express my feelings and beliefs, I will be ignored or derided.” This belief was based in her sustained experience with her mother and stepfather. With the support of her therapist, Virginia was able to lay out an alternative perspective “If I express my feelings and beliefs, someone might be interested and willing to listen.” This new belief was tested in a relatively safe environment and experientially supported. The newly proposed alternative interpersonal models are viewed during the course of therapy as “aspirational,” meaning that success in living according to this model will take time and practice. The therapy provides the patient with emotion regulation and interpersonal skills as well as cognitive frames that support meeting this goal over time.

14.4.7 Narrative Therapy (Sessions 9–16)

The interventions in the first module of treatment focus on improving quality of life and functional capacity, stressing emotion regulation. In addition, the experience with the therapist in the titration of emotions during role-play and discussion of emotionally laden daily-life matters reinforces confidence in the working relationship. Building on these gains, the second module of treatment (sessions 9–16) focuses on exploring and resolving the traumatic past.

Emotional awareness and engagement in feelings associated with the trauma are elicited through explicit verbalization and description of the memories and associated feelings. The articulation of these feelings and memories are organized within the structure of a narrative with a beginning, middle, and end. The use of autobiographical narration and its inherent structure help support, reinforce, and consolidate important self-regulatory activities. In the telling of a narrative, the patient (1) learns to regulate the flow of emotion as the narrator of the story; (2) experiences directed, contained, and goal-oriented emotional expression through the presence of an explicitly defined narrative structure; and (3) strengthens metacognitive functioning and self-awareness as the patient is both in the story as its subject and also removed from the story as its narrator.

All narratives are tape-recorded. After the first tape recording, the patient and therapist listen to the tape together and engage in an analysis that explores the meaning of the event as experienced at the time as well as a revision of its meaning through the incorporation of new information gleaned from the therapy work. These reappraisals often involve the recognition that the chronic fear experienced in the present belongs to an event in the past which can no longer harm the person, that the chronic shame or guilt experienced about the event is misplaced, and that the loss intrinsic to the experience (of a person, a sense of worth, a capacity to relate to others) can be purposefully reworked and transformed into a meaningful goal in the present. The second and all remaining recordings include both the narrative and the meaning analysis. The patient listens to the taped narrative at home, ideally on a

daily basis. The purpose of this “homework” is to facilitate extinction of fear and other negative emotions associated with memory and to reinforce a revision of the meaning of the trauma memory that includes the alternative, more adaptive interpretations of the event.

In this phase of work, the therapist moves from coach and teacher to listener, witness, and sometimes cocreator of the new meaning of the trauma. The vignette below illustrates how Virginia and her therapist approach reorganizing her past trauma into an integrated life story.

At this point, Virginia and her therapist felt she had made progress in managing her suppressive/explosive anger. Virginia had also been having success in taking her medications regularly, and her viral load was decreasing and white cell count was improving. She was beginning to feel a sense of self-efficacy managing her illness. However, she was still troubled by nightmares and flashbacks of her rape. Because Virginia liked and trusted her therapist, she was anxious but willing to begin the process of identifying memories of incest abuse. Virginia chose to work on the traumatic memory from the time she was 11 of telling her mother that her stepfather had fondled her and being slapped and belittled in response. Recording the session, the therapist prompted Virginia to imagine the situation was occurring in the present. What was she sensing, feeling, and thinking during the episode?

Therapist: You just told me your mother didn’t believe you ... can you remember what she said and how she acted? Describe what you are seeing and how you are feeling.

Virginia: She screams, “you little liar ... you are making that up! How could you say something so dirty? Shut up, shut up, shut up!” She backs out of the room and closes the door.

Therapist: I know this is difficult to share ... you are doing a great job ... what did you do then?

Virginia: I ran and hid in my closet. It felt safe, dark, and warm. I never wanted to see my mother or dad again. I decided I would never talk about it ever again either.

After this emotionally charged experience, the therapist and Virginia explored the meaning of this experience. It came as no surprise to either of them that models of shame, worthlessness, and anger were apparent. A central interpersonal model that emerged from the narrative was “If I tell about bad things happening to me, I will be blamed and rejected by others.” The model arose from the reaction she received from her mother about the abuse and guided her interactions with not only her mother but in all of her relationships. The model-guided behavior (hiding information) kept her safe in relationship to her mother. But the application of the model was overgeneralized to other relationships which was not necessary or helpful.

Virginia noted that her strong feelings about how her HIV status would be interpreted by others were based on the above model. The therapist provided an alternative model during module 1—“If I tell about bad things that have happened to me, I will be helped and accepted.” During the treatment, Virginia had positive experiences with her therapist that provided evidence supporting the alternative model. The therapist also pointed out that her physician knew much of the “bad” that had happened to her but had positive regard and deep concern for her, providing more support for the alternative interpersonal model.

In addition, through the collaboration of her therapist and physician, Virginia had just begun participating in a confidential peer program in which she was mentored by a woman who was also living with HIV. The peer helped her in finding practical ways to manage her medication regime better and accompanied Virginia on her visits to the clinic for her HIV checkup. These visits were often distressing experiences where Virginia would lose track of her medication summary sheets. The peer would help keep all relevant medical information organized, provide emotional support, and practice STAIR skills with Virginia including positive self-statements and focused breathing in the waiting room. The peer mentoring gave Virginia a way to meet other people, “good” people who were HIV positive and who also liked and respected her, regardless of her HIV status.

Virginia’s relationships at work improved in part because she was less angry and developed assertiveness skills that increased her confidence. She began to sing in the church choir, a commitment which took her out of the house and brought new friends. Virginia’s therapist summarized these positive changes in emotion regulation and interpersonal skills as well as the development of new, more accurate interpersonal models. They discussed her future goals and what might continue to be challenging. During the course of treatment, Virginia had created a notebook with all of her therapy worksheets. She decided on the last day to create a “top ten” list of positive actions, thoughts, and activities which she later put on her smartphone in case of relapse. She and her therapist reviewed the list, highlighting which activities could be done alone when her slowly growing social support network was unavailable. While still concerned that her first response to any emotionally ambiguous situation would be shame and anger, Virginia felt she had some new skills which enabled her to step back and consider alternatives. Finally, she agreed to touch base with her therapist if needed.

14.5 Challenges to Implementing STAIR Narrative Therapy

As noted in the introduction, STAIR Narrative Therapy was originally developed for PTSD patients suffering from complex trauma. Given the variety and intensity of their experiences, this population of clients may offer special challenges. Common to these challenges is *the degree and extent of client fears (emotional component)* and intense *preference for avoidance (behavioral response)*. In order to achieve emotional regulation, a targeted outcome of treatment, therapists must be prepared to deal with patients’ fears. Experienced clinicians have identified five specific fears that can impede therapeutic progress in the use of STAIR Narrative Therapy (Jackson et al. 2009).

First is fear of feelings Some patients may come into treatment wanting to get rid of their emotions, as feelings have only caused them distress and conflict. They may carry beliefs that having feelings is a weakness and that not having feelings at all is the only way they can be successful. Second is *fear of being exposed to the feelings of others*, in life and in the therapy room. Patients may not have the skills to respond

to emotional expression in others which reinforces their feelings of inadequacy. Third is the *fear that the recognition of any feeling will result in its exacerbated expression (becoming out of control)*. Consistent with an “all or nothing” view of emotions, many STAIR Narrative Therapy patients fear once they either recognize their own feelings or are exposed to those of others, their reactions will be explosive. The fourth *fear is of experiencing positive feelings*. Patients who have experienced complex trauma may believe that feeling positive emotions or being happy is invalidating of their trauma. Trauma survivors often develop extraordinarily negative views about themselves and their competence and worth as humans which impact their right to experience pleasure. The fifth and final fear is *fear of a changed or changing identity*.

Fear of emotions, emotional expression and the feelings of others In regard to the first three fears, STAIR Narrative Therapy is organized explicitly so that exposure to emotions occurs in a graded fashion and is supported by the introduction of emotion management skills. Exposure to emotions in the context of daily life is typically less frightening and threatening than exposure to emotions as they relate to traumatic events. Moreover, demonstrated success in managing feelings in day-to-day transactions creates a sense of competence and self-efficacy. Both the actual skills and the sense of self-efficacy can be recruited for the narrative work which can be emotionally more challenging.

Fear of positive emotions or pleasurable experiences can similarly be managed through graded exposure, providing “evidence” counter to beliefs that bad things happen when positive emotions are experienced. Rejection of positive experiences because they are inconsistent with identity as a “bad” person is more challenging and may be understood as related to a sense of being undeserving as well. This is related to the final fear of a changing and unknown self. Individuals who hold on to their old identity of the “traumatized self” sometimes note they are comfortable in this “self.” The idea of a changing self may provoke the feeling that “the devil that I know is better than the devil that I don’t.”

Fear of a changing identity The dislocated or changing sense of self can be frightening to the trauma-identified patient. Graded success experiences associated with the proposed alternative more adaptive models can support the transition. In addition, validation of the “old self” and respect for its origins in a traumatic past can be maintained through reference to the idea of “working models of relating.” The analogy of the development of an “autobiography” can help create a sense of coherence in a changing sense of self, and it is frequently and repeatedly used in the treatment to organize the experience of change. Memories that have been reviewed represent different chapters in the patient’s life and several of these chapters may be thematically related as the story of the “traumatized self.” The therapist should point out that the patient has successfully created meaning and coherence to the past traumatic events and that the patient can now similarly create and be the author of the chapters that remain to be written regarding their current life and future plans.

Lastly, of course, insight is easier than behavioral change, and the therapist should convey to the patient that insight about the need to change and the benefit of changing may come more quickly than the actual change itself. Expression of compassion and support for the patient in his or her struggles and acknowledgment that recovery from trauma is a lifelong journey will set more realistic expectations. The short-term nature of the treatment requires the acknowledgment that the process of recovery will continue after the therapy ends. Practical plans, such as guidelines for continued use of skills, and an invitation to making return visits or “booster” sessions as needed may be proposed as part of the termination work.

14.6 Research

14.6.1 STAIR Narrative Therapy Randomized Controlled Trials

STAIR Narrative Therapy has been evaluated in three randomized controlled trials (RCTs) (Cloitre et al. 2002, 2010; Oprel et al. 2021). The first RCT compared STAIR Narrative Therapy to a wait-list control (Cloitre et al. 2002) and found that relative to those in the control condition, STAIR Narrative Therapy intervention participants demonstrated significant improvements in PTSD symptoms, affect regulation, interpersonal problems, perceived social support, and overall functioning in family, work, and social domains. Gains were maintained at 3- and 9-month follow-up periods. Moreover, strength of therapeutic alliance and improvement in negative mood regulation established during the STAIR component predicted participants' responses to the narrative component as measured by decrease in PTSD symptoms during this work (Cloitre et al. 2004). Thus, the therapeutic relationship and skills work appear to contribute to effective use of the narrative work.

The second RCT (Cloitre et al. 2010) was a component study to assess the relative contributions of the STAIR and the Narrative Therapy modules of the treatment as compared to their standard sequenced combination in a sample of women with PTSD related to childhood physical or sexual abuse. There were three treatment conditions. The first was the standard sequence (i.e., STAIR Narrative Therapy), while the two test conditions were organized where one of the modules was eliminated and replaced with a nonspecific active treatment, supportive counseling (SC) (i.e., STAIR/SC and SC/Narrative Therapy). This design allowed control of number of sessions, treatment duration, and therapist contact across the three conditions. Results indicated that participants who received STAIR Narrative Therapy were more likely to achieve sustained and full remission of PTSD in comparison to the two control conditions. In addition, participants in the STAIR Narrative Therapy intervention group evidenced greater improvements in emotion regulation, perceptions of social support, as well as reduction in interpersonal problems than participants in the two control conditions. Of note, the benefits of STAIR Narrative Therapy emerged primarily at the 3- and 6-month follow-up assessments. We speculate that the continuing improvements following treatment may have resulted from the use of skills in effectively managing day-to-day life stressors with greater skill

and confidence over time, including previous situations that might have “triggered” reexperiencing symptoms. Success in managing stressful situations may have reinforced the message of the exposure work that the traumatic past was truly in the past.

The third RCT (Oprel et al. 2021) evaluated STAIR Narrative Therapy (16 weekly sessions) against a 16-session Prolonged Exposure (PE) and an Intensive 16-session Prolonged Exposure Therapy over 4 weeks among women with PTSD related to interpersonal violence either in childhood or adulthood. PTSD outcomes were equivalent across all three conditions with large effect sizes (Cohen’s $d = 1.6$) across 1 year follow-up. Similar findings were obtained for other outcomes including emotion regulation and interpersonal functioning. It had been expected that STAIR Narrative Therapy would produce better outcomes than PE as in a previous study (Cloitre et al. 2010). The discrepancy in results between the two studies may be the result of extending exposure from the usual 9–16 sessions where more sustained PE may have contributed to better outcome. In addition, STAIR Narrative Therapy was somewhat diluted in this study in that the PE component did not include cognitive reappraisal at the end of each exposure session nor continued practice of STAIR skills, both of which is the standard approach in STAIR Narrative Therapy. Nevertheless, these new data suggest that patients can utilize their personal preference in selecting any of the above three treatments with the expectation that they are likely to have a good outcome. These outcomes allow patients to choose among different types of equally effective treatments and may lead to greater patient engagement in trauma-focused therapy.

14.6.2 STAIR Narrative Therapy Open Trial for 9/11 Survivors

An open trial evaluated a flexible application of STAIR Narrative Therapy in the treatment of survivors of the 9/11 World Trade Center terrorist attack (Levitt et al. 2007). Clinicians were allowed to skip or repeat protocol sessions based on their relevance to the patients’ symptom presentation and end treatment prior to completing the entire protocol if satisfactory improvement had occurred. Therapists could also incorporate non-protocol sessions in order to address a current life stressor or crisis that warranted clinical attention. Length of treatment varied between 12 and 25 sessions. Therapists’ experience ranged from no to extensive prior training in cognitive behavioral therapy intervention. The results of this benchmark trial were compared to the 2002 RCT study results. Significant improvements were obtained in PTSD, depression, and interpersonal problems in the flexible application, and the effect sizes were equivalent to those obtained in the 2002 RCT. In addition, coping strategies were measured and found to significantly change: use of alcohol and drugs to cope significantly decreased, while use of social support to cope significantly increased. STAIR Narrative Therapy proved to be effective in reducing distress when delivered in a flexible manner, suggesting a potential for tailored treatments that may be applicable to a wide range of trauma populations and clinical settings.

14.6.3 STAIR Alone: RCT, Comparison, and Open Trials

STAIR has been used as stand-alone treatment for individuals who want to focus solely on skills training. An RCT of a five-session STAIR in VA Primary Care (Jain et al. 2020) found that compared to Waitlist, Veterans showed significant improvement in PTSD, emotion regulation and interpersonal problems and social adjustment. An important aspect of the treatment was that the therapist and patient selected which interventions or coping skills to introduce into the treatment based on the patient's identified skills and preference. The large effect sizes may be due to the selection of skills for use in the treatment that the patient already had and enjoyed and were now adapted for application to PTSD symptoms resolution and to improving interpersonal and social interactions. A recent open trial of STAIR alone among rural female Veterans with MST delivered over telemental health (Weiss et al. 2018) using a similar strategy revealed similar outcomes including benefits in sense of social support and social engagement, outcomes of importance to those experiencing social isolation.

The implementation of the STAIR module as a group-based intervention has shown positive results in three studies for adults (a comparison study and two open trials) and two studies for adolescents (a comparison study and one open trial). In the adult comparison trial (Trappler and Newville 2007), inpatients diagnosed with PTSD and comorbid schizoaffective disorders in STAIR were compared to those receiving Treatment as Usual (TAU). The STAIR group was found to show significant improvement on the measures of PTSD and psychotic symptoms, as well as improvements in affect and emotional expression and management while the TAU group showed little change. An open trial of an effectiveness-implementation investigation integrated STAIR into a rape crisis clinic program (MacIntosh et al. 2018). Results indicated significant reduction in PTSD, dissociation, emotion regulation, and interpersonal problems. In addition, staff were enthusiastic about the integration of STAIR, describing the model as filling a gap and providing an important resource addressing very real day-to-day challenges in living (p. 5). A second open trial of group STAIR (Jackson et al. 2019) conducted in a VA PTSD clinic found reductions in both PTSD and general distress. The organization of the group was unusual for a VA PTSD clinic in that it combined men and women. The results for PTSD did not differ across gender, suggesting mixed group interventions for PTSD among Veterans may be appropriate.

Additionally two studies have been completed with adolescents, one is a comparison study of group STAIR for adolescent girls in a school-based setting (Gudiño et al. 2017) and the other an open trial for youth in inpatient settings (Gudiño et al. 2014). Both the studies found significant improvement in coping skills and reduction in symptoms among the study participants who were largely urban youth with multiple traumatization and abuse experiences. These studies suggest the potential benefits of group STAIR for youth. However, additional studies are needed, particularly in comparison to other evidence-based treatments (EBTs) for children and youth (see Chap. 20).

14.6.4 Summary Remarks

To summarize, STAIR Narrative Therapy is an efficacious treatment intervention for PTSD as well as for trauma-related social and emotional impairments. There is some evidence that STAIR alone is effective as an intervention in primary care as well as in a group format, although more research is necessary. Overall, it appears that STAIR Narrative Therapy is effective for both men and women, and for those who have experienced prolonged and chronic trauma as well as those with single-incident traumas. It has also been shown to be effective when flexibly applied, an attractive quality for clinicians.

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Prolonged Grief Disorder Therapy (PGDT)

15

M. Katherine Shear, Natalia Skritskaya, and Colleen Bloom

Prolonged grief disorder (PGD) is now an official diagnosis in both ICD-11 and DSM 5-TR. This condition is characterized by persistent pervasive yearning, longing, and/or preoccupation with the person who died for a period of at least 6 (ICD11) or 12 months (DSM 5) and longer than expected by their social, cultural, or religious groups (Prigerson et al. 2021). Importantly, there is already proven efficacious treatment for this condition. This chapter describes prolonged grief disorder therapy (PGDT; previously called complicated grief therapy), which is the best-studied of PGD treatments. We outline a step-by-step approach to treatment of PGD that focuses on facilitating adaptation to loss and addressing grief-related elements that are posited to impede adaptation.

Risk factors for PGD include person-related variables such as preexisting mental disorders, context-related such as availability of social-environmental support at the time of the death and during acute grief, and death-related such as the age of the deceased and the manner of death. The coronavirus pandemic in 2020–2021 has been associated with a marked increase in number of deaths worldwide and created an elevated risk for prolonged grief disorder related to both context and death-related factors. PGDT includes procedures that help clinicians deal with pandemic-related grief.

Sixty million people die every year, worldwide, leaving loved ones struggling to adjust. The coronavirus pandemic produced at least an additional two million deaths in 2020 alone, and these occurred under very challenging circumstances. We expect to react strongly to the death of a loved one, but loss of a close relationship often creates havoc beyond what we expect. Close relationships anchor us, enrich our lives, and provide some of our greatest joys and deepest satisfactions. Dysregulated

M. K. Shear (✉) · N. Skritskaya · C. Bloom
School of Social Work, Columbia University, New York, NY, USA
e-mail: ks2394@columbia.edu; ceg2160@columbia.edu

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emotions and disruption of functioning occur when they die and the feelings are unfamiliar and disconcerting. People often wonder how they can ever accommodate to the new reality. Interestingly, most people make this adjustment, often more quickly than they predict (Boerner et al. 2005; Wilson 2002). Grief is permanent after we lose someone very close, but symptoms usually decrease in frequency and intensity over time as we find ways to accept the reality of the loss and restore our capacity for well-being.

15.1 Theoretical Underpinnings

In order to explain the theoretical underpinnings of PGDT, we need to clarify the way our group uses terminology. Bereavement is the situation of having lost someone close (Stroebe et al. 2003). As such, bereavement meets a definition of trauma that entails confrontation with death, though not all bereavement is considered to be a trauma in the DSM-5. The impact of bereavement is related to the importance of the person who died as well as the circumstances and consequences of the death.

Grief is the response to loss that typically includes a range of thoughts, feelings, behaviors, and physiological changes. The pattern, frequency, and intensity of grief symptoms vary and evolve over time. Loss of someone close is one of life's greatest stressors. Loss of a loved one often turns the world upside down. Grief is thus a stress response, a change agent and also a form of love. Like the love that spawns it, grief is unique to each person and each relationship. Still, certain features are universal, including yearning and sadness, frequent thoughts and memories of the lost person, and feelings of disbelief and of alienation from ongoing life. The usual response to a loss includes an initial period of acute grief that can be intensely painful and disruptive and that is gradually transformed to a permanent integrated grief that is much less insistent, no longer dominating the mind (Shear and Shair 2005). Most people are able to regulate grief emotions include the emotional pain and also positive emotions which continue to occur during acute grief (Moskowitz et al. 2003). Accepting grief and managing grief emotions facilitates the assimilation of information about the death and transformation of acute to integrated grief.

PGDT is informed by attachment theory (Bowlby 1980; Mikulincer and Shaver 2003), self-determination theory (Ryan and Deci 2000), concepts of self-compassion (Neff and Vonk 2009), neurobiological research on memory (Reber 2013; Hassin et al. 2009), reward system functioning (Burkett and Young 2012), and emotion regulation theory (Min et al. 2013). The approach utilizes strategies and procedures modified from cognitive behavioral therapy (CBT), including prolonged exposure for PTSD (PE) (Foa et al. 2005), motivational interviewing (MI) (Miller and Rollnick 2013), interpersonal therapy (IPT) (Weissman et al. 2000), and psychodynamic psychotherapy. The dual treatment objectives are to address grief complications and facilitate adaptation to the loss.

Attachment theory was first proposed by John Bowlby in the mid-twentieth century. Since then, research data have been obtained that strongly support the premises of this theory. Humans as well as other species are biologically motivated to seek,

form, and maintain close relationships with a small number of other people. The closest of these bonds is usually between parent and child and between romantic partners in adults. Yet virtually any relationship can meet the characteristics of attachment relationships, namely that proximity to the significant other is rewarding and separation resisted and that the attachment figure provides a safe haven and secure base. Attachment security contributes to psychological and physiological regulatory processes, and the disruption of a secure attachment relationship typically leads to profound emotional and physiological dysregulation.

The third of Bowlby's famous trilogy provides a detailed discussion of the consequences of attachment loss. Bowlby defines adaptation as "a fairly wide array of psychological processes set in train by the loss of a loved one irrespective of their outcome" (Bowlby 1980, p. 17). Successful adaptation is the process by which a person accepts the reality of the loss and restores goals and plans for a positive future. Typically, the mourner oscillates between confronting the painful reality and setting it aside, facilitating assimilation of information about the finality and consequences of the loss into the attachment working model. According to the PGDT model, prolonged grief disorder is the condition that occurs when this assimilation is impeded by the presence of thoughts, feelings, or behaviors that prevent the person from adapting.

Bowlby (1980) pointed to the importance of revising the internalized working model of the deceased person, essentially a form of working memory in which the mental representation of a loved one is used to devise goals and plans. Bowlby claimed that this revision is undertaken only slowly and with resistance. The usual process is one in which a bereaved person grapples with fully comprehending the finality and consequences of the loss by oscillating between attention to the reality and defensive exclusion. This oscillation produces bouts of intense emotional activation alternating with periods of respite. As a successful adaptation process unfolds, the bereaved person comes to terms with the loss and regains a sense of relatedness, autonomy, and competence in his or her own life. The finality and consequences of the death are assimilated into long-term memory, a sense of self is restored, and the future holds the potential for happiness.

Self-determination theory provides another framework for understanding loss of a loved one. Bereavement is a life event that is usually ranked among the most stressful anyone can experience. One reason for this is that loss of a close attachment disrupts relatedness, autonomy, and competence, identified by Ryan and Deci (2000) as basic human needs. Our attachment relationships are an important source of our sense of relatedness defined as the sense of belonging and mattering to others. Attachment relationships provide a safe haven and secure base that facilitate autonomy and competence, and their loss can threaten these basic needs as well. From this perspective adjustment to loss is facilitated by reestablishing avenues for fulfilling basic needs.

Prolonged grief disorder is a form of persistent strong grief in which this adaptive outcome does not occur. However, the problem is not grief itself which is seen as the natural response to loss that reflects the way we are experiencing the loss at any given moment. Grief is permanent after a loved one dies, albeit usually

transformed over time. However, with PGD, grief symptoms remain intense and interfere with the bereaved person's capacity to restore his or her own life. This happens when something interferes with the adaptation process and derails its natural course. Often the derailer is one of the common ways individuals react to a loss.

Grief derailers take the form of thoughts, feelings, or behaviors that block the natural progression of grief. They tend to be manifestations of the kind of responses we have in early period after the loss that need to be re-evaluated. PGDT targets acceptance of grief, resolution of derailers, and facilitation of adaptation to loss.

Self-compassion, meaning kindness toward oneself, feelings of common humanity, and mindful balance of accepting negative emotions without overidentification (Neff and Vonk 2009), is important in dealing with any challenging experience. Encouraging self-compassion is a core principle employed throughout PGDT.

15.2 How to Conduct PGDT

PGDT is a 16-session weekly treatment initiated after a pretreatment assessment establishes that PGD is present and the patient's most important problem. The treatment utilizes a set of key procedures that are employed in a structured sequence of four phases: getting started, core revisiting sequence, midcourse review, and closing sequence. Sessions begin by setting an agenda and reviewing the grief monitoring diary. Each session then addresses the goal of coming to terms with the loss followed by a focus on restoration of the potential for happiness in ongoing life. Sessions end with the therapist summarizing the session, obtaining feedback from the patient, and then discussing plans for the interval of time (usually 1 week) until the next scheduled session.

15.2.1 Pretreatment Assessment

PGDT is designed to be used after completing an initial assessment in which prolonged grief disorder has been established as present and the most appropriate target for treatment. Official diagnostic criteria are now available and will be released in DSM 5-TR (Moran 2020). They include death of a person close to the bereaved at least 12 months earlier accompanied by persistent and pervasive yearning, longing, or preoccupation with the deceased. Additionally, there are at least three of a group of associated symptoms that have been present most days to a clinically significant degree and nearly every day for at least the past month. These include symptoms that indicate ongoing difficulty adapting to the loss, such as continued disturbance of sense of identity, ongoing intense emotional pain, marked avoidance of reminders of the death, etc. The condition must cause clinically significant distress or impairment in personal, family, social, educational, occupational, or other important areas of functioning and must last a period of time that clearly exceeds norms for the individual's social, cultural, or religious context.

A pretreatment assessment includes a basic understanding of the patient's history, including important relationships and autonomous functioning. It is a good idea to also complete a full psychiatric and medical evaluation to be sure that any associated problems are either addressed or monitored during the course of the treatment. Also, during the pretreatment assessment, patients are provided with a general description of the treatment and its goals. They are given information that there are emotionally activating components to the treatment and that the success of the work will depend on their willingness to engage in these. The therapist also explains the importance of bringing the treatment into patients' ongoing lives.

15.2.2 Sessions 1–3: Getting Started

The first phase of PGDT focuses on reviewing the patient's history, providing psychoeducation, and beginning grief monitoring diary, aspirational goals, and building support. The therapist uses these sessions to establish a companionship alliance. The therapist conveys warmth, acceptance, and recognition that grief is a universal experience. At the same time, the expertise and willingness to serve as a guide for the patient's grief journey are also apparent.

Introducing Marcy

Marcy is a 58-year-old woman who is neatly dressed. She sits in the waiting room filling out forms and crying. She enters the therapist's office, struggles to gain control, and says she is sorry to be so emotional. This is not at all like her. She is a mess since her beloved husband Daniel died 5 years ago and, no offense intended, she doesn't really see how anyone can help.

The therapist says there is no need to apologize for being emotional after a painful loss. Marcy seems to relax a little and thanks the therapist. Everyone else seems to think she is self-centered and pathetic, wallowing in her grief and not wanting to feel better. She wonders if this is true. She feels so lost like this is different from anything she ever dealt with and she doesn't know what to do.

Marcy's History

Marcy was the younger of two children, born in a tight-knit neighborhood close to where she currently lives. She describes her upbringing as difficult and lonely. Neither parent seemed very interested in her and she often felt that she was just one more irritant in their life. She remembers thinking that she was the one who caused her parents trouble and this made her scared and sad. She was close to her older brother, John, and they had a common group of friends. Marcy and John spent a lot of time together until he got to high school and started using drugs. After that they grew apart and were never close again. Now she is not sure where he is and has not talked to him since her father died more than 10 years ago. She met Daniel in college and always thought he reminded her of John. They got married a few years later. Marcy and Daniel were married for 35 years and had three children. They were unusually close. Their relationship was the envy of their friends.

Marcy's CG Symptoms

Marcy has not moved any of Daniel's things. His toothbrush is still in the bathroom. She can't bear to have anyone sit at his desk. She cannot bring herself to sell his pickup truck, though she doesn't know how to drive it. She avoids social occasions because she feels strangely incomplete when with other people and has painful feelings of sadness and shame. She avoids places where she is afraid she will miss Daniel too much – activities they enjoyed together, people they socialized with, and places where they spent time. Since his

death, she has refused to go near the hospital where he died. She visits the cemetery infrequently because she can't bear to think of him lying in the cold ground. Marcy wishes she would have died with Daniel.

Her only comfort is in reveries in which she imagines being with Daniel and thinks about how beautiful her life was when he was alive. When not day dreaming, Marcy often ruminates, feeling angry and bitter about Daniel's death. She asks herself why they didn't do the surgery before it was too late. She still can't believe this nightmare really happened.

Marcy sometimes skips meals or forgets to take her cholesterol medicine, knowing this is not healthy. Even though she has lost her faith, her religious upbringing is all that keeps her from trying to take her own life. She and Daniel attended church regularly, but she lost faith in God after he died. What good is it to attend church if this is what you get? What kind of God would allow Daniel to die when people who are bad continue to live? She continues to work as an office manager for a medium-sized accounting firm but is having trouble concentrating. She no longer feels close to her children and describes herself as "just wandering around through life" thinking repeatedly, "why did he have to die? If only I had watched him more closely; if only I had convinced him to get to the doctor earlier; if only the doctors had treated him better ... Why couldn't the doctors help him?"

Grief monitoring is introduced at the end of session 1. The patient is asked to keep a record of grief levels during the treatment, rating grief intensity on a 1–10 scale, where 1 is the lowest and 10 is the highest grief they ever experienced. At the end of each day, they record the highest level of grief that day and the situation in which it occurred, the lowest level and the situation in which that occurred, and the average grief level. The therapist also introduces the idea of building support and encourages the patient to invite someone to session 3. The purpose of the joint session is to both get another perspective on the patient's situation and also to help a close friend or relative get some ideas about how they might help.

The restoration focus is introduced in session 2. The role of positive emotions is described along with self-compassion and self-determination needs for autonomy, competence, and relatedness. The therapist introduces the ideas of rewarding activities, aspirational goals, and rebuilding close relationships. The restoration-related component aims to help the patient access core values and interests and to use these in developing plans and goals. The patient also starts to build in simple activities that generate feelings of pleasure, interest, or satisfaction.

Marcy's Aspirational Goal

Toward the end of the second session, the therapist asked, "If I could wave a magic wand and your grief was at a manageable level, what would you want for yourself?" Marcy stared at the therapist, surprised, and said that all she wants is to feel like she used to when Daniel was alive. The therapist accepted this, gently reminding Marcy that of course they couldn't bring him back and that their job together was to help Marcy find some peace with this reality and a way to move forward in her life in a new way. If they succeeded in helping her somehow feel that she could deal with the painful reality, what would she want for herself? Marcy thought for a few minutes and then said, "OK I'll try - I always wanted to play the viola. My mother made me play the violin when I was a child because her cousin gave her one. I never liked it and another girl at school had a viola and it sounded so much better to me." Then she said that for some reason she had been thinking about this lately. She said Daniel always told her she should take viola lessons but she couldn't ever find the time. He wanted her to play in a quartet. She said, "It's so sad that I never did that when he was alive. I don't know how I would feel trying to do something like that." The therapist encouraged Marcy to keep thinking about the possibility of learning to play the viola

Session 3 is usually held with a significant other. Its purpose is to reopen communication between the patient and a close friend or family member and foster support for the patient. Not infrequently, people with CG feel estranged from other people even though they have friends who want to help. However, eventually these friends start to feel helpless and become frustrated. The session gives the visitor the opportunity to express his or her affection for the patient, to air some of the frustration he/she has been feeling, and to share in supporting the treatment. The therapist learns about the visitor's relationship with the patient before the death and what it has been like since. Patients may be surprised to see how much the visitor cares.

Marcy Brings Her Daughter Jessica to Session 3

Marcy's 33-year-old daughter Jessica was eager to come and this surprised Marcy. She had thought that Jessica would be stressed by the invitation. Marcy hated feeling like she was a bother to her daughter. Jessica revealed that she had been feeling frustrated because her mother couldn't stop feeling sorry for herself and this was ruining everyone's life. Jessica said she had run out of things to try and had pretty much given up trying. She decided she had lost her mother along with her father and was now grieving them both. She longed to have her mother back but did not have much hope. Tearfully, she described her relationship with her mother as always very close. Marcy had always been the go-to person in the family when there was a problem and played the same role for her friends. But Jessica said that when her dad died, the mom she always knew disappeared too. It seemed like she was a shell of the person she used to be. Jessica thought it didn't have to be this way and did not see why her mother wasn't trying. Tears streamed down Marcy's face as she listened to this. She said she hated how she has been acting, but she felt so lost—like she didn't know how to try to cope with Daniel's death. They discussed Jessica's questions about prolonged grief and the plans for the treatment and discussed some possible ways Jessica might be able to support her mom in the treatment. As she left the session, Jessica hugged her mother and said, "I feel so relieved and more hopeful than any time since dad died."

15.2.3 Core Revisiting Sequence

Sessions 4–9 are core revisiting sessions that contain the heart of the treatment. The sessions are focused on revisiting the time of the death in order to reinvigorate a successful mourning process. They also include situational revisiting and memories work. During this sequence the therapist works to help the patient resolve grief derailers and focus on coming to terms with the reality of the loss. Each session also includes work on the three components of restoration-related work, including rewarding activities, aspirational goals, and building support.

Session 4 introduces the first imaginal revisiting exercise, and this is followed by a discussion of rewarding activities and aspirational goals. The session ends with a summary and feedback from the patient and a discussion of plans for the upcoming week. These include listening to a recording of the revisiting exercise daily. The therapist plans to talk with the patient by phone after the first time the patient listens to the recording.

The revisiting exercise is designed to confront the patient with the reality of the death. Patients are asked to close their eyes and to visualize the moment when they learned of the death. They tell the story of what happened from that point forward

out loud to the therapist for 10 min. The therapist checks distress levels at regular intervals during the narrative and whenever it appears that emotionality increases. At the end of about 10 min, patients open their eyes, report distress levels, and spend the next 10 min reflecting on the exercise.

The imaginal revisiting exercise is repeated during the next 3–5 sessions. A new audio recording is made each time, and patients are asked to listen to it during the week. With repetition, the narrative usually becomes more detailed and distress levels decrease. Patients usually report that after telling and/or listening to this story a few times, they start to believe that their loved ones are “really gone.” Before this, they knew it was true but somehow could not really believe it. A feeling of being lighter and more connected to the present is also common.

Marcy’s Imaginal Revisiting Exercises

Marcy was very emotional during the first revisiting exercise. However, in repeatedly listening and doing the revisiting exercises, Marcy’s memory of Daniel’s death gradually became less acutely painful and less potent, and Marcy saw that she could tolerate the pain. She found that in listening to the tape, the reality of the death “really hit home – something about hearing myself tell that story.” She was no longer afraid of loss of control. She began to reconsider whether it was reasonable to think his death could have been prevented and eventually came to believe that everyone tried his or her best. Maybe this was just Daniel’s time to go. She also realized she had been struggling with an idea that he died without knowing how much she loved him. This continued to trouble her even though she thought it probably wasn’t true. As Marcy told and listened to this story, she became freer to think about her relationship with her husband, and she could see clearly that there had never been a time when either of them questioned their love. She also realized that if Daniel had worried about anything at the end, it would have been about how she would manage. She began to think about how she could comfort and honor him by letting herself be happy now. She stopped thinking about the unfairness of Daniel’s death and she began to realize that his untimely death did not mean that it was wrong for her to enjoy life without him. These changes in her thinking occurred with the revisiting exercises and the reflection periods but without much therapist input.

Situational revisiting is introduced in session 5. The patient is asked to identify situations—people, places, or things—that he/she is avoiding because they trigger painful reminders of the loss. The patient decides on an activity that entails confronting this situation. The therapist asks the patient to do this activity each day during the upcoming week and to record distress levels before, during, and after he/she does this activity. Usually, distress levels come down during the course of the week, and the patient’s comfort level with the situation increases quite noticeably. The therapist then suggests they move to another situation, higher on the distress hierarchy. The process of planning and doing an activity that entails confrontation with this situation is repeated. Usually this process continues until the end of the treatment.

Marcy’s Situational Avoidance

Marcy started situational revisiting by bringing in her favorite picture of Daniel. Marcy asked the therapist to hold her hand as she took the picture out of the envelope and the therapist agreed. Her distress spiked up to 100 as expected, but within a few minutes of looking at the picture, tears in her eyes, Marcy smiled. She began talking about the day this

picture was taken and before long was laughing at the memory of Daniel's antics. Situational revisiting progressed to looking at more pictures at home and then to spending time with her children and grandchildren. Marcy realized that she wanted to tell her grandchildren stories about their grandfather and that she could do this when she was with them. She increased the frequency of her visits and they gradually became more and more fun for her and the children. She began to address other situations on her hierarchy with increased confidence, and each time, the situation quickly became easier. The most challenging was her visit to the hospital where Daniel died, but by the end of the treatment, she had begun to address this as well.

Work with memories and pictures begins in session 6 and continues for five sessions. The therapist asks the patient to complete the first of a set of memories questionnaires. The first focuses on positive memories such as the deceased person's most likeable characteristics, the most enjoyable times with the person, what this person added to the patient's life, and things the patient loved most about this person. The patient continues to write about positive memories after sessions 7, and 8, and then after session 9, they are invited to think about the "not so positive" things about the person and their relationships. After session 10, they complete a questionnaire about both positive and not so positive memories of the person who died.

15.2.4 Midcourse Review and Closing Sequence

Session 10 is devoted to a review of the treatment to date and to planning for the remaining sessions. The therapist reviews the PGD model, discusses this with the patient, and considers what has changed and what still needs work. They discuss progress with situational revisiting, rebuilding support, and aspirational goals work. The therapist and patient work collaboratively to plan the last phase of treatment.

The last six sessions of PGDT are used to complete and consolidate treatment gains and discuss thoughts and feelings about treatment termination. The loss component is focused on helping the patient make peace with the finality of the loss and the permanence of grief, understanding what the loss means to the patient, and accepting a changed relationship with the deceased. The restoration component is focused on helping the patient restore a sense of possibility for a life with purpose and meaning, regaining a sense of competence and rebuilding relationships that help them feel like they belong and matter in the world.

The primary loss-focused exercise in the closing sequence is the imaginal conversation with the deceased. This is usually done in session 11, but there is flexibility in the timing, based upon when the patient completes the imaginal revisiting sequence. The procedure for an imaginal conversation is to ask the patient to close their eyes and envision themselves with their deceased loved one shortly after the death. The patient talks to their loved one out loud and then takes the role of the deceased person and answers, also out loud. The patient is asked to imagine that the deceased person can hear and respond, even though of course they cannot. Patients are encouraged to ask or tell their loved ones anything they wish and then to take the other person's role and respond. Most people have some trepidation in doing this, but once they do, they find it a very powerful exercise.

Marcy's Imaginal Conversation

Marcy was hesitant at first but then agreed to do this exercise. She closed her eyes and told Daniel that it was so hard to watch him get so sick and die. She said she couldn't comprehend what was happening and thinks she was not as supportive of him as she should have been because she was focused too much on herself. "It wasn't about me. It must have been so much worse for you." She said that she loved him very much and she hoped he was OK. She is struggling to envision her life without him. She wasn't sure if he really knew how much she loved him. At the therapist suggestion, Marcy took Daniel's role and responded. Her voice changed as she said, "Please don't worry Marcy. I have always known you loved me. I am sorry to be gone but there was no way to change the course of my illness. I was glad you weren't there at the end because I know how hard that would have been for you. I still want more than anything for you to be happy. You know that's what I always wanted. ... I didn't want to die, but it was God's will and I am with God now and I am at peace."

The restoration component is focused on the goals of promoting rewarding activities in everyday life, envisioning an aspirational goal that feels like a true volitional choice that reflects a sense of personal authenticity, and rebuilding support. These activities continue in each session in the closing sequence.

Each of the closing sequence sessions addresses treatment termination. The therapist and patient reflect on the treatment together, highlighting progress in reorganizing the self-concept, making new goals and plans, and envisioning a future with the possibility of happiness. The therapist helps the patient identify his/her ongoing strengths and to see where vulnerabilities might lie as he/she thinks about plans for the future. Thoughts and feelings about ending treatment are elicited. The time allotted for termination discussions increases gradually from session 11 to 15. The termination discussion culminates in session 16 with a review of the PGDT model, personalizing the discussion and highlighting changes that have occurred during treatment.

Marcy's Last Session

Marcy's symptoms were markedly diminished at the end of the treatment. She still felt sad when she talked about Daniel or when she thought about him. She still felt occasional pangs of missing him immensely when she was out with friends. But she was going out regularly with her girlfriends and had several successful dinners with the old friends who were couples. One of them wanted to fix her up with a widower he knew, but she said she didn't know if she was ready for that yet. She told the therapist that dating was probably in her future. For now she wanted to concentrate on starting the viola and on working hard to repay the firm for their acceptance and understanding over the past 5 years. She said she owed them a lot. Marcy smiled as she shook hands with the therapist to say goodbye. "I am so grateful" she said, "You gave me my life back, and more. I feel stronger than I have ever felt. I am not quite sure how it happened, but it feels really good."

15.3 Challenges in Implementing PGDT

Therapist comfort level in working with death and loss can be a challenge in implementing PGDT. Confrontation with thoughts of death activates deeply rooted fears and triggers a response called "terror management" (Pyszczynski et al. 1999).

Implicit terror management occurs when we suppress mortality salience, which makes us more rigid in our thinking, more concerned about being right, and more needy of bolstering our own self-esteem (Florian and Mikulincer 1998; Mikulincer et al. 2003). This can lead to rigid thinking and the need to be right, making it harder to learn new concepts and to work with patients. Clinicians need to monitor their own reactions and find effective ways to regulate their emotional response to death and loss.

Assessment of suicidality is an important component of PGD evaluation, both pretreatment and during therapy. Given the elevated rates of suicidal ideation among clients with PGD, they should always be asked about suicidal thinking and behaviors during a clinical assessment. Those that endorse suicidal thinking should be evaluated for suicide risk, including active suicidal thinking, intent, and plan. Those considered at risk should be managed as in usual clinical practice. Additionally, clients with PGD should be asked about indirect suicidal behaviors such as not taking prescribed medications or other needed medical treatment and/or excessive risk taking. If endorsed, these need to be a treatment target as well.

Sleep disturbance is also common in PGD and clinicians should ask about sleep as a part of a PGD pretreatment assessment. Sleep disturbance might be an appropriate treatment target for PGDT and should be considered in the differential diagnosis of PGD as well as a possible co-occurring disorder.

PGDT sessions are focused and relatively brief so much of the impact of the treatment derives from what the patient does between the sessions. Another challenge of the treatment is that therapists must convince avoidant patients and/or those with survivor guilt to engage with planned activities. Therapists may need to devise creative alternatives for people who are unwilling or unable to do interval work as planned. For example, if the patient resists the idea of doing grief monitoring, the therapist can start by getting him/her to just monitor the average grief levels, or just monitor the highest or lowest, or ask him/her to use fewer numbers or rate the levels as high, medium, or low instead of with numbers. The therapist might get him/her to monitor just 2 or 3 days of the week or only in the mornings.

Another common challenge is patient's fear and resistance in doing revisiting exercises. Patients may try to postpone revisiting by being overly talkative or bringing up unrelated issues requiring the therapist to gently redirect the patient. Sometimes the patient does not want to close his or her eyes. The therapist can gently encourage the patient to try or agree to do the exercise with eyes open, looking down so the patient does not watch the therapist's reaction. The patient may tell a very abbreviated story. The therapist can simply let this happen, record the exercise as usual, and send the recording home with the patient. If the patient listens regularly, he or she will often tell a more extensive version of the story in the next session. Sometimes, patients refuse to do the exercise. In this case, the therapist can try to approximate the experience by having the patient tell the story in a more narrative way or write a more narrative way or write the story. The imaginal revisiting exercise is an important component of the treatment; every effort should be made to do it as close to protocol as possible.

15.4 Our Treatment Research

PGDT, previously known as complicated grief therapy (CGT), was first pilot tested in a study of the 16-week protocol in the late 1990s (Shear et al. 2001). Eligible participants were at least 3 months post loss and scored ≥ 25 on the 19-item Inventory of Complicated Grief (ICG). In addition, participants completed depression and anxiety ratings. Scores on the ICG decreased to less than half the baseline score. Depression and anxiety scores also decreased during the treatment to a level that was clinically and statistically significantly lower than at baseline. The large reduction in PGD symptoms was about twice as great as we had previously observed for IPT in a study targeting bereavement-related depression.

We next obtained funding from the National Institute of Mental Health (NIMH) to conduct a randomized controlled trial comparing IPT to PGDT, each administered over approximately 16 sessions (Shear et al. 2005). This study showed a statistically and clinically significant difference between the treatments. Completion rate was high for both treatments, and the response rate for PGDT completers was twice that for IPT completers. Clinical characteristics and outcomes in African-American study participants showed no differences from Caucasians (Cruz et al. 2007).

Another NIMH-funded randomized controlled trial comparing PGDT to IPT among older adults supported PGDT efficacy with response rate of 70%, which was more than twice that of IPT (Shear et al. 2014). This second study was conducted in a different laboratory using different therapists and a population that was more than a decade older, on average, than in our first study.

Participants in these studies could take psychotropic medication providing they met criteria for being stable on that medication. Those with a comorbid mood or anxiety disorder were about twice as likely to be taking antidepressants as those without co-occurring disorders. A secondary analysis showed that antidepressant medication use was associated with much higher rates of treatment completion for PGDT. This medication effect was not seen for IPT group where completion rates were the same among those taking antidepressants as those not on antidepressants (Simon et al. 2008). Antidepressant medication increased response rates about 20% points for both PGDT and IPT. We concluded that antidepressant medication may augment the beneficial effects of PGDT and applied for funding to examine that.

Subsequently, an NIMH-funded study to evaluate the efficacy of antidepressant medication when administered either with or without PGDT once again supported efficacy of PGDT, but did not show medication benefits in treatment of PGD (Shear et al. 2016). Only for participants with comorbid depressive symptoms and PGD, there was a benefit of adding antidepressant medication to PGDT; it resulted in a significant reduction of depressive symptoms.

A pilot study of 16 individuals who met criteria for substance use disorder (seven alcohol, four cannabis, three cocaine, and three methadone) used an expanded 24-session form of PGDT that included motivational interviewing and emotion coping and communication skills (Zuckoff et al. 2006). Outcome analyses showed a large, clinically significant reduction in ICG scores among both completers and the

intent-to-treat group with large pre- and post-effect size. Percent days abstinent increased significantly for both groups with medium to large effect sizes pre- to posttreatment.

Secondary analyses of our randomized trial addressed comorbidity (Simon et al. 2007), typical beliefs (Skritskaya et al. 2017, 2020), avoidance (Baker et al. 2016), treatment expectancy and alliance (Glickman et al. 2018; Goetter et al. 2018), daily life activities (Monk et al. 2006), sleep and dreams (Germain et al. 2005, 2006, 2013; Szuhany et al. 2020), cognitive functioning (Hall et al. 2014), medical symptoms (Robinaugh et al. 2016), perils dissociation (Bui et al. 2013), grief-related panic attacks (Bui et al. 2015), yearning (Robinaugh et al. 2016), suicidality (Szanto et al. 2006), and suicide-bereavement (Tal et al. 2017; Zisook et al. 2018). Most of the individuals we have treated in each of our studies meet criteria for a current DSM-IV Axis I mood and/or anxiety disorder. For example, in our first large study, participants were about evenly divided among groups having no comorbidity: 1, 2, and 3 or more comorbid disorders. Major depression and posttraumatic stress disorder were the most common comorbidities, each occurring in about half of the study participants.

Clinicians need to be aware of suicidality associated with PGD. A majority of our PGD patients had a wish to die following the death of their loved ones. This was about twice the rate which they had reported experiencing before their loved ones had passed away. A small proportion (less than 10%) of these had actually made a suicide attempt. However, nearly a third had deliberately ignored their own health or safety because of not caring whether they lived or died, and slightly over a quarter thought they wanted to leave life or death to chance by being careless or reckless. Suicidal thinking was associated with PGD/CG after controlling for depression.

Sleep disturbance is not mentioned in the diagnostic criteria for PGD, yet sleep is often disrupted with this condition. PGD participants in our study scored well above the cutoff for clinically significant sleep disturbance on the Pittsburgh Sleep Quality Index (PSQI). Another study showed that treatment response with PGDT, but not IPT, was associated with a marked improvement in PSQI scores (Germain et al. 2006). Lastly, we examined dream reports in our study subjects and found that they differed from previously published normative dream data. Specifically, for our PGD participants, dreams were overpopulated with familiar people but deficient in both positive and negative dream elements. Interestingly, this pattern also differed from previously reported dream patterns observed in both MDD (Barrett and Loeffler 1992) and PTSD (Esposito et al. 1999).

Daily life routines were also measurably different in our study participants compared to previously monitored healthy controls. Participants with PGD were significantly more likely than controls to take an afternoon nap and to have an evening snack or drink. Correspondingly, they were more likely to skip meals and to stay inside all day. They were less likely to engage in work, housework, or to exercise (Monk et al. 2006). These changes suggest more escape-related behaviors and less social interaction, and this may contribute to maintenance and/or severity of PGD symptoms.

Taken together, our studies of prolonged grief disorder and its treatment provide a comprehensive picture of the clinical syndrome of PGD presented by help-seeking individuals who met our criteria for PGD and who signed consent for research participation. Notably, these participants have high rates of comorbidity and substantial functional impairment. We and others have documented high rates of suicidal thinking and behavior as well as marked sleep disturbance and disrupted daily activities. Most of our study participants had previously sought treatment with grief counselors or other mental health professionals without getting relief from their symptoms. We showed that these highly distressed and impaired individuals responded robustly to the brief targeted intervention described in this chapter. Study participants were often effusively grateful, telling us things like “you gave me my life back and more.” In stark contrast, these individuals had only a minimal response to our comparison treatments, which had strong efficacy data for depression. Our results provide clinicians with a clear picture of the clinical syndrome of prolonged grief disorder and a simple, efficacious approach to treating these individuals.

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Innovative Interventions to Improve Global Mental Health

16

Richard A. Bryant

16.1 Introduction

Although the vast majority of research into posttraumatic mental health, including posttraumatic stress disorder (PTSD), emerges from western nations, most of the world's population exposed to trauma and adversity live in non-western countries. People living in low- and middle-income countries (LMICs) are more likely to be exposed to a range of difficult life events and not surprisingly experience higher rates of mental disorders. This chapter reviews the current knowledge about mental health, and particularly posttraumatic mental health, in LMICs. It commences with a review of the prevalence of disorders in LMICs, outlines some of the major risk factors for disorders, and discusses current evidence pertaining to treatment initiatives. The chapter also focuses on the major challenges facing the field of mental health in balancing the need to address mental health problems in LMICs with the ongoing reality that LMICs have limited resources to allocate to mental health programs.

16.2 Mental Health Problems Around the World

One of the oft-neglected issues in the study of posttraumatic mental health is the role of trauma and adversity in people in LMICs. Those living in LMICs and exposed to the humanitarian crises that commonly exist in these countries are more likely to be exposed to trauma, including war, detention, traumatic bereavement, separation from family, and other forms of potentially traumatic events. The effects of these events can be compounded by poverty, overcrowding, and poor general

R. A. Bryant (✉)

School of Psychology, University of New South Wales, Sydney, NSW, Australia

e-mail: r.bryant@unsw.edu.au

health. Exemplifying this issue is that pattern for most of the world's forcibly displaced people to be hosted in LMICs. Refugees are defined as people who have a "fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, and is outside the country of his nationality" (United Nations High Commissioner for Refugees 1951). In addition to refugees, there are many more people who as a result of war and persecution are displaced in their own countries. There are approximately 80 million people forcibly displaced by war and conflict worldwide, with over 26 million formally registered as refugees and many more who are not registered (United Nations High Commissioner for Refugees 2020).

There is considerable evidence that people in LMICs are at greater risk of mental disorders, including anxiety, depression, and posttraumatic stress disorder (PTSD), arguably because of their greater exposure to potentially traumatic events and adversity (Charlson et al. 2019). A similar pattern has been found with systematic reviews concluding that refugees experience higher rates of mental disorders than mainstream populations (Turrini et al. 2017). Higher rates of PTSD have been observed in refugees relative to both non-refugee migrants (Beiser and Hou 2017; Browne et al. 2017) and host populations (Fazel et al. 2005). The extent of PTSD in refugee populations is difficult to pinpoint because rates of PTSD vary widely across studies; one meta-analysis reported rates of PTSD among war-affected populations from 0% to 99%, with a weighted prevalence rate across studies of 31% (Steel et al. 2009); this rate is comparable to a more recent meta-analysis (Blackmore et al. 2020). Other systematic review of studies have also noted a wide range of prevalence rates, such as between 4.4% and 86% (Bogic et al. 2015). In terms of Syrian refugees, who represent the single largest refugee group and who have been exposed to considerable trauma as a result of the ongoing war (United Nations High Commissioner for Refugees 2019), one meta-analysis found a prevalence rate of 43% of PTSD in Syrians who have re-settled in other countries (Peconga and Høgh Thøgersen 2020).

In summary, it appears that refugees and those in LMICs are more vulnerable to psychological disorders; however, methodological issues confound the extent of this greater relative risk. Non-random sampling, small sample sizes, and self-report measures are associated with higher rates of PTSD (Bogic et al. 2015; Steel et al. 2009), and it has been reported that methodological factors can account for 12.9% of the variance of PTSD prevalence (Steel et al. 2009).

16.3 Mental Health in Children

A key challenge in global mental health is the psychological well-being of children. Highlighting this issue is the observation that more than half of refugees in the world today are children or youth (United Nations High Commissioner for Refugees 2020). At least one-half of the world's refugees are under the age of 18 years (United Nations High Commissioner for Refugees 2020). There are many studies demonstrating that refugee youth experience elevated rates of psychological distress

(Bronstein and Montgomery 2011; Reed et al. 2012; Tol et al. 2013). Many reports indicate that refugee youth experience high rates of psychological distress (Bronstein and Montgomery 2011). Systematic reviews indicate that refugee children have elevated rates of PTSD (11%) (Fazel et al. 2005), even though the rates of disorder for children appear to be less than what is often observed in adults (Porter and Haslam 2005). As is expected, the rates of mental disorders in refugee children do appear to vary depending on the setting. One study found that 75% of displaced youth in Darfur displayed PTSD and 38% had depression (Morgos et al. 2007). Rates of psychological distress have been noted in approximately 50% of unaccompanied adolescent refugees (Bean et al. 2007). Studies have reported rates of depression and PTSD symptoms in Syrian children were between 44% and 45% (Rogers-Sirin and Sirin 2015), and almost 50% displayed clinical anxiety (Cartwright et al. 2015). In contrast, another population-based study of refugees' children (most of whom had not been directly exposed to direct trauma) reported better mental health than their community counterparts (Lau et al. 2018).

Although many refugee children may not be directly impacted by trauma to the extent that their parents or caregivers are, their mental health can nonetheless be affected by their parents' mental state (Ajdukovic and Ajdukovic 1993; Montgomery and Foldspang 2006; Rousseau et al. 1998). It appears this association is partly attributed to the impact of refugees' mental health on their parenting behavior, which in turn affects the psychological well-being of their children (Bryant et al. 2018, 2020; Hinton et al. 2009; Thabet et al. 2009). One population-based study found that refugees' PTSD severity was associated with harsh parenting, which was in turn associated with worse psychological problems in their children (Bryant et al. 2018). Another report from the same population-based study found that the level of prolonged grief in refugees impacted on parenting, which in turn was associated with poor emotional functioning in children (Bryant et al. 2020). It is apparent from convergent evidence that the mental health of refugees is an important factor in their children's psychological well-being, and this may occur via the influences on parenting practices. This observation has led to the possibility of improving the mental health of youth in LMICs by addressing the mental disorders of their parents or caregivers (Miller et al. 2020; Panter-Brick et al. 2014). This opportunity is supported by meta-analytic evidence that psychotherapy for depressed mothers has beneficial effects of their children's mental health (Cuijpers et al. 2015).

16.4 The Nature of Posttraumatic Mental Health in Humanitarian Crises

Although PTSD is the most studied psychiatric condition in LMICs for those affected by trauma and adversity, it is important to note that these conditions can lead to other mental health problems. For example, there is evidence that refugees are at higher rates of depression (Blackmore et al. 2020; Bogic et al. 2015; Steel et al. 2009), with one meta-analysis finding that good quality studies observe rates of depression 14 times higher than mainstream populations (Bogic et al. 2015). The

World Mental Health Survey also noted a rate of depression of 31.5% in refugees, which was much higher than the 12% in the general population (Kessler et al. 2009). Other conditions have been studied less thoroughly, although there is evidence from a meta-analytic study that the lifetime prevalence of anxiety disorders at 11% is higher in refugees than community rates (Blackmore et al. 2020).

One condition that has received some focused attention recently is prolonged grief disorder, which was recognized as a new diagnostic construct in ICD-11 and has been recently recognized in DSM-5 TR. This disorder describes persistent yearning for the deceased, along with associated emotional pain, difficulty in accepting the death, a sense of meaninglessness, bitterness about the death, and difficulty in engaging in new activities (World Health Organization 2018). Prolonged grief disorder was noted in ICD-11 because there is considerable evidence that it causes marked mental, social, and physical impairment (Prigerson et al. 2021; Shear 2015) and is reported in approximately 7% of bereaved people (Maciejewski et al. 2016). This disorder is relevant to refugees and people in humanitarian crises because of the frequent bereavements, especially traumatic bereavements, experienced by refugees (Tay et al. 2016). Rates of prolonged grief in refugees have varied between 8% and 54% (Craig et al. 2008; Schaal et al. 2010), although most of these studies were in small or non-representative studies. One population-based study of re-settled refugees in Australia found that 15% of bereaved refugees experienced prolonged grief disorder (Bryant et al. 2019), which is double the rate reported in the general population of bereaved people (Lundorff et al. 2017). Another study that employed consecutive sampling of refugees in a refugee camp for Syrian refugees found that 15% of bereaved refugees met criteria for prolonged grief disorder (Bryant et al. 2021).

The other presentation that has been reported in recent years in refugees has been Complex PTSD. This diagnosis describes complicated PTSD reactions that in addition to the PTSD symptoms also involve problems around “self-organization,” which comprise disturbances in affective regulation, social relationships, and self-concept (World Health Organization 2018). Although this condition was initially described as a condition most commonly seen in the wake of prolonged childhood trauma (Brewin et al. 2017), researchers have also studied these symptom presentations in refugee populations. The distinct factor structure of PTSD and complex PTSD symptoms has been noted in multiple refugee studies (Hyland et al. 2018; Nickerson et al. 2016; Palic et al. 2016) and has been attributed to the cumulative effects of torture and ongoing interpersonal trauma sustained by affected refugees.

16.5 Risk Factors

Considerable research has focused on the factors that contribute to mental health problems in people affected by humanitarian crises, war, and refugee experiences. Taken together, this research indicates that a major predictor of psychological problems in these contexts is the cumulative exposure to traumatic events, including war, interpersonal violence, sexual abuse, torture, and traumatic bereavement (Lerner

et al. 2016; Steel et al. 2009). This is to be expected because many LMICs are vulnerable to humanitarian crises and civil conflict, which contributes to higher rates of mental disorders (Charlson et al. 2019). This conclusion is reinforced by meta-analytic evidence that war trauma is one of the strongest independent predictors of refugees' mental health problems (Bogic et al. 2015). Similar patterns have been observed in relation to children, such that exposure to traumatic events leads to great incidence of mental disorders (Ahmad et al. 2000; Morgos et al. 2007).

A distinct experience of many people in humanitarian crises, including refugees, is being detained in camps that can operate similarly to prisons or other secure facilities. Being detained in camps can involve a range of adverse experiences, including violence, restricted movement, limited social interaction, restricted communication to family and others beyond the camp, overcrowding, and limited access to healthcare (Farhat et al. 2018; Roberts and Browne 2011; Wells et al. 2016). Camps also vary in the protections and services they provide, which is highly relevant because perceiving that basic safety is not provided is associated with marked psychological distress (Rasmussen et al. 2010).

It is also important to note that from a global mental health perspective, the factors that impact people's mental health can be influential even after they have left settings in which there is marked threat. For example, much evidence exists that stressors that refugees experience in their host countries can impact on their mental health. Refugees can experience adversity in the form of poverty, unemployment, inadequate housing, discrimination, poor access to health care, language barriers, and the ongoing possibility of being returned to their unsafe home country (Catani 2018). Many refugees are detained in camps for prolonged periods in host countries, and this environment can elicit significant psychological distress (Keller et al. 2003; Steel et al. 2006; von Werthern et al. 2018). Even those who are settled in community settings may also lack fundamental protections and entitlements afforded to the people in formal camp settings (Stark et al. 2015). Many of these people may not have access to government or private health services and so do not receive care for physical or mental health problems (Rizkalla et al. 2020). The tendency for many re-settled people to live in conditions of poverty and poor housing can also lead to more risk of trauma exposure, including interpersonal violence (Logie et al. 2019). Many refugees are also placed on temporary visas rather than being granted permanent refugee status; this results in ongoing fear of being returned to a country where they may be persecuted, which understandably leads to worse mental health (Knipscheer et al. 2015; Morgan et al. 2017; Nickerson et al. 2011).

16.6 Mechanisms of Global Mental Health

16.6.1 Role of Appraisals

Whereas much research has been conducted in western populations on the mechanisms of PTSD, there is much less known about the processes that underpin PTSD in people from LMICs. For example, one of the prevailing schools of thought

regarding PTSD is built on cognitive models that emphasize that the development of PTSD relies heavily on maladaptive appraisals of the trauma and related events, as well as how people process the traumatic experience into one's autobiographical memory (Ehlers and Clark 2000). Supporting these models is overwhelming evidence that maladaptive appraisals of the traumatic experience are associated with PTSD (Dunmore et al. 1997) and that such appraisals shortly after trauma exposure are highly predictive of subsequent PTSD (Ehlers et al. 1998).

Some research has been conducted with appraisals in refugees, noting that maladaptive appraisals are associated with worse PTSD symptoms (Basoglu et al. 2007, 2005; Hinton et al. 2002, 2006). A common appraisal often recognized in refugees is the tendency to perceive that they lack control over their environments and have diminished self-efficacy in managing their futures. Several studies have noted that the perception of control over one's prior trauma experiences and also one's current situation impacts refugees' mental health (Basoglu et al. 2007; Holtz 1998; Le et al. 2018; Silove et al. 2002; Sulaiman-Hill and Thompson 2013). The role of self-efficacy in refugee adjustment has been further supported by experimental evidence in which a positive self-efficacy induction administered to refugees resulted in reduced distress and negative affect, improved coping and greater persistence in a frustrating task compared to a non-self-efficacy induction (Morina et al. 2018). Further, a study that tested the effectiveness of a self-efficacy-focused intervention with refugees found that this treatment resulted in both increased generalized self-efficacy and decreased psychological symptoms (van Heemstra et al. 2019).

16.6.2 Moral Injury

One form of appraisal that is worth highlighting in the context of humanitarian crises is the construct of moral injury. Moral injury has been defined as "the lasting psychological, biological, spiritual, behavioral, and social impact of perpetrating, failing to prevent, or bearing witness to acts that transgress deeply held moral beliefs and expectations" (Litz et al. 2009, p. 697). This construct has been given much attention in recent years in the context of military psychiatry because of the nature of events that occurred in recent wars, where many personnel reported being involved in potentially morally injurious events such as killing others, seeing women and children killed or injured, being unable to protect others, or inadvertently harming innocent people (Hoge et al. 2004). The presence of moral injury can have significant mental health impacts because it has been associated with a range of psychiatric disorders (Griffin et al. 2019) and increased risk of suicide (Wisco et al. 2017). Studies have distinguished between moral injury appraisals about how one transgressed their own moral code as compared to appraisals in which the moral transgression was performed by another person (Currier et al. 2018; Jordan et al. 2017; Nash and Litz 2013).

The problem of moral injury has received some attention in the study of refugees because many refugees are exposed to situations that challenge their moral outlook. A proportion of refugees are subjected to moral transgressions such as witnessing

murder of loved ones, being subjected to sexual assault, or having to violate one's religious code (Mollica et al. 1992), providing information during torture (Silove et al. 1991) or being unable to protect loved ones from harm (Kuong 1988). In terms of moral injury in refugees, studies indicate that moral injury appraisals about self and others are linked to both degree of trauma exposure and post-migration living difficulties (Hoffman et al. 2018, 2019; Nickerson et al. 2015, 2018). Interestingly, moral injury related to others' acts are associated with greater PTSD symptoms (and particularly fear-based symptoms), as well as depression and anger (Hoffman et al. 2018), whereas moral injury about one's own actions are also associated with greater depression and anger, but not with avoidance, negative alterations in cognition and mood nor hyperarousal. Although our knowledge about moral injury in refugees is limited at this point, the initial evidence points to the possibility that different types of moral injury may be associated with different psychological problems.

16.6.3 Information Processing

Central to cognitive models of PTSD is how people process the traumatic experience and how it is encoded into one's autobiographical memory (Ehlers and Clark 2000). Moreover, in the posttraumatic period, how people encode subsequent information is pivotal in terms of how they adapt to the trauma and also to managing ongoing stressors. This is an important issue, albeit an often neglected one, for global mental health because there is increasing evidence that people from different cultural backgrounds can process information differently. Many people in LMICs possess a world outlook that can be described as having a collectivist worldview, which contrasts with the individualistic perspective adopted in many developed nations. The manner in which a person construes their self-image and that of their world can vary along an independent (individualistic) to interdependent (collectivistic) spectrum (Oyserman 2011; Oyserman et al. 2002). An individualistic self-construal prioritizes independence, personal achievement, and autonomy, favors analytical thinking, and is often (although not always) characteristic of Western-based cultural groups (e.g., U.S.; Han et al. 2013). In contrast, collectivistic cultures value social harmony and interdependence, and often employ a holistic cognitive style (Han et al. 2013; Masuda and Nisbett 2001).

Research indicates that these self-construal differences can shape perceptual, attentional, and memory systems (Han et al. 2013; Kitayama and Uskul 2011). For example, during encoding of information individualistic people are biased toward focal objects, whereas collectivistic participants are more influenced by the background information (Masuda and Nisbett 2001; Rayner et al. 2007). This tendency is very relevant to global mental health because the greater attention to context in collectivistic groups can impact how people manage information, emotions, and memories, which is pivotal to models of PTSD (Chua et al. 2005; Kafetsios and Hess 2015; Masuda et al. 2008). Highlighting this issue is evidence that worldview impacts on retrieval of trauma memories in PTSD, whereby tendencies toward self

or other-focused recall impact on the quantity of subsequent intrusive memories (Jobson and Dalgleish 2014). Despite the strong evidence of how people from different cultures process information distinctly, there is little research on how these differences underpin response to trauma; this is clearly an important avenue for future research.

16.7 Treating Mental Health Conditions in Low- and Middle-Income Countries

This chapter has highlighted the greater risk of exposure to traumatic events and associated mental health problems associated with living in humanitarian crisis settings, as well as the problems that persist for people even after they leave these environments. Despite this obvious greater need for mental health services in these settings, there is a relative dearth of appropriate services to meet the mental health needs in most of these countries. This trend has been documented in numerous studies, indicating that people in LMICs, which are more prone to be affected by war, natural disaster, and humanitarian crisis, are less likely to access health services for assistance with mental disorders (Barbui and Tansella 2013). This problem was highlighted in the 2018 Lancet Commission on Global Mental Health and Sustainable Development, which called for a broader approach to mental health in LMICs to reduce mental disorders in these countries (Patel et al. 2018).

There is in fact considerable evidence that frontline treatments for posttraumatic mental health conditions can be efficacious in these settings. For example, one meta-analysis concluded that there was moderate quality evidence for reducing symptoms of PTSD, depression, and anxiety in refugees and asylum-seekers (Turrini et al. 2019). This is a conclusion generally supported by other meta-analyses of treatments of refugees (Morina et al. 2017a; Nose et al. 2017; Thompson et al. 2018; Tribe et al. 2019). Interestingly, some reports have suggested that different types of psychotherapy may function in LMICs as compared to “western” settings. One review found that there was less support for eye movement desensitization and reprocessing (EMDR) than trauma-focused CBT (Turrini et al. 2019), although this latter finding may be a function of fewer robust studies of EMDR with refugees and humanitarian crisis populations. The strong potential for frontline evidence-based psychotherapies that have been trialed primarily in mainstream western populations in humanitarian crisis contexts is underscored by meta-analytic evidence that the number of refugees needed to treat for psychological interventions to benefit one refugee was between two and three, which is comparable to efficacy in most trauma-exposed populations (Turrini et al. 2019).

There is much less evidence about how effective psychological interventions are for youth relative to what is known about treating adults. Meta-analyses indicate that trauma-focused psychotherapies are effective in mainstream populations for youth with PTSD (Cohen et al. 2009), and there is also evidence that these same strategies can be effective in refugee and conflict-affected youth (Brown et al. 2017; Morina et al. 2017b; Nose et al. 2017). One meta-analysis of psychological

treatments for youth in LMICs found that psychological treatments achieved a moderate effect size ($g = 0.62$) for anxiety, depression, and PTSD (Uppendahl et al. 2020). Another major review that analyzed individual participant data of more than 3000 youth exposed to traumatic events in the context of humanitarian crises concluded that trauma-focused psychotherapy yields significant benefits for youth in these settings (Purgato et al. 2018).

In the context of LMICs, much emphasis has been placed on school-based programs to address mental health issues because it is a setting which most youth have access to and it provides local agencies with the capacity to systematically monitor the mental health needs of youth (Masia-Warner et al. 2006). In terms of youth being re-settled in a new country, schools are also one of the most important acculturation contexts for youth in a new host country, and so mental health programs can augment this process (Birman et al. 2007). Although there is considerable variability in the effectiveness of school-based interventions, one systematic review demonstrates that these programs can reduce youth mental health problems (Tyrer and Fazel 2014). It is noteworthy that this review found that the efficacy of school-based programs is strongest when the program involves some form of verbal processing of trauma memories of adverse experiences.

In discussing psychological treatments in global mental health contexts, it is worth noting narrative exposure therapy (NET) as one variant of trauma-focused CBT that has been applied to refugees. NET was adapted from prolonged exposure therapy to address the needs of refugees, and builds on testimony psychotherapy, which documents the experiences of survivors of war and trauma and finds appropriate ways to share these with others (Bichescu et al. 2007). NET strives to foster both emotional processing of trauma memories and also enhancing understanding of one's life story in the context of both negative and positive experiences (Schauer et al. 2005). This therapy is suitable for refugees and others in humanitarian crisis settings because it can accommodate the multitude of traumatic events that many of these people experience by having them relive targeted traumatic memories as part of their life narrative, which allows them to contextualize these memories with other positive events. On the basis of a number of positive trials of NET (Ertl et al. 2011; Neuner et al. 2008b, 2004; Schaal et al. 2009), reviews have concluded that NET is an efficacious treatment for PTSD in refugees (Crumlish and O'Rourke 2010; Lambert and Alhassoon 2015; Nose et al. 2017). In terms of treating PTSD in youth, NET has been adapted for youth in the form of KIDNET (Neuner et al. 2008a), and there is good evidence that this is effective in reducing PTSD in youth in LMICs (Neuner et al. 2008a; Robjant and Fazel 2010; Ruf et al. 2010).

16.8 The Development of Task-Shifting Paradigms

Although frontline treatments of PTSD have been shown to be effective in LMICs, they are rarely implemented. The literature reflects a solid body of research of well-funded controlled trials that demonstrate that these programs can reduce PTSD, anxiety, and depression; however, these finite trials rarely lead to change in how

mental health delivery is conducted in the settings in which the trials are conducted. There are a range of obstacles that can impede broader implementation of these programs in settings of humanitarian crises. First, most established frontline treatments presume that the provider is a mental health specialist. In high-income countries, there is usually a prerequisite that considerable qualifications and training has been received prior to being able to deliver these interventions. In most LMICs, there is a significant lack of appropriately trained mental health specialists who can deliver most existing programs (Tol et al. 2012). Second, most evidence-based treatment programs tend to only target a single diagnostic outcome, such as PTSD (Neuner et al. 2008b), neglecting other key problems such as anxiety, depression, or substance abuse. This is a major hindrance in LMICs because in the context of too few mental health specialists, the use of multiple protocols requires providers to be trained in differential diagnoses of disorders which incurs further expense on limited health resources. Third, most interventions are generally resource intensive (Bolton et al. 2007), involving more than ten sessions. This can be problematic in poorly resourced setting because it is costly for health services with limited resources. It is also demanding on those who receive the intervention. In many LMICs, lengthy treatment programs can result in poor treatment attendance because of competing demands to find work or challenges in transport to the treatment.

As a result of the treatment gap in LMICs, there has been a move toward “task-shifting” programs that train lay providers to deliver simple mental health programs to increase the workforce capacity to implement mental health programs (Hoeft et al. 2018). This approach typically offers non-specialists in the local country brief training (usually less than 1 week) in a mental health program and may offer supervisory support as they upskill their delivery of the program. In the context of LMICs, this approach has been used widely in the context of managing depression and anxiety which occur commonly in these settings (Dias et al. 2008; Patel et al. 2017). A recent meta-analysis of task-shifting programs indicated they yielded a moderate effect size in reducing psychological distress (Singla et al. 2017). This task-shifting approach has also been successfully used in a number of trials using NET to treat PTSD (Catani et al. 2009; Ertl et al. 2011).

16.9 Transdiagnostic Treatments

The challenge for global mental health to address the array of psychological conditions people may experience in LMICs has motivated uptake of transdiagnostic interventions. This initiative parallels developments in mainstream mental health delivery that have also recognized the merits of providing transdiagnostic interventions. There has been increasing recognition that there are common elements across disorders and that these can be successfully targeted in treatment programs that focus on the common problems evidence across disorders. Exemplifying this approach has been the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (UP) (Farchione et al. 2012), which places considerable emphasis on evidence that common mental disorders involve tendencies toward increased emotional

reactivity, appraising these emotional experiences as aversive, and habitual tendencies to avoid or control emotional responses (Brown et al. 1998). Importantly, there is increasing evidence that this approach is effective in treating a range of anxiety and depressive disorders (Barlow et al. 2017).

Arguably the treatment approach that most approximates the transdiagnostic approach in the context of global mental health is the Common Elements Treatment Approach (CETA); this program employs a flexible, modular framework that is intended to be delivered by non-specialists after relatively brief training (Murray et al. 2014). CETA recognizes that many people adversely affected by humanitarian crises may not benefit from a disorder-specific treatment because they often present with comorbid psychological problems. CETA is often delivered over 8–12 1-h sessions and comprises psychoeducation, anxiety management, behavioral activation, cognitive restructuring, imaginal exposure to trauma memories, in vivo exposure, safety planning for those at risk, and alcohol abuse management. One key element of CETA is that it commences with an assessment of the person's needs to determine which components of CETA would benefit a person the most. The CETA assessment obtains information from the person's responses on culturally adapted assessment measures, observation of the person's behavior, and discussion with local supervisors regarding the person's needs. CETA training involves 2 weeks of structured training and supervision in the assessment and counseling methods that includes role-plays and substantive practice (Murray et al. 2011). CETA has been tested in several trials with people affected by war, conflict, and humanitarian crisis and has been shown to be effective in LMICs in reducing PTSD, depression, and anxiety (Bass et al. 2013; Bolton et al. 2014).

One limitation of the CETA program is its length, and in this sense, it does not adequately address the need for delivery of brief interventions that can be implemented in poorly resourced settings. In line with its Mental Health Gap Action Programme, the World Health Organization (WHO) has addressed this issue by developing a series of brief mental health programs intended to address the mental health problems in people affected by adversity and trauma. Central to this initiative was the priority placed on developing effective programs that can be delivered in an affordable manner in under-resourced settings, and consistent with this approach, they are developed to be delivered by trained lay providers.

The first of these programs developed by the WHO was a brief program based on behavioral principles, titled Problem Management Plus (PM+; World Health Organization 2016). This is a five-session program that adopts a transdiagnostic approach to reduce common mental disorders by teaching skills in arousal reduction, problem solving, behavioral activation, and accessing social support (Dawson et al. 2015). This program emphasized problem management and behavioral strategies, rather than cognitive approaches, because they may be readily trained and are amenable to low-intensity delivery (Barlow et al. 2004; Bennett-Levy and Farrand 2010). The strategies were chosen as key to assisting people in LMICs following adversity for the following reasons. Stress management is an effective strategy in the treatment of PTSD and depression (although less effective than high-intensity intervention strategies, such as trauma-focused CBT) (Bisson and Andrew 2007;

Dua et al. 2011). Problem management intends to promote a sense of control over one's problems and learning basic strategies for prioritizing how to manage problems; this approach has been shown to be effective in high-income contexts (Cuijpers et al. 2007a). Behavioral activation aims to increase exposure to positive experiences, which reduces the inertia and anhedonia that is common in depression, and has been shown across trials to be effective in reducing depressed mood (Cuijpers et al. 2007b). Fostering skills in accessing social support is included because of evidence that social support is a buffer against stressful events (Zalta et al. 2021).

PM+ has now been evaluated across a series of controlled trials in trauma-exposed populations. One trial evaluated PM+ in Pakistan in a region highly affected by civil conflict and natural disaster. PM+ delivered by lay providers was compared against treatment as usual, and at 3 months after the program, people receiving PM+ had greater reductions in anxiety, depression, PTSD, and disability (Rahman et al. 2016). A subsequent trial evaluated PM+ with women in Kenya who were exposed to gender-based violence, and this trial found that PM+ also led to greater reduction in psychological distress at 3 months relative to usual care (Bryant et al. 2017). Whereas these two trials administered PM+ on an individual basis, greater implementation capacity in LMICs may be achieved if programs can be delivered on a group basis. To this end, one trial in Pakistan delivered PM+ in small groups of eight to ten people, and this also found that the intervention effectively reduced levels of depression, anxiety, and PTSD (Rahman et al. 2019). As a result of these multiple trials, PM+ is now being widely disseminated by the WHO, and further trials are underway with refugees and other groups in humanitarian crisis settings around the world (Akhtar et al. 2020; de Graaff et al. 2020).

In the search for even more scalable interventions than small group PM+, the WHO program also developed a program that could be delivered to large groups of people (20–30 per group) with the assistance of an audio-book and illustration-based self-help manual. This program, called Self-Help Plus (SH+) is also delivered by lay providers and intends to promote psychological flexibility through a series of activities that build on mindfulness strategies (Epping-Jordan et al. 2016). The theoretical roots of this intervention can be traced to Acceptance and Commitment Therapy, which emphasizes mindful practices and personal values to help promote psychological flexibility (Hayes et al. 2011). To date, this has been evaluated in one large trial with South Sudanese refugees in Uganda, and this study showed that SH+ achieved a small effect relative to usual care in reducing psychological distress (Tol et al. 2020). It is worth noting that although this trial indicated that SH+ achieved only a modest effect (ranging from 0.2 to 0.6 on the outcome measures), this needs to be balanced against the public health benefits of being able to deliver the program at minimal cost to many people because of the large group format.

Less research has been conducted in adapting this transdiagnostic approach in children in LMICs. The WHO has recently developed a program (Early Adolescent Skills in Emotions; EASE) that aims to promote emotion regulation skills in young adolescents, and in this sense focuses on internalizing problems (Dawson et al.

2019). This program is now being evaluated in controlled trials in multiple countries with young adolescents exposed to trauma and adversity (Brown et al. 2019). Systematic reviews indicate that overall we know much less about how best to meet the mental health needs of trauma-exposed youth in LMICs than we currently know about adults (Uppendahl et al. 2020). One individual participant data meta-analysis showed effectiveness of psychosocial interventions for some outcomes, but the strengths of these effects were reduced in younger samples (Purgato et al. 2018). Considering the large number of children in LMICs who are affected by trauma, this is clearly a priority for future research.

16.10 Challenges for Global Mental Health

16.10.1 Recognizing the Importance of Culture

One of the constant challenges in addressing posttraumatic mental health in LMICs is ensuring that understandings, assessment tools, and interventions are compatible with cultural values of the people affected. Too often mental health programs in LMICs have involved adopting programs developed in western settings, and presuming that they will be appropriate in any cultural context. This approach has been correctly criticized for neglecting the cultural variability that exists around the world (McFarlane and Kaplan 2012; Nicholl and Thompson 2004). This has led to calls for any mental health intervention in distinct cultural setting to strive to adapt to the local values, understandings, and ways of responding to stress (Bernal et al. 2009). Most attempts to achieve cultural adaptations focus on (a) language, (b) therapeutic relationship, (c) metaphors, (d) content of intervention, (e) concept of illness, (f) treatment goals, (g) delivering methods, and (h) context (Bernal and Saez-Santiago 2006; Domenech Rodríguez and Bernal 2012). The value of this approach is underscored by evidence that psychological interventions that are culturally adapted may be more effective than those that are not (e.g., Harper Shehadeh et al. 2016). One meta-analysis found a medium effect size (Hedge's $g = 0.52$) for the direct comparison between culturally adapted and non-adapted versions of the same intervention (Hall et al. 2016).

Fundamental to the issue of cultural adaptation is understanding a particular culture's conceptualizations of mental health (Summerfield 1999). One review used a data-driven approach and found that most studies that attempt cultural adaptations tend to modify peripheral aspects (e.g., language) but do not address core issues of how a local culture understands mental health (Chu and Leino 2017). The importance of striving to accommodate local understandings of mental health is underscored by a systematic review of cultural concepts of distress which found that these concepts (which may include spiritual or physiological meanings) are strongly distinguished from western psychiatric diagnoses (Kohrt et al. 2014; Shala et al. 2020).

16.10.2 Treatment Non-response

Although trauma-focused CBT programs are the frontline treatment for PTSD, there is convergent evidence that between one-third and one-half of patients do not benefit from this therapy and experience ongoing symptoms (Bradley et al. 2005; Loerinc et al. 2015). Comparable patterns are observed in interventions for scalable interventions that have been trialed in LMICs. Perusing the trials that have been conducted on most interventions with people affected by trauma indicate that a significant proportion of those provided with the intervention have persistent problems after the program. For example, 39% of participants who received the Self-Help Plus program in a trial in Uganda did not respond to the program (Tol et al. 2020). This represents a challenge for global mental health because these governments and agencies need to consider how to address the significant mental health problems that are often resistant to brief interventions in the context of limited health resources that may preclude offering intensive and resource-demanding treatments.

An opportunity to address this ongoing problem is by stepped care models in which people with any level of distress can be offered a brief, transdiagnostic psychological intervention that can be delivered by lay providers to large numbers of people at minimal cost, such as with SH+ or PM+. If a person does not respond to this intervention, they could then be given more intensive programs administered by health providers with more experience or qualifications. This would allow limited specialist mental health resources to be reserved for people with more severe post-traumatic mental health problems. Another way to implement stepped care is by conducting a triage service after determining a person's need, providing brief transdiagnostic programs to people with moderate distress, and assigning people with more severe disorders to special services. Although stepped care frameworks have been used in LMICs to address the need for allocating more specialist services to those with more severe psychological conditions (Araya et al. 2003; Patel et al. 2010), the effectiveness and cost-effectiveness of this approach relative to single programs have yet to be properly evaluated.

16.10.3 The Need for Economic Benefits

As noted earlier, very few frontline treatments for PTSD that have been shown to be efficacious in controlled trials in LMICs have actually been scaled up and implemented in the settings in which the trials were conducted. The major reason for this is that trials have not adequately demonstrated to local health authorities that there are economic benefits for these interventions. The WHO's World Mental Health Atlas 2014 survey indicated that whereas high-income countries spend on average more than \$US50 per person on the management of mental health disorders, LMICs average less than \$US2 per person (WHO 2015). In a major study of cost benefits of meeting the mental health needs of people across 36 countries, one analysis found that the potential gains made by mental health interventions could lead to

43 million years of extra healthy life, resulting in an economic benefit of \$US310 billion (Chisholm et al. 2016). Moreover, this analysis found that worldwide benefit to cost ratios were 2.3–3.0 to 1 when economic benefits were considered, and this increased to 3.3–5.7 to 1 when value of health returns were additionally considered. The annual costs of scaling up treatments were low for depression in both low-income (estimated at \$US0.08 per person) and middle-income countries (estimated at \$US0.34 per person), and much less for anxiety. There is a need to consider these factors in relation to posttraumatic mental health in order to convince governments in LMICs that it is economically beneficial for them to embark on mental health initiatives.

16.11 Concluding Comment

In conclusion, the susceptibility of people living in LMICs to exposure to traumatic events, and the associated greater risk for developing posttraumatic mental health problems, underscores the enormous need for attention to how these conditions are managed. The great challenge for governments and agencies in LMICs is how to deliver effective mental health programs with limited resources, scarcity of properly trained mental health specialists, and health systems that often do not prioritize mental health. To advance the agenda of delivering more effective mental health programs in ways that are affordable and sustainable in LMICs, it will be important to identify key mechanisms that can promote adaptation following trauma because this will open up opportunities to deliver interventions that address key processes underpinning mental health problems in simple and scalable formats. In doing so, it is imperative that the central role of local cultural values are recognized and integrated with these central mechanisms. Finally, it needs to be emphasized that for any mental health programs to be successful in LMICs, there is a need for much better cost-effectiveness studies to ensure that these programs can be economically appealing to governments with limited resources.

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Part IV

Treating Comorbidities



Trauma and Addiction: A Clinician's Guide to Treatment

17

Lisa M. Najavits

This chapter focuses on the link between trauma and addiction, emphasizing that it is not simply about applying treatments for each but rather understanding how each impacts the other; as well as how to engage in successful strategies without worsening the other. The chapter lists all behavioral therapy models that have at least one randomized controlled trial in a sample with current PTSD (full or subthreshold) and current SUD, which is the most commonly studied addiction. Recommendations for practice and a case study are offered,

17.1 Introduction

In the past decade, trauma and addiction have become prominent topics in the treatment field and, more broadly, in the culture at large. They are in the news daily and impact untold numbers of people. Moreover, the connection between trauma and addiction has also become much more widely understood than in earlier eras.

This chapter focuses on PTSD (the psychiatric disorder most associated with trauma) and substance use disorder (the most studied addiction, in contrast to other addictions such as gambling disorder).

The comorbidity signifies a more difficult course of recovery and greater impairment than either disorder alone (Najavits et al. 2017; Ouimette and Read 2013). The presence of SUD also impacts how PTSD is addressed in treatment. The whole is not the sum of its parts—addressing PTSD/SUD is not simply about applying

L. M. Najavits (✉)
University of Massachusetts Medical School, Worcester, MA, USA
Treatment Innovations, Newton Centre, MA, USA
e-mail: director@treatment-innovations.org

treatments for each but requires conceptualization of how each disorder affects the other and how to engage in successful strategies to address each without worsening the other. It is like a seesaw that needs careful balancing to prevent tipping too far to one side.

Too often, either the SUD or the PTSD is not addressed by clinicians. Patients still frequently hear messages from earlier eras:

- “Get your addiction under control and then we can address the PTSD.”
- “You must go to Alcoholics Anonymous.”
- “Your trauma is the root issue—if we just get to that, your substance use will decrease too.”
- “If you don’t stop using substances, I will not treat you.”
- “Your substance use means you are avoiding your PTSD.”
- “You need to hit bottom.”

As will be explored in this chapter, these old messages are generally not helpful to PTSD/SUD patients and can impede recovery. Splits between PTSD and SUD treatment are well known, and most clinicians never receive formal training in both. Patients have often been left to try to integrate what our field has not. Although PTSD and SUD may be viewed separately, they are strongly intertwined in the day-to-day experience of patients’ lives.

This chapter offers a brief summary of models for PTSD/SUD, key findings from outcome research, practice principles, and future directions.

17.2 Various Models

Various models have been developed specifically for PTSD/SUD or studied in that population. This represents an important recognition that the comorbidity presents unique challenges that need clinical attention.

The list below represents all behavioral therapy models that have at least one randomized controlled trial (RCT) in a sample with current PTSD (full or sub-threshold) and current SUD. Due to space limits, it is not possible to describe each model nor list all research citations pertaining to them, but they are described in Najavits et al. (2020), which is the source of this list. Some models are integrated (they address PTSD and SUD at the same time by the same clinician), which are identified with an asterisk; others were designed for just one of the disorders.

Models With a Published Treatment Manual

Models are listed in order of the manuals’ publication date:

- *Relapse Prevention* (Marlatt and Gordon 1985)
- *Eye Movement Desensitization and Reprocessing Therapy* (Shapiro 1995)
- *Prolonged Exposure* (Foa and Rothbaum 1998)

- *BRENDA* (Volpicelli et al. 2001) where the acronym refers to Biopsychosocial evaluation, Report to the patient on assessment, Empathic understanding of the patient's situation, Needs collaboratively identified by the patient and treatment provider, Direct advice to the patient on how to meet those needs, and Assess reaction of the patient to advice and adjust as necessary for best care.
- **Seeking Safety* (Najavits 2002)
- **Concurrent Treatment of PTSD and Substance Use Disorders using Prolonged Exposure (COPE)* (Back et al. 2015)
- **Creating Change* (Najavits, in press)

Models Without a Published Treatment Manual

Models without a published treatment manual (listed in order of first RCT citation for the model):

- **Integrated Cognitive Behavioral Therapy* (McGovern et al. 2011)
- *Individual Addiction Counseling* (McGovern et al. 2011)
- *Structured Writing Therapy for PTSD* (van Dam et al. 2013)
- **Integrated Treatment* (Sannibale et al. 2013)
- *Alcohol Support* (Sannibale et al. 2013)
- *Modified Prolonged Exposure* (Coffey et al. 2016)

Other models were developed for PTSD/SUD but did not meet the criteria named above. For example, Substance Dependence PTSD Therapy (Triffleman 2000) was excluded as outcomes were never reported for the model per se; its RCT combined results with another model, 12-Step Facilitation. Some models had RCTs relevant to PTSD/SUD but both disorders were not current in the study sample.

17.3 Major Findings

Several findings can be observed across the literature at this point, including some surprises. Even for clinicians who do not specialize in PTSD/SUD treatment, it is worth understanding the current state of the field. As it is said, every clinician has PTSD/SUD patients in their practice, whether they know it or not. For details on the findings, see Najavits et al. (2017, 2020).

PTSD/SUD Studies Consistently Show Positive Outcomes

In the outcome studies conducted thus far, the pattern of results has consistently been positive. Improvements have been found in PTSD, SUD, and other domains such as self-compassion, cognitions, coping skills, psychopathology, and functioning. Treatment satisfaction was strong in studies that addressed it. Early concerns that addressing PTSD in the context of SUD would worsen patients' state have not been borne out. But it is important to remember that all studies used new models specifically designed for PTSD/SUD or made major changes to classic PTSD therapies to make them tolerable and feasible for SUD samples (Najavits et al. 2020).

The Most Evidence-Based Model at This Point Is Seeking Safety (SS)

SS has been very widely implemented in treatment programs for PTSD/SUD as well as for either SUD alone and for subthreshold SUD patients. It has been the subject of the majority of PTSD/SUD studies, including numerous pilots, controlled studies, and RCTs. It is also the model with the largest number of studies by independent investigators, which are less subject to positive bias (Chambless and Hollon 1998). SS has had consistently positive outcomes and has been studied with the most vulnerable PTSD/SUD clients (for summaries, see Najavits et al. 2020; Hien et al. 2019; and Najavits and Hien 2013; for a meta-analysis, see Lenz et al. 2016). It ranks as one of the top SUD models for cost-effectiveness in an independent government evaluation (Washington State Institute for Public Policy 2018), and has shown strong continued adoption and satisfaction in multi-year evaluations (Rodriguez et al. 2018; Hien et al. 2020).

Studies Using a Trauma Processing (TP) Approach Typically Combine It with a SUD Coping Skills (CS) Approach

A major current discussion in the field is the relative merit of TP versus CS approaches to PTSD treatment. Broadly speaking, models that focus on exposure-based or other emotionally intense exploration of trauma memories are termed here *TP*. In contrast, CS models focus on coping skills and education but do not explore trauma memories in detail (Najavits 2013). Alternate terms in the literature have been *past-focused* versus *present-focused*. Note, however, that a common misnomer is *trauma-focused* to refer to TP. It is a misnomer because all CS PTSD models directly focus on trauma. The difference is how they approach it. TP models focus primarily on the intense, detailed trauma narrative and memories. CS PTSD models explicitly omit detailed exploration of the detailed trauma narrative and instead offer education and coping skills to help patients work on PTSD in the present (e.g., learn to identify and manage trauma symptoms; improve functioning; increase safety in their current actions, thinking, and behavior; and promote overall stabilization). Moreover, the term *non-trauma-focused treatment* for present-focused PTSD models is problematic; it is comparable to referring to women as “non-men” or children as “non-adults.” Thus the terms *trauma processing* and CS models are used here.

The Majority of PTSD/SUD Studies Thus Far Use CS Rather Than TP Approaches

In recent years, there has been the healthy development of trying to evaluate whether TP approaches may be safely used with PTSD/SUD populations. Importantly, virtually every study using a TP PTSD approach combined it with a CS SUD model. Concurrent Treatment of PTSD and Substance Use Disorders Using Prolonged Exposure (COPE; Mills et al. 2012) combines PTSD exposure therapy (Foa and Rothbaum 1998) with two CBT SUD models (Baker et al. 2003; Carroll 1998). Prolonged Exposure (PE) (Foa et al. 2007) was combined with BRENDA, a SUD model (Volpicelli et al. 2001) in the study by Foa et al. (2013).

The Integrated Treatment Study (Sannibale et al. 2013) combined PTSD therapies (exposure and PTSD cognitive restructuring) with SUD treatment manuals from Project MATCH, an acronym that refers to Matching Alcoholism Treatments To Client Heterogeneity (Kadden et al. 1995) and Project COMBINE (Miller 2004). A study by van Dam et al. (2013) combined Structured Writing Therapy for PTSD (SWT; van Emmerik et al. 2008) with SUD group CBT (Emmelkamp and Vedel 2006). Creating Change is a purely TP model for PTSD/SUD but it has components that take into account SUD such as preparation for the work, readiness evaluation, strong safety monitoring, and theme-based session topics (Najavits et al. 2018; Najavits 2013). In sum, no investigator has used any TP PTSD approach as-is with a SUD population.

Moreover, it is notable that most studies that included a TP component were delivered in individual modality rather than group and were typically restricted to less complex samples than CS studies, in keeping with the PTSD-alone literature. “Less complex” means that patients were typically excluded if they had drug use disorders (rather than alcohol only), current domestic violence, homelessness, suicidality, violence, cognitive impairment, serious mental illness, and/or criminal justice involvement. In contrast, CS models were primarily group modality and accepted a much broader range of patients (Najavits and Hien 2013). (See below for more on this point.)

Many people believe that TP models are more powerful than present-focused models, perhaps because they are experienced as more emotionally intense. Yet RCTs that included TP PTSD treatment found null results (no difference) on either PTSD or SUD at the end of treatment compared to a control condition that was CS only (Mills et al. 2012; Foa et al. 2013; Sannibale et al. 2013; van Dam et al. 2013; Najavits et al. 2018). The only divergent study at this point is Norman et al. (2019) but that study did not use acceptable standards of fidelity and training so is challenging to interpret (Najavits 2019a). End of treatment is emphasized as that is the most rigorous time point for evaluating the impact of a model relative to a control. Both past- and CS models worked, but TP was not superior to CS, even on PTSD where it would be expected to if the “emotional intensity” hypothesis held. One explanation for the null results is that combining TP methods with CS diluted the TP work (Foa et al. 2013). Another explanation is that TP models may be too intense for patients who are struggling with SUD, which is consistent with the high dropout rate found in classic TP PTSD treatments (Lewis et al. 2020; Najavits 2015; Hoge et al. 2014). See also the recent meta-analysis by Gerger et al. (2013), which found that the PTSD treatment models they reviewed, which were predominantly TP, worked best with simpler rather than more complex patients, when compared to nonspecific therapies such as supportive therapy and relaxation training. A study sample was identified as complex if 80% met at least two of four clinical criteria: (a) duration of symptoms lasting more than 6 months; (b) presence of multiple problems (e.g., comorbid mental disorders, being in an ongoing violent relationship; being a refugee); (c) presence of a complex psychological traumatization, that is,

childhood, multiple, or intentional trauma; and (d) the presence of a formal PTSD diagnosis per the DSM.

Overall, with PTSD/SUD patients, greater emotional intensity in sessions does not equal better outcomes. Both present- and TP models may be helpful to patients, based on readiness of the patient and clinician, training, setting, and other contextual factors. The bottom line is that clinicians have a lot of choice in which models to use.

Some Studies Addressed Complex PTSD/SUD Populations

It is heartening that some PTSD/SUD studies addressed a broad range of patients: those with substance dependence rather than just substance abuse, those with drug disorders rather than just alcohol, and often those with issues such as homelessness, domestic violence, suicidality, violence, serious and persistent mental illness, criminal justice involvement, unemployment, multiple prior treatment episodes, and low education. These types of patients have consistently been excluded from classic PTSD-alone studies (i.e., TP models). Among PTSD/SUD studies, those with TP models also had the most exclusions (see Najavits et al. 2020 for more detail). Examples of exceptions for TP models are Mills et al. (2012), Najavits and Johnson (2014), and Najavits et al. (2005, 2018), all of which had a broader range of patients.

It Appears Easier to Change PTSD Than SUD

In the literature thus far, when there were differences between conditions, they were more often on PTSD or other mental health variables and less often on SUD (Najavits et al. 2020). This may indicate that in PTSD/SUD patients, PTSD and mental health issues may be easier to treat than SUD. This pattern also fits the current view of PTSD as amenable to time-limited treatment, whereas SUD (severe SUD in particular) is conceptualized as a chronic relapsing disorder needing ongoing care (Arria and McLellan 2012).

17.4 Recommendations for Practice

Attend to Both PTSD and SUD If the Patient Has Both

This may seem simple but all too often is not done in practice. There are many reasons for it, including lack of sufficient training on PTSD and/or SUD in professional degree programs. The disorders are also known to evoke strong emotional reactions in clinicians and, for SUD in particular, stigma and negative attitudes (Imhof 1991; Pearlman and Saakvitne 1995). Clinicians may shy away from addressing them, may feel incompetent to manage them, or may simply not notice them. Yet just as a patient with cancer and diabetes needs help with both, so too the patient with PTSD and SUD needs help with both. The treatment plan will depend on many factors. Some clinicians may be the primary treater for both; others may treat one or the

other or refer out for both. But the “no wrong door” principle still applies: address both in some fashion if present.

Conduct a Thorough and Accurate Assessment

Accurately identify both PTSD and SUD, along with other diagnoses and problems that may be present. Use validated instruments rather than homegrown instruments or ad hoc questions. There are at this point many assessments that are easy to obtain, including screening tools, diagnostic interviews, and self-report measures of problem areas. (See Najavits 2004, 2019b; Ouimette and Read 2013.)

Work Together with the Patient to Explore Treatment Options

Collaboration is crucial. Ultimatums often drive the patient away and reinforce distrust of professionals. “My way or the highway” approaches are sometimes used with SUD patients out of frustration or a misguided view that harsh confrontation or “hitting bottom” is needed to overcome SUD denial. Yet research shows that a supportive stance is best when working with SUD (Miller et al. 1993; Miller and Rollnick 1991) as well as PTSD. Offer the patient as many treatment options as possible and empower patients to try out as many as possible before they choose which fit best for them. A helpful strategy is to encourage them to attend up to three sessions of various treatments. According to research, the therapeutic alliance is established by about the third session (Garfield and Bergin 1994). If the alliance is weak at that point, have the patient try other approaches. Pushing patients to stay in treatments they do not like is counterproductive and can drive patients away for good. To learn about treatment resources for PTSD and SUD, search online and find manuals that address PTSD/SUD.

Be Compassionate

Listen closely and convey empathy. PTSD/SUD patients have typically lived lives of extraordinary pain. They are often highly sensitive and feel enormous self-hatred. They are used to being misunderstood by their own families, communities, and, unfortunately, sometimes by clinicians. If they perceive you as aloof or judgmental, they will be less likely to open up. They may drop out of treatment. A caring professional stance is the basis of good treatment. However, remember that true compassion does not mean letting go of standards, making excuses, tolerating unacceptable behavior, or otherwise “enabling” patients. It is about being kind and caring when you enforce treatment expectations and boundaries.

Recognize Differences Among PTSD/SUD Patients

They vary in many ways, including the presence or absence of co-occurring personality disorders, physical health problems, financial concerns, and legal issues. They also differ in strengths, such as ability to get along with others and level of intelligence. Each patient's kaleidoscope of features will impact treatment. PTSD/SUD patients are not a homogeneous population.

Attend to the Severity of PTSD and SUD, Not Order of Onset

Some clinicians erroneously believe that if the PTSD occurred first (which it does in most cases), then addressing PTSD is primary. Yet rather than order of onset of PTSD and SUD, it is the *severity* of each that most determines the treatment plan. By the time the patient is sitting in front of you with both disorders, which came first is much less important than what happens next. Both disorders will need attention. And severe disorders will need the most immediate and strong help. Severity refers to both level of symptoms and also negative consequences, such as which disorder gets them in the most trouble, causes the most harm, etc. Some patients are equally severe on both disorders; others are more severe on one or the other. Use validated instruments to assess the severity of each to help determine the plan.

Directly Monitor Substance Use

Good SUD care requires the clinician to actively inquire about substance use at every visit. Ideally, this will be verified by urinalysis, breathalyzer, or other biological methods. Even if those are not possible, which may be the case in private practice settings, it is crucial to use a valid self-report instrument and to have a clear written contract on substance use. The contract targets the goal per substance, such as “No more than 1 drink a day, measured with a shot glass,” “No substance use at all,” or whatever other goal is established. Inquire about substance use at each session, including amount and frequency; patients will often not bring it up directly. PTSD symptoms should also be assessed ongoing.

Do Not Push Trauma Processing Treatments

Patients are sometimes overly strongly pushed into TP models with statements such as “You’re avoiding if you don’t do it,” “This is the only way to really recover,” and “If you do this work, it will get to the root of your problems and you won’t need substances anymore” (Najavits et al. 2017). Even if well intentioned, these are not accurate for most PTSD/SUD patients, especially those with severe SUD. As reviewed earlier, scientific evidence at this point indicates that past- and CS approaches work equally well for PTSD/SUD patients. Be direct with patients about the evidence base and let them choose what is right for them without pressure. Some are ready for TP work, want to do it, and can benefit. Others do not.

Attend to Behavioral Addictions as Well as SUD

There is increasing focus on behavioral addictions such as excessive gambling, work, exercise, internet, pornography, sex, etc. (Najavits 2014; Freimuth 2005). Most are not in DSM-5 yet still warrant attention. Ask patients explicitly about these and offer options for help as needed.

Provide Up-to-Date Information

Strive to stay current. Even if well intentioned, inaccurate messages can do more harm than good. See the beginning of this chapter for examples of such messages. Read updated books on PTSD/SUD. Reading on PTSD alone or SUD alone can be helpful but are not sufficient for the combination of PTSD/SUD combination. Get a broad understanding and seek training as needed.

Address Cultural Factors

PTSD and SUD are influenced by cultural factors in both their development and their recovery. Both are subject to stigma and to silencing, which can become deeply internalized. Help clients explore how the cultures they have experienced may have had an impact on their PTSD and SUD. These include cultural aspects based on ethnicity, race, gender and age, but also aspects such as occupation (first responders, military), type of trauma (sexual assault versus car accident), geography (rural versus urban), political affiliation, and many other aspects. For a detailed example of adaptation of a PTSD/SUD treatment based on culture, see Marsh et al. (2016).

Choose PTSD/SUD Models Based on Realistic Factors

Both the clinician and patient need models that fit for them. Factors such as preference for individual versus group work, past treatment experiences, appeal of various treatments, insurance coverage, and other factors will play a role. Additional guidance for choosing treatment models is described in Najavits et al. (2020), including these considerations:

- whether the model has been tested across a broad range of SUDs
- whether the model has only been tested within intensive SUD treatment
- whether studies included complex SUD patients
- whether the model can be conducted in group modality
- workforce requirements
- the cost of treatments

17.5 Future Developments

Overall, various models have emerged to address the widespread suffering endured by PTSD/SUD patients. Such models have evidenced positive impact and can bring innovation and inspiration to clinical work. In the decades ahead, empirical efforts are needed to continue to expand understanding of how to best help these patients.

From a broader lens, it is also worth recognizing that no therapy model in and of itself is ever likely to quickly resolve what for many of these patients have

been decades of abuse, neglect, violence, substance use, and associated problems, such as homelessness, criminal justice involvement, job problems, poverty, discrimination, and physical health problems. Many are multiply burdened (Brown et al. 1995), chronic in their PTSD and SUD, and come from generations of family who have also struggled with these issues. They often have few resources for care and receive treatment from some of the least trained clinical staff. They often end up in public health systems of care. Thus, it is worth considering options beyond therapy models per se and which may potentially boost the impact of models.

PTSD/SUD Patients May Need Ongoing Support Rather Than Time-Limited Help

Some less severe patients may do well with a round of short-term treatment. But the clinical reality is that many cycle repeatedly through the revolving door of treatment. SUD in particular has been conceptualized as a disorder comparable to diabetes in needing long-term management rather than short-term models (Arria and McLellan 2012). This is reflected in the wisdom of 12-step approaches that provide free ongoing support to sustain abstinence from substances and which grew up as a grass-roots model by addicts themselves. For PTSD, there is as yet no widespread supportive resource of this type. Becoming creative about developing resources for chronic patients, beyond 12-step groups, may be an important public health goal. Some of the models identified in this article can perhaps be used in such ways.

The Workforce Treating These Patients Also Needs Support

Many clinicians have their own histories of trauma and addiction. They often handle large caseloads of complex patients without sufficient support or training. There is little research on how best to select and retain them and how to best support their work. Treatment models for PTSD/SUD are an important resource, but their professional needs go beyond models. Clinicians treating PTSD/SUD report notable gratification in the work but also significant stressors (Najavits et al. 2010).

Beyond the “Horse Race” of Models, Focus on Cost, Appeal, Ease of Implementation, and Sustainability

Several decades of research indicate that well-constructed therapy models relevant to PTSD and SUD have positive impact but do not differ notably in their outcomes (Imel et al. 2008; Benish et al. 2007; Powers et al. 2010; Najavits et al. 2018). However, they may differ in other important ways such as how much they cost, how easy they are to implement, and how sustainable they are. A model with slightly lower outcomes but greater strength in these factors may be an excellent choice. In the PTSD/SUD field, such factors have largely not yet been researched in relation to treatment models.

17.6 Case Example

To help highlight some of the themes in this chapter, the following case example is offered, using Seeking Safety as the treatment.

Implementation of Seeking Safety (SS)

SS arose out of the need for a trauma intervention that could be used safely and effectively with substance abuse clients, most of whom have major trauma histories yet may not be able to tolerate emotionally intense TP PTSD therapies. SS is consistent with the stage-based approach to trauma recovery (Herman 1992; van der Hart and Brown 1992) that identifies the first stage of work, safety, as CS, i.e., present-focused (stabilization and coping). SS focuses solely on this phase. Later work may include TP if needed. In the years since Herman's framework was published, there is now understanding that the different types of work don't have to be sequential and some patients may choose to do just one type or another or that the order of the sequencing can be flexible and determined by patient preference and need (Cloitre et al. 2015).

SS emphasizes education and coping skills for trauma survivors. It is optimistic, building hope through emphasis on ideals, humanistic language, inspiring quotations, and concrete strategies. Originally designed for co-occurring trauma and substance abuse, it is now used for either or both. SS is highly flexible: for males, females, all trauma types, adults, adolescents, groups, individuals, and any counselor, setting, and duration. It has been implemented successfully with numerous vulnerable populations including people who are homeless, living with HIV, incarcerated, suicidal, and cognitively impaired. Each SS topic offers a coping skill to build resilience, such as *Asking for Help*, *Honesty*, *Coping with Triggers*, *Self-Nurturing*, and *Healing from Anger*.

The Case

Jolene is a 45-year-old African-American female veteran who served in the army 20 years ago. She survived a brutal sexual assault by a military commander, resulting in mild traumatic brain injury (mTBI) and severe PTSD. The mTBI resolved eventually, but the PTSD was so severe that she was virtually housebound for 20 years, living off of her benefits, unable to work, and in contact only with her siblings (her parents having died some years ago). She developed severe alcohol use disorder and came in for therapy on the advice of her primary care physician, who identified liver problems from the alcohol. She had never told anyone about the sexual assault until the SS therapy. In SS, patients can share the nature of their traumas, but we do not go into a detailed narrative of it. "Headlines, not details" is the guiding principle. Jolene expressed relief that she could work on her PTSD in SS without having to revisit the painful trauma narrative. She

continually blamed herself for the trauma, saying “If I had been a better soldier, I would have been able to defend myself.” Before the assault she had had outstanding success in her military career but after it was unable to function and was discharged. “It’s as if I was two different people: the person before and the person after.”

The Treatment

Jolene was hesitant to come to therapy and canceled the first several appointments. I encouraged her to try just one session. I let her know that it would be up to her whether or not she wanted to continue—thus striving from this first phone contact to empower her to choose what was best for her. Empowerment is a core aspect of SS. The model conveys that there are many ways to cope safely, and patients can choose what works for them, even if it is different than what others choose. “Safety” is a rich concept in SS, referring to safety in relationships, thinking, and behavior, with no harm to self or others.

Jolene ultimately attended a full course of SS with weekly sessions over 6 months. She was highly intelligent and conscientious, with military-style, responsible behavior—showing up on time, reading the handouts ahead of time, and following through on most of her therapy commitments (the latter is the SS term for homework). But emotionally she was all over the place—tearful, lacking focus, obsessing about small details, not taking care of her health (poor diet, no exercise), and unable to stop drinking every day.

We had three major priorities in our work. First, we focused on coping—what she could do each week to move forward in her life, in any way possible. For example, the week that we covered the topic *Taking Good Care of Yourself*, she could see that her isolation was not healthy. That week she chose to attend an online AA meeting (an in-person meeting was not something she was willing to try). Another week we focused on *Setting Boundaries in Relationships*, and she was able to say no to her sister’s request for money rather than giving into it as she had done too often in the past. Each session, we related the SS coping skills in meaningful yet also practical ways to her current struggles. Even small successes meant a lot to her, showing her that she was no longer stuck in the same old patterns but able to make new choices and to keep learning from them. SS, at its core, is all about learning—trying new strategies and adapting, refining, and changing them as needed to keep progressing. Such learning is both unique to each person yet also universal.

Our second major focus was reducing the alcohol use. Given the many years of daily drinking, her physician worked with her on the physiological aspects to prevent seizures that can occur with abrupt reduction of alcohol. In SS, I would gently bring up the alcohol either during the session, as part of our SS topic, weaving it in here and there to question, nudge, and guide her to see more clearly its impact on her life and to explore alternative actions she could

do when she had a craving to drink. I would ask questions such as, “Would you be willing to try drinking only every other day?” and we would explore that, always coming back to how the SS coping skills might help her to achieve that goal. Helping her see the linkages between her trauma and alcohol use was also a repeated theme. She said, “I can see it now much more clearly. I just wish I could have seen it 20 years ago.” There was deep sadness with such statements, and her course of alcohol use had some ups and downs, but by the last third of the therapy, she had reduced her drinking by half and was moving toward abstinence.

Our third major focus was to bring a compassionate approach to her self-hatred about her trauma. She had spent decades blaming and judging herself for not fighting off the attacker. We worked on SS topics such as *Compassion*, *Creating Meaning*, and *Integrating the Split Self* to help her respond to herself in kind ways when her inner critical voices arose. She was better able to get through her day with increased functionality as she learned to coach herself through her daily struggles rather than giving up. She was able to recognize too that there really had been no way for her to prevent the trauma—no matter how fine and strong a soldier she had been—and that her task now was to create a better future for herself rather than staying stuck in “beating herself up” about the past.

The case management component of SS also came into play, identifying referrals for additional treatments that she would be willing to attend. She had limited social contact, often none in any given week, but was able to join a women's therapy group and the online AA meetings. We also worked on referral to a nutrition consult to help with her poor diet.

She ended the SS therapy with greater hopefulness, even though there was still recovery work to do. “It has felt so healing to be able to start living more—to expand my world, to move forward.”

17.7 Closing

The first generation of PTSD/SUD research is impressive in attending to patients who were consistently excluded from most prior outcome research on PTSD. The development of new models for this population has advanced the field and offers clinicians various options. The most studied and widely used model remains Seeking Safety at this point. Yet much remains to be done to advance the next generation of research and continue to refine models. Patients with PTSD/SUD have greater impairment and worse prognosis than those with either disorder alone. They are a highly vulnerable population in need of strong and accessible treatments, and compassionate, skilled clinicians.

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Treating PTSD and Borderline Personality Disorder

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Melanie S. Harned and Colleen A. Sloan

Borderline personality disorder (BPD) is a severe and complex psychological disorder characterized by pervasive emotion dysregulation, unstable relationships and sense of self, impulsive behavior, and recurrent suicidal and non-suicidal self-injury (NSSI). PTSD is a common co-occurring disorder among individuals with BPD, with comorbidity rates ranging from about 30% in community samples (Grant et al. 2008; Pagura et al. 2010) to up to 75% in clinical samples (Barnicot and Crawford 2018; Harned et al. 2010a; Zanarini et al. 1998). Common etiologic factors may explain the high comorbidity between BPD and PTSD as trauma exposure has been implicated in the development of both disorders, particularly childhood abuse (Scheiderer et al. 2015). In addition, research suggests a reciprocal relationship such that each disorder functions to maintain the other. For example, PTSD exacerbates BPD symptoms such as emotion dysregulation, suicide attempts, and NSSI (Harned et al. 2010a; Marshall-Berenz et al. 2011) and decreases the likelihood of achieving diagnostic remission from BPD over 6 and 10 years of naturalistic follow-up (Zanarini et al. 2004, 2006). Conversely, BPD is associated with high levels of emotion dysregulation, experiential avoidance, and shame, which have been shown to slow the rate of improvement of PTSD during treatment (Harned et al. 2020). Therefore, successful treatment of both disorders may be necessary to achieve optimal outcomes for individuals with this comorbidity. In this chapter, we will review research on treatment approaches for individuals with PTSD and BPD, discuss

M. S. Harned (✉)

VA Puget Sound Health Care System, Seattle, WA, USA

Department of Psychiatry and Behavioral Sciences, University of Washington,
Seattle, WA, USA

e-mail: melanie.harned@va.gov

C. A. Sloan

VA Boston Health Care System, Boston, MA, USA

Boston University, School of Medicine, Boston, MA, USA

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common challenges that arise during trauma-focused treatment with this population, and present a case example.

18.1 Treatment Approaches for Co-occurring PTSD and Borderline Personality Disorder

Four general approaches have been evaluated as treatments for PTSD among individuals with BPD, including (1) single-diagnosis treatments, (2) parallel treatments, (3) phase-based treatments, and (4) integrated treatments. Single-diagnosis treatments focus solely on treating PTSD, and any improvements in comorbid problems occur as a secondary result of targeting PTSD. Parallel treatments involve targeting comorbid problems separately in different treatments that are provided concurrently. Phase-based treatments include an initial treatment phase targeting comorbid problems followed by a second phase of trauma-focused treatment. Some phase-based treatments also include a third phase in which psychosocial functioning is typically addressed. Finally, integrated treatments are designed to comprehensively address the full range of problems exhibited by patients with BPD and PTSD, including but not limited to both of these disorders and the factors explaining the relationships between them. Meta-analytic research has shown that across these different types of psychotherapy for PTSD, patients with BPD exhibit large improvements in PTSD ($g = 1.04$) that are maintained at least 3 months after treatment ($g = 0.98$), as well as moderate improvements in depression ($g = 0.73$), BPD symptoms ($g = 0.52$), and anxiety ($g = 0.48$; Slotema et al. 2020). The present review will focus on treatments that have been evaluated in randomized controlled trials (RCTs) that have reported outcomes specific to individuals with PTSD and BPD.

18.1.1 Single-Diagnosis Treatments

18.1.1.1 Cognitive Processing Therapy (CPT)

CPT is a brief, outpatient treatment for PTSD that is typically delivered in 12 weekly or biweekly individual sessions (Resick et al. 2017; see also Chap. 10 of this volume). The treatment includes cognitive therapy to identify and challenge trauma-related beliefs alone (CPT) or in combination with writing and reading an account of the traumatic event (CPT+A). To date, two RCTs have evaluated CPT+A among individuals with BPD or borderline personality characteristics (BPC). The first compared CPT+A to prolonged exposure (PE) among 131 female sexual assault survivors with PTSD, of whom 39 (25.2%) were above the cutoff for a clinical level of BPC according to self-report (Clarke et al. 2008). Women with serious suicidal intent, recent suicidal or self-injurious behavior, a current abusive relationship, or current substance dependence, bipolar or psychotic disorders were excluded. Results indicated that BPC scores were unrelated to treatment dropout, and there was no evidence that BPC were related to worse outcomes in the rate of change in PTSD and other trauma-related symptoms (e.g., dissociation, depression, sexual

concerns). The interaction between type of treatment (CPT+A or PE) and BPC score was not significant for any outcome, indicating that both treatments were comparably effective for individuals with BPC. A follow-up study of this sample found that greater improvement in PTSD symptoms predicted greater improvement in BPC at 5–10 years post-treatment (Bovin et al. 2017). A second study evaluated the effectiveness of CPT+A for 27 female veterans with PTSD related to military sexual trauma (MST), of whom 7 (25.9%) were identified as having BPD based on electronic medical record review (Holder et al. 2017). This study used data from a larger RCT comparing CPT+A to present centered therapy among 128 female and male veterans with MST-related PTSD that excluded individuals with prominent suicidal or homicidal features, active substance dependence, current psychosis or unstable bipolar disorder, current cognitive impairment, or involvement in a violent relationship (Surís et al. 2013). In this subgroup analysis, there were no significant differences between those with and without BPD in treatment completion, number of sessions attended, or improvement in PTSD (Holder et al. 2017).

18.1.1.2 Prolonged Exposure (PE)

PE is a brief, outpatient treatment for PTSD that is typically delivered in 10–15 weekly or biweekly individual sessions (Foa et al. 2019; see also Chap. 8 of this volume). The primary PE treatment components include imaginal exposure to the trauma memory and in vivo exposure to feared but non-dangerous situations. In addition to the study of PE and CPT reviewed above (Clarke et al. 2008), a second study examined the impact of full or partial BPD on treatment outcome in an RCT comparing PE, stress inoculation training (SIT), and a combined PE/SIT treatment (Feeny et al. 2002). Treatment was delivered in 9 biweekly individual sessions. Participants were female assault survivors with a primary diagnosis of PTSD who were not acutely suicidal, had no recent history of suicidal or self-injurious behavior, were not currently involved in an abusive relationship, and did not meet criteria for substance dependence, bipolar, or psychotic disorders. Analyses were conducted using the treatment completer sample ($n = 58$), of whom 9 (15.5%) met full or partial criteria for BPD. Given the small number of participants with BPD, analyses were not conducted separately by treatment type. When the three treatments were combined, BPC was not significantly related to the rate of change in any outcome. However, women with full or partial BPD were significantly less likely than those without BPD to achieve good end-state functioning (11% vs. 51%), which was defined as being below clinical cutoffs for PTSD, depression, and anxiety.

18.1.2 Parallel Treatments

18.1.2.1 Cognitive Behavioral Therapy for PTSD and Severe Mental Illness (CBT for PTSD)

This CBT program is a 12–16 session treatment for people with PTSD and severe mental illness (SMI), including schizophrenia, schizoaffective disorder, major depression, or bipolar disorder that cause significant functional limitations (Mueser

et al. 2009). CBT for PTSD involves psychoeducation, breathing retraining, and cognitive restructuring, and is delivered in parallel with other usual treatments for SMI (e.g., case management, individual and group therapy, vocational rehabilitation, pharmacotherapy). Secondary analyses of data from two RCTs have evaluated the effectiveness of CBT for PTSD among the subgroup of patients with BPD in these studies (Kredlow et al. 2017). The first RCT ($n = 108$, 25.0% with BPD) compared CBT for PTSD with treatment as usual (TAU; Mueser et al. 2008) and the second RCT ($n = 201$, 27.4% with BPD) compared CBT for PTSD with brief psychoeducation (Mueser et al. 2015) among adults with PTSD and SMI who had not attempted suicide or been psychiatrically hospitalized for the past 3 months and were not currently substance dependent. Among BPD patients in these studies, CBT for PTSD had low rates of dropout (14–26%) and PTSD symptom exacerbation (9–12%); however, after completing treatment, a majority of BPD patients (75–77%) continued to meet criteria for PTSD (Kredlow et al. 2017). In addition, CBT for PTSD was superior to TAU but not brief psychoeducation in reducing PTSD and depression among BPD patients (Kredlow et al. 2017).

18.1.3 Phase-Based Treatments

18.1.3.1 Dialectical Behavior Therapy for PTSD (DBT-PTSD)

DBT-PTSD is a treatment for individuals with PTSD related to childhood abuse with complex presentations, including features of BPD. DBT-PTSD is based on the principles, modes, and functions of dialectical behavior therapy (DBT) and incorporates aspects of acceptance and commitment therapy, compassion-focused therapy, and trauma-focused treatments. DBT-PTSD is delivered in three treatment phases: (1) Phase 1: commitment, psychoeducation, and teaching of DBT skills; (2) Phase 2: trauma-focused cognitive and exposure-based interventions; (3) Phase 3: radical acceptance and regaining your life. One RCT that compared a 12-week inpatient DBT-PTSD program to a treatment as usual-waitlist control (TAU-WL) reported results specific to patients with BPD (Bohus et al. 2013). This study included 74 women with childhood sexual abuse-related PTSD and at least one of the following conditions: eating disorder, major depressive disorder, substance abuse, or ≥ 4 criteria for BPD. Almost half of the sample ($n = 33$, 44.6%) met full criteria for BPD. Women actively engaging in NSSI were included, and those with a life-threatening behavior in the prior 4 months, current substance dependence, a lifetime diagnosis of schizophrenia, or a body mass index less than 16.5 were excluded. DBT-PTSD was superior to TAU-WL in improving PTSD, depression, and global functioning, but did not differ from the non-active control in improving global symptom severity, dissociation, or BPD symptoms. These results were comparable for the subgroup of women with BPD in each condition, and BPD severity was generally unrelated to treatment outcome. Among women with BPD who received DBT-PTSD ($n = 17$), 41.2% remitted from PTSD and 29.4% showed a response to treatment (>30 point reduction on the measure of PTSD). There was no evidence of worsening of PTSD, NSSI, or suicidality in DBT-PTSD.

18.1.4 Integrated Treatments

18.1.4.1 Dialectical Behavior Therapy (DBT)

DBT is a comprehensive, stage-based treatment for individuals with BPD that is rooted in behavior therapy and incorporates dialectical philosophy and elements of western contemplative and eastern Zen practices (Linehan 1993, 2015). Standard DBT is typically provided as a 1-year outpatient treatment and includes 4 weekly treatment modes: individual therapy, group skills training, therapist consultation team, and telephone consultation (as needed). As an integrated treatment, DBT is designed to simultaneously treat multiple problems according to a hierarchy of treatment targets, including (1) life-threatening behaviors, (2) therapy-interfering behaviors, and (3) behaviors that interfere with quality of life. Within this target hierarchy, PTSD is considered a quality of life problem that is targeted in the second stage of treatment after life-threatening and therapy-interfering behaviors are sufficiently controlled. Although the DBT manual recommends the use of exposure to treat PTSD, it does not include a protocol specifying exactly when or how to do so. Without a specific protocol for treating PTSD, 33–35% of recently and recurrently suicidal and self-injuring women with BPD achieve remission from PTSD during 1 year of DBT and up to 1 year of follow-up (Harned et al. 2008, 2014). In addition, greater PTSD severity at pretreatment and lack of improvement in PTSD during DBT predict less improvement in self-injurious behavior, acute suicide risk, and BPD severity after treatment (Barnicot and Crawford 2018; Barnicot and Priebe 2013; Harned et al. 2010b).

18.1.4.2 DBT with the DBT Prolonged Exposure Protocol (DBT+DBT PE)

The DBT PE protocol was developed to improve the effects of DBT on PTSD, particularly for suicidal and self-injuring individuals with BPD (Harned et al. 2012). The DBT PE protocol is adapted from PE, and the primary treatment components include in vivo exposure, imaginal exposure, and processing. DBT strategies are incorporated into PE and structured procedures are included to address complexities common in this patient population (e.g., multiple traumas, including events that do not meet traditional definitions of trauma such as traumatic invalidation, intense shame). DBT + DBT PE is typically a 1-year outpatient treatment that includes three stages: (1) Stage 1 is standard DBT focused on stabilizing life-threatening behaviors and other higher-priority targets, (2) Stage 2 adds the DBT PE protocol to ongoing DBT, and (3) Stage 3 uses standard DBT to address the patient's remaining treatment goals, which often include improving psychosocial functioning. One RCT has evaluated DBT with and without the DBT PE protocol among 26 women with BPD, PTSD, and recent and repeated suicidal behavior or NSSI and excluded those with bipolar or psychotic disorders. There were no differences in treatment dropout between conditions (41–43%). Among patients assigned to DBT + DBT PE who did not prematurely drop out of DBT, 80% initiated the DBT PE protocol of whom 75% completed it. Among treatment completers, DBT + DBT PE resulted in significantly larger improvements in PTSD than DBT alone. At post-treatment, 80%

of treatment completers in DBT +DBT PE completers had remitted from PTSD compared to 40% in DBT. Patients who completed the DBT PE protocol were also less likely than those who completed DBT to attempt suicide (17% vs. 40%) and self-injure (67% vs. 100%), and there were large effects in favor of DBT + DBT PE for dissociation, depression, anxiety, guilt, shame, and global functioning.

18.1.5 Summary

In sum, six treatments have been shown in RCTs to be efficacious in reducing PTSD and associated problems for individuals with comorbid BPD. These treatments vary not only in their general approach (single diagnosis, parallel, phase-based, and integrated) but also in the types of trauma-focused interventions used (exposure, cognitive therapy), types of trauma they were designed to treat (adult assaults, childhood sexual abuse, and multiple traumas), and length (ranging from 9 to 52 sessions). Of particular note, although each of these treatments has been evaluated among patients with BPD/BPC, most have excluded individuals with problems common in severe BPD, such as acute suicidality (Bovin et al. 2017; Clarke et al. 2008; Feeny et al. 2002; Holder et al. 2017), recent life-threatening behavior (Bohus et al. 2013), recent suicide attempt (Bovin et al. 2017; Clarke et al. 2008; Feeny et al. 2002; Kredlow et al. 2017), recent NSSI (Bovin et al. 2017; Clarke et al. 2008; Feeny et al. 2002), ongoing abusive relationships (Bovin et al. 2017; Clarke et al. 2008; Feeny et al. 2002; Holder et al. 2017), and substance dependence (Bohus et al. 2013; Bovin et al. 2017; Clarke et al. 2008; Feeny et al. 2002; Holder et al. 2017; Kredlow et al. 2017). Thus, their generalizability to BPD patients with these co-occurring problems is unknown. To date, only one treatment has been developed specifically for individuals with co-occurring BPD and PTSD that has included patients with each of these severe co-occurring problems (Harned et al. 2014). However, research on treatments for co-occurring BPD and PTSD is generally limited, and additional research is needed to replicate and extend these findings in larger and more representative samples of patients with this challenging comorbidity.

18.2 Special Challenges

Treatment of patients with both PTSD and BPD is often complicated by a variety of factors. Although the issues described below are likely to interfere with effective treatment of any kind, these factors are highlighted as posing particular challenges to clinicians engaging in trauma-focused treatment.

18.2.1 Suicide and Self-Injury

Suicidal behavior and NSSI are often considered “hallmark” features of BPD, with 60–70% reporting a history of multiple suicide attempts and NSSI episodes

(Zanarini et al. 2008) and 8–10% dying by suicide (Pompili et al. 2005). Individuals with BPD report that these behaviors are often precipitated by PTSD symptoms (Harned et al. 2010a) and most often function to provide relief from unpleasant emotions (Brown et al. 2002). As trauma-focused treatments often elicit intense emotions and can cause initial increases in PTSD symptoms before improvement is seen (Nishith et al. 2002), it is understandable that therapists and BPD patients may be wary of the potential for a recurrence of these behaviors during PTSD treatment. Moreover, it is possible that fears of intense emotion may prevent therapists and patients alike from fully allowing trauma-related emotions to be experienced, thus potentially decreasing the effectiveness of treatment. Additionally, if suicidal and self-injurious behaviors function as an escape from trauma-related emotions, then the opportunity to learn that these painful emotions can be tolerated without escaping will likely be missed. To address these factors, all of the treatments reviewed above require patients to be abstinent from serious suicidal behavior for a period of 2–4 months before beginning trauma-focused treatment, and most also require abstinence from NSSI. In addition, several treatments include an initial stabilizing phase to help patients learn the skills necessary to control these behaviors prior to initiating trauma-focused interventions.

18.2.2 Emotion Dysregulation

The regulation of emotion is a complex process involving multiple components of the emotional system (e.g., cognitive interpretation, physiological sensation, behavioral expression). Dysregulation can occur at any point in the system. The biosocial theory of BPD proposed in DBT is that it is the transaction between an emotionally vulnerable biology and an invalidating environment (which may include childhood abuse and trauma) that leads to the pervasive disruption of the emotion regulation system that is central to BPD (Linehan 1993). According to the theory, emotional vulnerability is defined as having a lowered threshold for emotionally salient cues, increased emotional reactivity, and a slow return to emotional baseline. The emotion dysregulation exhibited by BPD individuals is further intensified by the presence of PTSD (Harned et al. 2010a, 2020; Marshall-Berenz et al. 2011) and can complicate PTSD treatment in several ways. Dysregulated emotions can lead to over-engagement during trauma-focused treatment and/or emotional withdrawal and suppression of emotional experience. Either extreme deviates from optimal emotional engagement and is likely to interfere with treatment response. Emotion dysregulation of BPD patients typically extends across the entire emotional spectrum; thus, intense fear as well as other emotions such as sadness, anger, shame, and disgust may interfere with treatment. To address this, several treatments reviewed above teach patients behavioral skills (e.g., emotion regulation, distress tolerance) prior to beginning trauma-focused treatment and coach patients to use these skills as needed to increase or decrease emotional intensity during trauma-focused interventions.

18.2.3 Dissociation

Many patients with PTSD and BPD also experience dysregulation across cognitive processes. Dissociation can be thought of as a specific reaction to intense emotions or trauma-relevant cues that functions to reduce distress by disrupting attention and information processing. Like many maladaptive behaviors, the dissociative response is often outside the awareness of the patient or occurs without intention. Dissociation can pose a significant challenge to successful implementation of trauma-focused treatment as it interferes with establishing optimal emotional engagement and reduces the opportunity for new learning. For example, a study of DBT-PTSD found that patients who reported higher levels of state dissociation during therapy sessions exhibited less improvement in PTSD (Kleindienst et al. 2016). Given that more than two-thirds of BPD patients report moderate to high levels of dissociation (Zanarini et al. 2000), this is not a minor problem facing clinicians. Dissociation during trauma-focused treatment is typically addressed by coaching patients to use skills that increase awareness of the present moment (e.g., mindfulness, distraction with intense physical sensations).

18.3 Case Example

To provide an illustration of treatment for co-occurring PTSD and BPD, as well as strategies for addressing common challenges, we will present a case example of a patient who received DBT+DBT PE.

18.3.1 Identifying Information and Relevant History

“Emilia” was a 53-year-old, Latina, lesbian woman veteran who lived with her grandchildren, for whom she was the legal guardian and primary caregiver. She had been partnered to a woman for almost 20 years, although they lived separately. She grew up in the Caribbean with her parents and older brother. She described her father as “an alcoholic” who was never around and her mother as “mean and critical” toward her throughout her childhood. Emilia reported feeling chronically invalidated in her family, including being made to feel “less important” than her brother due to being female and feeling “detached and othered” from her family for being emotional and “dramatic.”

When Emilia was 7, her parents divorced and her father moved to the USA. She and her brother moved to live with him when she was 14. Her father had remarried, and her stepmother was physically abusive toward Emilia, which contributed to an onset of suicidal ideation (SI) at this time. She eventually ran away when she was 16 to live with her brother until she joined the U.S. military at age 18. At age 24, Emilia was raped in the military, which resulted in pregnancy. Emilia, whose sexual orientation was not accepted by her family, was shamed by her mother for having become pregnant “out of wedlock.” She encouraged Emilia to marry a man, a friend

of the family, in order to avoid “bringing shame on the family,” and Emilia agreed. Emilia began experiencing significant symptoms of PTSD related to the rape and using alcohol and cocaine to cope. After the birth of her daughter, her PTSD symptoms increased, she got divorced, and she developed severe alcohol and cocaine use disorders lasting for the next five years that led her to lose custody of her child. After receiving counseling for substance use, she was able to stop using alcohol and cocaine and regain custody of her child. She was then employed for four years, until she was “unjustly” fired from her job. Following this termination, she noted a steady decrease in functioning. She struggled to raise her daughter, who eventually became pregnant in her teens. When her daughter was unable to care for her own children, Emilia became their legal guardian. When Emilia’s daughter turned 24 (the age at which Emilia had been raped), Emilia experienced a significant increase in PTSD symptoms associated with her military rape, which led her to relapse on cocaine and alcohol and become acutely suicidal with a plan to overdose. She was psychiatrically hospitalized, after which she was referred for outpatient mental health treatment in a trauma recovery clinic.

At intake, Emilia had just been discharged from an inpatient facility. She had limited social support and reported a great deal of stress related to caring for both her grandchildren and ailing mother. Emilia denied any engagement in self-injurious behavior. She noted frequent passive SI, marked by thoughts of wishing that she would not wake up, but denied active SI following discharge. She met criteria for BPD, PTSD, major depressive disorder, as well as alcohol use disorder in early remission and cocaine use disorder in remission. She reported daily urges to drink alcohol.

18.3.2 Treatment Process

18.3.2.1 DBT

The beginning sessions of DBT addressed pretreatment tasks, including identifying Emilia’s goals for treatment, orienting her to DBT, and solidifying her commitment to stay alive and actively engage in treatment. Emilia’s primary treatment goals were to reduce SI, remain abstinent from alcohol and cocaine, improve self-esteem, and reduce depression. Emilia was unsure if she would ever be “free” from PTSD symptoms, noting that she had been told that PTSD was a “chronic condition.” She also said that she had never discussed her sexual assault history and was unsure if she would be able to “talk about this” with anyone including her therapist. Emilia also expressed concern about her ability to remain in therapy long enough to benefit, noting that she had many experiences in the past wherein she became “unmotivated to continue” due to depression. Emilia was willing to work on increasing behavioral stability and to revisit discussion about treating PTSD as treatment progressed.

The first stage of treatment focused primarily on targeting SI, depression, substance use, and excessive spending. Additionally, Emilia’s “complicated” family dynamics were addressed given that conflict in her relationships often led to hopelessness and SI. Individual therapy sessions focused on these targets using behavior

chain analyses to assess the factors contributing to these problems before generating solutions to address and replace these behaviors with skills that Emilia was learning in her DBT skills training group. Emilia initially underutilized between-session phone coaching, endorsing beliefs that she was “overburdening” her therapist. After targeting this behavior, Emilia began using phone coaching more often to avoid acting on urges to use alcohol and spend money. Emilia frequently endorsed a belief that she “couldn’t tolerate” emotions, often leading to increased SI, impulsive spending, and alcohol use. Over time, she was able to effectively challenge this thought and use distress tolerance skills to get through distressing situations without engaging in problem behaviors.

As Emilia gained better control of primary target behaviors, she gained insight into ways in which her PTSD symptoms were drivers of these behaviors and were maintaining her general emotional misery. Consequently, Emilia and her therapist mutually agreed to begin planning for trauma-focused treatment, specifically the DBT PE protocol for PTSD. Emilia continued to express concern that this treatment would not be helpful but rather would make her feel worse. At the same time, she reiterated her trust in her therapist and expressed willingness to engage in a treatment for her PTSD. After 30 weeks of DBT, Emilia and her therapist agreed that she was ready to begin DBT PE, as she was not at acute risk of suicide, had no recent self-injurious behaviors, was effectively engaged in therapy, and was increasingly willing and able to experience emotions without escaping. Emilia and her therapist planned to meet for one 90-min DBT PE session each week while she continued to receive DBT skills training group and phone consultation. Prior to the first session, Emilia completed the PTSD Checklist for DSM-5 (PCL-5; Weathers et al. 2013) and scored a 68 (out of 80).

18.3.2.2 The DBT PE Protocol

During session 1, Emilia’s therapist reviewed the rationale for treatment and conducted a trauma interview, working with Emilia to identify her most distressing memories. Emilia identified two events that were most distressing to her and linked to her PTSD symptoms—the rape in the military and an experience of traumatic invalidation in her family. The latter event occurred when she was 6 years old and her brother told her that she was not actually part of their family and had been “found” covered in feces and flies on a boat in the ocean, a story that her mother laughed at and did not deny. Emilia and her therapist mutually agreed to target the military rape first, both because of the subjective distress Emilia endorsed in response to this memory and because of its impact on her daily life; for example, Emilia reported intense avoidance and fear of coming into contact with mice that were present at the time of the sexual assault. Emilia’s therapist used DBT commitment strategies to strengthen Emilia’s commitment to avoid acting on urges to attempt suicide, use alcohol, or quit treatment. Lastly, Emilia and her therapist collaboratively developed a post-exposure skills plan that included a variety of DBT skills to use to manage intense emotions and urges after exposure. In this session, Emilia also requested that her partner attend a session to learn about the therapy and

ways to support Emilia. To accommodate this request, Emilia and her therapist agreed to split session 2 into 2 sessions (2a, 2b).

Emilia no-showed to session 2a, which was addressed as therapy-interfering behavior the following week. Emilia acknowledged this as avoidance and reiterated commitment to treatment. Her therapist then continued with DBT PE, including providing her with psychoeducation about common dialectical reactions to trauma and the rationale for in vivo exposure. Next, Emilia and her therapist worked to create an in vivo exposure hierarchy. Emilia had difficulty identifying specific tasks and frequently responded by saying, "I would never do that." Emilia's therapist gently reminded her about her commitment to treatment and the rationale for exposure and they agreed to continue creating the hierarchy in the next session. In session 2b, the therapist and Emilia first oriented her partner to the treatment, providing psychoeducation on PTSD and the rationale for exposure therapy. After Emilia's partner exited session, the remaining time was spent finalizing Emilia's in vivo exposure hierarchy. The hierarchy contained items related to interacting with men, approaching mice-related content (e.g., toy mice, mice on TV, live mice), and behavioral activation tasks that Emilia used to enjoy but was no longer doing.

Between session 2b and 3, Emilia called her therapist and disclosed that she had used alcohol and cocaine. She endorsed a resurgent belief that she would be unable to "tolerate" treatment as well as strong urges to drop out. As such, the next session was conducted as a standard DBT session in which she and her therapist completed a behavior chain analysis of the substance use and determined that PTSD symptoms were relevant links in the chain leading up to her use, which had functioned as an escape from this distress. Emilia was able to reframe her belief that her progress was "lost," identify her recent use as a "slip," and recommit to abstinence and using skills to manage urges. Given this, Emilia and her therapist agreed that PTSD was still the highest priority target, and that they would resume DBT PE at the subsequent session. Emilia then no-showed her next DBT skills training group and called to cancel her individual DBT PE session. Emilia and her therapist had a phone coaching call to discuss next steps during which Emilia again committed to continuing with DBT PE. To increase Emilia's motivation to continue, her therapist agreed to conduct an in vivo exposure regarding mice in the next session rather than starting with imaginal exposure. Emilia completed the in-session in vivo exposure effectively and reported an increased sense of competence and willingness to move forward with imaginal exposure the subsequent week. As such, they began imaginal exposure in session 5. Immediately before and after imaginal exposure, Emilia completed ratings of the probability and cost of feared outcomes (e.g., being unable to tolerate distress; 0–100), urges to suicide, use substances, and quit therapy: 0–5), Subjective Units of Distress (SUDs; 0–100), and primary emotions (sadness, fear, guilt, shame, anger, disgust, and joy: 0–100). Emilia's SUDs were 100 at the start of imaginal exposure and 90 by the end. Emilia reported a reduction in fear (100 to 70), but guilt, shame, sadness, and anger remained intense (90+). Processing focused on Emilia's ability to tolerate distress despite fear-based beliefs and began to target her unjustified guilt and associated self-blame about the rape. Emilia agreed to

complete homework, which included listening to the imaginal exposure recording daily, completing in vivo exposure tasks daily, and using her post-exposure skills plan.

Session 6 continued with imaginal exposure to the entire trauma memory. Emilia reported an initial SUDs of 100 and ongoing urges to quit treatment, particularly because she was experiencing an increase in recall of specific trauma details that she found distressing. Her therapist normalized this, briefly reoriented to the rationale for exposure, and continued with imaginal exposure as planned. Emilia experienced an even more significant reduction in fear, from 100 to 30, but had ongoing high levels (80+) of shame, guilt, sadness, and anger. Processing focused on targeting self-blame and Emilia's belief that she should have been able to prevent the rape. During this discussion Emilia noted two particular moments in the memory that were most distressing ("hot spots") and they agreed to begin focusing on hot spots in subsequent sessions. In session 7, Emilia completed imaginal exposure on the first hot spot and evidenced significant habituation (post-SUDs = 10). She also noted decreased guilt (50) and shame (40) due to no longer blaming herself for the rape and increased acceptance that she was not physically able to stop it once it started. In this session, Emilia reported feeling "lighter" than she had previously. In session 8, they continued with the hot spot procedure on the second hotspot. Emilia demonstrated habituation within session (post-SUDs = 30), reported feeling "at ease" with the memory, and denied any self-blame or associated shame/guilt (both rated at 10). In this session, Emilia endorsed a score of 21 on the PCL-5 anchored to the rape; thus, Emilia and her therapist mutually agreed to begin targeting the traumatic invalidation memory via imaginal exposure at the next session.

At session 9, Emilia completed the PCL-5 anchored to her experience of traumatic invalidation in her family while growing up and scored a 48. Her pre-SUDs rating was 80 and the final SUDs rating was 40. With this memory, Emilia denied struggling with self-blame, but rather endorsed the belief that she was inherently "flawed" as well as significant sadness (90) and shame (80) about this event and the broader invalidation she experienced in her family. As such, processing focused on allowing sadness and working to increase Emilia's acceptance of this event and broader family dynamics in the past and present. Sessions 10 and 11 continued with imaginal exposure to the experience of traumatic invalidation by her brother. Emilia made large gains with exposure and processing on this memory, eventually endorsing SUDs of 30 and all emotions as <40. In session 12, Emilia entered the session reporting feeling "marvelous." She completed the PCL-5 anchored to traumatic invalidation and was below threshold for PTSD (score of 17). Given this, they agreed to conduct a final imaginal exposure on this memory, after which she reported a SUDs rating of 25 and all emotions as <30. The next two sessions of DBT PE focused on relapse prevention. Emilia and her therapist agreed that she would benefit from continued work on in vivo exposures, specifically exposure with live mice, and she agreed to work on this on her own. In addition, they reviewed the concept of living an exposure lifestyle to reduce the likelihood of a relapse of PTSD, identified warning signs, and discussed strategies for managing an increase in PTSD symptoms if it did occur.

18.3.2.3 DBT After the DBT PE Protocol

The remainder of treatment (months 11–13) consisted of individual DBT focused on skills generalization and improving Emilia's relationships with her family and partner. Emilia continued to work on increasing her ability to validate herself and use interpersonal effectiveness skills with her partner and other family members to ask for what she needed in these relationships and to effectively say no to requests that reduced her self-respect and increased her sense of helplessness. Emilia and her therapist discussed ways in which Emilia's past diagnosis of PTSD had influenced the dynamic in her romantic relationship and how this had changed over time. Specifically, as Emilia demonstrated increased sense of competence, she relied less on her partner to make decisions. She also reported a renewed desire to socially connect with others, and she scheduled a vacation with friends with whom she used to spend time. By the end of treatment, she remained in remission from PTSD and major depressive disorder, and was able to more effectively manage familial distress, set limits in her romantic relationship, and engage in activities that promoted her sense of self-worth.

18.4 Future Directions

Over the past decade, there have been promising new developments in evidence-based treatment for individuals with co-occurring PTSD and BPD. Despite common clinical lore suggesting that trauma-focused treatment is contraindicated for individuals with BPD, it is now clear that PTSD can be safely and effectively treated in this patient population. As research in this area continues to progress, an important issue to address will be to determine which treatments are most appropriate and effective for which individuals with BPD. Based on the existing research, brief (9–12-session) single-diagnosis treatments focused solely on PTSD may be appropriate for patients with a primary diagnosis of PTSD and a mild level of BPD-related disorder (e.g., without suicidal and self-injurious behavior or other severe comorbidities) (Bovin et al. 2017; Clarke et al. 2008; Feeny et al. 2002; Holder et al. 2017). BPD patients with a moderate level of disorder (e.g., NSSI without acute suicidality, one or more significant comorbidities) may benefit from longer (12–16-week) and/or more intensive treatments that include parallel treatment for comorbid disorders (Kredlow et al. 2017) or use a phase-based approach that incorporates strategies from BPD treatments (e.g., skills training) prior to and after targeting PTSD (Bohus et al. 2013). Finally, longer-term treatment (e.g., 1 year) that provides integrated treatment for BPD, PTSD, and other co-occurring problems may be necessary for BPD patients with a severe level of disorder (e.g., recent suicidal and/or self-injurious behaviors, multiple severe comorbidities) (Harned et al. 2014). Furthermore, now that efficacious treatments for co-occurring PTSD and BPD have been established, research is beginning to evaluate how to train therapists to deliver these treatments (e.g., Harned et al. 2021a) and to examine their effectiveness in routine practice settings (e.g., Harned et al. 2021b). Additional implementation and

effectiveness research is needed to determine how best to make these treatments more widely available to the patients who need them.

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The Complexity of Chronic Pain in Traumatized People: Diagnostic and Therapeutic Challenges

19

Naser Morina and Niklaus Egloff

19.1 Chronic Pain and Trauma

Posttraumatic stress is more than having intrusions, avoidance, negative alterations in cognitions and mood, and hyperarousal symptoms. Another frequent consequence of severe traumatic events is physical symptoms. Physical complaints, in particular, pain, have been found to be among the most frequently reported symptoms in individuals with PTSD (McFarlane et al. 1994).

Pain symptoms are particularly often seen in the veteran population (Fishbain et al. 2017; Otis et al. 2003; Shipherd et al. 2007), and they have been found to be the most common complaint among torture victims (de Williams and Hughes 2020; Olsen et al. 2006). Pain symptoms seem also to play an important role in the aftermath of a traumatic event as pain has been identified as a predictor for development of posttraumatic stress symptoms (Norman et al. 2008).

Depending on the cause of the trauma, the frequency and type of comorbid pain varies. And vice versa: depending on the type and localization of a chronic pain, comorbid traumas vary in frequency and type (Beck and Clapp 2011).

Three clinical studies from Scandinavia showed however that approximately every fourth to fifth patient with chronic pain (20–29%) in pain clinics also fulfilled the criteria for PTSD (Linnemørken et al. 2020). Typically in patients with chronic widespread pain/fibromyalgia, high comorbidity rates of PTSD are found (Miró et al. 2020; Siqveland et al. 2017).

N. Morina (✉)

Department of Consultation-Liaison Psychiatry and Psychosomatic Medicine, University Hospital Zurich, University of Zurich, Zurich, Switzerland
e-mail: naser.morina@usz.ch

N. Egloff

Faculty of Medicine, University of Bern, Bern, Switzerland

Pain is a multidimensional, complex, and subjective perceptual experience. It often results from injuries related to events, such as occupational injuries, motor vehicle accidents, military combat/war situations, and torture. According to the International Association for the Study of Pain (IASP; Kennedy and Abd-Elsayed 2019), pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage (Merskey and Bogduk 1994) and it is one of the most frequent causes/symptoms for patients to seek medical help (Dahlhamer et al. 2018). It is known that after a traumatic event involving physical injury, pain may be a direct consequence of the injury but may become chronic over time via several steps and pathways, with psychological factors increasingly playing a role in pain maintenance (Young Casey et al. 2008). According to IASP, chronic pain is described as pain with a duration of more than three months, persisting after the injury has resolved. Chronic persisting pain is frequently associated with functional disturbance, emotional distress, reduced quality of life, and a high utilization of medical services. It also results in absenteeism and reduced work performance and is a frequent subject of litigation and high-cost insurance claims.

In the ICD-11, for the first time chronic pain is included as a systematic diagnosis where it is represented either as “chronic primary pain” (chronic pain as disease in itself) or “chronic secondary pain” (chronic pain where the pain is a symptom of an underlying condition) (Treede et al. 2019).

19.2 Relationship of Chronic Pain and PTSD

People suffering from chronic pain per se often have symptoms that are commonly co-occurring among individuals with PTSD or overlap with PTSD symptoms. For example, they frequently experience anxiety and depression symptoms. Further, they are often grumpy, disinterested and withdrawn, and angry or unhappy and suffer from nightmares and sleeplessness.

In light of the strong relationship between chronic pain and PTSD, some authors have described PTSD and chronic pain as “mutually maintaining” disorders in which components of PTSD maintain and exacerbate symptoms of pain and vice versa (Sharp and Harvey 2001). PTSD symptoms for example heighten arousal, which leads to increased muscle tension and muscular pain. This muscle pain can subsequently function as reminders of traumatic experiences and elicit further PTSD re-experiencing reactions (Carty et al. 2011). In a study in traumatized refugees, it was found that different patterns of somatic symptoms are associated with different clusters of PTSD symptoms (Morina et al. 2017).

Another theoretical model assumes the possibility of a shared vulnerability in PTSD and chronic pain (Asmundson et al. 2002), where some individual factors predispose certain subjects to develop both, chronic pain and PTSD, when exposed to certain life events.

Some authors emphasize a common neurophysiological basis of the phenomena of persistence of pain, persistence of stress, and persistence of anxiety in PTBS by

the mechanisms of imprinting and hypersensitivity (Egloff et al. 2013). A potentially traumatic event is capable of fixating emotional as well as somatosensory or nociceptive experiences. Imprinting is an extremely long-lasting and robust form of preserving experiences. Threat-induced hypersensitivity describes the hyperexcitability with regard to internal or external signals, such as stress, anxiety, and pain. Imprinting and hypersensitivity are well-proven and protective mechanisms in numerous everyday situations of minor threats. Many symptoms of patients with PTSD are based on these common mechanisms.

19.3 Neurobiology of Chronic Pain in Traumatized People

Neurobiological mechanisms play a major role in the development and maintenance of chronic pain. In the following, we distinguish between the neurobiological mechanisms of *sensitization*, *imprinting*, *pain enhancement by the anxiety system*, and *pain-numbing* mechanisms.

19.3.1 Neuronal Pain Sensitization Mechanisms

Pain disorders in traumatized persons often have in common that they are not fully explainable by a structural somatic injury. This fact could mislead an observer to rush to the conclusion that the pain reported by a patient is of a kind of “virtual” origin. In order to be able to understand this type of pain disorder, one must differentiate between the somatic injury that triggers pain and the neuroperceptive process of perceiving pain. If physical traumatization occurs, both of these are affected. Many traumatized people suffer from an initial local physical trauma as well as from a massive disturbance of the structures processing pain stimuli as a sequel of the PTSD. Generally, every persistent or severe local injury can cause a neurofunctional enhancement of the pain-transmitting structures (McLean et al. 2005; Sandkuhler 1996). The mechanism of chronification by an enhancement of synaptic pain transmission at the spinal level of the central nerve system is in general referred to as “central sensitization.” Secondly, it has to be stressed that certain local injuries themselves can directly provoke persistent neurogenic pain. A typical example of neurogenic pain is burning sensations of the soles after flogging torture, named *falanga* (see Case Report) (Prip and Persson 2008). Thirdly, animal experiments have shown that repeated high stress itself can lead as well to peripheral enhancement of pain stimuli: under the influence of the stress hormones (cortisol and epinephrine), the intracellular signal pathway in the nociceptive nerve fibers (nociceptors) is altered and leads to enhancement and prolongation of pain signals (Khasar et al. 2009).

Apart from the peripheral and spinal sensitization, increased pain sensitivity can also be of cerebral origin. The continued and intense experience of stress leads to an increase in pain sensitivity on the level of the brain via multiple neurofunctional mechanisms. Sensitization brings about an increased reaction to painful stimuli

(hyperalgesia) and an increased reaction even towards neutral stimuli (e.g., allodynia; Yunus 2008). At the neurotransmitter level, traumatization is associated with massive glutamate release induced by the amygdala (Nair and Singh Ajit 2008). Glutamate is a classical neuronal stimulus enhancer that generally plays a role in the sensitization and long-term potentiation (chronification) of synaptic signals (Blair et al. 2001).

Furthermore, in animal models, it has been shown that fear and pain stimuli influence each other in the limbic system. The anterior cingulate cortex (ACC) can be understood as a neuroperceptual interface where signals of somatosensory pain perception and affective connotation meet and overlap (Shackman et al. 2011). Experimental confirmation that pain and fear sensitization go hand in hand was demonstrated in animal experiments (Koga et al. 2015; Li et al. 2010). The authors demonstrated that both persistent pain and persistent fear lead to long-term potentiation in synapses of the ACC and thus contribute to permanent activity. This results in a lowering of the pain and fear threshold (Kang et al. 2015; Tang et al. 2005). In the “reverse conclusion,” it was shown that the chemical blockade of this synaptic long-term potentiation mechanism in the ACC leads to a reduction in the sensitivity to fear and pain, which again underpins the importance of this common somato-affective interface in the limbic system (Kang et al. 2015).

19.3.2 Imprinting as a Factor of Pain Chronification

Imprinting is an extremely long-lasting form of preserving experiences in the memory networks. As early as in the late 1980s, it was assumed that excessive neuroendocrine stress responses may lead to an overconsolidated memory of trauma (Pitman 1989). Furthermore, imprinting is the basis for subsequent mnemonic reactivations. Pain experiences in traumatized individuals are typically reactivated by stimuli associatively linked to the traumatic experience. The associative chains involved work both ways: trauma associations can evoke pain experiences and pain experiences can evoke trauma associations.

In clinical terms, we distinguish two types of memory-associated pain: firstly, “pain intrusions,” i.e., transient somatosensory flashbacks with the pain quality of the initial traumatic event, and, secondly, “chronic memory pain” which is characterized by its persistent nature. Often there is a direct anatomical relationship to the initial pain-evoking event (Williams et al. 2010). For both types of pain, it seems that the central nervous system has irreversibly frozen the sensations of the primary pain impression by mechanisms of hypermnesia (Egloff et al. 2013).

19.3.3 Synergisms Between Pain System and the Anxiety System

Anxiety is one of the most decisive factors in relation to the risk of traumatization. Pain and anxiety are closely related physiologically as mentioned above. Whereas anxiety is a psychophysiological alarm function that signals a situational threat to

integrity, pain is a psychophysiological alarm function that signals a physical threat to integrity. In animal experiments, it has been shown that with respect to neuroperception, an additive effect takes place if both alarm systems are activated (Koga et al. 2015).

Violence in the context of assaults, accidents, or natural disasters regularly lead to activation of both the pain and the anxiety systems. It is intuitively understandable that fear sensitization (overanxiety) remains after the experience of violence. Clinically, as mentioned above, it is often the case that stress and pain sensitization also result. In a study, it was shown that the biographical stressor of direct war experience statistically predicts a significantly increased pain sensitivity (Studer et al. 2017).

19.3.4 Pain-Numbing Mechanisms

Besides the aforementioned pain-intensifying mechanisms related to trauma, there are also several mechanisms of endogenous-reactive pain-numbing mechanisms in situations of serious threat: trauma-associated situations exceeding the maximal subjective tolerance give rise to dissociative processes. The latter can be followed by clouding of consciousness, e.g., through the effect of endorphins (self-narcotization), or by emotional and physical numbness (auto-anesthesia) (Pitman et al. 1990). These neurofunctional losses reflect an attempt to turn a desperate situation that is intolerable into one that is “survivable.”

Furthermore, chronic pain in traumatized persons is often associated with cutaneous numbness. Normally the areas with reduced sensitivity to touch and temperature do not correspond with the anatomical distribution of peripheral nerves. These nondermatomal somatosensory deficits are of central origin (Egloff et al. 2009; Mailis-Gagnon and Nicholson 2011). Possibly, investigations showing reduced pain sensitivity in posttraumatic stress disorder are explained by such pain-numbing mechanisms (Moeller-Bertram et al. 2012). It is important to note that trauma-induced hyperalgesia and pain-numbing mechanisms do not exclude each other since intense pain is typically a prerequisite for the triggering of dissociative pain-numbing processes. Typically, chronic pain and reduced superficial sensitivity appear concomitantly (Mailis-Gagnon and Nicholson 2011). This “paradoxical” situation is observed in the clinician’s workaday life, i.e., patients complain about increased pain although the limbs in question show a reduced superficial sensitivity to touch and temperature (Egloff et al. 2009; Mailis-Gagnon and Nicholson 2011).

19.4 Diagnosis and Differential Diagnosis of Pain in PTSD

As described, clinically significant chronic pain is a complex phenomenon with substantial biological, psychological, and social aspects which must be given attention diagnostically. Clinicians treating patients with PTSD should include a systematic pain assessment into their standard clinical routine to facilitate case

conceptualization for the patients with chronic pain. A successful treatment of the pain syndromes in traumatized patients requires always a careful history taking and a detailed physical assessment including neurological, orthopedic, and psychiatric aspects of pain.

A pain assessment should focus on the following key elements: (a) pain severity and dynamic, (b) pain locations, (c) pain-related attitudes, (d) pain-related beliefs, (e) pain-specific emotional distress, (f) pain-related coping styles, and (g) pain-related functional capacity. To facilitate the examination of clinically significant pain characteristics, screening open-ended questions can be asked, e.g., “Where do you feel pain?” “On a scale from ‘0 = not at all’ to ‘10 = worst pain imaginable,’ how bad is your pain right now?” “Is your pain present all the time?” “What makes your pain symptoms worse?” “What makes the pain better?” “What daily/work activities does your pain interfere with?” These key questions can be followed by self-report instruments to assess the pain symptoms.

With regard to PTSD not all health-care providers are aware of and trained in the assessment of people suffering from posttraumatic stress symptoms. The presence of an undiagnosed PTSD can lead to complications, more pain, and insufficient treatment. The reverse is true as well: psychologists treating traumatized patients should bear in mind the broad spectrum of different pain origins.

The clinical differential diagnosis of pain in traumatized people should include the following possibilities of pain origin:

- a. Acute nociceptive pain (pain in relation with a concrete physical lesion, e.g., an injury in a car accident)
- b. Persistent chronic nociceptive pain (long-lasting pain resulting from an initial or still persistent physical lesion, often leading to secondary pain enhancement effects, depression, and insufficient pharmacological treatment effects)
- c. Neuropathic pain (structural lesion of nerves, e.g., neuropathic pain following torture)
- d. Complex regional pain syndromes type I or type II (reactive persistent local pain syndrome with additive neuroinflammatory and neurovascular symptoms, including peripheral and central pain mechanisms)
- e. Stress-associated myofascial pain syndromes (chronic muscular pain syndrome, e.g., in the context of stress-induced tension headache)
- f. Pain symptoms resulting from enhanced pain sensitivity (e.g., generalized hyperalgesia in fibromyalgia-like disorders, widespread pain syndromes)
- g. Chronic memory pain (long-lasting local pain syndromes at the anatomical location of earlier physical traumatization, without any explanation of persistent local injuries)
- h. Pain flashbacks (e.g., transient memory-based somatosensory pain experience triggered by associations)
- i. Drug-associated pain syndromes (e.g., analgesic-induced headache or opioid-induced hyperalgesia)
- j. Combinations of (a)–(i)

19.5 Treatment for Comorbid PTSD and Chronic Pain

Dealing with chronic pain is a challenging struggle that requires a life management approach focused on caring for physiology and psychology. This can be even more difficult when the source of pain encompasses (psychological) trauma. Given the high occurrence of chronic pain and PTSD among traumatized persons and the negative impact this relationship can have on quality of life, it is important that treatments address these conditions in an effective manner. Patients with comorbid pain and PTSD experience more intense pain, more emotional distress, higher levels of life interference, and greater disability than pain patients without PTSD or PTSD patients without pain symptoms. There are good evidence-based treatments for each of the two conditions (Forbes et al. 2020; Hoffman et al. 2007).

As described elsewhere in this book, cognitive behavioral therapy is the most effective treatment for PTSD. As is true for every PTSD treatment approach, psychoeducation should be an integral part of the treatment of PTSD and chronic pain. During the treatment, the patient and the therapist collaborate to develop an individual model of the patient's current complaints and possible ways to recovery. Many of the cognitive behavioral therapy tools can also be used for the adaptive chronic pain management. These tools, for example, can be used not only to specifically address how fears and avoidance of the trauma may lead to maintain the symptoms and decrease the ability to function but also to discuss how pain may be a trigger of reminders of the trauma and increase the arousal, anxiety, and avoidance. By gradually increasing coping and management skills and thereby the activity level, the patients may also be able to decrease their focus on pain and engage more in life again. One very important issue in dealing with chronic pain and PTSD patients is to be aware of feelings of being out of control and helpless. It is very important for health-care providers to understand that patients try to regain a sense of control over their lives.

Another evidence-based therapeutic approach for lessening pain-related distress is a biofeedback-oriented intervention. Biofeedback is a treatment method by which patients learn how to change psychophysiological parameters to improve their health by using signals from their own bodies. There is evidence demonstrating effects of biofeedback on posttraumatic stress symptoms (Tatrow et al. 2003). However, biofeedback should only be used as an additional treatment tool in conjunction with a state-of-the-art intervention for PTSD and chronic pain.

In the scientific literature, pain specialists are increasingly recognizing the need for a multimodal approach to pain management (Forstenpointner et al. 2018; Otis et al. 2009). Therefore therapeutic guides for planning personalized, interdisciplinary multimodal pain therapy are helpful (Grolimund et al. 2019). Table 19.1 shows an example of such a multi-stage therapy procedure.

Table 19.1 Multi-level pain assessment and multimodal pain therapy in patients with chronic pain and PTSD

Level of intervention	Potential key issues and intervention methods
Level 1: peripheral nociception	In many trauma-associated pain disorders, some nociceptive partial pain problem persists, e.g., in form of painful muscular tension. The therapeutic goal is to limit the action of this peripheral-nociceptive input through interventions such as muscle-relaxing biofeedback, local heat, heating pads, warming ointment, and warm baths
	Sometimes conventional analgesics are employed. Since supportive long-term therapies are often of concern, its usage is restricted due to concern for side effects of drugs, such as nonsteroidal anti-inflammatory drugs (NSAIDs) and opiates. Each analgesic prescription must be critically checked regarding its effectiveness and side effects
	On the behavioral level, an important component concerns dosaging of the individual's physical capacity, e.g., taking regular breaks, physiotherapeutic posture training, and activating movement therapy
Level 2: autonomic imbalance	Stress promotes the development of pain-processing disorders; stress acutely amplifies pain. Reciprocally, pain generates vegetative and emotional stress
	Interventions include the correction of sympathovagal imbalance by strengthening the parasympathetic nervous system through practice and regular exercise of a relaxation method (progressive muscle relaxation according to Jacobson, yoga, meditation, autogenic training, biofeedback)
	Analysis of the individual biographical stress profile along with the creation of individual orientated stress relief measures
	Sleep hygiene measures
Level 3: perceptual processing of pain	Use of central pain-modulating drugs, such as serotonin reuptake inhibitors or tricyclic antidepressants
	Body awareness therapy: defocusing on pain training instead of pain scanning, enjoyment and pleasure training, mindfulness exercises, autosuggestion
	Distraction strategies: music, media, occupational therapy, excursions, contacts, meaningful everyday tasks
	Planning of an individualized home program
Level 4: emotional pain amplification	Anxiety management and disorder-specific cognitive behavioral therapy, antidepressant medication
	Conflict resolution therapy to relieve biographic and daily stressors. Important is a distinction between pain-causing distress and pain-maintaining emotional stressors
	Awareness regarding the handling of emotions and emotional self-efficacy training
	Participation in pleasurable group therapy dealing with drama, music, humor
	Personal diary, rituals

Table 19.1 (continued)

Level of intervention	Potential key issues and intervention methods
Level 5: mental pain amplification	Restructuring of dysfunctional cognitions (“I have an unknown cause of pain,” “I’m going crazy,” “I will end up in a wheelchair,” “I must not move,” “Illness is punishment,” etc.)
	Pain group therapy; goal: learn one’s own self-competence and self-efficacy; from “pain victim” to “pain manager”
	Restructuring of dysfunctional behavior (e.g., excessive activity due to self-esteem deficit, fear-avoidance behavior)
	Involvement in pain information training (=patient education) through presentations, leaflets, movies
Level 6: social consequences	Chronic pain and trauma always have an effect on partnership, family, and friends: involvement and information of the partner and possibly the children. Seek relief solutions that are viable for everyone. Note if the disease has taken on a relationship regulatory influence
	Problems with health/social insurances: in many cases patients with pain disorders make frustrating experiences with insurances. Involve professional consultants
	Generally: social impacts can become an independent disease-maintaining stressor. Integrating these secondary social effects of the disease is an important part of the multimodal pain therapy

Pain disorders in traumatized people are usually multi-causal. Consequently, the therapeutic measures are applied on various levels. One speaks of an individualized multimodal therapy

19.6 Case Report

A 54-year-old woman presented with chronic pain disorder at our tertiary pain clinic. The patient suffered from whole body pain, especially in the area of her back and thighs. Her constant pain was increased by stress and anxiety as well as by physical activities, such as standing for some time, walking, or lying down. Additionally, the patient complained about numbness on the right side of the body as well as burning sensations in the area of the foot soles. The pain was associated with disturbed sleep onset and sustained insomnia accompanied by nightmares and fear of “dark and bad thoughts.” She was easily startled and felt immediately “paralyzed” if she heard certain noises.

A detailed psychosocial exploration revealed the following history: the patient, a professor of history, had been a human rights activist in her native country in the Middle East. Due to her political activities, she was persecuted by the police and jailed. There were several methods used to wear the patient down and to torture confessions from her. The patient saw the origin of the back pain as well as the pain in the area of the thighs in her forced fixation in a tire during several days (Fig. 19.1).

Diagnostically speaking, the patient fulfilled all the criteria for a posttraumatic stress disorder. The clinical examination showed visible results of the physical torture in the form of 18 stab wound scars in the area of the sacral lumbar spine. The

Fig. 19.1 Torture of a 54-year-old woman who was politically persecuted. The drawing is based on explanation and a draft by the patient



neurological examination additionally revealed a superficial hyperesthesia of the right side of the body. Such nondermatomal somatosensory deficits (NDSs), typically with hemibody distribution, are known in individuals with high levels of adverse life events in combination with somatic pain events (Egloff et al. 2012). The burning foot sole pain was a result of the lashing (falanga). This form of torture typically leaves a burning and neuropathic-like pain which often increases during the winter months (Prip and Persson 2008). X-rays and MRI of the back and pelvis did not reveal any structural explanations for the pain (e.g., fractures, discopathies). Although there were hardly any visible marks and scars left, the physically abused parts of the body were irreversibly imprinted in her pain perception system (Fig. 19.1).

The patient went through several treatment phases. From the very beginning, it was important for her that the therapist was familiar with trauma-induced bodily pain as well as the psychological sequelae of the traumatization. The pain interview and the examinations were performed very carefully with respectful attention to any signals of stress or dissociation. The formulation of the questions allowed the patient to reveal what and as much as she wanted of her traumatic past. Nevertheless, a coherent story began to develop after a short time.

At the beginning of the treatment, the therapist explained that it is typical that many forms of pain cannot be made visible by MRI or X-rays, noting that, in any case, X-rays never reveal the pain but only marks of physical injuries. The fact that the MRI and X-ray imaging in her case showed no persistent structural lesions was a relief for the patient. The patient's observation that her type of bodily pain was of the type that increased in stress situations allowed a change in her pain model: her body developed an "alarm mechanism" with hypersensitivity to any form of threat and stress, including pain. Additionally, these memories were experienced and expressed in her body (hypermnnesia). The traumatized organism cannot forget the sufferings. She realized that hyperalgesia as well as hypermnnesia had developed as essential mechanisms of "protection" for her body.

After having explained the pain sufficiently for the patient, she was also ready for psychotherapeutic sessions focusing on the strengthening of her resources, the

treatment of her trauma, as well as the reduction of stress. Her resources luckily included a very strong and intact sense of self-respect that proved to be important and meaningful in her recovery. Her belief in human rights and her ability to express her personal feelings and thoughts facilitated the psychotherapeutic process. Reinforcement of her sense of self-respect as well as her growing understanding of the psychophysical nature of her symptoms played an important stabilizing role in her treatment as well as in her personal development and the management of her everyday life. With the help of an additional behavioral therapy, focused mainly on reducing flashback-inducing triggers, the patient succeeded in gaining also more and more control over the other trauma-associated stress symptoms and she overcame the existing “fear-avoidance behavior” step by step. Additionally, treatment for her bodily pain symptoms included a carefully tailored daily (home) program of physical reconditioning and music-supported exercise therapy. With the exception of intermittent use of medication, paracetamol, this patient did not need any further medical therapy.

19.7 Conclusion

As stated above, there is considerable clinical and empirical evidence regarding the comorbidity of chronic pain and trauma-related disorders. Patients with PTSD have higher rates of numerous clinically significant chronic pain conditions. Likewise, patients with chronic pain are often diagnosed with posttraumatic-related stress disorders. Accordingly, patients with comorbid chronic pain and PTSD are more distressed and impaired than those with only one or the other type of disorder. Due to the interaction of these conditions, patients can also be more complex and challenging to treat, especially if there is the need to convey to them that it is likely that they will need to “live with the pain” and “manage it” for the rest of their lives. The assessment of chronic pain in traumatized patients requires consideration of broad etiological factors. It is important to work out with the patient a “model of the pain,” which allows a proper understanding and action perspective.

Interdisciplinary diagnostics and therapy seem to be crucial for therapists and physicians, including psychotherapists and physicians experienced in pain diagnostic and therapy and therefore favor a tailored individualized multimodal and integrative intervention addressing clinically significant pain and posttraumatic stress symptoms. The best way to do so would be to work in interdisciplinary teams in either inpatient, outpatient, or day hospital settings.

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Part V

Treating Special Populations



Evidence-Based Treatments for Children and Adolescents

20

Markus A. Landolt and Justin A. Kenardy

20.1 Introduction/Background

20.1.1 Epidemiology of Trauma and Trauma-Related Disorders in Children and Adolescents

Trauma can affect all ages: similar to adults, children and adolescents may experience a wide range of potentially traumatic events and develop trauma-related psychological disorders. Indeed, exposure to trauma seems to be a rather common phenomenon in childhood. Epidemiological studies confirmed that the number of children and adolescents experiencing potentially traumatic events is astonishingly high with lifetime prevalence rates between 50% and 90% (Copeland et al. 2007; Elklit 2002; Kilpatrick et al. 2003; Landolt et al. 2013; Lewis et al. 2019). For example, a population-based study in almost 7000 Swiss adolescents found that 56.6% of the girls and 55.7% of the boys reported that they had experienced at least one traumatic event in their life (Landolt et al. 2013). Experiences of physical and sexual abuse and other types of violence, war, natural disasters, severe illness, accidents and emotional and physical neglect are among the most frequent events that traumatise youth. While many epidemiological studies confirmed that the experience of potentially traumatic events is quite common in childhood and adolescence,

M. A. Landolt (✉)

Department of Psychosomatics and Psychiatry, University Children's Hospital, University of Zurich, Zurich, Switzerland

Division of Child and Adolescent Health Psychology, Department of Psychology, University of Zurich, Zurich, Switzerland

e-mail: markus.landolt@kispi.uzh.ch

J. A. Kenardy

School of Psychology, University of Queensland, St Lucia, QLD, Australia

e-mail: j.kenardy@uq.edu.au

the lifetime prevalence rates of PTSD itself varied between 0.5% and 9%. PTSD, however, is not the only psychological disorder that can develop after experiencing a traumatic event. Frequent comorbid disorders include anxiety, depression and conduct disorder (Copeland et al. 2007; Lewis et al. 2019). In preschool children, oppositional defiant disorder and separation anxiety disorder are the most common comorbid disorders (Scheeringa and Zeanah 2008). However, these disorders can also present after traumatic exposure without the child meeting the diagnostic criteria for PTSD (De Young et al. 2012) which may make the formulation and treatment of the presenting problem more difficult. Moreover, traumatised children and adolescents report a considerably impaired health-related quality of life, thus showing that trauma negatively impacts general functioning and well-being of children and adolescents (Alisic et al. 2008; Landolt et al. 2009).

20.1.2 Assessment of Child Trauma and Validity of Diagnostic Criteria for Children

Case Example

Seven-year-old Peter, his 2-year-old sister Mary and his parents were eating lunch at home on a Sunday when a truck loaded with barrels of gasoline crashed just in front of the house. After initial impact, some of the barrels exploded, setting the family's house on fire within seconds. The parents immediately took their children out of the house through the back door. Fortunately, no one was hurt. The house, however, burnt down and was completely destroyed.

All family members developed acute stress symptoms in the immediate aftermath of the event. Peter had difficulties sleeping because of recurring nightmares and displayed many symptoms of hyperarousal. Mary became very reluctant to leave her mother, cried a lot, became very distressed when her mother took her to day care and insisted sleeping in the parents' bed. Peter's mother and father both had sleeping problems and intrusive thoughts and were hyperalert.

Around 4 months later, Peter's father's symptoms had resolved; he was back at work and showed no functional impairment. The two children, however, still had many symptoms. Peter met full DSM-5 criteria for PTSD. He had nightmares and flashbacks which were triggered by trauma-related cues (criterion B); he did not want to talk about the accident, persistently avoided going near the burned house, would not go into any room with a burning fireplace and became very distressed if he saw a fire on television (criterion C); he showed changes in his thoughts and mood since the fire, in that he became more negative and pessimistic, and less interested in playing with his friends (criterion D); he was hypervigilant, had concentration problems in school and showed an exaggerated startle response (criterion E).

Two-year-old Mary was also symptomatic and considerably impaired in her daily functioning. She had developed a strong separation anxiety and refused to

attend day care. She was often very irritable and showed aggressive behaviour towards both parents. Mary also continued to not sleep alone, she withdrew from other children and relatives and she showed regressive behaviour (thumb sucking). There were no explicit indications that she experienced intrusions. In contrast to her school-age brother, young Mary did not meet criteria for any of the common trauma-related diagnoses, her symptoms being less specific. Still, she was clearly symptomatic and impaired in her function.

Peter's mother also developed PTSD which required treatment. If a person with PTSD has children, it is very common that parenting capacities are negatively affected, and this in turn may have a detrimental effect on the child. While Peter's father attempted to maintain the pre-trauma parenting style, these attempts were often undermined by the mother who had become very overprotective and more lenient and inconsistent with behaviour management. This contributed to the development of problematic behaviours including avoidance, aggression and distress in the children. Furthermore, if one parent is symptomatic and the other is not, there is often conflict about different parenting strategies.

This example highlights the differential impact of a traumatic event on children in different ages and shows the importance of the family system in understanding the child's symptomatology.

20.1.2.1 Diagnostic Issues

Research has confirmed that children's reactions to traumatic events differ to some extent from those of adolescents and adults, as shown in the previous case example. Particularly, preschool-age children's posttraumatic stress symptoms are very often less specific than those of older children and adolescents, making the diagnostic criteria less valid for this age group (Scheeringa 2011). Since the DSM-III-R has been published, diagnostic criteria for PTSD have therefore included developmental considerations for children and adolescents such as repetitive play. However, it was only with the publication of the DSM-5 (American Psychiatric Association 2013) that a separate PTSD subtype for preschool-age children (<6 years) has been defined. Still, however, conceptualisation of trauma-related disorders in the youngest children (<2 years) remains unclear (De Young and Landolt 2018).

When conducting diagnostic assessments with children, developmentally sensitive measures must be used. Assessment needs to involve a comprehensive diagnostic interview with the caregiver and, if the child is older than 7 years, the child itself. Fortunately, several well-validated standardised measures are available (see Table 20.1).

Table 20.1 Standardised measures of PTSD for children and adolescents

Measure	Authors	Specifics
Child and Adolescent Trauma Screen (CATS)	Sachser et al. (2017)	Self-report measure; version for preschool-age and school-age children and parents (proxy rating). Assessment of PTSD symptoms according to DSM-5
Clinician-Administered PTSD Scale for Children and Adolescents (CAPS-CA-5)	Pynoos et al. (2015)	Structured clinical interview for ages 8–18 years; assessment of PTSD according to DSM-5
UCLA PTSD Reaction Index for DSM-5	Pynoos and Steinberg (2013)	Self-report measure; version for preschool-age and school-age children and parents (proxy rating). Assessment of PTSD symptoms according to DSM-5
Child PTSD Symptom Scale for DSM-5 (CPSS-5)	Foa et al. (2017)	Self-report measure for ages 8–16 years; assessment of PTSD according to DSM-IV
Trauma Symptom Checklist for Children (TSCC)	Briere (1996)	Self-report measure for ages 8–16 years; broadband measure of posttraumatic symptoms (anxiety, depression, PTSS, dissociation, etc.); norms available
Trauma Symptom Checklist for Young Children (TSCYC)	Briere (2005)	Caregiver report; broadband measure of posttraumatic symptoms; norms available
PTSD module of the Diagnostic Infant and Preschool Assessment (DIPA)	Scheeringa (2020)	Structured interview with the caregiver; for children ages 1–6 years; assessment of preschool type PTSD according to DSM-5

20.2 Early Intervention: Treatment of Acute Stress and Prevention of PTSD

20.2.1 Rationale

Although many children exposed to a potentially traumatic event are likely to experience little ongoing impact, a significant proportion will have clinically significant ongoing difficulties (e.g. Le Brocque et al. 2010). If left untreated, symptoms can follow a chronic and unremitting course. The impact of having untreated PTSD starting in childhood is likely to be life changing and lifelong for an individual. Longer-term effects include social and emotional development problems, academic problems, psychiatric disorders, alcohol abuse and drug-related problems, risk-taking behaviours, problems with the law and impaired physical health (Mersky et al. 2013). Whenever the trauma occurs, the development trajectory of the child is likely to be negatively affected so that development is either delayed or regression in the developmental stage occurs. However it must be noted that the impact of such a delay can be ongoing if remission does not occur, either naturally or through intervention.

The impact and cost of PTSD in childhood to the community is likely to be much greater than for adult PTSD since the effects are potentially lifelong. For this reason,

early intervention should be prioritised especially where children who are at higher risk can be identified and targeted for intervention. In this way, the cost-effectiveness of such early intervention is optimised.

20.2.2 Intervention Programmes and Components

There are a number of different protocols and manuals for early interventions in acutely traumatised children. A programme for use in the immediate aftermath after trauma is *Psychological First Aid* (PFA), which has been developed in the United States (Ruzek et al. 2007) and a version for use specifically with children in schools is *Listen Protect Connect* (Ramirez et al. 2013). It consists of specific components adapted for use in schools with children and can be employed as an immediate care model by non-mental health professionals following exposure to all types of traumatic events. However, it is crucial that it is delivered within a framework that includes access to specialised care.

Many early intervention protocols and manuals include components based on cognitive-behavioural therapy (e.g. trauma narrative, some kind of exposure, training of coping skills), and most of them include the child's caregivers in the intervention. An almost universally used component of early interventions in children is information provision (psychoeducation). Hereby, the content should be oriented to the events and the age group. Information given following trauma should include:

- Likely outcomes, especially emphasising positive outcomes.
- Use of effective coping strategies.
- Further avenues of care if required.
- How to decide if further care may be required.

Information can also include information for and about caregivers, siblings and teachers who may also be affected by the trauma or the child's symptoms. Le Brocque et al. (2017) found that information targeted specifically at teachers to assist them in helping children after a potentially traumatic event was highly valued by teachers. Ideally information provision should be part of an overall stepped care approach that includes screening and ongoing assessment together with appropriate levels of intervention, specifically to those children who based on the screening are at risk for PTSD (Kazak et al. 2006; March et al. 2015).

There are several validated screening tools available for children following trauma. These include the *Screening Tool for Early Predictors of PTSD* (STEPP) (Winston et al. 2003) and an Australian adaptation called the STEPP-AUS (Nixon et al. 2010), the CTSQ (Kenardy et al. 2006) for school-aged children and the *Pediatric Emotional Distress Scale-Early Screener* (PEDS-ES) (Kramer et al. 2013) for preschool children.

20.2.3 State of Evidence

There is a small but growing evidence base available on early interventions in children (Kenardy et al. 2020). Overall, these studies indicate some benefit of early intervention although there is an urgent need for more work using larger samples and more robust designs. A randomised controlled trial by Berkowitz et al. (2011) examined the effects of the *Child and Family Traumatic Stress Intervention* which targets child–caregiver relationship and coping behaviours in children with PTS symptoms. There are some concerns about the quality of methodology of the study including lack of blinding of outcome assessments. Nevertheless the study found significant reduction in PTSD symptoms compared to a control condition.

Also a pilot randomised controlled study delivered an early intervention which employed cognitive-behavioural principles and practices into a standalone online game format to school-aged children exposed to an acute medical event (Kassam-Adams et al. 2016). This study found differences of medium effect in reductions of PTS symptoms in school-aged children compared to those in a waitlist control out the 12 weeks. While this study did not specifically target children with PTS symptoms, a post-hoc exploratory analysis found that at-risk children (those with PTSS) demonstrated greatest impact of the intervention.

Of particular note, one recent international multi-site randomised controlled trial compared a two-session cognitive-behavioural early intervention to treatment as usual in at-risk preschool-age (mean age of 2 years) children. This study demonstrated promising results by showing significant differences in the incidence of PTSD and functional impairment between the comparison groups in favour of CBT, as well as trending results for PTS symptoms ($p = 0.055$) (Haag et al. 2020).

20.2.4 Current Recommendations

Children of all ages, from infants and preschoolers to older children and adolescents, are commonly affected by exposure to traumatic events. In the case of sexual abuse and accidental injury, these rates of exposure can be higher than for adults. Clinicians and healthcare providers should therefore assess psychological impact routinely, will need to be able to provide the care required and if unavailable seek referral to specialist services. Use of screening and a stepped care approach in combination with an appropriate intervention and referral as needed is recommended but more evidence to support this approach is sorely needed. There is some exciting evidence emerging about the likely value of early intervention following trauma, particularly in children with PTS symptoms.

20.3 Treatment of PTSD and Other Trauma-Related Disorders

20.3.1 Fundamentals of Therapy

Many different treatment approaches and techniques are used with traumatised children and adolescents. To meet the specific needs of the individual child and to consider the severity and the degree of impairment of the child's PTSD symptoms, these approaches and techniques are very often combined by practitioners (multi-modal treatment approach). Yet, although there are considerable differences between approaches, the following fundamental aspects are considered to be important, independent of the specific approach (e.g. Landolt et al. 2017):

- There is nowadays very convincing evidence for children across all ages that trauma-specific treatment approaches that directly address the traumatic experience are superior to nonspecific therapies in reducing PTSD symptoms.
- Involvement of caregivers: Since a child, especially a younger child, is highly dependent on caregivers, treatment approaches have to include the child's caregivers, if available. Studies have shown that the inclusion of parents in treatment is associated with a greater reduction of symptoms.
- Since children with PTSD often have comorbid disorders such as depression, ADHD or anxiety disorders, treatment of such conditions should be integrated.
- Treatment approaches should not only focus on symptoms but also on enhancing daily functioning, development and resiliency.
- Age specificity of the treatment: Trauma therapies need to consider developmental issues.
- Consideration of the child's and family's cultural and social background.
- Trauma therapy is usually based on a phase model. Most treatment approaches are implicitly or explicitly based on a phase model of trauma therapy which includes three different stages: (1) safety and stabilisation (physical, psychological, social), (2) processing of traumatic memories (exposure, trauma narrative) and (3) a phase of reintegration and reconnection (transition from being a victim to being a survivor).

20.3.2 Cognitive-Behavioural Therapy

20.3.2.1 Background

Cognitive-behavioural therapy (CBT) combines two well-established types of psychotherapy which have been shown to be very effective in treating anxiety and stress-related disorders: behaviour therapy and cognitive therapy. The CBT model

explains the development of trauma symptoms based on principles of learning theories (e.g. classical and instrumental learning) and cognitive theories (e.g. dysfunctional thoughts, beliefs and assumptions about the traumatic event and oneself). CBT then aims at changing behaviours, thoughts and emotions of traumatised children and adolescents through specific treatment components.

20.3.2.2 Procedure/Components

Many variations of trauma-specific CBT exist; most of them, however, share the following components and combine both individual sessions with the child and the parent and conjoint parent–child sessions:

- Psychoeducation about trauma-related symptoms and the CBT approach.
- Affective modulation skills for managing physiological and emotional distress (used in preparation for the exposure-based part of the therapy).
- Training of coping skills.
- Cognitive processing and restructuring of dysfunctional cognitions.
- Creation of a trauma narrative.
- In vivo exposure to traumatic reminders (graduated exposure to trauma-related stimuli).

Not all CBT models for traumatised children include all of these components (e.g. trauma narrative or cognitive restructuring missing). Others, however, add additional components such as training of parental skills or standardised inclusion of important systems such as the school. As Dorsey et al. (2011) highlight, CBT treatment approaches also include common structural components, including modelling, coached practice of new skills during and in between sessions.

The most widely used and best researched CBT approach to treat PTSD in children and adolescents is the trauma-focused CBT (TF-CBT) protocol (Cohen et al. 2017) which has initially been developed for treating sexually abused school-age children and their nonperpetrating parents. In the last decade, the method has now successfully been applied to a wide variety of children with different traumatic experiences. Moreover, Scheeringa et al. have shown that TF-CBT with some minor adaptations is also effective in preschoolers (Scheeringa et al. 2011; Scheeringa 2016). TF-CBT has also been adapted for different cultural backgrounds and for childhood traumatic grief. Besides the TF-CBT, there are currently several other manualised CBT protocols for child PTSD being used and studied, among them, for example, Cognitive Therapy (Perrin et al. 2017), Narrative Exposure Therapy for Kids (KIDNET) (Ruf et al. 2010), a childhood and adolescent version of Prolonged Exposure Therapy (Aderka et al. 2011; Capaldi et al. 2017), Skills Training in Affect and Interpersonal Regulation for Adolescents STAIR-A (Gudiño et al. 2017) or the Seeking Safety Therapy (Najavits 2002). The website of the Child Traumatic Stress Network lists many of these protocols (www.nctsnet.org).

20.3.2.3 Evidence

There are many randomised controlled trials showing that CBT, in particular TF-CBT, is highly effective in reducing symptoms of PTSD, depression and behaviour problems in children and adolescents after different types of single or multiple (complex) trauma in an individual or group setting (for an overview, see for example Gutermann et al. 2016 and Morina et al. 2016). Trauma-specific CBT has both proven to be superior to a child-centred, supportive treatment and to a waiting list control group. The current guidelines for the treatment of child PTSD from the International Society of Traumatic Stress Studies (ISTSS 2019) as well as the current NICE guidelines (2018) from the UK both conclude that CBT has the highest level of evidence for the treatment of child PTSD. Therefore, the use of CBT to treat child and adolescent PTSD is highly recommended. However, evidence for preschool-age children, for specific ethnic minorities and for certain types of trauma (e.g. medical trauma) is still limited, and more research is needed.

20.3.3 Eye Movement Desensitisation and Reprocessing (EMDR)

20.3.3.1 Background

Developed by Francine Shapiro in the 1980s, Eye Movement Desensitisation and Reprocessing (EMDR) is based on the premise that adaptive information processing following a traumatic event is adversely affected by emotions and dissociation, leading to incomplete processing of experience in memory. The use of a dual-attention task, recall of thoughts, images and sensation at the same time as attending to the visual stimulus of a moving finger or equivalent is the core technique in EMDR (Shapiro et al. 2017). The proposed mechanism of change is that the dual attention facilitates more complete information processing of the traumatic memory.

20.3.3.2 Procedure/Components

EMDR is usually delivered in the following eight phases: history taking and treatment planning, preparation, assessment, desensitisation, installation, body scan, closure and re-evaluation. The main part of the intervention involves moving through the assessment to the body scan phases repeatedly until the traumatic experience is processed.

EMDR has been applied with traumatised school-aged children. There are age-appropriate modifications to the method (Tinker and Wilson 1999), and the intervention is directed at the child without formal involvement of parents, although parents are provided with support and psychoeducation.

20.3.3.3 Evidence

There is sufficient evidence to strongly support EMDR as an evidence-based intervention for adults (Olf et al. 2020). This evidence comes from multiple randomised controlled trials and meta-analyses. However, there is less evidence supporting the

application of EMDR with children. A meta-analysis (Rodenburg et al. 2009) identified an emerging body of studies that compared EMDR to a waiting list control, to treatment as usual and to CBT. Since then, there have been several other trials (e.g. Farkas et al. 2010; Kemp et al. 2010; de Roos et al. 2017). Of these the randomised controlled trial of de Roos et al. (2017) is of the highest quality. Using a three-armed design, the authors compared EMDR to a waiting list control and to TF-CBT. In this study of treatment-seeking school-aged children there was support for EMDR, with significant reduction in PTSD diagnosis compared to waiting list and no significant difference in outcome compared to TF-CBT. Two earlier studies that compared EMDR and CBT directly (Jaberghaderi et al. 2004; Diehle et al. 2015) also demonstrated equivalence between EMDR and TF-CBT, but, in comparison to de Roos et al. (2017), with more sessions of treatment. Overall, there is still a need for further high-quality research on EMDR. Nonetheless, EMDR is a treatment with some good empirical support with school-aged children. In contrast, there is no available evidence on EMDR with preschool children.

20.3.4 Psychodynamic Therapy

20.3.4.1 Background

The focus of psychodynamic treatment models are the emotional conflicts which are caused by the traumatic experience, particularly as they relate to the individual's early life experiences. Psychodynamic therapies do not focus on the symptoms alone but on the meaning and the effects of the traumatic events for the individual child and their development. Importantly, trauma and its effects are considered as different across individuals and one has to understand the individual child to provide appropriate treatment. Therefore, modern psychodynamic therapies may include different modalities, such as talk therapy, trauma-focused play therapy, parental counselling and interventions in schools. In younger children, based on theories of attachment, the focus of intervention is the mother (parent)–child relationship. Psychodynamic therapists also conceptualise issues of transference and countertransference and consider them in the planning of their therapies (Terr 2013).

20.3.4.2 Procedure/Components

Procedures and components of psychodynamic treatment of traumatised youth differ enormously dependent on the specific protocol or manual used, making it impossible to describe a typical procedure. Usually, however, psychodynamic therapy has a longer duration compared to other methods and does not solely focus on the child's symptoms.

The Child–Parent Psychotherapy (CPP; (Lieberman et al. 2015), for example, is conducted over 50 weekly sessions in a dyadic setting with the parent and the child (<7 years). Based on the observation and modification of the child–parent interaction during the therapy sessions, CPP aims at strengthening the child–parent relationship in order to allow the child a healthy development. Parents are provided with assistance to better interpret their child's behaviours and feelings and to provide

age-appropriate emotional support. Because CPP is usually provided in the context of domestic violence, a joint child–parent trauma narrative is developed.

A quite different treatment protocol was described by Trowell et al. (2002) with sexually abused school-aged girls. These authors' psychodynamic therapy involved 30 sessions consisting of three different phases: engagement, focus on issues relevant to the traumatised child, and ending.

Lenore Terr, one of the pioneers of child psychotraumatology, who works with a strong psychodynamic background, describes three principles of healing in working with traumatised children (Terr 2013): abreaction (emotional expression), context (cognitive understanding) and correction (behavioural or fantasised change). Above all, attachment is seen as a crucial issue in traumatised children.

20.3.4.3 Evidence

Efficacy of psychodynamic methods is supported by several randomised controlled trials as well as a large number of clinical case studies (Foa 2009). Most of the controlled studies have examined the effects of long-term relationship-based interventions for traumatised young children and their caregivers affected by domestic violence. Currently, Child–Parent Psychotherapy (CPP) is the best studied method (Lieberman et al. 2015). In sum, available studies show that CPP effectively reduces child and parent symptomatology and enhances the quality of attachment between child and parents. Nevertheless, psychodynamic methods are not recommended as first-line treatments for child and adolescent PTSD in all of the current treatment guidelines.

20.3.5 School-Based Interventions

20.3.5.1 Background

Schools can serve a key role in assisting children during a traumatic stress. Schools are often the haven of consistency and safety in the lives of children who have been exposed to traumatic stress to the community such as disasters or interpersonal trauma such as abuse or violence. The routine and predictability of schools combined with the longer-term oversight and care of students by teachers provides an excellent opportunity to bolster and support existing coping and resilience but also to identify students in need of further care that may not be within the school's capacity or capability. Schools provide a natural opportunity to engage, inform and resource children and their families in the face of community trauma. They also can act as the conduit to appropriate levels of care for children. However, in order for this process to be effective, there must be a close liaison between the school and specialist healthcare providers.

Schools have also been employed as the setting for intervention directly with children exposed to traumatic events with the goal of reducing the traumatic stress. This involves the direct delivery of psychological care within the school to students by therapists. Why should delivery within schools as opposed to other more usual settings be important? Jaycox et al. (2010) have demonstrated that following a

community trauma an intervention delivered within a school is not only as effective as one delivered in a standard clinical setting, but more crucially the uptake rate of the school-based intervention was significantly greater than in the clinical setting. An overview of school-based intervention can be found in Idsoe et al. (2017).

20.3.5.2 Procedure and Components

Of interventions that have been delivered within schools for posttraumatic stress, those that have the most evidence are the ones based on trauma-focused CBT; however, a number of other interventions have been successfully applied employing CBT and other components. Typically the interventions are aimed primarily at students but can incorporate teachers, where the focus is on classroom management and support of students with posttraumatic stress. Jaycox et al. (2009) did demonstrate that teachers can be effective in helping to deliver the intervention in schools; however, the size of the effect of the intervention was considerably lower than those where a therapist was the primary treatment provider (Rolfnes and Idsoe 2011). Cognitive-Behavioural Intervention for Trauma in Schools (C-BITS) (Jaycox et al. 2009) is distinct from standard trauma-focused CBT in that it is largely offered in group format, does not include parents and can be slightly shorter in duration (10 sessions plus 1–3 individual sessions). As with trauma-focused CBT, C-BITS includes psychoeducation, relaxation, development of a trauma narrative and exposure to trauma reminders, anxiety and distress management skills.

20.3.5.3 Evidence

School-delivered interventions have been evaluated by a number of good-quality randomised controlled trials and several uncontrolled trials (Rolfnes and Idsoe 2011). The strongest evidence comes from the work of Jaycox et al. (2009) with C-BITS and variants, which demonstrate medium to large effect size for posttraumatic stress symptoms. One study of note was a large randomised controlled trial by Jordans et al. (2010). Here a CBT-based intervention was delivered in schools to children in Nepal exposed to armed conflict. This study found medium-size effects on PTSD symptoms.

20.3.6 Pharmacological Treatment

20.3.6.1 Background

PTSD and other trauma-related disorders have been shown to be associated with a variety of neurobiological alterations, such as dysregulations of catecholamine secretion and the hypothalamic–pituitary–adrenal axis. Moreover, structural and functional changes of the central nervous system (e.g. prefrontal cortex, amygdala, hippocampus, corpus callosum) have been found in traumatised individuals. While such research in children is still in its infancy, it is widely accepted that such alterations are also present in children and may have a very deleterious effect on their development. Pharmacological treatment aims at influencing some of these physiological dysregulations by trying to decrease adrenergic responsiveness and

dopaminergic activity and to increase availability of serotonin (Huemer et al. 2017). Targeted symptoms mainly include hyperarousal, irritability, severe sleep problems, nightmares and concentration problems. Also, in children with comorbid disorders that are known to be responsive to pharmacological treatment, the use of medication can be considered. The goal of medication in traumatised children is to treat specific symptoms that interfere with normal development and to help the child tolerate a psychological treatment. Second-generation antipsychotics, mood stabilisers, selective serotonin reuptake inhibitors and antiadrenergic medications are the most used medications in childhood PTSD (Huemer et al. 2017).

Although there is very limited evidence for the efficacy of pharmacological treatment in children and adolescents with PTSD and although no medication is currently approved by the Food and Drug Administration (FDA) for treatment of childhood PTSD, medication is widely used to treat PTSD symptoms in youth. There is therefore a significant gap between how the medications are used and what evidence exists for their efficacy. Importantly, the current treatment guidelines of the *International Society for Traumatic Stress Studies* (ISTSS 2019) do not recommend the use of medication as a first-line treatment of child PTSD because of lacking evidence. However, if comorbid psychiatric conditions are present that respond to pharmacological treatment (major depressive disorder, obsessive-compulsive disorder, ADHD, general anxiety disorder), if the intensity of the child's traumatic stress symptoms limits a child's ability to engage in psychotherapy and if there is no access to psychotherapy, pharmacotherapy can be considered.

20.3.6.2 Procedure

If pharmacological treatment is considered, the first step is education of the child and their caregivers about the specific agent and potential short- and long-term adverse effects. The choice of medication depends on the individual symptoms and comorbid conditions. If informed consent is given and no significant comorbidity is present, selective serotonin reuptake inhibitors (SSRIs) which are approved for use in adult PTSD are a good first option because a variety of traumatic stress symptoms are associated with serotonergic dysregulation. Some evidence from adults and from open clinical trials in children and adolescents with PTSD suggest that medications other than SSRIs may be helpful (α - and β -adrenergic blocking agents, tricyclic antidepressants, serotonin–norepinephrine reuptake inhibitors, opiates, atypical antipsychotic agents). Also, there are interesting pilot data on the use of pharmacological interventions in secondary prevention of child PTSD which suggest that specific pharmacological agents may help to prevent PTSD if applied early after a traumatic event (Maccani et al. 2012).

20.3.6.3 Evidence

Current systematic reviews of the effectiveness of psychopharmacological treatment of childhood PTSD can be found in Huemer et al. (2010), Strawn et al. (2010) and Stamatokos and Campo (2010). In sum, these authors as well as all the current guidelines conclude that current research data are very limited and do not support

the use of any pharmacological agent as a first-line treatment for PTSD in children and adolescents. Therefore, available research does not support the use of medication alone for the treatment of childhood PTSD (Huemer et al. 2017).

20.3.7 Young Children

Young children under the age of 6 years do present with PTSD symptoms such as re-experiencing (e.g. through nightmares, posttraumatic play), avoidance of reminders of the event and physiological hyperarousal (e.g. irritability, sleep disturbance, exaggerated startle) (Scheeringa et al. 2003). However, DSM-IV PTSD criteria did not adequately describe the symptoms in infants and preschool children. Therefore, the prevalence of PTSD in young children has largely been underestimated to date (Scheeringa et al. 1995). This has led to the addition of a preschool subtype for PTSD in the DSM-5 (American Psychiatric Association 2013).

Furthermore, building on earlier work a specification for diagnosis of children up to age 5 for PTSD (DC:0–5) was also described as part of the Zero to Three document (2016). The most recent iteration of the International Classification of Diseases, ICD-11, has recently been published. Notably, in contrast to the DSM-5, there is no PTSD subtype for young children. In a comparison between DSM-5, DC:0–5 and ICD-11 diagnostic criteria for PTSD in children under 6 years, Vasileva et al. (2018) found that the ICD-11 diagnosis underclassified children in comparison to the other diagnostic systems. For older children, the evidence is mixed on comparative diagnostic sensitivity between methods with two studies showing equivalency between ICD-11 PTSD and DSM-IV/DSM-5 rates (Danzi and La Greca 2016; Elliott et al. 2021) and one showing reduced rates of ICD-11 PTSD relative to DSM-IV (Eilers et al. 2020). In summary there is more work required, particularly in the very young and school-aged children to determine the optimal diagnostic criteria.

Prevalence of PTSD assessed using developmentally sensitive methods in young children exposed to physical or sexual abuse rates is between 26% and 60% (De Young et al. 2011). De Young et al. (2012) have shown that young children also develop depression, separation anxiety disorder (SAD), oppositional defiant disorder (ODD) and specific phobias following traumatic events. These disorders are highly comorbid with PTSD and may become the focus of intervention, where the root cause for these disorders may in fact be posttraumatic stress (De Young and Landolt 2018).

Research into interventions for young children is developing. For example, there are currently very few known published studies examining the effectiveness of preventive psychological interventions following trauma. Kramer and Landolt (2014) found no benefit for a brief early intervention in at-risk preschool children. In contrast, as described earlier in this chapter, Haag et al. (2020) were able to demonstrate prevention effects. There are several randomised controlled trials that have focused

intervention on young children with posttraumatic stress. All of these studies have either focused on or included children exposed to abuse. However, two of these provided treatment only to young children exposed to abuse (Cohen and Mannarino 1996; Deblinger et al. 2001). The study by Cohen and Mannarino (1996) compared TF-CBT to a supportive therapy in 39 children aged 3–6, where they found that the TF-CBT was associated with reduction in internalising problems on the CBCL; however, they failed to measure PTSD. In contrast, Deblinger et al. (2001) found that, compared to a supportive therapy, TF-CBT did not produce a benefit in 44 children aged 2–8. In contrast, Scheeringa et al. (2011) did find a specific benefit for a 12-session TF-CBT compared to a waiting list control in 64 children with PTSD aged between 3 and 6 years.

Parents are key to intervening with young children. Many parents will be experiencing symptoms of stress following trauma in the child either because of shared direct exposure or secondary stress associated with circumstances of the trauma and the child's responses. Approximately 25% of parents will experience clinical levels of distress after a young child's trauma (Landolt et al. 2012). Parental traumatic stress is a predictor for subsequent traumatic stress in the young child, indicative of a directional relationship (De Young et al. 2014). In cases of abuse or neglect, parents or close relatives may be directly involved as perpetrators or by being complicit in the abuse. In these cases, consideration of the role of parents in recovery is complex but essential.

Parenting and attachment are also likely to be crucial influences for the young child's adjustment following trauma. The parent–child relationship helps to assist the child regulate their distress and generally buffer the child from the impact of stressors (Lieberman 2004). Parents also provide the most important model for coping with stress and stressors. Where a parent is emotionally affected by the circumstances of the child's trauma, their lack of coping will be modelled to the child (Nugent et al. 2007). This suggests that intervention for parents' distress should precede or co-occur with any intervention for children (e.g. Cobham et al. 1998).

In a study that examined the effects of early intervention for parents of young children exposed to trauma, Melnyk et al. (2004) employed a coping-based support and psychoeducation for parents of children (2–7 years) who were admitted to a paediatric intensive care unit. They found that parents in the intervention group had significantly lower stress, depression and PTSD symptoms.

In the very young children, there have been some developments in attachment-focused intervention. While these have not targeted PTSD, they have addressed problematic attachment that is present in children exposed to abuse. The Circle of Security (COS) model (Hoffman et al. 2006) is one such model that does have some limited empirical support. A meta-analysis of ten studies of the COS model found encouraging evidence of the value of the approach in addressing attachment problems (Yaholkoski et al. 2016).

20.4 Summary and Conclusion

While the evidence with regard to trauma therapy in adults is quite good, this is less the case in children due to the unsatisfactory quality of many treatment studies. Establishing such evidence requires standardised treatment protocols and randomised controlled trials.

Although various guidelines (e.g. NICE guidelines, ISTSS guidelines, etc.), reviews and meta-analyses (e.g. Gutermann et al. 2016; Morina et al. 2016) on the efficacy of child trauma therapy are currently available, recommendations across these documents are somewhat inconsistent. This is largely due to different definitions of evidence levels and different inclusion and exclusion criteria for studies.

Nevertheless, the evidence clearly suggests that psychotherapy is considered the first choice of treatment. Medication may be used as a second line if psychotherapy is not available or if the child has a significant comorbid condition. One psychotherapeutic treatment that is recommended in all guidelines and that has been found to be effective in all meta-analyses is CBT, specifically trauma-focused CBT (TF-CBT), and to some extent Child–Parent Psychotherapy, a psychodynamic treatment approach for young children (Lieberman et al. 2015). There is some inconsistency across guidelines with regard to EMDR: while ISTSS gives a strong recommendation for use in children and adolescents, the NICE guidelines and others do not recommend EMDR as a first-line treatment. Current evidence is insufficient to determine the effectiveness of play therapy, family therapy and pharmacological therapy in children and adolescents.

Notably, all current treatments that proved to be effective employ methods such as behavioural and emotional regulation, cognitive processing and coping strategies, and they all directly address the traumatic experience (mostly through exposure and creation of a narrative) and include caregivers. Currently, there is no evidence to conclude that children and adolescents with particular types of trauma are more or less likely to respond to psychological therapies than others (Landolt et al. 2017). However, evidence regarding specific treatments of children with complex trauma is still lacking. Future studies are needed to clarify how these children can be effectively treated. Also we need more studies on preschool-age children, specifically below the age of 4 years. Finally, as highlighted by Carrion and Kletter (2012), future treatment protocols should better integrate current findings on neurobiological mechanisms in trauma with psychotherapy. This may especially be promising with regard to early interventions after trauma.

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Maja O'Connor and Ask Elklit

21.1 PTSD in Older Populations

Traumatic events are common in adult Western populations and prevalence of PTSD in such populations is relatively well established (Kessler et al. 2017). Around 70% of adults in Western populations have experienced at least one traumatic event in their lifetime with an average of around 3 traumatic experiences per person (Kessler et al. 2017). In such adult populations, we see PTSD prevalence as identified by clinical interviews ranging from approximately 7–8% for lifetime PTSD (Kessler and Wang 2008) and approximately 3–4% for the past 12 months (Gadermann et al. 2012; Kessler et al. 2012). Older adults experience fewer recent traumatic events than younger adults, but have higher frequencies of lifetime traumatic events (Cook and Simiola 2017). The prevalence of PTSD, similar to anxiety, mood, and substance disorders, is highest in middle adulthood (8–9%), somewhat lower in young adults (6%), and approximately half as frequent in older adults (3%) compared to 7% in the total population (Ditlevsen and Elklit 2010; Kessler and Wang 2008). Two European studies investigated posttraumatic stress reactions in general older populations mainly by self-report questionnaires with high correspondence with the DSM-IV diagnostic classification of PTSD (Glaesmer et al. 2012; Maercker et al. 2008). In the above studies, clinically significant self-reported symptoms of posttraumatic stress disorder (PTSD) were identified in 4–5% of the older participants

M. O'Connor

Unit for Bereavement Research, Department of Psychology, School of Business and Social Sciences, Aarhus University, Aarhus, Denmark

e-mail: maja@psy.au.dk

A. Elklit (✉)

Department of Psychology, National Center for Psychotraumatology, University of Southern Denmark, Odense, Denmark

e-mail: aeklit@health.sdu.dk

(Glaesmer et al. 2012; Maercker et al. 2008). Other studies with similar research methods found equal levels of PTSD symptoms in younger and older populations (Spitzer et al. 2008). Although possibly not as common as in younger adult populations (Creamer and Parslow 2008), we can conclude that PTSD symptoms are present in a significant minority of general older populations.

Studies on PTSD symptoms in older samples generally fall within two main groups: those that focus on acute reactions to recent traumatic experiences and those that describe chronic PTSD symptoms based on continuing reactions to past traumatic experiences. For some, the symptoms have been present for a lifetime, taking their toll on mind, body, and social functioning (Lohr et al. 2015). Recent traumatic reactions have mainly been studied in older populations who experienced natural disasters such as floods and earthquakes, accidents, or physical injuries (Averill and Beck 2000; Chung et al. 2006; Elklit and O'Connor 2005; O'Connor 2010b; Ruskin and Talbott 1996; Yang et al. 2003). Older people are in general less exposed to accidents, assaults, and combat than younger populations but are confronted with a wide variety of potentially traumatic age-related challenges such as loss of physical functioning, death of close relatives, siblings, and/or partners, and chronic or life-threatening illness (Carr 2004; O'Connor 2010b; Silverman et al. 2000). The above studies indicate that older people respond to acute trauma with similar magnitude and pattern of PTSD symptoms as younger adults (Carr 2004; O'Connor 2010a; Silverman et al. 2000). Both major and minor traumatic events can potentially lead to PTSD symptoms in older people (Lapp et al. 2011; Ruskin and Talbott 1996), and a mix of multiple long-term and recent losses are common in old people, as seen in the case of Alice in the textbox below.

- Alice, 82 years old, is referred to mindfulness-based cognitive therapy for depression (MBCT) in an outpatient clinic. Three years earlier, her husband, Henry, passed away after a long battle with multiple sclerosis. Alice is grief-stricken and physically exhausted after Henry's death. But, after some months, she starts enjoying life again going to church, taking trips abroad with her youngest daughter Sue, and attending her yoga classes. Then she has a cerebral hemorrhage. She is in rehabilitation for 2 months, and when she finally comes home, she has a constant tremor in the right side of her body and difficulties concentrating on anything for long. While she gradually regains most of her previous physical function, her mood deteriorates, and she finally contacts her doctor for help. After diagnosing a moderate depression, he refers her to us. When she arrives for the first class, her eyes are dim and she is very quiet. As the 8-week course progresses, she, little by little, starts speaking up in class. She tells the psychologist and MBCT-instructor that the daily exercises remind her of her yoga training and are a great help to her when the negative thoughts take over, and she enjoys coming to class. She tells the group that she is starting

to feel more patient and forgiving with herself and generally appears less depressed. Alice also talks about her worries for her daughter, Sue, who suffers greatly from severe and unexplainable back pain. Around the sixth week of MBCT, Sue is diagnosed with an aggressive and terminal type of bone cancer. Alice is shocked by the news. Every time the phone rings, she feels a tightness in the chest and sick to her stomach combined with a surge of fear. She has trouble sleeping because she has recurrent nightmares about Sue calling with the bad news. Soon Alice starts feeling permanently uneasy and on guard, old and worn out and not really trusting that life will ever be okay again. She cancels her lifelong subscription to the cancer association because receiving their newsletter reminds her of Sue's illness and makes her feel bad, and she has difficulties falling asleep at night because she worries about what is going to happen. During daytime, she finds it difficult to concentrate on her daily activities.

In a short span of years, Alice experiences a number of potentially traumatic events. First, the death of her husband which Alice appears to react to with what can be characterized as a normal and adaptive grieving process (Stroebe et al. 2013). Throughout the last couple of decades, substantial work has been done to develop a set of diagnostic criteria to identify prolonged grief reactions that are complicated enough to be considered pathological (Bryant 2014; Maercker et al. 2013; Shear et al. 2011; O'Connor et al. 2019). In DSM-5, persistent complex bereavement disorder has been included as a condition for further study (American Psychiatric Association 2013, for further details see Chap. 6), and in 2018 Prolonged Grief Disorder was included in the ICD-11 which will be implemented worldwide in 2022. Prolonged Grief Disorder has some symptoms in common with PTSD, but in prolonged grief intrusion is often related to many different aspects of the loss, including positive aspects of the lost relationship, while intrusion in PTSD is usually consistently negative and related specifically to the traumatic event. Further, where PTSD is usually characterized by consistent avoidance of trauma-related stimuli, in prolonged grief avoidance symptoms are combined with symptoms of persistent yearning for the deceased and difficulties accepting the reality of the loss (American Psychiatric Association 2013).

After the loss of her husband, Alice experiences another potentially traumatic event, a cerebral hemorrhage, that leads to clinical depression which apparently is successfully treated with MBCT. Finally, Alice's daughter receives a terminal diagnosis with an aggressive cancer. Alice now reacts with a number of PTSD symptoms as defined in the DSM-5 (American Psychiatric Association 2013). She has recurrent, involuntary thoughts and nightmares about the call from Sue (intrusion symptoms), and she reacts to this confrontation with the traumatic event with sustained somatic and emotional distress. She cancels her cancer newsletter because receiving it makes her feel bad (avoidance), she feels that life will never be okay again (negative alterations in cognitions/dysphoria), and she has problems

concentrating and falling asleep combined with a constant feeling of being on guard (arousal symptoms). The case of Alice illustrates how cumulative stressors are common in old age and how an older person can often cope successfully with such stressors.

PTSD symptoms in older people can be divided into two types:

1. Chronic PTSD Symptoms

The posttraumatic symptoms have often been present in varying degree since the triggering traumatic event, and due to the many years the individuals have lived with this condition, chronic PTSD symptoms will often have an impact on the personality, physical health, and quality of life. The PTSD symptoms often have a fluctuating course where exposure to new stressors leads to an exacerbation of symptoms.

2. Recent PTSD Symptoms

PTSD symptoms emerge in response to one or more traumatic experiences in the present or the recent past. This includes all events that fulfill the A1 criterion of PTSD (See Chap. 6 Bryant for further elaboration of the A1 and other PTSD criteria) such as the death of spouse, critical illness in self or close relatives, exposure to natural or man-made disasters, interpersonal violence, etc.

Older people with PTSD symptoms often experience extensive impairments in their daily functioning with serious physical and mental health problems and lower life satisfaction than older persons without such symptoms (Yaffe et al. 2010). In addition, PTSD symptoms in older people are associated with increased health service costs (Van Zelst et al. 2006), increased risk of comorbid depression or anxiety (Spitzer et al. 2008), impairments in memory and attention function (Yaffe et al. 2010), and increased risk of coronary heart disease in older men (Kubzansky et al. 2007). Some argue that PTSD symptoms in older people may be related to accelerated age-related decline (Yaffe et al. 2010). For example, it has been identified that PTSD symptoms in older people are associated with a more significant reduction of memory and overall learning ability than what can be attributed to expected age-related changes (Lapp et al. 2011). A meta-analysis even indicates that PTSD symptoms in older people are related to premature aging, including biomarkers such as shorter telomere length and increased proinflammatory markers, higher morbidity such as more frequent cardiovascular disease, diabetes, and dementia, and higher mortality (Lohr et al. 2015). A recent study concluded that PTSD symptoms in old age predicted older subjective age and less successful aging, while younger subjective age appeared to be a protective factor against the development of PTSD symptoms (Palgi et al. 2019).

Taken together it can be concluded that a significant number of older people do suffer from PTSD and that the disorder is associated with an array of negative physical as well as mental health difficulties. Identification and treatment of PTSD in elderly people is therefore an important task of professionals working with traumatized individuals.

21.2 Physical, Mental, and Social Aspects of Aging: Describing the Target Group

In most Western countries, older persons are defined as 65 years or older. The aging population is growing rapidly worldwide, and over the next decades, we can expect a threefold increase to more than two billion people over the age of 65 years in 2045 (Laidlaw et al. 2003). Around the turn of the millennium, people aged 65 and over accounted for 13% of the population; by 2030, it is estimated that it will include 20% of the world population (Laidlaw et al. 2003). Consequently, we can expect to meet more old people in our daily lives and, thus, must be prepared to meet and effectively treat a greater number of older people also in psychotherapy settings.

A number of age-related changes can be expected. Before the age of 70, observed age-related reductions in perceptual speed, vision, and hearing, reserve capacity, and quicker fatigue can be identified, but these changes are limited and can usually be compensated for by external aids such as spectacles, hearing aids, reducing background noise, and taking more time (Schaie 2005). From approximately the age of 70 going forward, the age-related changes will often be more extensive and eventually result in changes of a more qualitative nature that no longer can be fully compensated for by external aids. Perceptual and cognitive changes lead to reduction in ability to freely recall from long-term memory, and thus abstract problem solving becomes more difficult, while the ability for more concrete problem solving where free recall is not necessary remains at the same level into old age (Birren 1996). Decline in more complex mental functions such as working memory and executive functioning is therefore common with increasing age (James 2010).

Starting between the ages of 25 and 30, reductions in muscular strength, reaction time, and perceptual speed can be observed (Schaie 1994). By the age of 60, muscular strength is typically reduced by 20–40% in both men and women (Spirduso and MacRae 1990). Age-related physiological decline can be observed from the age of 75 years with decrease in blood flow and lung and kidney function. The frequency of physical disorders such as cardiovascular diseases, cancer, respiratory illnesses, arthritis, and muscular diseases is several times higher than in younger populations (Morrison 2008) which means that older people often enter handling a traumatic event from a lower level of physical functioning than younger people. The ability to perform activities of daily living such as walking, cooking, climbing stairs, and personal hygiene is usually not significantly diminished until after the age of 85 years (Ruskin and Talbott 1996).

This may sound bleak, but although there is significant overall age-related decline on specific parameters, the majority of older people both manage their daily lives well and have high satisfaction with life (Mehlsen 2005). This may be because most of the challenges that people aged 70 plus need to handle are closely related to their daily lives and do not depend on quick reaction time and abstract problem-solving skills. Thus, as long as the challenges in old age do not significantly exceed the individual abilities, most old people manage their daily lives successfully, in spite of reduced functional levels (Baltes and Baltes 1990).

With the exception of dementia (Oliver et al. 2008), most mental disorders are less prevalent in old than in younger age (Coleman and O'Hanlon 2008; Kessler and Wang 2008). This is in contrast with the common age-related trajectory for physical health problems where most people have at least one chronic medical condition by the age of 65 and experience an increasing number of chronic medical conditions with increasing age (Laidlaw et al. 2003). For example, the majority of older people have one or more medical prescriptions, and more than 50% of those 80 years and above have six prescriptions or more (Hajjar et al. 2007). Accordingly, assessments of older adults must include awareness and recognition of the potential negative effects of polypharmacy (the use of multiple medications by a patient) such as drug-to-drug interactions, increased side-effects, decreased quality of life, decreased mobility, and decreased cognition related to medical conditions or prescriptions (Hajjar et al. 2007). Older people generally consider long-standing illness as an expected part of life, and both satisfaction with own health and with life in general is usually higher in this population than in younger adults (Laidlaw et al. 2003; Mehlsen 2005).

Although general age-related characteristics can be identified among older adults, there are substantial individual differences, and geriatric psychology emphasizes sensitivity to large inter- and intrapersonal variability on physical, cognitive, and personality-related characteristics in older people. Indeed individual differences are much more pronounced in older than in younger populations (Fromholt and Bruhn 1998; Johansson 2008). For example, some older people will have stable cognitive function throughout life until death, while others experience significant cognitive decline even in the early days of old age. Conversely, other older persons may have high physical functioning but low cognitive functioning (Lupien et al. 2005). In addition, individual differences among older adults become more pronounced with increasing age in regard to personality, coping, and psychopathology. Clinicians providing services to the elderly, in contrast to younger individuals, will therefore have relatively less ability to predict the specific needs of the individual client based on age alone. Older people simply are more diverse than younger people. Therefore, one must be especially careful not to make assumptions about age-related decline or physical illnesses across elderly persons or about typical patterns of decline across time for any specific individual.

21.3 Psychotherapy with the Aging Client

Different types of psychological interventions including cognitive-behavioral therapy (CBT), psychodynamic approaches, and systemic approaches have similar efficacy in older as in younger clients (Davenhill 2008; Dinnen et al. 2015; Laidlaw 2008; Roper-Hall 2008). Most efficacy studies of psychotherapy with older people evaluated CBT for depression and anxiety disorders, and thus CBT appears to be the best validated form of psychotherapy with older clients (Aspnes and Lynch 2007; James 2010; Laidlaw et al. 2003). This information, combined with the significantly increased risk of negative effects of multiple physical conditions and polypharmacy

in the aging client, suggests that evidence-based psychotherapeutic interventions should be preferred over psychotropic medications for the older person with mental health problems. Among people identified with psychiatric problems in primary care and motivated for psychotherapy, a relevant alternative is to provide psychotherapy combined with drug treatment.

The clear structure of CBT and its focus on specific skills to manage concrete, individual problems may be of special benefit to aging clients with physical and cognitive age-related reductions (Laidlaw 2008). Furthermore, CBT focuses on problems in the here-and-now, challenges automatic and stereotyped thinking, and contains individually adapted psychoeducation. These are all treatment strategies that are relevant to and effective in combination with natural age-related decline in cognition (Laidlaw 2008).

However, one study reported that only 10% of older adults with mental health problems that required professional care actually received the needed treatment (Aspnes and Lynch 2007). Negative attitudes and beliefs about the ability of older clients to benefit from psychotherapy among medical and mental health professionals and even by older people themselves may limit the use of CBT or other types of psychotherapy in this population (Laidlaw et al. 2003). One potential inaccurate belief is that depression in old age is a normal and expected reaction to the negative aspects of getting old (Laidlaw et al. 2003). Indeed, we know that fewer older people have depression relative to younger people and, moreover, that mental disorders such as mood and anxiety disorders in old age are reversible when treated adequately (Aspnes and Lynch 2007; Kessler and Wang 2008). Other assumptions are that “old people with mental disorders are not able to benefit from and do not want psychotherapy” or that “you can’t teach an old dog new tricks” (Laidlaw et al. 2003). Many efficacy studies of psychotherapy among older clients disconfirm this notion (e.g., Kessler and Wang 2008) also when it comes to treatment of PTSD (Dinnen et al. 2015). Some studies even indicate that older people generally prefer psychotherapy to medical treatment when suffering from mental problems (Aspnes and Lynch 2007).

Another type of negative beliefs that may be a barrier to mental health professionals in treating older people with mental health issues is that “it is terrible to get old” and that therefore therapy which focuses on increasing well-being and a positive outlook will do little good (Laidlaw et al. 2003). In reality, older people are generally happy with their lives and health, often more so than younger people (Laidlaw 2008; Mehlsen 2005). Finally, some clinicians, physicians, and older people may believe that there is “too little to gain at too high individual or socioeconomic costs when investing in clients with such a short potential future life-span” (Laidlaw et al. 2003). This belief can be disconfirmed based on the fact that untreated depression, anxiety, or prolonged grief comes at great personal and socioeconomic costs also in older people, while successful treatment reduces these costs (Laidlaw 2008).

Older people have a tendency to present with psychosomatic complaints and symptoms rather than psychological symptoms in relation to mental disorders including PTSD (Kuwert et al. 2012; Nordhus 2008). Often, older people with

mental problems bring up specific somatic symptoms such as aches, sleep disturbances, or weight loss rather than psychological symptoms such as depressed mood, anxiety, or suicidal ideation as the reason for paying the first visit to the local physician, who is often the first professional the older patients turn to (Nordhus 2008). Careful assessment via structured clinical interviews is strongly recommended in order to identify when a mental rather than a somatic disorder may be the source of these symptoms (Nordhus 2008).

The potential mix of somatic symptoms caused by mental problems (psychosomatic symptoms) and those caused by actual somatic disorders in older people sets high demands on the local physicians' ability to separate mental from somatic origins of the symptoms presented and to diagnose the fundamental disorder correctly. Because of these diagnostic challenges, the responsibility of getting the right type of help for the problem in question cannot rest on the physician alone. Older people themselves and their close relatives must keep in mind that mental health problems in older people have a tendency to be expressed via somatic symptoms including sleep disturbances, unexplainable aches and pains, or even constipation (Nordhus 2008). If the symptoms in question arise suddenly and without a clear somatic source and especially if the symptoms arise in the aftermath of spousal bereavement or other major, negative life events, there is reason to investigate potential psychological explanations for the symptoms in greater detail.

21.4 Guidelines for Psychotherapy with Older Adults

There are certain adaptations that can be considered when working clinically with older people. A basic consideration is designing and organizing the physical environment in the clinical setting for potential reductions in the client's sensory abilities such as hearing, vision, and physical perseverance and for reductions in cognitive abilities. Improved lighting and reduced background noise and high contrast between foreground and background in pen-and-paper forms or computer-based assessments may be helpful (Aspnes and Lynch 2007). Similarly, the structure, tasks, and process of psychotherapy should take into account factors such as potentially lower reserve capacity, lower mental perseverance, and more limited abstract problem-solving ability as they are expressed in the specific aging client. This may be done by shortening sessions and home exercises to compensate for quicker fatigue and limited cognitive reserve capacity in older clients and by including more breaks. Also, it may be beneficial to speak more slowly and clearly and, generally, be more patient than when working with younger clients.

The clinician can potentially enhance the effectiveness of psychotherapy by using less abstract problem solving in therapy (James 2010). Some studies indicate that older people may benefit more from psychotherapy with a focus on concrete problem solving than from supportive counseling (Alexopoulos et al. 2011). This finding underlines the benefits of dealing directly with the specific challenges or problems that currently exist in the older client's life and which are identified and defined by the client. For example, to incorporate meaningful concrete or sensory

reminders from the client's everyday life in the therapy sessions, such as photographs, physical objects, and diaries. A similar strategy can be applied with in vivo exposure where specific potential trauma-related cues directly related to the client's everyday life are incorporated. This strategy can help the older client to identify and retrieve the requested information/knowledge from memory (Alexopoulos et al. 2011). Home-delivered therapy, in whole or part, is another way of creating access to a variety of cues for both client and clinician to lean on to enhance recall in the therapeutic process (Kiosses et al. 2011). This strategy is especially relevant in cases of significant cognitive decline such as the early stages of Alzheimer's disease or other types of dementia (Kiosses et al. 2011).

When working with older clients, the clinician must also generally expect to be somewhat more active, structured, and transparent than when working with younger clients. Older clients often improve more slowly in therapy than younger adult clients (Gallagher-Thompson and Thompson 1996).

Although the known age-related changes may give an indication of the special considerations that often must be taken when working with older clients, the extensive individual variability in older people poses an extra challenge in adaptations of validated treatments to the individual older client. In addition, cohort differences—differences between age-groups due to the sociocultural characteristics of their generation—are in play when different generations meet. Generational effects may create a fundamental and unseen gap in cultural norms between client and clinician that will require identification by the clinician so that therapeutic strategies and interventions are sensitive to the patient's attitudes and values. Cohort differences are considerable and are even believed to be as large as age-related cognitive differences between the young and the old (James 2010).

21.5 Treating PTSD Symptoms in Older People

A recent systematic review indicates that treatment of PTSD in older adults is effective and that the same treatment methods as used with younger clients are applicable (Dinnen et al. 2015). Treatments including exposure techniques appear relevant, although caution must always be taken to potential medical conditions that may challenge this type of treatment. Unfortunately, randomized, controlled trials targeting older people with PTSD are very sparse, and there is a prevailing need for more research in this area (Dinnen et al. 2015).

The efficacy of CBT with older people with anxiety and depression is well established (James 2010; Laidlaw et al. 2003; Laidlaw 2008), and lessons learned from this work may be useful in relation to older clients with PTSD. One aspect of cognitive therapy when applied to older people is the necessity of obtaining a detailed background history and a thorough cognitive and symptom assessment during the first sessions of the treatment. Substantial time and attention may be required to complete this task because older people have had long and often complex lives and thus have long and complex life stories that may be difficult for both the therapist and the client to track and use meaningfully in the treatment. Furthermore, older

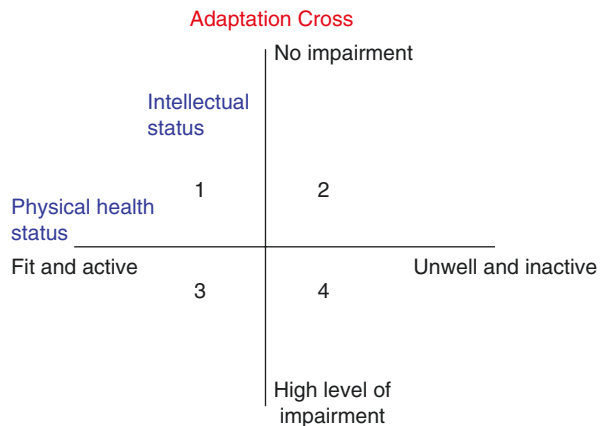
people tend to “drift” in their conversation in directions that might not be relevant enough to the target or problem formulation of the therapy. This conversational drift may be the result of a combination of reduced executive functioning and complex life story (Laidlaw et al. 2003). Keeping track of both the primary target of the therapy and relevant information from the very long life history poses a special challenge when working with older clients. In addition, older generations may try to please the therapist by going along with his/her suggestions.

James (2010) provides a framework to help clinicians identify useful age-related adaptations to treatment. The model organizes the client’s overall health status along two dimensions, one with high versus low intellectual functioning and the other with high versus low physical health status (see Fig. 21.1).

For clients with high physical and high intellectual functioning (Fig. 21.1, quadrant 1), James suggests that any evidence-based intervention strategy that fits both client and clinician well generally can be applied successfully. For clients with high intellectual but low physical functioning (quadrant 2), the same applies but with a special obligation for the clinician to learn about the specific physical illness in question as this may affect which therapeutic strategies are the most relevant in the given situation. Information about these illnesses should be obtained from both the client, their physician, and from scientific sources. For clients with low intellectual but high physical functioning (quadrant 3), behavioral techniques combined with a cue-based approach are suggested. The same is recommended for clients with both low physical and low intellectual functioning (quadrant 4), but here home visits may be a helpful or even necessary next step (James 2010).

When planning and performing CBT with older people, James (2010) recommends spending the first few sessions thoroughly assessing and evaluating the clients’ functional level with relevant neuropsychological tests and life history information. This information, along with as much client involvement as possible, will contribute to the development of an engaging and effective treatment plan (James 2010). Client involvement and empowerment is especially important when

Fig. 21.1 Framework for clarifying patients’ overall health status by James (2010)



working with older clients as this helps avoid falling into the trap of the client “drifting” into irrelevant subjects or staying on a topic to please the clinician (James 2010).

An interesting theory that may guide therapeutic work with older clients across mental disorders and therapeutic models is *the theory of selective optimization with compensation* (SOC) by Baltes and Baltes (1990). This framework aims to help the aging client to maintain a satisfying level of functioning in the areas most important to the individual when the limits of personal capacity are reached or exceeded. The SOC model guides older people with functional loss or other acquired disability to *Select* the areas or functions that are most important to the individual as they relate to the individual identity, meaning-making, and experience of pleasure. Selection includes evaluation or reevaluation of personal goals both as a consequence to functional age-related loss and as a pro-action to deal with expected losses. *Optimization* is the effort to enhance the selected area and to compensate for unreachable wishes, for example, by reducing personal ambitions or by simplifying the task as much as possible in a way that still preserves the meaning of the selected area to the individual. *Compensation* involves the use of alternative means to reach the goal, for example, by taking counter steps to lessen or even prevent the potential loss (Baltes and Baltes 1990). One example of the SOC model applied can be seen with Alice, who was introduced at the beginning of this chapter.

- Alice’s daughter, Sue, dies about 2 months after the MBCT course ended. It is a hard, almost unbearable blow for Alice. But although Sue rarely is out of her mind, Alice still keeps going and is able to find joy in life. Alice used to love traveling, usually with Sue, to Australia, the Caribbean, Greenland, and other exotic places. She sees herself as a bit of a “globetrotter” and decides to keep traveling, but she chooses closer destinations that are easier to reach (an example of “Selection”). Alice is aware that traveling alone is no longer an option for her, so she arranges to go with an old friend. They plan the trip carefully to reduce the risks of unexpected challenges as much as possible. Often the trips now go to places she can reach by bus, so the hassles and challenges of international airports are avoided (an example of “Optimization”). Enjoying high-quality foreign food in estimated local restaurants used to be an essential part of these trips. However, finding good, local restaurants takes an effort, and independent traveling outside the arranged trips is becoming too stressful for Alice. Instead, she and her friend join the rest of the travelers for the arranged meals, and she decides to enjoy the company and getting to see a bit of the world, if not the food (an example of “Compensation”).

Using the SOC framework may be valuable in identifying goals for therapy for older clients and developing strategies for how to reach them.

21.5.1 Mindfulness-Based Cognitive Therapy

Mindfulness-based cognitive therapy (MBCT) and other systematic mindfulness training programs have been shown to reduce psychological distress such as depression and anxiety among both younger (Hofmann et al. 2010) and older adults (Smith et al. 2007; Splevins et al. 2009; Young and Baime 2010). MBCT is a group-based clinical intervention originally used for depressive relapse prevention that integrates elements of cognitive-behavioral therapy (Beck 1976) with systematic and extensive training in mindfulness meditations in group sessions and as home exercises (Kabat-Zinn 2005). The aim of MBCT is to teach participants to become more aware of and relate differently to their thoughts, feelings, and bodily sensations (Segal et al. 2013). Through mindfulness exercises, the participants are taught to turn towards and accept intense emotional distress and bodily sensations in a non-judgmental way. Specifically, the participants are taught to discover automatic reactions and thoughts as they arise, to detach their attention from the content of these reactions, and to regulate the attention back to experiences in the present moment, such as the breath or bodily sensations (Segal et al. 2013).

Our own clinical experience from MBCT-based group therapy with older people (mean age 77 years) with bereavement-related distress (O'Connor et al. 2014) is that adaptation of the physical setting of the therapy for the aging population can support the effectiveness of the intervention. For example, we provided the treatment at an optimal time of the day (late enough for the participants to get there after breakfast, but not so late that the sessions would collide with afternoon rests), in a location with low background noise, a relatively small number of members (10–12 persons), and with a short break during the session. The clinician spoke loudly and more slowly and provided clear information on the timeframe of the session and the homework. On the therapeutic level, we aimed to support interventions' effectiveness by clear management of the psychological "classroom." For example, we actively created a culture where only one person spoke at a time, presented home exercises early in the session, and double-checked several times that everyone had understood the task. We also introduced more personally relevant cues than is traditionally the case in MBCT. For example, the therapist explored the experiences of a group member in greater detail than usual and explicitly related what was being said to similar events discussed in the participant's home exercise or to similar experiences presented by other group members. However, it is often a challenge to meet everyone's needs when instructing a group, as can be seen in the case in the text-box below.

- In the second session of this MBCT with women with chronic pain (mean age 57 years; Johannsen et al. 2017), the participants were presented with the cognitive ABC model of connections between triggers, thoughts, and feelings and subsequently worked with identifying triggers for both positive and negative emotional experiences and how mood may affect the

experience of a situation (Segal et al. 2013). Karen aged 79 and Nora aged 75 really feel they learned something from these exercises and the class in general. Now, in week 6 of MBCT, the participants are asked to identify the first signs of relapse into depression or negative mood: the participants are asked to consider the types of events that may typically trigger negative moods for them, thoughts that run through their minds when there is a mood drop, and the emotions and bodily sensations that arise. The participants are paired up to discuss these questions, and most of the younger participants start talking vigorously and writing on their worksheets. Karen and Nora just sit there looking at each other with their hands in their laps. The instructor comes over and asks if they have any questions. “We don’t know what we are supposed to do” they say. The instructor explains: “Nora, remember last week when we had that meditation where we introduced a difficult experience and you told the class about that you noticed that sinking feeling in your stomach, and that you know that feeling very well from other bad times in your life?” “Yes” Nora says. “Well, today we are trying to identify and write down bodily sensations, feelings, and thoughts that we often have when we are feeling down, just like you often have a sinking feeling in your stomach at bad times. If we become good at noticing these signs of negative mood, it will make it easier for us to do something about it before the bad mood takes over in the future. This is what I would like you to do now.” Nora nods, turns to Karen, and starts talking.

21.6 Advice to Clinicians Working with Older People with PTSD Symptoms

To date, an evidence-based protocol for treating PTSD symptoms tailored to older people is still not available. However, the clinical literature indicates that minor adaptations of current protocols, with awareness to the special needs of older adults, are likely to provide effective treatment. Clinicians must draw on their own clinical experience and evidence from treatment of PTSD symptoms in other adult populations. Part III of this volume outlines a number of evidence-based psychological treatments for trauma-related disorders that are likely to apply to older clients as well as they do for younger people. This gives room for the clinician to select a treatment method that fits with his or her experience and preferences and with the preferences and motivation of the client. Several observations and recommendations are provided below to guide the clinician in providing effective psychotherapy with older adults.

First, evidence-based psychotherapy protocols for depression in older people are available. Much can be gained from studying and incorporating knowledge from this work into the selected protocol or framework for treating adults for PTSD

symptoms. Relevant suggestions on how to do this can be found in the work by James (2010) in advance of selecting the therapeutic strategies for the following course of treatment.

Second, a key aspect of therapy with older populations is empowerment of the client, an experience that is relevant and applicable across many different evidence-based treatment methods. The SOC model may support empowerment and help the clinician stay in tune with and focused on areas of functioning that are most important to the individual older client.

Third, supervision and training from clinicians with experience in working with older clients are strongly recommended for therapists who are not used to working with this population (James 2010). This may be particularly important in relation to handling the therapist's own impatience and irritation when working with older clients who especially have a pronounced tendency to progress and develop slowly in therapy and to "drift" from the topic in question.

Lastly, we will summarize strategies for responding to some of the special challenges of treating older clients, with a focus on older people with PTSD symptoms.

PTSD may be related to memory problems, but such decline may, especially in older people, also be explained by the first signs of dementia. Intellectual functioning must therefore be assessed before treatment begins, and if changes in cognitive functioning are detected during the course of treatment, assessment must be reapplied to identify their source. If there is a mild degree of dementia (e.g., Alzheimer's disease) present at the start of therapy, further cognitive decline can often be expected, and the treatment must be adapted accordingly during the course of treatment. New losses are common in old age, and it can be a challenge for the clinician and client to determine which issue is more important and should be dealt with first. Clinician and client will need to explicitly collaborate and agree on goals and process repeatedly throughout the course of treatment. The older client may present with somatic complaints, and it may be difficult to identify their source. Careful assessment of physical complaints, including review of physical health history and contact with health provider, is often necessary. This is particularly important because older people typically have several somatic disorders and constantly develop more so that, if overlooked, can be detrimental for the client. Finally, the potential risk of cohort or generational effects between clients and clinicians should also be mentioned as a challenge. We have a tendency to be somewhat blind to our own cultural heritage, including generation effects, and it can be difficult to discover when cohort effects create a potentially destructive gap between client and clinician. Some of the assumptions clinicians make about aging may be cultural artifacts rather than true, age-related differences. Keeping a watch out for and an open mind to cohort effects is therefore important when doing psychotherapy with older people.

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Treatment of Traumatized Refugees and Immigrants

22

Thomas Maier

22.1 Introduction

Since humankind's expulsion from paradise, murder, violence, and warfare have always been our haunting companions. The dark sides of our character seem to follow us across history and generate evil in different forms: rivalry, hatred, envy, rage, anger, and violence. Even the great humanistic projects of civilization such as religion, democracy, and universal human rights apparently cannot effectively and permanently repress these manifestations of our inner demons. When we look at certain regions of the world today, it even seems doubtful that humankind has made any progress at all since our earliest history. What has definitely changed, however, is the perception and acknowledgment of the damage that human aggression causes. Indeed, interpersonal violence, especially in its most cruel form of physical violence, has severe psychological consequences for the victims and detrimental effects at various levels: not only individuals but also the victim's social environment and the society as a whole are affected. Even for the perpetrators, committed violence is often eventually destructive. A study of the effects of human aggression, on the other hand, makes obvious the fact that most humans are equally capable of immense compassion and have the strong wish to repair and restore what evil destroys (Volkan 2004).

Migration—the intentional but often not voluntary dislocation of people from one place to another—is equally a constant in the history of humankind (Silove 2004). Since the earliest times, people have permanently moved and migrated in search of a better life. The motives for migration are as diverse as people themselves; however, escape from poverty, starvation, war, and persecution have always been important reasons for relinquishing a home and homeland. At this very

T. Maier (✉)
Psychiatric Services of St. Gallen North, Wil SG, Switzerland
e-mail: thomas.maier@psgn.ch

moment, several million people are in flight, and many more millions already live in exile. The UN estimates that today some 3.5% of the world's population—i.e., more than 270 million people—are international migrants (United Nations 2019). Almost one-third of them, 79.5 million, are forcibly displaced persons (UNHCR 2020). Of these, however, more than a half are so-called internally displaced persons, i.e., people who migrate within the borders of their home countries. Also many of the internally displaced persons are refugees in the truest sense of the word, but the term “refugee” as defined by the UN refugee convention of 1951 does not apply to people migrating within their home country.

Some of those who emigrate find a new and fruitful home in their hosting country, but many are less lucky and live in despair and marginalization. Hundreds of thousands of poor and desperate exiles constantly try to find a way into the promised land, i.e., the wealthy countries of the northern hemisphere. As a consequence these countries tighten their immigration legislation and try to discourage people from immigration. Only well-educated and healthy individuals are welcome while moneyless and stranded exiles are kept out of the boat.

Case Report

The following case report aims to give the reader an illustration of the concepts presented later in this chapter. It is written in the therapist's first person perspective, a form that may appear unusual in a scientific publication. However, the eminent influence of the therapist's authentic personality on the therapeutic process is conveyed more accurately that way. When treating traumatized immigrants, authenticity, personal commitment, and appreciation are crucial, so the author requests that this uncommon form be allowed by the reader.

Ceylan was a 32-year-old married woman from Syria and was referred to our outpatient clinic by her GP. She lived with her husband and two daughters (2 and 6 years old) in a rural Swiss village, where the family was accommodated by the immigration authorities. Ceylan had arrived in Switzerland 2 years earlier and the family was still waiting for their case to be decided by the immigration authorities. Her husband Awar had escaped from the Kurdish areas of Syria some 2 years earlier, leaving his wife and two daughters with her parents in their remote home, a small village near the Turkish border. Awar later helped to organize the journey for his wife and daughters from Syria to Switzerland, a dangerous and confusing experience for Ceylan in the hands of facilitators.

At the time of referral, Ceylan could speak only a few words in German. Direct communication with her was hardly possible, and only the husband, who had learned a little more German in the meantime, could give me some information about her problem. As the GP had already mentioned in his referring letter, Ceylan was perceived as constantly sad, exhausted, uncommunicative, absentminded, forgetful, and confused. With her agreement—which was,

in spite of the nebulous situation, very clearly given—I arranged a second appointment with a female Kurdish interpreter. The presence of the husband at the second appointment was a matter of course to both of them (as it seemed to me).

In the second appointment—which was later followed by many more—I explored some parts of the family's story. Both Awar and Ceylan came from the same Kurdish village in Syria near the Turkish border. They lived a spare and rural life in the mountainous Kurdish area, cultivating their own land and raising some cattle and sheep. Awar and Ceylan were relatives and had known each other since they were children; however, the two of them had freely made the decision to marry, which they related with pride. Like most of the villagers, Awar was a supporter of the Kurdish party, which was antagonized by the Syrian police and army. Most probably, he was an active member of the party that worked mainly covertly. He was arrested several times by the police and experienced beatings and ill-treatment by state officials. To escape from further imminent detentions and even more violent treatment, he decided to immigrate to Switzerland, where some distant relatives already lived. For certain reasons, he was advised by friends to conceal his real identity when entering Switzerland and to register under a false name. This decision was a momentous mistake, as he realized later, because authorities refused at first to reunite him with his wife and children when they made it into Switzerland 2 years later. Only after the disclosure of his real identity was the family allowed to live together in an apartment assigned to them. This initial name deception, however, made Awar particularly suspicious to the immigration authorities and prolonged the procedure for granting the right for asylum. It was eventually decided only 4 years after his arrival in Switzerland, and Awar was not recognized as a refugee in legal terms.

Awar reported his wife to have started being altered in her mood and behavior only several months after her immigration. At first, he said, she was glad: happy to see her husband and joyful with her daughters. Only as time passed did she become increasingly peculiar, neglecting her housework, being erratic with her children and irritable, ill-humored, sad, and weepy. She could (or would) not explain the reasons for her behavior to her husband, but obviously she suffered from it and was looking for help.

Ceylan was a somewhat obese, pale woman, neatly dressed in western style, rather shy, but not completely uncommunicative. Initially, she merely answered questions I felt it was appropriate to ask and did not talk much spontaneously. But then, she gradually opened up, and it seemed to me that she started to like the kind of conversation we continued to have. From the very start of this therapy, I had ideas about what could have happened to her and what could have been her experiences. However, I did not at all urge her to talk about specific issues but left it completely up to her to choose the subjects of the sessions. I felt unsure about what was psychologically and culturally

appropriate for her to talk about and also realized that the situation—a male Swiss doctor and a Kurdish peasant woman sitting together in a room and having a conversation for 50 min—must be completely unfamiliar to her. Fortunately, our female interpreter was present, too, and helped to ease the situation.

During the first year of therapy in which I had appointments with her every 2 weeks, Ceylan mostly spoke about her feelings of insufficiency as a mother. Especially with her elder, now 7-year-old daughter, she had a lot of difficulties, because the girl (who was severely traumatized, as I guessed immediately and could confirm only much later from the story Ceylan told me) did not obey her and had severe learning problems in school. Ceylan felt responsible for her daughter's problems and asked me for advice. Together with the GP and a local social worker, I organized for her daughter to receive support from a child psychologist and for both of her children to visit with a neighboring Swiss family for lunch 3 days a week. She accepted these arrangements because they unburdened her somewhat and she realized that her children cheered up subsequently. Nevertheless, Ceylan's condition fluctuated considerably during the first year of treatment. Sometimes she was very depressed and desperate, and sometimes she seemed more self-confident and vigorous. Often, Ceylan proposed that her husband (and sometimes also the two daughters) join us for the last 5 or 10 min of the session.

Some 6 months after the beginning of our therapy, the family's claim for asylum was initially rejected. Not surprisingly, this decision caused a major relapse in Ceylan's condition. It took one more year to await the appeal court's decision, which assigned the family a temporary visa because of Ceylan's impaired mental health. The court argued that given her current impaired health condition, it would not be reasonable to send Ceylan back to her home country where no proper medical treatment was available. The court decision was mainly based on the description of Ceylan's health condition that I had communicated to the authorities in an expert report. So in Ceylan's view, I had saved the family by writing the "right" letter, but in fact, it was Ceylan who unintentionally saved her family from expulsion through her illness. Fortunately, she did not fully realize the paradoxical implication of the authority's decision, but I realized at once the imminent dead end of this situation: the very moment that I declared Ceylan to be cured, the immigration authority would send the whole family back to their home country.

The granting of a regular, although only temporary, visa to the family had a remarkable effect on them: Awar was now entitled to work legally and to have his driver's license, and Ceylan felt visibly relieved. After a short time, Awar found a job as a handyman in a nearby spa resort, and Ceylan now was able to function much more on her own as a housewife. Even after 2 years of treatment, she still felt unable to travel alone the 50 km from her home to my office. She would have to take a bus, then to change to a train, and finally to

walk five blocks. She felt uneasy traveling on her own for several reasons; however, I knew one particular reason for her reluctance: Ceylan was illiterate. Only when her daughters went to school in Switzerland did she pick up the Roman alphabet and slowly learn to read and write in German. Because her husband now had to work when she had appointments with me, she simply had to jump into the cold water, as it were, and come to my office on her own. She also had learned to ride a bicycle in the meantime (something she never had the chance to practice in her home country), joined the local women's gymnastic club, and even attended the (mixed!) swimming lessons we organized in our treatment center. Around that time, she came to the appointment 1 day and proposed to me to continue the sessions without the interpreter. Indeed, she had learned to speak German fairly well now and communication was possible in a sufficient manner. Not surprisingly, the conversation changed in many ways after that. The subjects became much more personal, and she addressed different topics we had never discussed before: Ceylan wanted to talk about life in Switzerland, asking me about local traditions, family values, and religious practices, and even wanted to learn about delicate issues like contraception, dating and sex in adolescence, and marriage customs. I felt that by talking about all of these issues, she was in fact exploring *me*, and I prepared for something more to come.

Finally, after more than 3 years of continuous therapy, she started to tell me about traumatic and haunting experiences she had had in her home country before she left. After her husband had escaped to Switzerland, Ceylan lived with her small children (then a newborn baby and a 4-year-old daughter) with her parents in their farmhouse. One day, when her parents were away for work in the fields, three unknown men—civil officials of the military police—arrived suddenly at her door. They immediately entered the house and rudely asked for her husband. She said that he was abroad and that she hadn't seen him for some time. The policemen laughed at her and started beating and groping her. While both of her children were in the room, they forced her to undress, and they raped her brutally. They left her humiliated and injured, but not without threatening her and her family with further troubles in case the family did not comply with the police. Ceylan was deeply frightened and scared, not only by the horror she had just experienced but also by the imminent danger she was in now. If her father or husband were to find out what had happened to her, she would probably be outlawed and expelled by her own family. Ceylan confided in her mother and told her everything. Together, they managed to conceal the crime from the rest of the family. Ceylan was sick for several weeks; she had suffered from gynecological injuries and had to be treated at home. Fortunately, she recovered passably and could endure the adventurous escape together with her two children to Switzerland.

When Ceylan started to talk about these traumatizing experiences, she seemed to be determined that she wanted to tell it all. I did not have to

persuade or urge her to do so. I was the witness, and she was the actor. When she was recalling her trauma over the next three sessions, she experienced deep pain, shame, and disgust and suffered from flashbacks and intensified nightmares between the sessions. However, it was doable, and she regained self-control and felt relief by the end. We could subsequently address some related issues such as sexual problems she had with her husband and her general anxiety towards male officials. She still did not want to tell her husband about her trauma. In my opinion, he already knew everything but did not want to embarrass her, and so they both remained silent about her secret.

Based on an amendment to the immigration law, the family could apply for a permanent visa after they had lived in the country for 5 years and were independent from welfare for more than 1 year. Proudly, Ceylan presented me a folder full of testimonials and letters of support written by dozens of neighbors, supporters, and friends from her new home village. This was a remarkable achievement because the village where they used to live was known as a rather conservative and close-minded area. Awar had gained a good reputation as a hard-working man, and Ceylan was well known among the women in the village because she had joined the local gymnastic club. After almost 5 years of treatment, Ceylan's family was given a permanent resident status. Her mental health condition was almost completely normalized. I ended our therapy and continued to see her once or twice a year for a follow-up.

22.2 Clinical Challenges

In the case vignette above, different specific problems linked to the treatment of traumatized immigrants are presented. Health professionals in hosting countries must identify and address these problems to effectively improve the victims' condition.

22.2.1 Severity of Trauma, Shattered Assumptions, Loss of Self-Sameness

The severity of traumatic experiences in victims of war and torture often surpasses the levels of trauma that clinicians are used to treating in civil resident patients. The duration of traumatizing conditions, the number of traumatic events, the cruelty of the experienced trauma, the unsettling character of interpersonal violence, and the magnitude of loss are often extraordinary. In consequence, these patients not only suffer from "regular, classical" posttraumatic stress symptoms but also from a deep and fundamental blow to what could be called self-sameness or identity as a person (Bettelheim 1943; Mollica et al. 2001; Wilson 2004). Severe depression, identity confusion, loss of meaning, and deep feelings of shame are challenges for clinicians

working with traumatized refugees. In the WHO's outdated ICD-10, the diagnosis of *enduring personality change after catastrophic experience* as well as the ICD-11's *Complex PTSD* cover some of this severe and often persistent psychopathology (Chap. 6). For clinicians, it is important to realize that severely traumatized patients:

- Do not suffer only from intrusive memories and associated symptoms (i.e., hyperarousal, avoidance, dissociation). Although these “classical” features of posttraumatic stress disorder are often amenable to specific—and definitely successful—trauma-focused treatment (Başoğlu 1998; Lustig et al. 2004; Neuner et al. 2008; Nicholl and Thompson 2004; Nickerson et al. 2011; Schauer et al. 2005; van Dijk et al. 2003; Varvin 1998), some patients nevertheless continue experiencing suffering and despair. Many severely traumatized immigrants remain deeply depressed about their losses and cannot find a way to cope with helpless anger or recover from paralyzing shame (cf. Haagen et al. 2017).
- Have experienced a fundamental shattering of their assumptions about the trustworthiness of the world (Janoff-Bulman 1992). Ordinary human life in the community with other people has lost meaning, and basic social values such as trust, respect, and compassion are mere words to these patients. Many have abandoned their faith in fairness and ethical values, and in consequence, some even abstain from any kind of religious practice. This feature is particularly dramatic for people who formerly were deeply rooted in religiosity. Matters of faith are rarely addressed in psychotherapy; however, in the treatment of traumatized immigrants, the dimensions of faith, religion, and spirituality need to be explored (Boehnlein 2006). In some cases, advice from religious leaders may be helpful for therapists.
- Are deeply isolated in the world because they cannot share their experiences with anybody. Even if they live together with family members, they feel fundamentally alienated. “Whoever has succumbed to torture can no longer feel at home in the world” (Améry 1980).

22.2.2 Physical Disabilities and Complaints

Together with their psychological traumatization, most of these patients experienced significant physical injuries, too. Usually, physical injuries are healed in time; however, chronic pain or other residual consequences of earlier injuries often haunt patients and are intimately linked with altered psychological conditions (Amris and Prip 2000a; Buhmann 2014; Otis et al. 2003; Thomsen et al. 1997) (Chap. 19). Physical complaints and symptoms often function as triggers for intrusions, and sometimes they *are* bodily flashbacks of traumatizing experiences (Salomons et al. 2004). When treating victims of war and torture, support from an experienced physician is very helpful. In an ideal treatment setting, the psychotherapist and physician collaborate closely, and the patient knows that these two health experts are coordinating their efforts. Often, a physiotherapist also can contribute to a favorable outcome (Amris and Prip 2000b). However, physiotherapists must be informed

about the exact trauma history of a patient because they work directly with the body of a patient and must understand specific vulnerabilities in tortured patients. Intrusions and flashbacks can be provoked by physical contact or even when taking certain positions or performing certain motor actions (De Winter and Droždek 2004). However, working with the body can be a clue to recovery for torture survivors (Karcher 2004). Experienced physiotherapists or body therapists are therefore welcome in the efforts to rehabilitate victims of war and torture.

Although survivors of torture prove to be physically strong and tough having survived unthinkable maltreatment, they often feel particularly sensitive and damageable in the posttraumatic situation. Many patients have irrational fears about supposed physical illnesses, sometimes to the level of hypochondriasis. Survivors of torture are focused on the body in a highly ambivalent manner: The body was the gateway for the torturers to break their minds; it was the weak link, the source of pain and suffering. At the same time, the body was their means of survival, the inseparable companion carrying them through danger and despair. So victims of torture feel shame and disgust about their body simultaneously with feelings of pride and gratitude. Psychotherapy should aim at a reconciliation of these ambivalent feelings and contribute to an acceptance of one's own body (Karcher 2004).

22.2.3 Insecure Residency Permit Status

Unfortunately, in traumatized immigrants, legal problems about residence often interfere with therapeutic interventions. Many traumatized immigrants live in chronic insecurity as asylum seekers awaiting their cases to be decided or even as undocumented immigrants. Some hosting countries barrack asylum seekers in run-down buildings, others put them in confinement, and still others virtually relinquish them to a social no-man's-land (Silove et al. 2001). Undocumented immigrants, the poorest of the poor, are in fact the invisible legions of victims traveling incognito through our orderly societies. They are helplessly at the mercy of slave traders, panderers, indifferent officials, and other doubtful characters. Only a few of them will ever appear in our services, and only a few of them will ever tell us their stories. Also, asylum seekers—who have a regular legal status—frequently remain with only minimal social, legal, and medical support. In many countries, only accepted refugees have access to professional treatment, although the need for treatment would be much more exigent in the earlier stages of immigration. The general stress of life for asylum seekers or even more for undocumented residents already affects the mental health condition of these individuals to a degree that is comparable to other extremely stressful life events (Hauff and Vaglum 1994; Heeren et al. 2012; Laban et al. 2004; Steel et al. 2002, 2004). For therapists, it is important to realize that legal problems of residence are paramount for most asylum seekers. Even those who have successfully endured long periods of insecurity as applicants for asylum and end up as recognized refugees often remain obsessed with fears of sudden expulsion, withdrawal of documents, nightly detention, and similar official orders. The very basic precondition of any trauma-specific treatment—safety—is not

provided to many traumatized migrants. Even officially recognized refugees often do not feel secure enough to engage in psychotherapy. This hesitancy sets limits on the possibilities of psychological treatment, and health professionals must first of all support their patients in the regulation of their legal situation. There is an undeniable responsibility for authorities, officials, and political leaders who are defining the legal frameworks of immigration policies.

22.2.4 Cultural and Social Uprooting

Immigrants who suffer from posttraumatic stress symptoms are often culturally and socially uprooted. Many lack social support and are distant from their families, their cultural background, and their traditional means of coping. This isolation is particularly distressing for traumatized individuals because the process of coping with extremely stressful experiences is always embedded in a cultural perspective (Aroche and Coello 2004; Charuvastra and Cloitre 2008). Ethnocultural beliefs, religious practices, and social behaviors are intimately linked to the process of how individuals integrate traumatic experiences into their lives and how they recover to a higher level of functioning. When treating victims of war and torture, clinicians must try to enter into the cultural and historical reality of their patients and evaluate the collectivistic dimension of individual traumata (Eisenbruch et al. 2004). In recent research, the social ecology of posttraumatic symptoms has been increasingly highlighted (Kohrt 2013). Not only do PTSD symptoms lead to relational difficulties in the family and society, but the reverse is also true: Lack of social support leads to more severe PTSD symptoms. Factors like family acceptance, stigma, education, economic perspective, prosecution of perpetrators, and political development are intimately related to the course of posttraumatic stress symptoms. Despite the importance of societal and collective factors, however, most evidence-based treatment modalities for trauma victims focus on the individual.

From a cross-cultural perspective, the social and relational aspects of trauma also can be more distressing than individual symptoms of PTSD. There is often a connection between social distress and post-traumatic psychosomatic complaints that resolve through community processes rather than solely through individual treatment (Kohrt 2013).

Therapists treating traumatized immigrants should always carefully explore the patient's social environment. Also, some knowledge about the patient's cultural background is very helpful for evaluating the context of the therapy. Even if a patient is reluctant to involve family members or friends in treatment, the significance of others for the patient's recovery has to be clarified before initiating therapy. If a patient feels like an outcast from his community or disregarded by the family patriarch because of his posttraumatic stress symptoms, the patient will not even be able to enter into therapy. In some cases, the involvement of cultural brokers facilitating the dialogue between patient and health professionals can be useful.

In addition to that, the language barrier is often a particularly complex issue in the treatment of traumatized refugees. The use of professional interpreters is highly recommended in various medical settings in order to assure sufficient communication and to achieve good treatment adherence (Karlner et al. 2007). However, the presence of a third person—the interpreter—is an irritating factor for both therapist and patient, especially when it comes to the recounting of traumatic experiences. Not only that the interpreter could be a member of the patient’s local community, but also age/gender discordance, cultural, religious, ethnical, tribal or character differences may significantly interfere with the development of a therapeutic alliance. Therefore it is important for clinicians to collaborate with trained interpreters only and to establish a professional relationship with the interpreter (Crosby 2013). There are professional and ethical standards for medical interpreters (e.g., International Medical Interpreters Association 2007) as well as particular recommendations for the use of interpreters in psychotherapies with traumatized refugees (e.g., Tribe and Raval 2002; Miller et al. 2005).

22.2.5 Survivor’s Guilt, Perpetrator’s Guilt, Moral Injury

Traumatized immigrants have to cope not only with feelings of fear, helplessness, and horror but also with shame, guilt, hatred, and anger. This mixture of different emotions is sometimes hard to disentangle and unsettles patients and therapists, as well. Survivors of war and torture often believe they survived only because they could hide behind others who died. To survive is indeed sometimes the result of mere chance, and sometimes it is the result of the survivor’s alert action. To survive in situations where reliable rules and moral values are annulled inevitably carries ethical dilemmas. The individual is challenged with the how to remain fair and honest in situations where the will to survive becomes a mere biological drive. Especially in contexts of war and torture some experiences inevitably transgress deeply held moral beliefs. Transgressions that lead to serious inner conflict because the experience is at odds with core ethical and moral beliefs is called *moral injury* (Litz et al. 2009; Nickerson et al. 2014). From the comfortable armchair of the doctor’s office, it is easy to moralize and to argue about right or wrong. Nevertheless, survivors of war and torture often rigorously apply moral reasoning to their acts and omissions, aggrieving themselves with reproaches and accusations. Feelings of guilt and persistence in self-reproach or even self-harm are, of course, symptoms of major depression; however, they also can be understood as re-enactment of torture. In fact, torturers purposefully entangle their victims in moral dilemmas and inflict on them feelings of guilt (Modvig and Jaranson 2004). For therapists, the treatment of victims of war and torture always holds the potential for confusion, anguish, and pain as in countertransference, the patient’s horrors are re-experienced. In fact, patients’ experiences can also involve acts of cruelty or even crime. Some severely traumatized patients desperately seeking help are, in fact, perpetrators at the same time. It is rare, however, that patients expose themselves as perpetrators and want to focus their therapies on committed acts of violence. The example of child soldiers or war

veterans show, though, that even committed violence is potentially traumatizing and has detrimental effects on perpetrators, too. The crucial problem in these therapies is often the handling of actual guilt and moral injury, which is obviously not a psychotherapeutic issue. The therapist must wrestle with what to advise to a patient who believes he is guilty, probably not only morally but also legally. From a therapeutic perspective, the involvement of societal, religious, or legal authorities can pave the way to eventual recovery. When working in this field, clinicians must be prepared to enter into the most complex realities of patients, where truth, certainty, and clarity are not easy to recognize. They must find a way to address issues of morality, guilt, responsibility, and compensation without falling into a moralizing or condemning attitude.

22.2.6 Peer-Based Approaches

Obviously, even high-performance healthcare systems still face manifold obstacles when trying to treat traumatized immigrants: language barriers, mutual cultural biases, mistrust, limited funding, lacking identification of affected individuals, limited availability of service providers, etc. Given these difficulties, more and more peer-based approaches are applied and seem to add new perspectives in the support of traumatized refugees. While in resource-poor settings the deployment of locally recruited counselors and ad hoc trained lay therapists in the treatment of traumatized refugees is widespread, this type of support is far less common in high-income countries. Of course the World Health Organization recommends a taskshifting approach from academic professionals to trained lay health workers mainly for countries with an insufficient health sector (Jordans and Tol 2012), still it could be a useful complement in high-income countries as well. Often peer support may be limited to basic interventions like problem solving (Sijbrandij et al. 2017), psychosocial support (Ayoughi et al. 2012), or mentoring (Paloma et al. 2020), but also specific interventions like Narrative Exposure Therapy (NET) have been successfully applied by trained lay therapists who do not have any medical or psychological background (Neuner et al. 2008). The use of lay therapists in high-income countries, however, might be impeded by legal restrictions and professional organizations' interventions. Still there are large areas of employment of peers, mainly in the preclinical support of affected individuals and families (Chap. 6).

22.2.7 Summary and Recommendations

The treatment of traumatized refugees and immigrants poses major challenges to healthcare professionals. Given the high and increasing number of affected individuals, healthcare providers should step up their efforts in providing effective treatments to these patients. As several studies have demonstrated recently, also in refugees and immigrants trauma-focused psychotherapies are applicable and effective (e.g., Adenauer et al. 2011; Crumlish and O'Rourke 2010; Haagen et al. 2017;

Hinton et al. 2005; McFarlane and Kaplan 2012; Neuner et al. 2004, 2008; Nickerson et al. 2011; Paunovic and Ost 2001). Owing to legal and language barriers, however, many affected individuals have no access to adequate treatment and remain untreated. Treatment should be made accessible to all individuals in need regardless their legal status, their ethnical and cultural background, and their financial potency. The use of professional interpreters in mental health service provision should become part of the standard procedure. Also the deployment of trained peers in the support of traumatized refugees offers additional benefit to standard medical treatment and should be implemented.

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Considerations in the Treatment of Veterans with Posttraumatic Stress Disorder

23

Shannon E. McCaslin, Jessica A. Turchik,
and Jennifer J. Hatzfeld

23.1 Introduction

The soldier is the Army. No army is better than its soldiers. The soldier is also a citizen. In fact, the highest obligation and privilege of citizenship is that of bearing arms for one's country.—George S. Patton Jr.

Military service requires a commitment of service to one's country, motivated by very different passions which can range from the most patriotic to the most pragmatic. Regardless of the reason a service member decides to enter military service, this commitment also demands a willingness to place oneself in situations that can mean exposure to unique stressors and traumas. As such, service members, particularly those who serve in combat, are at higher risk to experience potentially traumatic events. Traumatic events during military service may include exposure to

S. E. McCaslin (✉)

Dissemination and Training Division, National Center for PTSD, VA Palo Alto Health Care System, Menlo Park, CA, USA

Department of Psychiatry and Behavioral Sciences, Stanford University School of Medicine, Stanford, CA, USA

e-mail: Shannon.McCaslin@va.gov

J. A. Turchik

Dissemination and Training Division, National Center for PTSD, VA Palo Alto Health Care System, Menlo Park, CA, USA

Center for Innovation and Implementation, VA Palo Alto Health Care System, Menlo Park, CA, USA

e-mail: Jessica.Turchik@va.gov

J. J. Hatzfeld

Air Force Medical Readiness Agency, Defense Health Headquarters, Falls Church, VA, USA

combat and other life-threatening situations as well as incidents that occur during rigorous training and interpersonal violence. In turn, greater trauma exposure can place service members at increased risk for the subsequent development of stress-related mental health difficulties such as posttraumatic stress disorder (PTSD), depression, and alcohol misuse. Estimates of PTSD prevalence in national samples have included 15.2% of males and 8.1% of females who served in the Vietnam War (Kulka et al. 1990) and 10.1% among those serving in the Gulf War (Kang et al. 2003). A study examining lifetime prevalence of PTSD in a sample of Vietnam-era twins reported rates of 16.9% (60 years of age and older) and 22.0% (under 60 years of age) among veterans who had served in combat theater as compared to 5.5% and 15.7% (respectively) among nontheater veterans (Goldberg et al. 2016). Among post-9/11 veterans who served during Operations Iraqi Freedom (OIF) and Enduring Freedom (OEF) PTSD prevalence estimates have ranged from 13.8% (OEF; Tanielian and Jaycox 2008) to 23% (Fulton et al. 2015). In a nationally representative sample of 1484 veterans, a weighted lifetime prevalence of PTSD was reported to be 8.1% (Wisco et al. 2016). PTSD prevalence estimates can vary widely across studies dependent upon study population sampled, study design, and measurement timepoint and type (e.g., diagnostic interview vs. self-report measures). Veterans with PTSD have reported greater interpersonal disturbances (e.g., Koenen et al. 2008), lower occupational functioning (e.g., Davis et al. 2018), and reduced quality of life (e.g., Schnurr et al. 2006, 2009; McCaslin et al. 2016).

Delivering high-quality treatment to veterans with PTSD and other trauma-related conditions requires awareness not only of evidence-based treatment practices but also of military-related stressors and the underlying military cultural context in which they occur. In this chapter, we aim to provide the clinician with a greater understanding of military-related stressors and increased insight into the military cultural context. Please note that the majority of our review and recommendations are grounded largely in the experience of US military service and veteran care.

23.2 Military Culture and Context

It can be argued that the military is a distinct culture, made up of a unique set of values, beliefs, and cultural rules (Koenig et al. 2014; McCormick et al. 2019; McCaslin et al. 2021). Core values include service to community and country, courage, integrity, and loyalty. There is a shared sense of purpose, and a fostering of strong bonds among service members. The degree to which a veteran continues to identify with military culture following separation from the military can influence how mental health symptoms are experienced and reported. Hoge (2011) recognized this, proposing that the clinician should meet veterans where they are, literally and figuratively, in terms of culture.

Military separation and transition to the civilian setting can be challenging, even apart from stressful or traumatic experiences that occurred during service. Factors such as whether individuals worked in the civilian sector prior to or after the

military, if they are separating, retiring, or remaining connected in a reserve status, whether the separation from the military was planned or involuntary, and how well the job that the veteran had in the military translates to civilian work can all influence the ease of transition. Additionally, military service-related achievements, experience, and recognition—easily seen on a uniform in medals and ribbons—become “invisible” in the civilian context. Rank and organizational hierarchy, clearly identified and articulated in the military, are often less evident to the veteran entering the workplace and may be difficult to navigate without understanding the unique cues and social norms in a civilian context. Relatedly, loss of and subsequent sense of grief for one’s “military self,” including one’s role and sense of purpose, has been suggested to be an important aspect of transition stress (Mobbs and Bonanno 2018). The loss of social support from other service members post-separation can be particularly stressful. Social bonds with other service members can be uniquely strong, and the loss of camaraderie and proximity of these relationships can be understandably difficult. Indeed, Smith et al. (2017) found that lower postdeployment social support and higher social reintegration difficulty mediated the relationship of deployment experiences to higher PTSD symptoms. Moreover, reintegration stress related to social relationships, sense of belongingness, and life purpose/meaning were found to be associated with greater suicidal ideation (Haller et al. 2016).

Treatment engagement and rapport with veteran clients can be improved by increasing one’s knowledge about military culture. While some countries maintain an all-volunteer military (e.g., United Kingdom, United States, Australia), others have some form of compulsory military service (e.g., Sweden, Israel, Switzerland). In countries with an all-volunteer military, those who serve comprise a minority of the population. As such, civilian providers may have limited exposure to military culture and context. In one survey study, a minority of clinicians (19%) providing services to veterans in their communities demonstrated high military cultural competency and roughly half routinely asked clients about prior military service (Tanielian et al. 2014). In countries that require most civilians to engage in military service, there may be a deeper sense of connection with the veteran’s military experience. Further, veterans vary broadly in their perceptions of their military service and sense of identification with military culture. At the end of this chapter, we provide links to resources that can help the treating clinician become more familiar with key values and beliefs of military culture and logistical and organization aspects of the military.

23.3 Combat Service

We few, we happy few, we band of brothers. For he to-day that sheds his blood with me,
Shall be my brother; be ne’er so vile, This day shall gentle his condition; And gentlemen in
England now a-bed, Shall think themselves accurs’d they were not here, And hold their
manhoods cheap whiles any speaks, That fought with us upon Saint Crispin’s day.—
William Shakespeare (Henry V, Act IV, III)

There are various stressors a service member may experience, including intense training and deployment experiences. Deployments are not limited to the direct support of combat operations and may include supportive roles well outside of the combat zone as well as humanitarian missions and actions. However, we focus on combat exposure in the next section because of the intense and often profound psychological impact of combat service. Combat stressors may include life-threatening situations, physical injury, witnessing death and dying, experiencing injuries and loss of unit members, and participating in actions that result in the injury or death of others. These may be compounded by additional factors such as periods of intense action and long work hours interspersed with downtime, separation from usual coping mechanisms or support systems, and a loss of control.

Combat exposure has been associated with higher rates of PTSD, depression, and alcohol misuse (Hoge et al. 2004; Kulka et al. 1990; Kang et al. 2003; Banducci et al. 2019). Length of deployment and higher level of combat exposure (Schell and Marshall 2008), as well as less time between deployments (Morissette et al. 2018) have been found to increase risk for PTSD. Among the many stressors that can be experienced in the combat environment, the consequences of losing comrades and of facing situations which conflict with one's deeply held beliefs and values can be particularly difficult.

23.3.1 Grief and Loss

Many veterans who served in combat have experienced the sudden death or injury to members in their military unit and continue to experience powerful symptoms of grief years later. Studies of veterans who had deployed to Iraq and Afghanistan found that between 47% and 80% of those surveyed knew someone who had been seriously injured or killed and 20–25% experienced having a buddy shot or hit nearby (Simon et al. 2018; Thomas et al. 2010; Hoge et al. 2004; Toblin et al. 2012).

Social bonds formed during training and combat and a sense of responsibility for the well-being of one's unit members can result in losses that deeply impact veterans who have survived combat (Papa et al. 2008). Among soldiers who had experienced the loss of a comrade, approximately 20% reported difficulty coping with symptoms of grief (Toblin et al. 2012). In another sample of 204 post-9/11 veterans who had experienced such loss, 41% reported complex grief (Simon et al. 2018). High levels of grief symptoms were also reported among Vietnam-era combat veterans (Pivar and Field 2004). Strikingly, the authors observed that the level of grief symptoms reported by the veterans was comparable to that endorsed by individuals who had experienced the death of a spouse within the past 3–6 months. Moreover, grief symptoms were distinct from PTSD and depression symptoms and most predicted by the losses themselves. Difficulty coping with such losses has been associated with poorer physical health, occupational functioning, sleep disturbance, fatigue, and pain (Toblin et al. 2012). Grief for the loss itself can be complicated by feelings of guilt about surviving when others did not or feelings of self-blame related to the belief that the death was preventable (Currier and Holland 2012).

In summary, symptoms of grief can remain unresolved, endure for decades (Pivar and Field 2004), and uniquely impact functioning (Toblin et al. 2012). Prolonged grief has been associated with more severe PTSD and trauma-related guilt, as well as lower PTSD treatment response (Simon et al. 2018; 2020). While grief symptoms may co-occur with PTSD, previous research suggests that such symptoms are distinct. For more information on the assessment and treatment of traumatic or prolonged grief, please see Chap. 15 by Shear and colleagues.

23.3.2 Moral Injury

Moral injury refers to distress resulting from participating in, witnessing, or learning about events that violate one's deeply held values or moral beliefs about themselves and humanity (Currier et al. 2015; Litz et al. 2009). The types of experiences that may result in moral injury are broad and include betrayal by leadership or peers, betrayal of one's own values, inability to prevent harm to others, injuring or killing enemy combatants or civilians, witnessing or experiencing atrocities (e.g., inhumane acts), and facing ethical dilemmas (Currier et al. 2015; Stein et al. 2012).

Among US soldiers and marines who served in Iraq and Afghanistan, 23–32% reported being responsible for the death of an enemy combatant, 48–60% reported seeing ill or injured women or children whom they were unable to help, over 50% reported shooting or directing fire at the enemy, and over 5–9.7% endorsed being responsible for the death of a noncombatant (Thomas et al. 2010; Hoge et al. 2004). Perception of betrayals from military leaders and of their own personal values, overly harsh treatment of civilians, and guilt about surviving combat were the most frequently endorsed experiences among a sample of veterans who had served in Iraq and/or Afghanistan (Currier et al. 2015).

Veterans who have injured or killed others during their combat service have reported more severe PTSD symptoms, after accounting for other combat exposure and stressors (Currier et al. 2015; Maguen et al. 2010, 2013; Litz et al. 2009 for review). While there is overlap, there is also evidence that symptoms related to moral injury are distinct from those of PTSD (Bryan et al. 2018; Griffin et al. 2019; Koenig et al. 2020). Other psychological consequences related to morally injurious experiences include emotional responses, such as guilt and shame, and spiritual or existential concerns (Currier et al. 2015).

Psychological reactions related to morally injurious events appear to more likely arise following an event versus during it, and it has been suggested that having time to reflect on and process the event may precede the development of some emotional reactions (Stein et al. 2012). The way in which the event is cognitively processed is the core component of the framework for understanding the cause and development of moral injury put forth by Litz et al. (2009). Key to this framework is the thesis that the individual is unable to contextualize or justify their own actions or those of others and that these experiences are not able to be successfully accommodated into preexisting moral schemas. This conflict then results in emotional responses, such as guilt or shame. Additional theoretical models of the development of moral injury

symptoms have been proposed (e.g., Farnsworth's Prescriptive-Cognition Model; Farnsworth 2019 and The Stress Injury Model; Nash 2019) that may be helpful to consider.

Events with moral and ethical implications may not be given sufficient attention during a course of mental health treatment due to both clinician and veteran factors (Litz et al. 2009). Clinicians may not feel prepared to address what can be complex existential and spiritual questions, or they may be focused on other areas of the veteran's experience (e.g., life-threatening events). Veterans may hesitate to discuss actions by self or others that are related to feelings of guilt or shame and may be concerned about the potential reaction by the clinician (e.g., rejection, being misunderstood; Litz et al. 2009). Furthermore, some veterans may have fears of legal ramifications for themselves or others. Currier et al. (2015) suggested that these fears may limit the information provided to the clinician in response to questions that are specifically directed at the violation of rules of engagement, participation in atrocities, or other similar types of experiences and thus recommend exploring these topics within the bounds of a broader assessment.

Complicating assessment of these events is the possibility that they may have co-occurred with, or been experienced in addition to, other combat-related experiences such as potentially life-threatening events (Griffin et al. 2019). Assessment can be guided by assessment instruments such as the Moral Injury Events Scale (Nash et al. 2013), the Moral Injury Questionnaire-Military Version (Currier et al. 2015), and the Moral Injury Symptom Scale-Military Version (Koenig et al. 2018). Whereas clinicians should always provide the space and encouragement for veterans to share traumatic experiences, veterans may wish to share only limited information initially. Clinicians should be sensitive to potential discomfort and allow the veteran to determine the pace of any disclosures.

Development of treatments focused on moral injury have been ongoing. Among the earliest treatments proposed was an eight-step intervention (Litz et al. 2009). This treatment touches on central components for processing such experiences, including components focused on strengthening the working alliance, providing education, important concerns such as self-forgiveness and social connection, and setting future goals. Adaptive Disclosure is a brief intervention that includes a focus on moral injury and demonstrated preliminary evidence for reductions in PTSD symptoms (Griffin et al. 2019; Litz et al. 2017). Maguen et al. (2017) reported reductions in PTSD symptoms and improved functioning among veterans who participated in a pilot investigation of a 6-session cognitive behavioral intervention (Impact of Killing; IOK) intended to address killing or feeling responsible for deaths occurring while serving in combat. See review by Griffin et al. (2019) for further descriptions of treatments focused in this area. When appropriate, veterans struggling with spiritual or existential issues related to such experiences may benefit from referral to other services such as those of a chaplain or spiritual leader. In a systematic review of studies utilizing religious/spiritual-based interventions in veterans with PTSD, there appeared to be preliminary evidence of significant improvement in symptom outcomes (Smothers and Koenig 2018).

23.3.3 Considerations for Treatment

- Clinicians who have limited experience working with clients who have served in the military may question whether they will be able to connect with or be accepted by the veteran. On the contrary, when speaking with clinicians, they often report that they are able to build strong therapeutic connections and find the opportunity to serve veterans through providing treatment to be extremely rewarding.
- Conveying an interest in and understanding aspects of military culture and military-related stressors demonstrates respect, can strengthen the therapeutic relationship, and can improve treatment formulation. Relatedly, because of the variation within the veteran population, it is essential to set aside stereotypes and assumptions about what it means to be a veteran or to serve in combat.
- Clinicians should consider conducting a personal assessment of their beliefs and potential limits. For example, will one be able to set aside one's beliefs and judgments about war and politics, and how might one respond to or what is the extent to which one can tolerate themes that may arise in treating combat veterans such as gallows humor or situations involving moral ambiguity?
- Due to the variation and complexity of military service experiences, a broad and comprehensive initial assessment should be conducted whenever possible. Service characteristics, such as combat operation, era of service, branch of service, job, and rank while serving may all influence the experiences and clinical presentation of the veteran client, and can be critical to inform the direction of treatment. Sensitive experiences, such as those involving grief for fallen comrades and moral ambiguity, can be more difficult to share, accentuating the need to allow adequate time to develop a solid and trusting therapeutic relationship.
- Multidisciplinary care may be necessary. Veterans should be screened for comorbid mental health and physical health conditions and referred appropriately. For example, the physical demands of military service can lead to chronic pain. Based on data from the 2010 to 2014 National Health Interview Survey, 65.5% of veteran respondents indicated having pain in the previous 3 months with 9.1% rating it as severe. Among veterans aged 18 to 39 years, 7.8% reported severe pain, which was significantly higher than similar-aged nonveterans at 3.2% (Nahin 2017) Both PTSD and chronic pain tax the coping resources of veterans, which can exacerbate both conditions and can negatively impact functioning and quality of life (e.g., Clapp et al. 2010). Other physical injuries, such as traumatic brain injury, can also profoundly impact recovery (e.g., Holster et al. 2017).
- Clinicians should be sensitive to the presence of PTSD among female veterans who served within a combat theater, and experienced stressors that may or may not be traditionally combat-related. For example, during operations in Iraq and Afghanistan women may have driven supplies as part of a convoy or served as a medic on medical evacuation missions, and may have come under fire.

Case Illustration: Luis, Male, Operation Enduring Freedom (OEF)

Combat Veteran

Luis joined the military at the age of 18. He served two tours in Afghanistan during which he engaged in firefights, both receiving fire and firing at enemy combatants. During his second tour in Afghanistan, he experienced a blast caused by an improvised explosive device (IED) that also resulted in the death of one of his comrades.

Luis decided to use educational benefits earned through serving in the military to go to college once discharged from the military. He was unprepared for the feelings of anxiety when he stepped onto the campus. He found that certain class material and comments by teachers or other students about the war brought up vivid memories of his experiences in Afghanistan, and he would find himself unable to concentrate for the rest of the day. He felt unable to connect with civilian students. Luis felt that he should have been able to deal with his feelings, but no matter what he did, he found that the thoughts and images kept returning.

While at a primary care appointment, Luis screened positive for PTSD. His doctor provided educational materials and suggested a referral to a mental health provider. Luis said he would think about it. That night he went home and looked up PTSD online, where he read about the symptoms and treatments, and noticed other veterans sharing similar experiences. Although ambivalent, he decided to set up an appointment to see a mental health provider.

As Luis drove up to the clinic, his mind was racing with thoughts like, “Is it worth digging up all this stuff?” “What will a civilian know about any of this anyway?” “I should be able to deal with this myself.” Only halfway through the school semester, he was not sure he would be able to keep up his grades while taking medications that might “mess with” his mind. Still, he did not want to “no show” to his appointment, so he checked in at the front desk.

Dr. Keahl greeted Luis warmly. Dr. Keahl asked how Luis felt about coming in, acknowledging it can be difficult to ask for help, introduced herself and her professional background and expertise, noting that while she had not served in the military that she greatly appreciated his service and looked forward to working with him. Dr. Keahl then provided him with an agenda for the session. She explained she would ask some general questions about his background, current living situation, military experience, and current symptoms—and that he was welcome to decline to answer any questions. She inquired about when, where, and in what role Luis had served, and allowed him time to share and ask questions. Dr. Keahl normalized the difficulties of transitioning out of the military. She also noted how certain behaviors, such as the ability to function on limited or inconsistent sleep schedules and remaining aware and prepared (hypervigilance), can be adaptive while in combat but may be inconsistent with life in the civilian context. In the course of the assessment, she learned that Luis was struggling with the meaning behind his service because of some of the things that he had witnessed while at the same time continuing to feel deeply connected to and proud of his military service. Dr. Keahl provided information about moral injury to Luis, encouraging him to continue to discuss these issues in treatment. Dr. Keahl inquired about physical injuries and learned that he had

suffered a concussion following his exposure to the IED blast. She received his permission to refer him to a cognitive rehabilitation specialist for an assessment.

Luis decided to engage in a time-limited course of prolonged exposure therapy (PE). After treatment, he continued to report residual symptoms of sleep disturbance and was referred to a sleep specialist for a course of cognitive behavioral therapy for insomnia. Dr. Keahl also connected Luis with on-campus disability services so that he could receive accommodations in the classroom for difficulties with concentration and anxiety symptoms. Luis began to feel more confident in his academic work, to engage in social activities again, and to feel more hopeful for the future.

23.4 Military Sexual Harassment and Assault

While serving in the military comes with risks associated with combat exposure, sexual harassment and sexual assault are also a part of service members' military experiences. Sexual harassment is generally defined as unwanted sexual experiences that occur in the workplace and may include an array of behaviors, including offensive sexual comments, display of pornographic materials, promises of punishment or rewards related to performance of sexual favors, and sexual assault. Sexual assault is generally defined as unwanted physical sexual contact that includes a range of behaviors from unwanted touching of a sexual nature to nonconsensual vaginal, anal, or oral penetration (rape). Within VA, Military Sexual Trauma (MST) is specifically defined as, "psychological trauma, which in the judgment of a VA mental health professional, resulted from a physical assault of a sexual nature, battery of a sexual nature, or sexual harassment which occurred while the Veteran was serving on active duty or [on] active duty for training" (US Code 1720D of Title 38).

There are some unique factors that contribute to the complexity of sexual harassment and assault in the military (Turchik and Wilson 2010). A key factor is the strong masculine orientation associated with military culture that reinforces strength and control. Additionally, victims (either male or female) can be reluctant to report abuse as they may be seen as weak by other service members in the organization—either for contributing to the incident or not being able to stop it. Another important factor is the significance of rank structure and unit cohesion in the military. While these are valuable characteristics to accomplish a specific mission, they can also increase the vulnerability of lower-ranking service members and make the decision to report the incident that much more difficult if it occurs within the same unit.

23.4.1 Prevalence

It is difficult to determine the actual prevalence and incidence of sexual harassment and sexual assault in the military due to a number of factors (i.e., inconsistency in definitions across studies, underreporting); however, research suggests that it is not uncommon. In the 2018 Department of Defense (DoD) Workplace and Gender

Relations Survey of Active Duty Members (Breslin et al. 2019), the prevalence of sexual assault over the past 12 months was 6.2% for women and 0.7% for men. Rates of sexual harassment were 24.2% for women and 6.3% for men on active duty. In a meta-analysis of studies which included both military personnel and veterans, 3.9% of men and 38.4% of women reported MST when both harassment and assault were measured (Wilson 2018). When sexual assault only was assessed, 1.9% of men and 23.6% of women reported experiencing MST. It is important to note that while a higher percentage of women than men experience sexual assault and harassment during military service, the actual numbers of women and men who experience military sexual assault/harassment are more similar given the higher percentage of men in the military. There may also be underreporting of MST among men. Reflecting the need for additional research within diverse populations, particularly within those which may have increased vulnerability, a study of 221 transgender veterans found that 15.2% of transgender women and 30% of transgender men reported a prior military sexual assault (Beckman et al. 2018).

23.4.2 Mental Health Consequences

Research has demonstrated that veterans who report sexual trauma during military service are at greater risk for a number of physical health problems (Frayne et al. 1999; Kimerling et al. 2007; Turchik et al. 2012), mental health problems (Kimerling et al. 2007, 2010), and impairments in functioning (Skinner et al. 2000). Mental health conditions for which increased rates have been reported include PTSD, depression, anxiety, substance use disorders, sexual dysfunctions, eating disorders, and suicidal ideation (e.g., Kimerling et al. 2007; Turchik et al. 2012; Blais et al. 2017; Blais and Monteith 2018; Monteith et al. 2016; Forkus et al. 2020). The condition that appears to be most highly associated with military sexual trauma is PTSD (e.g., Kimerling et al. 2007). This is consistent with other research which has found that rape leads to a higher risk of PTSD than any other trauma, including combat, in both veteran and nonveteran samples (Kang et al. 2005; Kessler et al. 1995; Yaeger et al. 2006).

23.4.3 Considerations for Treatment

- Many of the empirically supported PTSD treatments, including cognitive processing therapy (CPT; Resick and Schnicke 1993) and prolonged exposure (PE; Foa et al. 2007), were initially developed for and tested with sexual assault survivors, and these treatments have been shown to be helpful for those with sexual trauma-related PTSD. However, it should be noted that these treatments have primarily been tested with female sexual assault survivors. While both men and women veterans have been found to benefit from CPT and PE in analyses of retrospective data (e.g., Voelkel et al. 2015; Hahn et al. 2020), magnitude of PTSD symptom change differed by gender for those receiving CPT, indicating

further research may be needed for male sexual assault survivors. Other PTSD treatments (e.g., skills training in affective and interpersonal regulation narrative therapy, STAIR; Cloitre et al. 2020, acceptance and commitment therapy, ACT; Walser et al. 2013) are also available and are being used with veterans who have experienced sexual trauma.

- Given that the sexual violence occurred within the military, the context may present additional concerns for victims. Providers should be attuned to confidentiality issues, stigma, concerns about effects on their job, perpetration retaliation, unit cohesion, and other issues that may be qualitatively different than for someone who experienced sexual trauma as a civilian.
- Given the gendered nature of sexual trauma, it is important to ensure that screening and treatment is delivered in a gender-sensitive manner. Veterans who experienced MST may have negative beliefs about access to treatment (e.g., stigma, perception of care) and this may vary by gender (Hahn et al. 2020). Additionally, qualitative studies have found that veterans often have a provider gender preference when seeking care related to MST (Turchik et al. 2013, 2014). Gender mismatch (receiving care from a provider that was not the client's preferred gender preference) has been associated feeling less comfortable with providers and perceived provider barriers (McBain et al. 2020). Such findings highlight the importance of asking sexual assault survivors whether they have a preference and honoring this preference when possible.
- While experiencing a sexual trauma increases the risk for mental health problems, it is not a diagnosis and not all men and women who experience sexual trauma will want or need to seek treatment. Further, while PTSD is one of the most common diagnoses associated with sexual trauma, providers should be mindful that there are a number of other mental and physical health issues associated with sexual victimization.

Case Illustration: Janine, Female, Military Sexual Assault Survivor

Janine is a 25-year-old woman who experienced a sexual assault 4 years ago by an officer in her unit during her first assignment following boot camp. After the attack, the officer continued to make lewd comments and gestures, grab her inappropriately, and threaten to enter her bunk at night. When Janine attempted to describe her experience to some of her peers, she was told to “get over it.” She hesitated to report his behavior for fear of jeopardizing her military career and losing her friends who were also close with the perpetrator. While on active duty, Janine made every attempt to not think about the experiences by distracting herself with her work and telling herself she was “overreacting.” However, after leaving the military, Janine's symptoms, including insomnia and hypervigilance, worsened. She insisted on sleeping with a gun under her pillow, and she avoided going out with friends because she “didn't trust men anymore” and feared that her male friends would attempt to make unwanted sexual advances.

Due to an inability to sleep, Janine could not hold a job and feared she would never be able to work again. After building a tolerance to over-the-counter sleep

medications, Janine sought out a primary care physician, who she hoped would prescribe a stronger sleeping pill. During her visit, Dr. DuBois completed a military sexual trauma screening. Janine confided in her doctor that she had experienced military sexual trauma and was having nightmares involving her perpetrator. Seeing her distress, Dr. DuBois informed Janine of the treatment options available and provided her with a number to set up an appointment with a psychologist with PTSD treatment experience.

Janine was embarrassed that she had never sought treatment before, even though she knew it probably would have helped. With several different job assignments and her self-imposed busy schedule, she had never taken the time to look up the number to the mental health clinic. She also wished that she had the courage to report the incident when it happened, instead of keeping it quiet. However, she was not sure if the psychologist would need to make a formal report to the military police if she told too many details. With all of those conflicting thoughts and swirling emotions, Janine made an appointment. Without a job, she figured she had the time to deal with this now.

After an initial assessment, Janine and her psychologist decided to begin cognitive processing therapy (CPT). It was clear that Janine had developed a lot of self-blame related to the harassment and that she felt that she must have “led [him] on” or done something to warrant the harassment. Janine described her fears that she would never get back to normal and that she was permanently damaged. Her therapist focused on examining and challenging the beliefs and thoughts that were impacting Janine’s recovery. She addressed Janine’s insomnia by psychoeducation on sleep hygiene and a referral to a sleep specialist. Writing an account of the trauma and processing through this account during the course of therapy helped Janine to make sense of the events she has been avoiding and allowed her to feel the emotions associated with her harassment. By the end of the 8 week course of treatment, Janine showed significant improvement in sleep duration and sleep quality, reduction of nightmares, and willingness to engage in coed social activities. She also showed significant decreases in her PTSD symptoms and no longer felt the need to check her locks or look over her shoulder constantly. She also expressed increased self-efficacy, was seeking employment, and began to feel open to the possibility of a romantic relationship in the future. Even still, Janine continues to read back over her therapy materials and complete therapy worksheets when she feels “stuck” about something.

23.5 LGBTQ+ Identity and Minority Stress

There is emerging recognition that veterans who identify as members of racial and ethnic minority groups or as lesbian, gay, bisexual, transgender, and queer (LGBTQ+) may experience minority stress, identity-based discrimination, and microaggressions in addition to Criterion A traumatic stressors (Sibrava et al. 2019; Livingston et al. 2020). In particular, veterans identifying as LGBTQ+ have been shown to be at increased risk of trauma exposure, including sexual and interpersonal

violence, and PTSD (Shipherd et al. 2018, 2019; Livingston et al. 2019). Transgender and gender diverse participants have been found to have lifetime rates of exposure to criterion A traumatic events that are between 90% and 100% in prior studies (Shipherd et al. 2019). Increased rates of trauma and PTSD among LGBTQ+ veterans may be attributable to higher rates of life experiences of identity-based discrimination and traumatic experiences (Shipherd et al. 2018).

Veterans identifying with minority groups may have experienced varying degrees of exclusion and isolation in their military unit during military service which can differ depending on group dynamics, leadership, presence of discrimination and harassment within a unit, and other factors (Alford and Lee 2016; Dardis et al. 2018; Foynes et al. 2015; Gurung et al. 2018; Livingston et al. 2019). Interpersonal and institutional discrimination, other minority stressors, and increased barriers to accessing care can all compound the impact of trauma and military-related stressors on LGBTQ+ veterans (Livingston et al. 2019).

The combination of traumatic stressors, minority stressors, discrimination, and microaggressions can exacerbate clinical distress and impairment for LGBTQ+ veterans (Livingston et al. 2019). Providers should be aware of the intersectional nature of these aspects of the veteran's experience. Clinically, providers should consider assessing minority stress and experiences of discrimination in addition to Criterion A traumatic experiences and PTSD in order to gain a more comprehensive and accurate picture of the veteran's experiences, symptoms, and treatment course (Livingston et al. 2019; Shipherd et al. 2019; Onoye et al. 2017). Additionally, while evidence-based treatments for PTSD have been demonstrated to be effective for veterans, they do not necessarily address the sequelae of identity-related discrimination, minority stress, and microaggressions which may impact PTSD symptoms and recovery (Livingston et al. 2019; Shipherd et al. 2019). Utilizing additional treatment modules or adjunct interventions (e.g., coping skills interventions), in addition to trauma-focused treatments (e.g., CPT or PE) that target experiences related to minority stressors and discrimination may be necessary to increase the effectiveness of mental health treatment (Shipherd et al. 2019). Future directions of research should consider how best to conceptualize and modify current treatment models to address this complex interplay of trauma, minority stressors, discrimination, and microaggressions (Shipherd et al. 2019; Sibrava et al. 2019).

23.6 Summary and General Treatment Considerations

It is not within the scope of this chapter to fully cover the many different clinical presentations and concerns that may arise in the clinical setting. The veteran population is incredibly diverse, spanning generations, ethnicity, and gender. Many veterans have served during war, and many others have served during times of peace; still others have served on humanitarian missions around the globe. Thus, the importance of listening to the unique narrative with which each veteran presents is emphasized and recommendations are offered within this chapter to provide some general guidance when treating veterans with PTSD.

23.6.1 Barriers to Seeking Mental Health Care

Many veterans who are in need of mental health care for PTSD do not seek out services (Shiner 2011). A 2003 survey of US soldiers and marines who served in combat found that despite up to 17.1% endorsing the presence of a mental illness, only 23–40% of those who screened positive sought mental health care (Hoge et al. 2004). Studies have documented a number of barriers to seeking care, including concerns about and readiness for mental health treatment (Stecker et al. 2013), stigma and potential ramifications of seeking treatment on one's future military career, self-stigma (e.g., perception of treatment as a sign of weakness) and privacy concerns (Hoge et al. 2004; Stecker et al. 2007, 2013; Crawford et al. 2015), and logistical barriers such as scheduling, distance from health care, and balancing multiple roles (e.g., employee, student, and parent) (Hoge et al. 2004; Stecker et al. 2013). Treatment-related concerns have also been reported to be among the most endorsed barriers to care including limited choices for treatment (i.e., medication would be prescribed; preferences for individual versus group treatment), concerns that one's situation would not be understood by a mental health clinician (e.g., only those who had been deployed to war would understand), and the perception that treatment was not needed or that one was not ready for treatment (Stecker et al. 2013). Believing one should solve one's own problems was more often endorsed among veterans with probable PTSD who did not seek mental health treatment (Elbogen et al. 2013).

23.6.2 Assessment and Treatment

A comprehensive assessment should be completed prior to beginning treatment. The assessment should include information about military background and experience, PTSD-related conditions and functioning, and co-occurring psychological and physical conditions. During the wars in Iraq and Afghanistan, the use of improvised explosive devices (IEDs) by the enemy and increased survival rates for veterans with severe injuries due to better protective gear and medical care have led to an increase in particular comorbidities. Co-occurring PTSD, pain, and traumatic brain injury, resulting from these types of events, have been deemed “signature wounds” of combat. Assessing for these conditions can ensure that the veteran is referred to appropriate specialty care.

Studies support the use of trauma-focused therapies such as CPT (Resick and Schnicke 1993) and PE (Foa et al. 2007) for veterans (Department of Veterans Affairs and Department of Defense 2010). While effective at reducing symptoms in military and veteran populations, smaller effects sizes have been found for these treatments when used with veteran versus nonveteran populations (Steenkamp et al. 2020; Schnurr et al. 2020). Given the potential complexities of experiences and comorbid conditions, further research is needed to better understand how existing treatments might be further developed or augmented to maximize their effectiveness for veterans. Other treatments have been studied in veteran samples. A brief

(5-session) exposure based intervention, Written Exposure Therapy (WET; Sloan and Marx 2019), has been found to be non-inferior to CPT in studies of veterans (Sloan et al. 2018; Thompson-Hollands et al. 2018). Acceptance and commitment therapy (ACT) has also been shown to reduce symptoms of depression and anxiety in veterans (e.g., Walser et al. 2013; Lang et al. 2017). For veterans with complex presentations (e.g., multiple traumas, emotional regulation deficits), multi-component treatments such as STAIR combined with trauma-focused therapy (Cloitre et al. 2020) and dialectical behavior therapy (DBT; Linehan 1993) may be considered (Landes et al. 2013). Barriers to veterans' engagement in trauma-focused treatments have been found to include concerns that treatment would increase symptoms, lack of "buy-in" into treatment rationale, education about the treatment and anticipated stigma beliefs, VA-system-related barriers, and logistical barriers (e.g., transportation) (Hundt et al. 2015, 2018; Possemato et al. 2018). Facilitators of engagement included provider aspects (familiarity, alliance, and consistency), encouragement from other veterans, and prior treatment. Delivery of treatment through telehealth may address some barriers to care. Veteran preferences for types of modality (e.g., home-based telehealth; office-based telehealth; in-home-in-person) have been found to vary (Morland et al. 2019) and may differ for rural and urban veterans (Possemato et al. 2018).

Family members can be deeply affected by their loved one's mental illness, and they often play a key role in recovery. Specific interpersonal disturbances reported by veterans with PTSD include worse family and couple relationships (Koenen et al. 2008; Malaktaris et al. 2019), difficulties in intimacy and communication, and higher rates of separation and divorce (Riggs et al. 1998; Cook et al. 2004). Among a sample of US Army National Guard soldiers, family counseling was an appealing option to the majority of those surveyed (Khaylis et al. 2011). Involving family and loved ones in treatment may hold promise in enhancing treatment improvements for veterans with PTSD (e.g., Laws et al. 2018; Kugler et al. 2019). Likewise, given the unique bond that often exists between veterans, peer support interventions can be considered. Peer outreach and support has shown promise in enhancing access to and engagement in treatment for individuals with PTSD (Jain et al. 2013; Possemato et al. 2019) and may be preferred by some veterans (Possemato et al. 2018).

23.6.3 Online Resources

A number of resources for providers have been developed to facilitate a deeper understanding of military culture and to support mental health treatment. The Center for Deployment Psychology provides information and trainings for clinicians working with military service members (<https://deploymentpsych.org/>). The National Center for PTSD website provides extensive education on the assessment and treatment of PTSD for veterans (<https://www.ptsd.va.gov/>). The Make the Connection and About Face websites (www.maketheconnection.net; <https://www.ptsd.va.gov/apps/AboutFace/>) provide videos of veterans sharing their experiences with psychological symptoms and care seeking that may be a helpful resource for both clinicians and veterans.

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Part VI

Special Treatment Modalities



Group Treatment for Trauma-Related Psychological Disorders

24

Scott D. Litwack, J. Gayle Beck, and Denise M. Sloan

Group therapy for trauma-related difficulties appears to first be documented after World War II, when large numbers of veterans struggled with “battle fatigue” and the resources of support and treatment were deficient (Grotjahn 1947). Group treatment of trauma-related problems was further popularized with the introduction of “rap groups” for combat veterans in the 1960s (Foy et al. 2000). Since this era, substantial advances have been made in individual psychosocial treatment approaches for trauma-related disorders, including the development and testing of several empirically supported treatments (see Beck and Sloan 2021). Unfortunately, group treatments for trauma-related disorders have lagged behind these efforts, owing to considerable methodological issues that are intrinsic to the study of group therapy (see Beck and Sloan 2021). This gap in our knowledge of effective group treatments is problematic as the group approach is frequently used in clinical settings (e.g., Rosen et al. 2004).

In this chapter, we will briefly review what is known about group treatment for trauma-related psychological disorders and describe the advantages of group treatment relative to individual-format therapies. Also, clinical aspects of group treatment for trauma survivors will be discussed, including various facets of clinical

S. D. Litwack
VA Boston Healthcare System, Boston, MA, USA

Boston University School of Medicine, Boston, MA, USA
e-mail: scott.litwack@va.gov

J. G. Beck
Department of Psychology, University of Memphis, Memphis, TN, USA

D. M. Sloan (✉)
VA Boston Healthcare System, Boston, MA, USA

Boston University School of Medicine, Boston, MA, USA
Behavioral Science Division, National Center for PTSD, Boston, MA, USA

lore about treating trauma-related symptoms in a group setting. Finally, we will summarize key directions for clinical applications of group treatments for trauma-related disorders, as well as needed research directions.

24.1 History of Studying Group Treatment for Trauma Survivors

Early studies of group treatments for trauma survivors were conducted in the late 1970s and 1980s and examined the efficacy of group treatments for female survivors of child sexual abuse and sexual assault (e.g., Carver et al. 1989; Cryer and Beutler 1980). These initial studies often consisted of a single group of women in a supportive group environment without a comparison or wait-list condition. Beginning in the mid- to late 1980s, there was a rapid shift to investigating more active group treatments, and researchers began to incorporate comparison conditions (e.g., Alexander et al. 1989; Resick et al. 1988; Roth et al. 1988). However, these studies continued to only include women survivors of child sexual abuse and sexual assault. In the late 1990s and early 2000s, researchers began to broaden examinations of the efficacy of active group treatments to survivors of other types of traumas, such as combat traumas (e.g., Schnurr et al. 2003) and motor vehicle accidents (Beck et al. 2009). The literature on group treatments for trauma-related symptoms has been growing considerably over the past two decades.

24.2 Efficacy of Group Treatment for Trauma-Based Psychological Symptoms

With the increasing number of studies investigating the efficacy of group treatment for trauma-related symptoms, several recent reviews of group treatment for PTSD symptoms have been conducted. Cognitive-behavioral interventions predominate in this literature, although a number of other therapeutic approaches are included (e.g., spiritually integrated therapy, interpersonal therapy; present-centered therapy). Overall, between-group effect sizes for group treatment in these RCTs are small to moderate; a meta-analysis by Sloan et al. (2013) noted that the average effect size was $d = 0.24$. Notably, these effects are smaller than those reported for evidence-based individual treatments for PTSD, which tend to obtain large effect sizes of at least $d = 1.0$ (e.g., Forbes et al. 2018). In fact, a number of recent studies have directly compared group and individual therapies for PTSD and have found that, while both interventions have significant positive effects, individual treatments consistently result in greater improvements on standard measures of PTSD (Ehring et al. 2014; Lamp et al. 2019; Resick et al. 2017). While historically trials of PTSD group treatments have been compared to a no treatment, wait-list comparison condition, another promising advancement over the past few years has been an increase in the number of studies comparing these treatments to active treatment comparison conditions. While we review those below, this effort is still in its infancy, as

exemplified by the most recent ISTSS treatment guidelines for PTSD published in 2018 which provided a “standard recommendation” for group cognitive-behavioral therapy with a trauma focus over other group therapies, but listed many group treatments as having “emerging evidence” or “insufficient evidence.” Several clinical practice guidelines for PTSD (e.g., Forbes et al. 2018; Department of Veterans Affairs and Department of Defense 2017) recommend manualized group treatment over no treatment, but noted that there was “insufficient evidence” to recommend one group treatment over another.

Another important aspect of the studies conducted to date is that most of the cognitive-behavioral group treatment approaches include trauma-focused techniques as a central component of the intervention. This is not surprising given the evidence that trauma-focused techniques are an essential feature of effective treatments for PTSD (National Institute for Health and Care Excellence (NICE) 2018; Department of Veterans Affairs and Department of Defense 2017). However, the content of these trauma-focused group treatments can vary considerably.

24.2.1 Trauma-Focused Group Treatment

Several variations of trauma-focused group treatment for trauma survivors have been developed, with considerable variability in format. A number of exposure-based group treatments have been developed with variability in the format of exposures (e.g., imaginal, in vivo), how exposures are conducted (e.g., written versus oral imaginal exposures), and the proportion of total treatment time that is dedicated to trauma exposure. Porter et al. (2018) found promising changes to PTSD and depressive symptoms for a 12-session group focused specifically on in vivo exposures. Smith et al. (2015) examined a group Prolonged Exposure protocol administered in a hybrid group–individual format, with 12 group sessions focused on in vivo exposures and 5 individual sessions focused on imaginal exposures and showed significant reductions in PTSD and depression symptoms. A number of exposure-based group treatments have involved a broader range of treatment components, including cognitive restructuring, relapse prevention, and adaptive coping skills. For example, Beck et al. (2009) administered a total of 14, 120-min sessions to 44 motor vehicle accident survivors. Findings indicated that participants assigned to the group intervention had significantly better treatment outcome compared to the minimal attention comparison condition.

Primarily cognitively focused group treatments have also received considerable attention. Cognitive processing therapy (CPT) was originally developed as a group treatment (Resick and Schnicke 1992). However, since that time, CPT has been most commonly administered and studied as an individual treatment. Importantly, over the past few years, a number of studies have examined Group CPT and have consistently found it to lead to significant reductions in PTSD symptoms (Lamp et al. 2019; Resick et al. 2015, 2017). Notably, Resick et al. (2017) directly compared group CPT to individual CPT. In this study, both treatments were found to lead to significant improvements in self-reported PTSD symptoms, and while

individual CPT showed even better effects at post-treatment, at 6-month follow-up, significant improvements were generally maintained and the differences between treatments were no longer present.

An important aspect of trauma-focused treatment groups is that the majority of the studies included participants who had the same type of trauma exposure (e.g., motor vehicle accident, Beck et al. 2009; child sexual abuse, Classen et al. 2011; combat veterans, Schnurr et al. 2003), although a few studies have included participants with mixed-trauma events (e.g., Hollifield et al. 2007). It is also important to highlight that although some promising findings have been observed for these treatments, there does not yet appear to be any specific group treatment approach for trauma survivors that meets the criteria of a “well-established” or even “probably efficacious treatment” according to the standards described by Chambless and Hollon (1998). Furthermore, while trauma-focused interventions all have the commonality of incorporating some aspect of behavioral or cognitive focus on the traumatic experience(s), the considerable methodological differences among these treatment approaches make direct comparisons difficult.

24.2.2 Non-trauma-Focused Group Treatment Approaches

Over the past decade there has been increasing attention given to the efficacy of non-trauma-focused group treatment approaches for trauma survivors. For instance, Ford et al. (2013) developed a non-trauma-focused treatment for PTSD entitled Trauma Affect Regulation: Guide for Education and Therapy (TARGET). This treatment consists of 12 sessions, each 75 min long, and uses cognitive-behavioral techniques to increase affect regulation skills. Ford et al. (2013) found that among incarcerated women with PTSD and sub-threshold PTSD, TARGET led to significant reductions in PTSD symptoms, although this effect was comparable to a support group condition (Ford et al. 2011, 2012).

Cloitre also developed a treatment for individuals who have experienced trauma that focuses on improving skills in affect regulation, as well as interpersonal functioning. Skills Training in Affective and Interpersonal Regulation (STAIR) has received considerable attention over the past decade, although primarily as an individual therapy protocol. Recently, Jackson et al. (2019) found that Group STAIR was effective in reducing self-reported PTSD symptoms for veterans diagnosed with PTSD in mixed-gender groups, building on a pilot study of this treatment adapted for highly traumatized adolescents, Group STAIR-A (Gudiño et al. 2016).

Zlotnick et al. (1997) studied the efficacy of an affect management group treatment for women survivors of childhood sexual abuse relative to a wait-list control condition. Affect management group is a 2-h, 15-session treatment that emphasizes skills (e.g., distress tolerance, self-soothing) to manage negative affect. Difficulties in managing negative affect are a core problem among individuals with PTSD symptoms; thus, the approach to develop effective affect management skills has much appeal. Despite this appeal, findings from Zlotnick et al. indicated no significant group differences between participants randomized to the affect management

treatment group relative to those randomized to the wait-list condition (between-group effect size $d = 0.04$).

Krupnick et al. (2008) investigated the efficacy of group interpersonal psychotherapy (IPT) for women diagnosed with chronic PTSD resulting from interpersonal trauma. IPT consisted of 16, 2-h sessions and focused on helping participants understand how trauma histories negatively impact interpersonal relations and improve interpersonal skills and functioning. The goal of improving interpersonal skills is important given the substantial difficulties individuals diagnosed with PTSD have with interpersonal relationships (American Psychiatric Association 2013). Findings from Krupnick and colleagues indicated that individuals assigned to IPT showed significant reductions in PTSD symptoms relative to participants assigned to the wait-list condition (large between-group effect size $d = 0.91$).

Harris et al. (2011) examined whether a 2-h, eight-session spiritually integrated group treatment for military trauma survivors was efficacious in reducing PTSD symptoms relative to a wait-list comparison condition. Reconciling spiritual beliefs that conflict with trauma experiences was one aspect of the treatment, along with enhancing areas of spiritual functioning that contribute to positive functioning. This treatment approach has much appeal, as trauma survivors can have difficulty reconciling the occurrence of traumatic events with their spiritual beliefs (Litz et al. 2009). Harris et al. found significant reductions in PTSD symptoms for the spiritually focused treatment relative to the control condition (between-group effect size $d = 0.58$).

Another type of non-trauma-focused group treatment is anger management. Difficulties in managing anger are a prominent problem for trauma survivors, especially veterans (e.g., Lloyd et al. 2014; Morland et al. 2012). Patients are generally motivated to receive treatment for anger problems, even when they are reluctant to receive trauma-focused treatment (Morland et al. 2012). Morland et al. (2010) compared anger management group treatment delivered in person to anger management group treatment delivered via videoconferencing. Participants were military veterans diagnosed with PTSD. As anticipated, findings indicated that veterans in both anger management group treatment formats did not exhibit significant reductions in overall PTSD symptoms but did have significant reductions in anger symptoms. This study is notable as it demonstrates that group treatment can be effectively delivered with the use of videoconference technology, which has implications for delivering treatment to trauma survivors in rural areas, areas in which there is a shortage of therapists with trauma treatment expertise, or during a global pandemic, such as has been the case with COVID-19.

Mindfulness Based Stress Reduction (MBSR) has also recently been examined as a group treatment for PTSD. This treatment focuses on increasing individuals' non-judgmental awareness of sensations, cognitions, and emotions as they experience them in the present moment. MBSR has been shown to be effective in a group format, with research to date focusing on veterans with PTSD (Polusny et al. 2015; Bremner et al. 2017; Davis et al. 2018). For example, Davis et al. (2018) compared MBSR to group present-centered therapy (PCT) among a large

sample of over 200 veterans diagnosed with PTSD and found that engaging in MBSR led to significant improvements in clinician-assessed and self-reported PTSD symptoms.

One additional non-trauma-focused group treatment approach that should be considered is group PCT. Group PCT includes psychoeducation on the symptoms of PTSD and emphasizes helping patients manage current symptoms through problem solving. Group PCT has been included in a number of group PTSD treatment studies (e.g., Classen et al. 2011; Resick et al. 2015; Schnurr et al. 2003; Sloan et al. 2018). Although PCT has been included primarily as a comparison condition to control for nonspecific therapy effects (e.g., therapist contact, empathy), findings in a growing number of studies suggest that PCT is an efficacious group approach. For example, Sloan et al. (2018) compared group PCT to a group cognitive-behavioral treatment among male veterans with PTSD. In this study, both treatments led to significant reductions in PTSD severity that were maintained over 12 months and between-condition effect sizes were small across all assessment periods. Classen et al. (2011) also investigated the efficacy of trauma-focused cognitive-behavioral group treatment relative to group PCT but for women survivors of childhood sexual abuse (between-group effect size $d = 0.14$). Importantly, Classen and colleagues also included a wait-list comparison condition and found that both group PCT and group CBT had significant reduction in PTSD symptom severity following treatment, relative to the wait-list control condition. These findings indicate that the significant reduction in PTSD symptoms observed for PCT and CBT was the result of the treatment and not some nontreatment-related factor (e.g., passage of time). Additionally, PCT has consistently shown significantly lower premature treatment drop-out rates compared with a variety of comparison group interventions. Considering that one of the strongest criticisms of the most touted evidence-based treatments for PTSD is high drop-out rates (Steenkamp et al. 2020), this finding is notable.

These studies provide information on non-trauma-focused group treatment approaches that clinicians might consider. These group treatment approaches may be particularly useful for patients who are not willing to engage in trauma-focused treatment. The decision as to which group treatment approach to use will depend on the needs of the clients as well as the expertise of the clinicians. While many of these non-trauma-focused group treatments have been found to be more effective than a wait-list condition (e.g., IPT, spiritually integrated group treatment), many of them have not yet been found to be efficacious relative to a condition that controls for nonspecific group treatment effects (i.e., supportive counseling group). MBSR and TARGET have some preliminary evidence that they are as effective as support conditions. Group PCT is also a particular exception in that it has been shown to be no less effective than a number of active, specific trauma-focused group treatments and to consistently show lower drop-out rates; however, no studies have specifically been designed with a primary focus on group PCT in order to examine whether this intervention is in fact non-inferior compared with trauma-focused group interventions.

24.3 Considerations for Different Trauma Populations and Different Settings

Although we have limited information on the efficacy of group approaches for survivors of different trauma events, there is some information that factors specific to certain trauma survivors can impact group treatment. For instance, Drożdżek et al. (2014) found that legal status of male asylum seekers and refugees from Iran and Afghanistan residing in the Netherlands affected group treatment outcome. Not surprisingly, those who obtained refugee status during the course of treatment had greater treatment gains. Similarly, Brave Heart et al. (2020) highlight the importance of group treatment being culturally responsive. These investigators found that IPT group treatment combined with Historical Trauma and Unresolved Grief Intervention (HTUG) resulted in greater group engagement than IPT group treatment alone among American Indians with extensive trauma histories. HTUG complements IPT by contextualizing depression and grief as reactions to sustained trauma and loss related to collective discrimination experienced by American Indians. Integrating HTUG with evidence-based treatment approaches might maximize treatment outcome with other marginalized racial minority groups.

An emerging and critical area of research is conducting group therapy for trauma survivors in settings in which mental health providers are scarce. The work in such low resourced areas has focused on the mental health needs among refugees, asylum seekers, and survivors of regional violence. Mental health needs among these individuals are complex as these trauma survivors are managing ongoing stressors, such as housing instability, legal issues, economic insecurity, and limited access to health care (Smith 2012) while simultaneously recovering from multiple trauma experiences. Group treatment can be a cost-effective strategy for addressing trauma and related symptoms, as well as fostering a sense of social support and community among survivors. Notably, some of the research that has been conducted has involved training of paraprofessionals to deliver group treatment, which is critical to address the low resources available in these settings (Kazdin 2018).

The treatments that have been investigated include a focus on improving emotion regulation and decreasing focus on somatic symptoms (Shaw et al. 2019) and transdiagnostic interventions that use cognitive-behavioral strategies (Bonilla-Escobar et al. 2018; Khan et al. 2017). Bass et al. (2013) examined a group version of CPT that was modified for working with women survivors of sexual violence residing in the Democratic Republic of Congo. Importantly, psychosocial assistants were trained to deliver the intervention and findings indicated significantly greater improvements in depression and anxiety symptoms for women assigned to the group CPT compared with those assigned to a control condition. This study highlights the importance of adapting existing evidence-based group treatment approaches to meet the needs of trauma survivors in specific settings. Overall, this small but growing literature demonstrates the ability to implement group trauma treatment in areas where there is the greatest need. Although the group interventions studied to date have shown promise, additional research is needed in this high priority area.

The clinical setting in which group therapies are conducted can also be an important factor that can influence the nature and focus of the group. For example, Ready et al. (2008) developed a treatment for an intensive outpatient setting in which patients attend 3 h of group therapy twice per week for 16–18 weeks. Findings indicated significant reductions in PTSD symptoms at follow-up assessment compared to pretreatment assessment. Notably, only 3% of veterans dropped out of treatment, which is likely attributable to the strong social connections developed in the intensive outpatient group treatment format. Given the available evidence, it appears feasible to conduct an evidence-based treatment approach for PTSD in a group setting, although some modifications to delivering the treatment may be needed and using a combination of individual and group sessions might also be considered.

24.4 Methodological Considerations for Group Therapy Studies

Although research on group treatment of trauma problems is growing, it remains underdeveloped. A number of methodological considerations for conducting RCTs of group treatments have impacted the growth of this research area. First, the effect of fellow group members must be accounted for in examining treatment outcome. Because members of a group affect each other, the group cohort effect needs to be accounted for analytically (Baldwin et al. 2005). Statistically, the degrees of freedom for group treatment studies is the number of cohorts, which requires a much larger sample size to detect between-group effects than what is needed for individual treatment studies. This statistical requirement increases the cost, time, and complexity of performing group treatment studies.

Another methodological consideration involves randomization. Because participants are randomized to groups, a relatively large number of participants need to be gathered before randomization to two or more groups can occur. This requirement also means that participants need to be recruited in a short time period to prevent lengthy waits prior to the start of treatment. Additionally, clinical management is needed for participants, given an expected delay between enrolling in the study and starting treatment. Relatedly, because a large number of participants are randomized and start treatment at the same time, the same group of participants needs to have follow-up assessments conducted at the same time, which requires sufficient staffing. Thus, staffing needs for group treatment studies tend to be more demanding and complicated than for individual treatment studies.

Another methodological consideration specific to research on group treatments is whether to recruit individuals who have experienced different types of trauma or to restrict recruitment to specific types of trauma (e.g., child sexual abuse, combat). An advantage to mixed-trauma groups is a potential increase in generalizability and real-world application. However, mixed-trauma groups also have the potential to increase clinical difficulties and decrease the degree to which group members feel that they can relate to each other.

In considering this literature, it is notable that the most commonly studied individual treatments (Prolonged Exposure and Cognitive Processing Therapy; see

Chaps. 8 and 10) are beginning to be examined in a group format, using the RCT design. As noted in Sect. 24.2.1, the efficacy of these treatments when delivered in a group format is reduced, relative to individual format delivery. As well, some of the group cognitive-behavioral approaches that have been studied are “package” interventions, treatments that include a mixture of some form of exposure, cognitive therapy, relapse prevention, treatment elements targeting depression, and the like.

One reason evidence-based treatments for PTSD have been slow to be developed and studied in a group format pertains to clinical administration of exposure in a group setting. For example, imaginal exposure is a core component of Prolonged Exposure typically conducted in session. In a group setting, it is difficult to conduct imaginal exposures, as one group member’s trauma account may trigger other members. Moreover, group members may find this experience to be aversive. An alternative is to have group members write their trauma accounts rather than providing a verbal account of the memory; the written trauma narrative approach has been successfully used by others in a PTSD treatment format (e.g., Beck et al. 2009).

A different approach to managing exposure within group treatment involves use of a hybrid treatment format. For example, Chard (2005) modified CPT so that the treatment sessions that focused on the patient reading out loud the trauma accounts and trauma impact statement occurred individually with a therapist, whereas other sessions were conducted within a group setting. A similar effort involving Prolonged Exposure therapy was described by Smith et al. (2015). Combining individual and group sessions allows for the benefits of the group setting, such as social support and normalizing of symptoms, while still delivering the components of the treatment that are best conducted in an individual format. Preliminary data, drawn from chart review, suggest that a hybrid group–individual treatment format may reduce drop-out from therapy (Jeffreys et al. 2014). In particular, veterans receiving the hybrid format of CPT were significantly less likely to prematurely end treatment, relative to group-only and individual-only forms of this intervention. Employing a somewhat different intervention, Beidel and her colleagues (2011) used a hybrid approach, beginning treatment with individual format exposure sessions, followed by group format sessions focused on social skills. Although conducting exposure-based components of PTSD treatment can be challenging in a group setting, Ready et al. (2008) have reported success conducting imaginal exposure by verbally recounting trauma events within the group treatment setting. This treatment uses an intensive outpatient program to deliver PTSD treatment with a veteran population but has the disadvantage of being time intensive.

24.5 Comorbid Conditions and Individual Characteristics

Comorbid Substance Use Disorder (SUD) In considering group treatments for PTSD, it is notable that several approaches have been developed that expressly target patients with comorbid PTSD and an additional psychiatric disorder (see also Part IV, Chaps. 17, 18, and 19, this volume). One commonly co-occurring comorbid condition in PTSD is SUD. Seeking Safety (Najavits et al. 1998), developed for

comorbid SUD, is perhaps one of the better-known treatments in this category. However, RCTs examining Seeking Safety administered in group format have found a notable lack of differences between this intervention when compared to psychoeducation on PTSD and substance use outcomes (Hien et al. 2009; Zlotnick et al. 2009) or a relapse prevention group (Schäfer et al. 2019).

A study by van Dam et al. (2013) investigated the efficacy of a combined treatment approach for PTSD and comorbid SUD. Specifically, the study combined structured writing therapy for trauma survivors (SWT; Lange et al. 2001) with group treatment for SUD. Reductions were observed in substance use and PTSD symptoms for participants assigned to the combined treatment, although no significant difference was observed compared to SUD group treatment alone. Given the small sample size of the study, the findings should be viewed as preliminary. Although the available research has not identified an effective group treatment approach for comorbid SUD, it is important to acknowledge that there is a pressing need to develop and investigate treatments that target the comorbidity that appears to be intrinsic to PTSD (Henslee and Coffey 2010). In particular, because substance abuse services tend to be distinct from mental health treatment services, it would seem timely to consider how best to integrate PTSD treatment into usual care models for SUDs.

Comorbid Personality Disorders Comorbid personality disorders also commonly co-occur with PTSD and may require additional treatment components. A study conducted by Dorrepaal and colleagues (2013) used a cognitive-behavioral group treatment consisting of 20 weekly 2-h sessions that included psychoeducation, emotion regulation skills, and cognitive restructuring to treat women with PTSD and comorbid personality disorders. Significant PTSD symptom reductions were found but only among those who completed treatment. Additional group clinical trials examining comorbid personality disorders and PTSD are indicated, with particular attention paid to retention along with responsiveness to treatment.

Comorbid Medical Conditions Medical comorbidities, such as chronic pain and traumatic brain injury (TBI), have the potential to further complicate group treatments for PTSD. While considerations of comorbid medical conditions when providing individual treatment for PTSD have recently received increased attention (see Chap. 5), there is a lack of investigations or guidelines for group treatments for individuals with PTSD and comorbid medical concerns. There is some evidence to indicate that individual treatments (e.g., Prolonged Exposure Therapy) that have worked well for individuals with PTSD may also work well for those with comorbid PTSD and chronic pain (e.g., Blanchard et al. 2003) or TBI (e.g., Sripada et al. 2013). VA/DOD PTSD treatment guidelines (Department of Veterans Affairs and Department of Defense 2017) note that there is no evidence to support withholding PTSD treatments while addressing symptoms of TBI. However, with regard to group treatment, it is important to consider the extreme range of symptoms and symptom severity that individuals with chronic medical conditions may present with. Attention to the severity of medical problems during the recruitment phase of the group, as well as a high degree of flexibility with regard to group focus and content, may be necessary.

When treating individuals with TBI and/or chronic pain, collaborative care teams are often recommended (Walker et al. 2010). With this in mind, it may be that group treatments for PTSD and these comorbid conditions may be best delivered within a broader formalized program of care (e.g., poly-trauma teams) simplifying the coordination of care for both providers and patients. Importantly, there are many reasons why group treatments for PTSD-TBI and PTSD-chronic pain comorbidities may be particularly beneficial to individuals, such as normalization of symptoms and increased socialization.

Sex, Trauma Type, and Symptom Chronicity The majority of group treatment studies for trauma-related symptoms that have been conducted to date have included only adult survivors of childhood sexual abuse and/or interpersonal violence. In addition, most of these studies included only women. Sloan et al. (2013) found that sex moderated within-group treatment effects for PTSD symptom severity; studies that included men only were noted to have a significantly smaller effect size than studies that included women or mixed sex samples. However, a moderator effect was also observed for type of trauma, with studies that included combat veterans having a smaller within-group treatment effect than other trauma types. It is likely that the observed sex moderator effect was the result of trauma type as the studies that included men were also studies of combat veterans. The moderator finding suggests that combat-related PTSD may be more difficult to treat in a group format relative to other types of trauma. On the other hand, it may also be the case that participants with combat-related trauma represent a very chronic sample, and the chronicity of the disorder reduces the treatment outcome effect. In more recent years, there have been a growing number of group treatment studies that have focused on veterans (Castillo et al. 2016; Polusny et al. 2015; Sloan et al. 2018) and military service members (Resick et al. 2015, 2017). Findings from these studies underscore the difficulties in treating veterans and service members. Although veterans and service members regularly achieve significant treatment gains, the gains are not as robust as what is observed for group treatment with civilians (see Steenkamp et al. 2015). Overall, the findings of group treatment for trauma survivors have limited application for clinical settings where mixed sex- and/or mixed-trauma-type groups are desired. Additional studies that mirror the clinical practice of groups with diverse patient members would be welcome in this literature.

Although it is important to attend to cultural factors that might impact group treatment engagement and outcome, survivors of traumatic events share common posttraumatic stress symptoms; thus, group treatment designed to target these symptoms should work equally well regardless of the specific trauma experience. As previously mentioned, it may be important to consider the chronicity of PTSD symptoms, as more chronic (and severe) trauma-related symptoms may require more extensive treatment than what is included in most group treatments described in the literature (e.g., 12–16 sessions). It is also worth noting that the majority of studies examining group treatment for trauma-related symptoms have not required that participants meet diagnostic criteria for PTSD but rather display PTSD symptoms. Therefore, the group treatment approaches studied to date would be appropriate for individuals with PTSD symptoms, regardless of whether or not PTSD diagnostic criteria are met.

24.6 Benefits of Group Treatment

Although much less is known about effective group treatments for PTSD, group treatment offers several advantages over individual treatment approaches. Individuals with trauma-related psychological disorders are often socially isolated and have difficulty trusting others (Brewin et al. 2000). The context of the group provides an opportunity for patients to develop social relationships and the opportunity to trust others in a safe environment. Indeed, some argue that the social aspect of group treatment is a central mechanism through which change occurs (e.g., Yalom 1995). Another benefit of group treatment is the opportunity for the patient to learn that other trauma survivors experience similar symptoms. The normalizing of trauma symptoms can lead to the patient feeling less distressed about their symptoms and less alone in their suffering. Group members may also be able to challenge each other in ways the therapist cannot because of the shared status of being a trauma survivor. Another potential advantage of group treatment is that it may be more cost-effective for settings that have limited staff resources; however, there is no available data on the cost-effectiveness of group treatment relative to individual treatment of PTSD.

24.7 Considerations for Group Treatment

Although group treatment is a good option for many patients, some patients may prefer other modalities of treatment. Patient preference is an important yet understudied area within psychotherapy more broadly and group psychotherapy specifically. Indeed, taking patient preference into account can increase treatment retention as some patients have a clear preference for or against group psychotherapy (Ryan et al. 2005). Nevertheless, even when patients indicate a preference for group treatment, there are some factors that are negative indicators for the group treatment approach. For example, patients that are actively psychotic may cause disruption within the group and may interfere with developing trust and rapport with other group members. Current substance abuse may also negatively impact the group process if group members attend intoxicated. Some personality characteristics may also be problematic in a group setting, such as narcissism or psychopathy. Moreover, patients who experience severe emotion dysregulation may not be good candidates for group treatment (Cloitre and Koenen 2001).

There are several other important patient characteristics that should be considered with group treatment. First, there may be some reluctance to mix patients who have been suffering from chronic PTSD for years with patients who have PTSD or other trauma-related disorders as a result of more recent and/or single-incident trauma(s) within the same group. However, it is our experience that not only can veterans of different war eras (e.g., Vietnam, Iraq, and Afghanistan) be included in the same group, but there may be some advantages to doing so and it has also been our experience that combat veterans from different war eras share more commonalities than differences.

Although there are advantages to mixing patients of varying ages and backgrounds into a group, caution should be taken when including men and women in the same group. Women survivors of sexual assault may feel uncomfortable being in a group that includes men if they were assaulted by a man. Similar discomfort with mixed-gender groups may arise for men who have trauma-related disorders related to sexual assault. As the majority of veterans presenting for mental health services in VA care settings are men (United States Government Accountability Office 2011), treatment groups may solely or mostly consist of men. Attention should also be given when combining patients of different racial backgrounds, as well as considering match or mismatch of racial background and sex of the group therapist(s) with group members (Brave Heart et al. 2020).

Groups introduce the considerable challenge of navigating many relationships (e.g., 40 dyadic relationships if group consists of six patients and two therapists) in each treatment encounter. Although group therapy can be an ideal context in which to increase social connectivity, trust, and self-esteem, there is also a potential for individuals to experience other group members as critical or unsafe, which can reinforce avoidance. An additional challenge of providing group therapy is the degree of time and energy required to support the group members outside of group sessions. Although RCTs often have project coordinators who are able to provide much of this extra support, in “real-world” clinical settings, such support staff typically does not exist. Effectiveness studies examining the provision of group treatments for PTSD in such real-world settings are indicated.

24.8 Summary

Group treatment for PTSD is frequently used in clinical practice, and patients report high levels of satisfaction with this approach; however, to date there are no evidence-based group treatments for PTSD. The evidence that does exist suggests that group treatment is efficacious relative to no treatment, but may not differ from supportive counseling group treatment. Nonetheless, caution needs to be taken when interpreting the literature given methodological limitations.

There are clearly a number of advantages to using group treatment, which include the social aspect of the group and the ability of group members to motivate each other toward treatment goals. There are also a number of important factors to consider when deciding whether or not a patient may benefit from group treatment. These factors include personality characteristics, comorbid conditions, ability to regulate affect, and the gender composition of the group. Based on our collective experience, group therapy for trauma-related disorders can be successfully conducted with group members that vary in terms of age and trauma background. In terms of deciding what type of group treatment is best to use, the existing research literature does not yet provide sufficient information to guide this decision. However, there has been increased research attention to group treatment for PTSD over the past 10 years with more methodologically rigorous studies being conducted. We look forward to the field of group treatment continuing to advance, which will inform our use of group treatments in practice.

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Couple Treatment for Posttraumatic Stress Disorder

25

Candice M. Monson, Anne C. Wagner,
Alexandra Macdonald, and Amy Brown-Bowers

Posttraumatic stress disorder (PTSD) affects not only the people suffering from the disorder but also those surrounding them. PTSD is one of the mental health difficulties most strongly associated with relationship distress (Whisman et al. 2000); it has a strong association with a range of family problems, including mental health difficulties in partners and children (see Lambert et al. 2014; Monson et al. *in press*; Taft et al. 2011 for reviews). PTSD can elicit responses from friends and family that are well-meaning but may maintain the symptoms of PTSD, such as helping the individual with PTSD avoid reminders of the trauma. These responses may erode these relationships over time and place increased burden on family members, leading to negative mental health outcomes (e.g., Caska and Renshaw 2011; Fredman et al. 2014). These accommodative behaviors may also reinforce avoidance associated with PTSD (Allen et al. 2020). Consistent with research documenting that negative social interactions in the wake of trauma are among the most robust risk factors for PTSD (e.g., see Wagner et al. 2016a, for a review), negative family interactions have been linked to poorer individual cognitive-behavioral therapy outcomes (Monson et al. 2005a; Tarrrier et al. 1999). Moreover, individual evidence-based treatments for PTSD do not consistently improve relational functioning (e.g.,

C. M. Monson (✉)

Department of Psychology, Ryerson University, Toronto, ON, Canada

e-mail: candice.monson@ryerson.ca; candice.monson@psych.ryerson.ca

A. C. Wagner

Department of Psychology, Ryerson University, Toronto, ON, Canada

Remedy, Toronto, ON, Canada

A. Macdonald

Department of Psychology, The Citadel, Military College of South Carolina,
Charleston, SC, USA

A. Brown-Bowers

Remedy, Toronto, ON, Canada

Galovski et al. 2005; Lord et al. 2020; Monson et al. 2012c). Consequently, there have been efforts to develop and test dyadic treatments that improve relational functioning and PTSD and, in some cases, also improve the health and well-being of partners. The current chapter describes different ways to conceptualize couple treatment in the case of PTSD and reviews the efficacy of these interventions.

25.1 Conceptualizing Partner Involvement in Treatment

When making the decision to involve loved ones in the treatment of PTSD, it is necessary to establish the treatment targets. More specifically, it is important to establish whether the desired outcomes of treatment are reduction in PTSD symptoms, improved relationship functioning and satisfaction, or both. A heuristic has been developed to describe and categorize the different types of couple treatments for PTSD based on their intended focus—improving PTSD and/or relationship functioning (Monson et al. 2012b). This heuristic builds upon work in both couple and family therapy by expanding the description of couples to include other loved ones and methods to facilitate engagement and service delivery (Baucom et al. 1998, 2020).

Dyadic interventions for PTSD can be categorized into four general types of intervention:

1. Disorder-specific couple therapy.
2. Partner-assisted interventions.
3. Generic couple therapy.
4. Education and family-facilitated engagement.

First, disorder-specific couple therapies are interventions explicitly designed to target both PTSD symptoms and relationship functioning and satisfaction. Loved ones are integrated into these therapies to simultaneously improve both of these targets. Interventions are typically developed to target mechanisms of action that contribute to both treatment targets.

Second, partner-assisted interventions involve loved ones in therapy by having them act as a “coach” to the individual with PTSD, and the treatment target is reduction of PTSD symptoms. The loved one is used to enhance the treatment for the individual with PTSD, and treatment is often delivered in an individual format. Relationship functioning or satisfaction is not the target of these interventions. Rather, the interventions educate loved ones about how to assist the individual with PTSD successfully complete a trauma-focused intervention.

Third, generic couple therapy refers to interventions designed to target relationship functioning. These interventions do not explicitly target PTSD symptoms but may improve PTSD symptoms and the psychological health and well-being of the loved one by improving interpersonal interactions. These treatments do not specifically target the mechanisms maintaining PTSD symptoms, however.

Fourth, interventions may use loved ones to help engage the individual in PTSD treatment and/or to provide psychoeducation about PTSD and evidence-based treatments. The target of these interventions is not PTSD symptom reduction specifically but, rather, engagement in treatment or education.

25.2 Evidence Supporting Couple Treatments for PTSD

The following section reviews the evidence for each type of intervention for PTSD, organized according to the heuristic described above (see Table 25.1 for an overview). The review begins with those interventions with the strongest evidence and dual treatment targets.

25.2.1 Disorder-Specific Couple Therapy

Three types of disorder-specific couple therapy for PTSD have been examined thus far in the literature.

25.2.1.1 Cognitive-Behavioral Conjoint Therapy for PTSD

Cognitive-Behavioral Conjoint Therapy for PTSD (CBCT) is a 15-session conjoint therapy designed to reduce PTSD symptoms and enhance relationship satisfaction. In its original version, the therapy consists of three phases: (1) psychoeducation

Table 25.1 Intervention descriptions and key outcomes

Intervention	Description	Key outcomes
<i>Disorder-specific couple therapy</i>		
Cognitive-Behavioral Conjoint Therapy for PTSD (CBCT for PTSD)	Dyadic intervention targeting relationship satisfaction and PTSD symptoms. Original version comprised of 15 sessions over three phases: (1) psychoeducation and safety building; (2) dyadic skill-building, including communication and in vivo-graded exposures; and (3) trauma-focused cognitive interventions	Six uncontrolled studies and four controlled trials testing original and adapted versions have demonstrated significant improvement in PTSD symptoms and increased relationship satisfaction (Davis et al. 2021; Fredman et al. 2020; Monson et al. 2004, 2011, 2012a, 2017, 2020; Morland et al. 2020; Pukay-Martin et al. 2015; Schumm et al. 2013)
Structured Approach Therapy (SAT)	12-session couple therapy consisting of three phases: (1) psychoeducation, (2) emotion activation and skills training, and (3) partner-assisted exposures and partner-supported trauma disclosure	Two uncontrolled pilot studies (Sautter et al. 2009, 2014) found significant improvements in PTSD symptoms. A controlled trial found significant improvements in PTSD symptoms and increased relationship adjustment (Sautter et al. 2015)

(continued)

Table 25.1 (continued)

Intervention	Description	Key outcomes
Emotionally Focused Couple Therapy for PTSD (EFCT for PTSD)	12–36 session couple therapy focused on identifying and understanding trauma-associated emotions, affect regulation, and fostering secure attachment. Composed of three phases: (1) identifying negative interactions, (2) dyadic skill-building including acceptance and communication, and (3) interactional and coping strategies	Two case studies and one case study replication with 10 couples revealed improvements in PTSD symptoms and relationship satisfaction (Greenman and Johnson 2012; Johnson 2002; MacIntosh and Johnson 2008). Several cases of increased emotional abuse were noted, however, in couples where abuse was already present (MacIntosh and Johnson 2008). An uncontrolled pilot study found variable improvements in PTSD symptoms and relationship satisfaction (Weissman et al. 2018). A controlled trial found significant improvements in overall relationship adjustment but no significant improvements in trauma-related symptoms (Dalton et al. 2013)
Couple Treatment for Addiction and PTSD (CTAP)	15-session protocol that integrates CBCT for PTSD (Monson et al. 2012a) with behavioral couples therapy for substance use disorders (O'Farrell and Fals-Stewart 2006)	One uncontrolled pilot study with 9 male veterans with PTSD and their female spouses/partners found significant improvements in PTSD severity and number of days of heavy drinking. No significant improvements in relationship adjustment (Schumm et al. 2015)
<i>Partner-assisted interventions</i>		
Lifestyle Management Course	Five-day group residential program for Australian veterans and partners. Wide range of topics covered, including psychoeducation, self-care, problem-solving, and stress management	Gains in veterans' PTSD symptoms at post-intervention were not maintained at 6-month follow-up. Sustained reductions in depression, anxiety, and stress. No improvement in relationship satisfaction (Devilly 2002)
<i>Generic couple therapy</i>		
Behavioral Couple/Family Therapy (BC/FT)	Behavioral interventions used to improve communication skills and problem-solving	In a randomized controlled trial with BFT following individual exposure therapy versus individual exposure therapy alone revealed greater improvement in problem-solving with BFT. No additional gains in PTSD symptoms with BFT (Glynn et al. 1999). Likewise, uncontrolled trials reveal some improvement in relationship functioning but not PTSD symptoms (Cahoon 1984; Sweany 1987)

Table 25.1 (continued)

Intervention	Description	Key outcomes
K'och Program	Month-long intensive treatment program for Israeli veterans with PTSD. Some spousal involvement. Program includes psychoeducation, communication skills, and problem-solving	Reported improvements in relationship satisfaction. No change reported in PTSD symptoms (Rabin and Nardi 1991; Solomon et al. 1992)
<i>Education and family-facilitated engagement</i>		
Support and Family Education Program (SAFE)	14-session educational program for family members of veterans with mental health difficulties. Workshop sessions include topics such as psychoeducation, skills training, problem-solving, and stress reduction	Program evaluation noted very high participant satisfaction, and participation led to better understanding of mental health difficulties, awareness of resources, and engagement in self-care (Sherman 2003). At 5-year follow-up, participation was positively associated with engagement in self-care activities, awareness of VA resources, and understanding of mental illness, and negatively associated with caregiver distress (Sherman 2006)
Reaching Out to Educate and Assist Caring, Healthy Families program (REACH)	16-session psychoeducation program for veterans and family members. Three phases included goal-setting and rapport building, psychoeducation, and maintenance of gains	High program retention and participant satisfaction ratings (Sherman et al. 2011). Significant improvements in veteran-reported PTSD knowledge, coping with PTSD, empowerment, social support, depression, and quality of life. No significant changes in family problem solving, communication, or relationship satisfaction (Sherman et al. 2009b). Family members reported similar outcomes as veterans (Fischer et al. 2013)
Coaching into Care Program	A telephone intervention available to family members of US veterans providing guidance to encourage veterans to access mental health services	Initial reports indicate increase in veteran health-care service use after family members have used the program (Sayers et al. 2011). Program evaluation data indicate increase in veteran mental health-care utilization (Sayers et al. 2021)
PTSD Family Education (PFE)	12 60-min sessions adapted from SAFE and family education from BFT. Created as a control condition for trials, and does not include skills training or other therapeutic interventions	Significant improvements in PTSD symptoms, but no improvements in relationship outcomes or individual comorbid outcomes (Sautter et al. 2015)

about PTSD and safety building; (2) dyadic skill-building, specifically focusing on communication skills and graded in vivo approach assignments to reduce avoidance and increase mutually satisfying activities for the dyads; and (3) trauma-specific cognitive interventions to address problematic trauma appraisals and beliefs maintaining PTSD and relationship problems. The full version of CBCT has been tested in three uncontrolled studies with Vietnam veterans, Iraq/Afghanistan veterans, and community members (Monson et al. 2004, 2011; Schumm et al. 2013). Uncontrolled trials have also tested adaptations, including facilitation with 3,4-methylenedioxymethamphetamine (MDMA; Monson et al. 2020) a present-centered version that focuses on here-and-now cognitions and behaviors (Pukay-Martin et al. 2015), and an abbreviated and accelerated version administered over a weekend (Fredman et al. 2020). Controlled trials have compared it against waiting list (Monson et al. 2012a) and individual prolonged exposure (Monson et al. 2017), as well as adaptations including mindfulness interventions and retreat delivery (Davis et al. in press) and an abbreviated version delivered via telehealth (Morland et al. 2020).

All studies have revealed significant improvements in PTSD symptoms and increased relationship satisfaction, even when couples do not begin treatment relationally distressed (Shnaider et al. 2015). In addition, broader treatment effects have been documented on partner well-being, parenting, posttraumatic growth, guilt, anger, and psychosocial functioning (Landy et al. 2015; Macdonald et al. 2016; Monson et al. 2005b; Shnaider et al. 2014; Wagner et al. 2016b). Couples with higher levels of initial partner accommodation (Fredman et al. 2016) and social support (Shnaider et al. 2017) may especially benefit from CBCT.

25.2.1.2 Structured Approach Therapy

Structured Approach Therapy (SAT) is a 12-session behavioral couple therapy based on principles of stress inoculation training that target avoidance and numbing symptoms of PTSD to improve relationship functioning and reduce overall PTSD symptom severity. The treatment consists of three phases: (1) psychoeducation about PTSD and intimate relationships (particularly focusing on avoidance and numbing symptoms), (2) emotion activation and skills training, and (3) partner-assisted in vivo exposure and trauma disclosure and discussion. In the first uncontrolled pilot study of male Vietnam veterans with PTSD and their female partners (Sautter et al. 2009), an earlier version of SAT was associated with significant improvements in overall PTSD symptoms, but no relationship adjustment outcomes were reported. In the second uncontrolled pilot study of SAT with male Iraq veterans and their female partners, Sautter et al. (2014) found significant reductions in PTSD symptoms and non-significant improvements in relationship adjustment. In a randomized controlled trial (Sautter et al. 2015), veterans with PTSD and their partners received either SAT or PTSD Family Education (PFE; see below). By 3-month follow-up, there were significantly greater reductions in PTSD and relationship adjustment in SAT versus PFE.

25.2.1.3 Emotionally Focused Couple Therapy for Trauma

Emotionally Focused Couple Therapy for Trauma (EFCT for Trauma) is an experiential couple therapy that focuses on identifying and understanding trauma-associated emotions, regulating affect, and fostering secure attachment. The therapy aims to determine how trauma-associated emotions affect relationships, attachment, and communication. The intervention has three components: (1) identification of negative relational interactions, (2) dyadic skill-building through acceptance and communication, and (3) development and consolidation of positive patterns of interaction and coping strategies. Treatment duration ranges from 12 to 36 sessions across published studies. Single-case and case replication studies report outcomes from the therapy (Greenman and Johnson 2012; Johnson 2002; MacIntosh and Johnson 2008). In the case study replication of ten couples, half of the participants reported improvements in relationship satisfaction at post-treatment and all participants with PTSD demonstrated clinically significant reductions in PTSD symptoms. Three couples in the study demonstrated an increase in emotional abuse and decreased relationship satisfaction over the course of treatment. The authors caution that EFCT for Trauma may not be indicated for couples with ongoing emotional abuse (MacIntosh and Johnson 2008). An uncontrolled study of 15 male veterans and their female partners found significant improvements in self-reported PTSD symptoms for veterans, as well as significant improvements in relationship satisfaction for partners, but no significant improvements in clinician-rated PTSD symptoms or relationship satisfaction (Weissman et al. 2018). A controlled study of 24 couples in which female partners all had childhood abuse histories found significant improvements in overall relationship adjustment as well as females' relationship adjustment, but no significant improvements in trauma-related symptoms (Dalton et al. 2013).

25.2.1.4 Couple Treatment for Addiction and PTSD

Couple Treatment for Addiction and PTSD (CTAP) is a 15-session protocol that integrates CBCT for PTSD (Monson et al. 2012a) with behavioral couples therapy for substance use disorders (O'Farrell and Fals-Stewart 2006). In an uncontrolled study, 8 of 9 US veterans with PTSD showed clinically significant improvements in their PTSD severity. Significant reductions in clinician-rated, veteran-rated, and partner-rated PTSD severity were found. There were also significant improvements in veterans' days of heavy drinking; 6 veterans had clinically reliable reductions in this outcome. Veterans and partners had significant improvements in depression. Findings were mixed with respect to relationship outcomes, with a similar proportion showing improvements versus deterioration, and the group-level findings were non-significant (Schumm et al. 2015).

25.2.2 Partner-Assisted Interventions

25.2.2.1 Lifestyle Management Course

A 5-day, residential Lifestyle Management Course was developed for Australian military veterans and their partners to address quality of life and psychological symptoms (Devilly 2002). The course was delivered in a group format, and various topics were discussed throughout the week, including diet and nutrition, relaxation, communication, PTSD psychoeducation, self-care, stress management, medications, alcohol use, anger management, self-esteem, problem-solving, and goal-setting. Although there were reductions in PTSD symptoms following the program, by 6-month follow-up the effects were minimal. Reductions in veterans' depression, anxiety, and stress were sustained at 6-month follow-up. The partners of the veterans noted larger improvements on all measures except for anger. No improvements in relationship satisfaction were found.

25.2.3 Generic Couple Therapy

25.2.3.1 Behavioral Couple/Family Therapy

Behavioral Couple/Family Therapy (BC/FT) generally involves improving interactions among family members or partners and enhancing communication. A randomized controlled trial tested BFT following individual exposure treatment for PTSD with veterans (Glynn et al. 1999). Individuals who received BFT subsequent to individual exposure therapy had greater improvements in interpersonal problem-solving compared with those who did not. No additional improvements were seen in PTSD symptoms following BFT. Several uncontrolled studies of group BCT with veterans with PTSD and their female partners have yielded improvements in relationship functioning but not PTSD symptoms (e.g., Cahoon 1984; Sweany 1987).

25.2.3.2 K'oach Program

The K'oach program is a month-long intensive treatment program for Israeli military veterans with PTSD (Rabin and Nardi 1991; Solomon et al. 1992). The program provides PTSD psychoeducation, communication, and problem-solving skills. The program incorporates spouses at several times over the course of treatment to learn cognitive, communication, and behavioral reinforcement skills. Minimal empirical research has been conducted on the efficacy of the K'oach program, although participants reported improved relationship satisfaction. No change was found in PTSD symptoms (Solomon et al. 1992).

25.2.4 Education and Family-Facilitated Engagement

25.2.4.1 Support and Family Education Program

The Support and Family Education (SAFE) program is a 14-session educational program for the loved ones of veterans with mental illness (Sherman 2003). The

program is delivered in a monthly workshop format. It is designed for a range of mental health difficulties (e.g., PTSD, schizophrenia, depression) and for any family member to attend. The program includes psychoeducation about mental health difficulties, as well as four sessions of skills training, problem-solving, and stress reduction. Although no assessment of the impact of the SAFE program on PTSD symptoms and/or relationship functioning for the individual with PTSD or their loved ones has been conducted, 3- and 5-year program evaluations report very high participant satisfaction (Sherman 2003, 2006). Findings suggest that program participation led to increased understanding of mental health difficulties, awareness of resources, and increased ability to engage in self-care activities. Participation was negatively associated with caregiver distress. Fewer attended sessions were associated with higher distress in loved ones (Sherman 2003).

25.2.4.2 Reaching Out to Educate and Assist Caring, Healthy Families Program

The Reaching Out to Educate and Assist Caring, Healthy Families (REACH) program is a 16-session psychoeducation program for veterans with mental health difficulties and their family members (Sherman et al. 2009b). The program consists of three phases. The first phase consists of 4 sessions conducted with the veteran and his or her family. This phase focuses on goal-setting and rapport building. The second phase consists of 6 weekly sessions of diagnosis-specific psychoeducation for a group of four to six veterans and their families. The third phase is 6 monthly group sessions to support ongoing education and maintain gains. A pre-program motivational interviewing strategy was also used to engage veterans with the REACH program (Sherman et al. 2009a). Participants reported high satisfaction with the program (Sherman et al. 2011). Within a sample of 100 US veterans with PTSD, 99 of whom were male, participants demonstrated significant improvement in self-reported PTSD knowledge and coping with PTSD, empowerment, social support, depression, and quality of life from pre- to post-treatment. No significant improvements were found for family problem solving, communication, or relationship satisfaction. Family members reported similar outcomes as veterans (Fischer et al. 2013).

25.2.4.3 Coaching into Care Program

A program has been developed whereby loved ones of veterans who are suspected to have PTSD and other trauma-related symptoms can call a telephone support service to receive guidance on how to facilitate engagement of their loved one in treatment. The program provides information about available treatment options, allowing loved ones to assist the veteran in accessing care in a non-coercive manner. Initial program evaluation has demonstrated increase in veteran engagement in mental health services after use of the program (Sayers et al. 2011, 2021).

25.2.4.4 PTSD Family Education

As noted above, PTSD Family Education (PFE) has been used as a control condition for trials testing disorder-specific couple interventions (Morland et al. 2020;

Sautter et al. 2015). PFE does not have clinicians engage in skills training or therapeutic interventions. It focuses on education adapted from SAFE and BFT. In Sautter et al.'s (2015) trial, PFE resulted in significant improvements in PTSD symptoms, but 93% of participants had a PTSD diagnosis at the end of follow-up. No improvements were reported in participant or partner anxiety, depression, relationship adjustment or intimate relationship attachment problems.

25.3 Discussion

The mental health treatment field has expanded to recognize the permeating effects of trauma and PTSD on interpersonal relationships and the role of these relationships in improving the lives and well-being of those with PTSD. There are a variety of ways in which partners might be incorporated into treatment, including disorder-specific couple therapy, partner-assisted interventions, general couple therapy, and education and engagement interventions. The class of disorder-specific couple therapy for PTSD has the strongest empirical support in terms of achieving multiple outcomes (i.e., reductions in PTSD, improvements in relational functioning, improvements in partners' psychological functioning). Because PTSD has systemic-level implications for relationships with loved ones, targeting both the individual with PTSD and their partner in treatment seems to have greater effects across both symptom and relational domains. If the client and the partner are both willing to participate in a dyadic intervention for PTSD, disorder-specific couple therapy is recommended, regardless of level of relationship distress, because these interventions have been tested with couples across the spectrum of relationship satisfaction. Caution should be heeded, however, if the couple has ongoing emotional abuse for interventions focused explicitly on emotions and attachment patterns. Trials of cognitive-behavioral couple-based interventions have generally included these couples and those that have lower levels of physical violence. It is recommended that couples with more severe levels of aggression receive interventions specifically focused on addressing intimate violence in individual or sometimes couple formats.

Depending on the desired focus of treatment and client preference, however, other types of treatment described in the aforementioned heuristic may be most appropriate. For example, should the client be engaged in individual PTSD treatment and/or not want their partner to participate in PTSD treatment with them but are experiencing relationship distress, also engaging in generic couple therapy may be helpful. Decreasing stress in social relationships may help the client participate more fully in individual treatment and can help improve treatment outcomes (e.g., Price et al. 2013).

Evidence-based individual, couple, and group interventions for PTSD only matter if individuals with PTSD engage in them. Thus, using partners and other loved ones to facilitate engagement in assessment and treatment represents an important innovation in the traumatic stress field. Moreover, partner-assisted interventions may be beneficial if additional assistance is needed to implement individual interventions that have been shown to ameliorate PTSD. However, we recommend that

partner-assisted interventions be chosen and implemented with caution and may be contraindicated if the couple is experiencing significant distress based on prior research on partner-assisted interventions for clients with agoraphobia (Barlow et al. 1981).

Given the importance of social variables in the onset of PTSD and other traumatic stress-related disorders, we argue that early intervention strategies for preventing acute stress disorder and PTSD incorporate significant others. There have been some efforts to include significant others in these interventions (Billette et al. 2008; Guay et al. 2004), but no full protocol has been developed and no randomized controlled trial has been conducted to date. Several have offered suggestions about the types of interpersonal interventions that might be used to reduce mental health problems in the early period after traumatization (e.g., Guay et al. 2006, 2011; Litz et al. 2002; Wagner et al. 2016a).

There are a number of innovations on the horizon in the area of couple/family interventions for PTSD. For instance, we look on with interest about future results of randomized controlled trials of MDMA-facilitated couple therapies for potentiating treatment outcomes. In addition, results from studies of abbreviated, massed dose, and telehealth-delivered interventions are promising and represent crucial steps in making empirically supported interventions more acceptable and accessible to consumers. In this vein, there have been interesting advances in developing and testing guided self-help couple interventions focused on improving general relationship distress (Doss et al. 2016; www.ourrelationship.com) and also for PTSD (Monson et al. 2021; www.couplehopes.com).

Couple/family interventions for trauma-related disorders are advancing, but additional research is warranted to further establish the long-term effectiveness of these interventions and to extend findings into community samples, as the vast majority of the work thus far has been done within veteran populations. Couple-oriented interventions for PTSD address the systemic nature of PTSD and provide hope for not only improvements in the client's PTSD symptoms but also the partner's functioning and improved relationship satisfaction.

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Telemental Health Approaches for Trauma Survivors

26

Eric Kuhn, Julia E. Hoffman, Josef I. Ruzek,
and Jason E. Owen

26.1 Introduction

The past couple of decades have witnessed a veritable explosion of technology development and services with nearly ubiquitous uptake of innovative electronic products. In fact, today more than 50% of the earth's population has access to the Internet, and there are more mobile phone subscriptions than there are people on the planet (International Telecommunications Union (ITU) 2020). Virtually overnight, we have become reliant on these technologies for many of our everyday activities, such as finding information, shopping, banking, and staying connected to friends and family. Modes of communication have multiplied to include options such as no-cost web-based video calling, instant messaging at home or on the go, and asynchronous microblogging tools for connected self-reflection. The latest generation of mobile phones, called smartphones, offers capabilities and functions that only a few short years ago were unimaginable or only available on stationary computers. As these technologies continue to transform our everyday lives, their potential to address the tremendous unmet mental healthcare needs of trauma survivors is also beginning to be realized through innovative telemental health (TMH) approaches.

In this chapter, we define TMH and discuss its potential and challenges in mental healthcare for trauma survivors. Three TMH approaches that have been applied to

E. Kuhn (✉) · J. E. Owen

Dissemination and Training Division, National Center for PTSD, Department of Veterans Affairs Palo Alto Healthcare System, Palo Alto, CA, USA
e-mail: Eric.Kuhn@va.gov; Jason.Owen@va.gov

J. E. Hoffman

Teladoc, Mountain View, CA, USA
e-mail: julia.hoffman@teladoc.com

J. I. Ruzek

Center for m2 Health, Palo Alto University, Palo Alto, CA, USA

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the treatment of individuals with trauma-related mental health issues are reviewed. These approaches include clinical video-teleconferencing (CVT), web-based interventions, and mobile phone-based interventions. We conclude this chapter with a discussion of future directions of TMH for helping those affected by trauma.

26.2 Telemental Health (TMH)

Telehealth or telemedicine has been broadly defined as using telecommunications technology for delivering medical information and services (Perednia and Allen 1995). TMH is subsumed under this rubric as it entails using this technology to deliver information and services for mental health specifically. Modes of TMH delivery include plain old telephone services (POTS), video-teleconferencing, and web- and mobile phone-based interventions.

TMH has vast potential to help address the unmet mental health needs of trauma survivors by expanding access to and increasing efficiency of care. For example, TMH approaches can extend the geographic reach of care to rural areas that have a shortage of mental health clinicians (e.g., Morland et al. 2010). Likewise, asynchronous TMH approaches (e.g., web-based interventions) are highly scalable, easily being able to accommodate increasing numbers of users, and can serve as a force multiplier increasing the capacity of existing providers (Marks et al. 2004). By utilizing TMH approaches, providers can increase efficiency by seeing more patients while spending less time per patient (e.g., with groups, shorter sessions, and brief coaching calls) without necessarily compromising the quality of services. TMH approaches that employ evidence-based treatments (EBTs) for PTSD (Forbes et al. 2020) could allow less highly trained providers to deliver quality care (i.e., task and skill shifting), expanding access to services while reducing cost.

TMH approaches could also improve the effectiveness of traditional care. For example, outcomes could be improved by better generalization of skills taught in in-person psychotherapy sessions being practiced and used when needed in the patient's natural environments (e.g., facilitated with smartphone interventions). Psychotherapy typically involves placing a tremendous responsibility on patients to learn materials during the session and then remember to apply what was learned in suitable contexts (at certain times, places, and situations) outside of session. Mobile TMH approaches can reduce this burden by providing cueing to use appropriate skills along with supportive practice materials when needed. In addition, communication between sessions is typically very limited; TMH can increase opportunities to communicate and get support through email or text messaging, which may further improve outcomes.

TMH could confer other benefits as well, such as allowing clinicians to expand the range of problems they treat. For example, clinicians could attend to secondary or co-occurring problems by using web- or mobile phone-based self-management programs. They could also be employed after care has concluded to enhance relapse prevention, possibly preventing or delaying return to treatment or potentially even enhancing effects after treatment is over. Lastly, TMH approaches could improve

outcomes by increasing provider and patient fidelity to EBT protocols by affording easy access to standardized materials and facilitating protocol adherence through highly structured programs.

In addition to their potential to improve effectiveness of care, TMH approaches also could increase access to care. Providers and service organizations could use TMH approaches to engage individuals with limited motivation or capacity to participate in traditional care as an initial step toward more intensive care, if needed. If care requires little or no face-to-face contact with mental health professionals, this may reduce stigma-related obstacles to help-seeking and privacy concerns of seeking care.

While it is clear that TMH has great potential, various issues must be considered before it is used. Foremost among these is ensuring patient safety when practicing remotely. Before using TMH with a patient, providers should ensure that local emergency resources are known and that a plan is in place should the need arise. This plan should also include involvement of a supportive significant other (e.g., spouse, parent), if available.

Other professional and ethical issues must also be attended to, including prevention of information security problems, which could range from fairly innocuous breaches of privacy to situations that can truly endanger patients (e.g., when working in politically unstable regions or less than open societies). Thus, data must be secure when transmitted (i.e., strongly encrypted) and protected when stored (e.g., behind a firewall). Costs of the required devices and data plans must be considered as the aim is to expand access to those with fewer resources.

Providers and healthcare systems adopting and using TMH will require guidance on ethical and legal use of TMH, as well as training to develop and maintain competence, given the rapidity at which technology changes. The American Psychological Association (2013) has created guidelines that cover everything from security of patient data to informed consent and clinical boundaries for successful and legal implementation of TMH (e.g., providing services outside of one's professional license jurisdiction). Many countries have also developed more general guidelines for the provision of telemedicine (see Bhaskar et al. 2020). However, the COVID 19 global pandemic has exposed the lack of and inconsistencies in these policies and highlighted the urgency for international guidance on developing and implementing shared telemedicine frameworks that can be maximally responsive to such crises in the future.

26.3 TMH and Trauma

TMH can help to fill gaps in trauma care services across a number of contexts. These include assisting in covering mental health needs in places where traumas have recently occurred or are ongoing and therefore may be unsafe for mental health providers to be practicing in person. These include active war zones, politically unstable countries or regions, areas acutely affected by natural and manmade disasters lacking basic necessities (potable water, shelter, food), and regions with

contagious disease outbreaks, as has been experienced with the COVID 19 global pandemic. Aside from areas that may be too risky for providers and patients to be meeting in person, there are many places and trauma-exposed populations that lack sufficient access to mental health services. Many stable but developing nations have inadequate mental health infrastructures. But even in the most developed countries, coverage can be insufficient in certain areas, for example, in rural areas or in underserved communities of ethnic minorities. Likewise infirm, elderly, or disabled trauma survivors may not be able to get to needed care readily. Specialty trauma services may not be available in jails and prisons where populations have high rates of PTSD and other mental health conditions (Goff et al. 2007).

TMH approaches could also be used to monitor disaster-stricken populations, allowing for identification and triage of those most affected in order to ensure that limited resources are used most efficiently. Moreover, they could help provide care in disaster-stricken regions that have compromised transportation infrastructure that is restricting or entirely prohibiting patient travel or during disasters and other mass-scale traumas in which the demand for mental healthcare services has exceeded the supply. TMH also has the potential to provide more convenient access to care for trauma survivors facing a host of post-trauma and other logistical challenges. For example, trauma may cause physical injuries that could restrict mobility.

TMH may be a more palatable or less risky modality of care delivery relative to in-person traditional care for some trauma survivors, including individuals who are concerned about the social stigma associated with having been traumatized (e.g., raped) or those fearing possible untoward repercussions of disclosing trauma (e.g., military service members). Likewise, many individuals perceive stigma about having and disclosing post-trauma mental health issues and seeking treatment for them (e.g., Vogt 2011). In certain ethnic groups (e.g., Asian Americans), individuals may fear that seeking services will cause them embarrassment and shame (Jimenez et al. 2013).

Some TMH approaches (e.g., web- and mobile phone-based interventions) may offer help when no other options are available or accessible. For example, individuals who are socioeconomically disadvantaged who have limited or no healthcare coverage or cannot afford traditional MH care services could benefit from TMH services. Likewise, individuals who do not have the capacity to engage in traditional care due to time constraints because of employment requirements or childcare responsibilities could benefit from TMH approaches.

When considering using TMH approaches for traumatized individuals, clinicians and other service providers should weigh potential drawbacks. For example, most EBTs for PTSD are trauma-focused requiring patients to forego maladaptive avoidant coping strategies and instead engage in exposure by actively discussing or repeatedly confronting painful trauma memories and situations that provoke trauma-related distress. For some trauma survivors, venturing out to connect in person with a mental health provider can be an initial therapeutic step in overcoming avoidance, while remaining at home exclusively using a TMH approach could serve to further reinforce avoidance.

TMH approaches, such as web- and mobile phone-based programs, require little motivation to initially access them. However, a great deal of motivation may be required to fully engage and sustain meaningful use over time, especially without some amount of regular support (e.g., telephone-based coaching). Thus, there is a risk that aborted or other unsuccessful attempts to use and benefit from TMH for self-management will lead to discouragement and beliefs that treatment in general does not work or will not work for the user in particular.

26.4 Examples of TMH Approaches Applied to Trauma Populations

26.4.1 Clinical Video-Teleconferencing (CVT)

CVT involves using video equipment, including cameras and monitors (e.g., television, computer, or mobile devices such as tablets or smartphones) to deliver mental health services remotely through telecommunications infrastructures (e.g., broadband Internet service). CVT affords a close approximation of traditional face-to-face care by allowing both patient and provider to see and hear one another in real time. However, compared to traditional care, CVT's primary advantage is that it can increase convenience by reducing or entirely eliminating travel requirements (e.g., with home-based CVT applications). Prior to the COVID 19 global pandemic, CVT typically involved a "hub and spoke" model with providers located in one healthcare setting (e.g., main hospital) and patients located at a distant healthcare facility (e.g., a rural clinic). Fortunately, recent advances in and broader availability of video-teleconferencing technology (e.g., built-in computer and smartphone cameras, expanded broadband access) have made CVT to patients' homes feasible, facilitating the recent rapid pivot to home-based CVT during the pandemic. Aside from the obvious advantage of reducing possible transmission of infection, home-based CVT entirely eliminates the need for travel and further reduces inconveniences associated with receiving care. It also overcomes the stigma of having to go to a mental healthcare setting, which could engage more patients, reduce missed appointments, and prevent premature termination of treatment.

CVT is a mode of care delivery that can be used for a variety of trauma-related mental health services, including screening and diagnostic assessments (e.g., Nelson et al. 2004), medication and case management (e.g., Shore and Manson 2005), and psychotherapy, both in individual (e.g., Tuerk et al. 2010) and group (e.g., Morland et al. 2011b) formats. Despite this broad applicability, some providers may be reluctant to use CVT because of concerns that patients will not want to use it or it may compromise the therapeutic relationship or negatively impact care delivery in other important ways. In fact, CVT has been shown to be an acceptable form of treatment delivery for PTSD patients, with some patients preferring this modality over in-person care (Thorpe et al. 2012). Likewise, research has shown that a strong therapeutic relationship can be developed and maintained (Germain et al. 2010), although

when it is used with groups, the alliance might suffer somewhat (Greene et al. 2010). Furthermore, providers have been shown to be able to deliver the same level of care in terms of adherence to and competence with therapy protocols using CVT for PTSD patients (Frueh et al. 2007; Morland et al. 2011a).

Considerable evidence has been amassed establishing the efficacy of CVT for PTSD as a modality for delivering EBTs, including cognitive processing therapy (CPT) and prolonged exposure (PE), with outcomes generally comparable or non-inferior to those of in-person care (Kuhn and Owen 2020). In particular, a number of randomized controlled trials (RCTs) have been conducted, including both CVT from clinic to clinic (Liu et al. 2020; Maieritsch et al. 2016; Morland et al. 2014, 2015; Ziemba et al. 2014;) and more recently from clinic to patient's home (Acierno et al. 2016; Acierno et al. 2017; Morland et al. 2020). Positive findings are consistent for both individual and group-delivered therapy and like with in-person care, comorbid symptoms of depression are also improved with CVT-delivered trauma-focused therapy.

There are several issues that should be attended to when using CVT. Foremost among these are equipment and technical considerations. Early applications of CVT required costly monitor and camera systems, but now laptop computers and mobile devices come standard with built-in cameras and inexpensive, web-based videoconferencing platforms that have adequate encryption capabilities are widely available. Once the necessary equipment is in place, clinicians should be prepared for technical issues that can arise, such as unreliable or slow Internet service leading to dropped connections and delays in communication that disrupt the flow of the session. Having backup plans in place, such as reverting to telephones, will lessen the impact of these inevitable disruptions. Setting issues will also need to be managed when using CVT to a remote clinic. For example, patients will need a private office with video-teleconferencing equipment, and remote clinic personnel will be required to prepare the space for the patient and be available if clinical or technical issues arise. Finally, clinicians must also overcome other logistical issues when using CVT. For example, EBTs for PTSD such as PE and CPT routinely use self-report symptom measures and homework forms. Providing these to patients and having them completed and transferred back so they can be used in a timely fashion will require additional technology (e.g., scanners, fax machines). Obviously, for home-based CVT, many of these and other issues require careful forethought and contingency planning. For example, solutions may be needed for patients who lack privacy or have significant distractions in their homes as well as those caring for young children.

Specific clinical issues can also arise when using CVT with trauma patients. While CVT affords the opportunity to assess nonverbal signs, it can lack the sensitivity needed to detect or distinguish subtle emotional signs (e.g., soft crying, fidgeting) that are a routine part of trauma-focused care. Likewise, detection of other clinically relevant issues that arise in trauma care, such as recent alcohol or marijuana use and poor personal hygiene (Thorp et al. 2012), may be compromised. Depending on what can be brought into the video frame, the clinician may not be able to see the entire patient. A stark case of this is described by Thorp et al. (2012),

who note a situation where the clinician did not know the patient was in a wheelchair because it was out of frame.

26.4.2 Web-Based Interventions

Web-based interventions provide a platform for reaching a huge proportion of the population. Anyone with Internet access can use web-based interventions, and once they are constructed, they can be used by large number of individuals with no additional costs. This makes them especially well suited for use in the aftermath of large-scale traumatic events that affect hundreds or even thousands of individuals.

But in addition to advantages of reach, web-based interventions have characteristics that may enable them to be particularly effective. EBTs typically incorporate common therapeutic components that are likely to contribute to their effectiveness. These include information and education, skills training with demonstration/modeling, individualized assessment, goal setting, behavioral task assignment, self-monitoring, and personalized feedback. Web-based interventions lend themselves to incorporation of these features, and many existing web programs have successfully included these elements (Amstadter et al. 2009). In this sense, it can be argued that many EBTs for PTSD are well suited for translation to and delivery via the Internet. Automated interactive programs essentially seek to replicate many aspects of face-to-face interventions that have been found to be effective.

In addition to preventive and treatment interventions, web-based programs can offer screening and assessment of trauma-related mental health issues. Individuals can screen themselves for problems and be offered customized feedback, in the privacy of their own homes. They can track their own progress in efforts to improve their symptoms. Their assessment information can be used to tailor the intervention by directing them to particular information, skills, or materials. This capacity for assessment means that web-based interventions can collect data, both in terms of usage and self-entered information and automatically collected site use data. Potentially, the gathering of data before, during, and after the intervention is used can help clinicians increase their ability to monitor progress and outcomes of treatment and more generally move toward evidence-based decision-making. A fundamental obstacle to routine measurement of mental health outcomes is a reliance on the use of paper and pencil questionnaires to provide information that cannot easily be integrated into electronic health records or viewed across time and treatment sessions. Web-based programs can potentially permit ongoing data entry by clients that can then be summarized in visual “dashboards” that can be reviewed by provider and client to review treatment progress and inform decision-making.

It is also possible that, if well-designed, web-based interventions may be motivating for those who might benefit from their use. The unlimited access and 24/7 availability of programs enables users to self-pace their experience getting as little or as much from the intervention as is desired at virtually any time they can access the Internet, including from the privacy of their own home. Individuals can use web-based interventions anonymously, so that perceptions of stigma or embarrassment at

help-seeking are likely to be less significant impediments to care. Cost is also reduced or eliminated as a barrier, since many interventions are available at no or low cost.

Web-based interventions can vary in terms of the degree to which they are intended to include human service provider involvement. At one end of the continuum, they can be designed as entirely stand-alone self-help interventions, delivering symptom assessment and monitoring, psychoeducation, and instruction in a range of intervention tools (e.g., self-regulation skills) to be self-administered by the user. At the other end of this continuum, web-based interventions can serve as treatment augmentation tools in which care is delivered by human service providers but supplemented by the web program. It is possible that integration of web-based interventions into traditional care might serve as a force multiplier by reducing the amount of time required to treat each patient allowing more patients to be seen by a provider (Marks et al. 2004).

Between these two extremes is assisted self-help, in which individuals self-manage their problems or symptoms but are offered human support that is less intensive than that likely to occur during face-to-face mental health treatment. For example, support could include brief phone calls to provide caring support and coaching to reinforce program use, encourage persistence, and problem-solve difficulties with implementing intervention components. This contact would also increase accountability to help ensure consistent, meaningful engagement with the intervention. Support personnel could be mental health professionals, but a range of other helpers could also provide support (e.g., peer specialists, clergy).

Several recent reviews have concluded that web-based interventions for PTSD are significantly more effective than passive controls (i.e., waitlist), with medium to large effect sizes (Kuester et al. 2016; Sijbrandij et al. 2016; Simblett et al. 2017; Lewis et al. 2018). However, these interventions have not yet been shown to perform significantly better than active comparison conditions (e.g., psychoeducation, writing), possibly due to few studies using such controls. Sijbrandij et al. (2016) concluded that effects were strongest when web-based interventions were therapist-assisted, but that self-guided interventions also showed a moderate effect size. The most investigated web-based intervention for PTSD is “Interapy,” a therapist-supported, narrative writing intervention (Lange et al. 2000). Across seven RCTs (Kersting et al. 2013; Knaevelsrud et al. 2015), Interapy produced large effect sizes for PTSD symptoms. Ruwaard et al. (2012) reported on outcomes for 478 patients with clinically significant PTSD symptoms who received Interapy in routine clinical practice. Forty percent of these patients demonstrated recovery (i.e., reliable improvement from a pretest score above cut-off to a post-treatment score below cut-off), 20% showed improvement, 40% showed no change, and 0% showed worsening symptoms. Overall, research in this area is in an early phase, and more studies are needed to better compare web-based interventions with active comparisons, explore mechanisms of change, determine utility of various levels of human guidance, explore cost-effectiveness, measure adverse events, and identify predictors of effectiveness and engagements (Lewis et al. 2018).

Provider concerns about patient nonacceptance of this form of TMH and its effect on treatment may affect adoption. As with CVT, substantial research to date indicates that patients using web-based programs often find them to be acceptable and satisfying (Marks et al. 2007) and that incorporating web-based activities into therapy with trauma survivors is not incompatible with establishing a good relationship with the therapist (Klein et al. 2009; Knaevelsrud and Maercker 2007; Wagner et al. 2012). Unfortunately, aside from Vets Prevail (www.vetsprevail.org/; Hobfoll et al. 2016), many of the programs studied have not been made widely available to the public or are only available for certain populations (e.g., Interapy (www.interapy.nl/) only available in Dutch and PTSD Course (<https://mindspot.org.au/ptsd-course>) only available in Australia). Fortunately, there are several other good, publicly accessible, free web-based programs that are widely available, which are informed by evidence-based intervention components commonly found on research sites. These include the U.S. Veteran's Affairs (VA) National Center for PTSD's PTSD Coach Online (www.ptsd.va.gov/apps/PTSDCoachOnline) designed for the general population and VetChange (www.vetchange.org) for veterans with PTSD and problem drinking, as well as several other VA web-based interventions that target specific PTSD symptoms and common comorbidities, such as Path to Better Sleep for insomnia (www.veterantraining.va.gov/insomnia/), AIMS for anger (<https://www.veterantraining.va.gov/aims/>), and Moving Forward for stress and low mood (<https://www.veterantraining.va.gov/movingforward/>).

For clinicians considering using web-based interventions with PTSD patients, there are several issues that require attention. The most obvious is that the patient must have access to the web in a private or semiprivate setting. It is also important to select an appropriate web-based program that will match the patient's preferences, characteristics (e.g., motivation, self-efficacy), limitations (e.g., time), and severity of problems. Clinicians must also consider the optimal level of support and assistance that will be required for and desired by the patient. For example, highly motivated, self-reliant patients with good social support may need less support than patients lacking these characteristics. If asynchronous communication (e.g., email) will be included, clear expectations should be negotiated upfront about the type of information that should and should not be communicated through these channels and the expected time for responses.

26.4.3 mHealth

Mobile health or mHealth is a form of TH that uses electronic mobile devices, such as smartphones, to deliver health assessments and interventions. This subset of TH is defined by the devices from which materials are accessed (e.g., mobile phones, tablet computers, smart watches, and other "wearables") rather than the format of the materials themselves, which can include mobile-optimized websites, mobile applications, and short message service (text messaging, "SMS"). These applications and services can be used to support self-management or to enhance face-to-face treatment during and between sessions, much like web-based offerings. They

are also most often free or very inexpensive, with the exception of the equipment and data plans needed. Generally, the benefits of web-based TMH are applicable to mHealth products as well; however, while similarities exist, mobile platforms have some major advantages over typical web-based tools that should be noted.

First, mobile devices are more ubiquitous and personal than computers; according to the International Telecommunications Union (ITU) (2020), the penetration of mobile cellular subscriptions per 100 inhabitants is 133 in developed nations and 99 in developing nations. Smartphone ownership is also rapidly increasing and is estimated at over 40% penetration globally (Statista 2020) and is even more prevalent in developed nations, like the USA, where 85% of adults own a smartphone (Pew Research Center 2021). Unlike personal computers, mobile devices are not frequently shared between individuals, which enables opportunities to share private data and to maintain highly personalized tools.

Second, mobile devices—especially phones—are almost always within arm's reach and turned on, which allows for nearly constant opportunities to engage users or to support them in practicing treatment-consistent behaviors (e.g., coping effectively with acute distress, accomplishing assigned homework tasks) on a just-in-time basis. Notifications can be used to alert users to recommended tasks and are likely to be noticed immediately (as opposed to reminders sent by email), and assessments can be deployed to catch users at the moment of distress or at various points in their day to accurately identify micro-trends and gain insight into emotional difficulties and processes. Capturing such ecological momentary assessment (EMA) data can provide more ecologically valid patient data than global or summative self-report surveys, which can be used with providers to better inform clinical decision-making.

Third, mHealth options can support the parts of EBTs that specifically require mobility to accomplish—for example, participating in and recording in vivo exposure exercises in PE in various community settings. Fourth, mobile devices often include a distilled set of personal data and media that can be leveraged for intervention in ways that are unavailable on the web (e.g., contact lists to identify social supports, preferred music or photos to inspire changes in perspective).

Mobile approaches offer other advantages that are ideally suited for trauma-related distress, whether or not users are engaged in EBTs for PTSD. First, PTSD and related disorders are defined, at least in part, by the acute exacerbations experienced by individuals when prompted by internal or external trauma cues. This makes the immediacy of mobile intervention especially valuable, as users can be provided with coping strategies to be used in moments of distress. For those in face-to-face care, mHealth options can provide the intersession support needed, while patients navigate the themes and emotional processing targeted in session. It is well known that for some patients, effective treatments for PTSD can cause a temporary increase in distress and mHealth may alleviate some of this difficulty, which could result in decreased suffering and possibly decreased attrition. One such app, developed by the VA National Center for PTSD and the Department of Defense National Center for Telehealth and Technology, is PTSD Coach (Hoffman et al. 2011), which

provides psychoeducation, self-assessment with a validated measure (PTSD Checklist; Weathers et al. 1993), and just-in-time self-management tools.

A second hallmark of PTSD is avoidance, which can manifest in various ways, some of which can be decreased by the use of mHealth tools. Individuals may avoid care entirely for reasons of stigma or fear of directly addressing traumatic material, and mobile options can be provided to engage users at the level at which they are comfortable. When an intervention resides on the user's smartphone avoidance of others may be decreased as more convenient opportunities to engage social connections are provided (e.g., through texting, calling, instant access to social media platforms). Increased social support is a well-known positive prognostic indicator of outcome after trauma (Ozer et al. 2003). Avoidance of tasks related to treatment (e.g., homework assignments) may be decreased because timely reminders to engage with materials can be issued, prepopulated messages can help users overcome moderate concerns rooted in avoidance (e.g., "You've done this before, you can do this again"), and patients are unlikely to lose their mobile devices or to be without them either at times when tasks should be accomplished (between sessions) or reviewed (in session). It should be noted that some counter-therapeutic effects of mHealth options, with regard to avoidance, may be encountered, including unwarranted distraction from treatment targets (e.g., in vivo exposure) (Clough and Casey 2011). More speculatively, phone apps might be used by some clients as cues for safety that could impair exposure to avoided stimuli, in the same way that individuals with anxiety disorders might only be willing to approach feared situations if carrying a supply of anxiolytic medications.

Many interventions for PTSD bring with them a substantial burden of in-session tasks and between-session homework, some of which can be eased by the use of mobile technology. For example, PE requires recording sessions and listening back to these recordings between sessions. Historically, this has required the purchase and use of a specialty recording device. Considering the ubiquity of smartphones and other mobile devices with native recording features, this requirement can be satisfied with decreased burden to the patient with apps such as the PE Coach (Reger et al. 2013). Reminders for visits, assignments, and prescribed coping tools can all enhance typical care by ensuring full participation by patients. For those mHealth tools that pass data back to clinicians, these novel feedback mechanisms can guide care. Literature exists that has identified indicators of likely success or failure in EBT (Lambert 2011), and reports on treatment engagement via mobile tools can both identify cases of likely failure before they occur and contribute to a better understanding of the variables tied to clinical outcomes through aggregating data.

Evidence for the efficacy of mHealth interventions for individuals with trauma-related problems is beginning to develop. To date, several RCTs have been conducted evaluating mobile apps as stand-alone or guided-self-help interventions (i.e., with limited provider support). PTSD Coach has received the most research attention with three RCTs. A pilot RCT with community trauma survivors with sub-threshold and probable PTSD compared PTSD Coach to a waitlist control (Miner et al. 2016). After a month, between group effect sizes were small and not

significant, but PTSD Coach participants had a significant reduction in PTSD symptoms whereas waitlist control participants did not. A follow-up larger RCT again with community trauma survivors with probable PTSD compared PTSD Coach to a waitlist control over 12 weeks (Kuhn et al. 2017). At post-treatment, PTSD Coach participants showed greater improvement in PTSD symptoms, depression symptoms, and psychosocial functioning than waitlist participants, with maintenance of improvement at three-month follow-up. Finally, a pilot RCT with veterans with PTSD compared self-guided to clinician-supported PTSD Coach (i.e., four 30-min sessions with a mental health provider) (Possemato et al. 2016). Both conditions showed improvement in PTSD symptoms with no difference between conditions. However, while not significant, the clinician-supported PTSD condition produced a larger effect size and percentage of those showing clinically significant change in PTSD symptoms.

Consistent with what has been mentioned previously for the other TMH technologies, providers recognize that the realities—and challenges—of bringing novel devices into clinical care are yet to be fully realized. First at issue is to determine whether patients and providers are willing and interested in these technologies for the enhancement of traditional care delivery methods. Evidence is emerging that individuals will accept mobile technologies as healthcare support tools and find them helpful. For example, veterans with PTSD reported high satisfaction with PTSD Coach and perceived it as being moderately to very helpful in managing acute distress, PTSD symptoms, and helping with sleep (Kuhn et al. 2014a, b). They also found that it helped them to learn about PTSD and explain it to their family and friends. There is also evidence that providers see the potential of using apps in care and are using or would be willing to use them to support EBTs (Kuhn et al. 2014a, 2015). For example, a survey of trained PE providers indicated that they believed that the PE Coach app significantly improved their care, was not be too complex to integrate, and did not negatively affect the therapeutic relationship (Kuhn et al. 2015).

As with the other forms of TMH, access to the technology is a fundamental requirement. While smartphones and other smart mobile devices are now being carried by a substantial and ever-growing minority of individuals worldwide), and in developed nations they are carried by a majority of individuals (Statista 2020), there are still many who do not yet have access to them. Furthermore, unlike web-based interventions that can be accessed and used across different types of computers, mobile apps are often built for a particular platform (e.g., Apple or Android) which can limit availability. Additionally, using apps independently can be limited by the level of insight of individuals in correctly identifying the types of tools needed and selecting appropriate and scientifically sound options from the crowded and difficult-to-navigate public marketplaces. Much like web-generated data, mHealth data can be sensitive and requires a level of sophistication to ensure its safe transmission and/or storage.

Access to appropriate evidence-based mobile apps for self-management of trauma-related distress or for use in clinical care for PTSD is also essential. The U.S. VA has developed a suite of publicly available, free apps for both

self-management of PTSD and related symptoms, including PTSD Coach and Insomnia Coach, and for patients in EBTs for PTSD and related conditions, including PE Coach, CPT Coach, STAIR Coach, and CBT-I Coach (Owen et al. 2018). In addition, PTSD Coach has been versioned for other populations, including for Australia, Canada, the Netherlands, Sweden, Denmark, and Germany (Kuhn et al. 2018) as well as for cancer survivors (Smith et al. 2018). Resources are also available to help trauma survivors and clinicians find other solid apps, including Psyberguide (<https://onemindpsyberguide.org/>) and the American Psychiatric Association (www.psychiatry.org/psychiatrists/practice/mental-health-apps).

When combining mHealth apps with in-person care, additional challenges can emerge. Relatively little training exists for clinicians in how to use these tools generally, or any given app in particular. While patients may be comfortable identifying and procuring mobile tools and highly motivated to digitally enhance clinical care, clinicians may find that they are less fluent in one or more platforms and may find the task of integration difficult. Even for willing clinicians, trialability can be a challenge; it can be difficult to get clear documentation on the content of apps in order to ensure that they are appropriate for clinical use. Finally, many currently available apps intended for those with PTSD are generally unconnected—they do not pass data to or from any existing structures (e.g., electronic medical records) that clinicians can access—which can create hurdles for clinicians trying to thoughtfully integrate these tools into care.

26.5 Conclusion and Future Directions

Many of our patients—just like ourselves—have come to expect and rely upon the various comforts and efficiencies that technologies play in our lives. Industries have been transformed (e.g., banking, shopping) and we can expect no less for mental healthcare. As the ubiquity of technology continues to grow, the promise of leveraging these novel products for the care of trauma-impacted populations grows in parallel. This chapter has reviewed currently available platforms that can be used by trauma survivors with or without clinicians, including the potential advantages and drawbacks of each. Much like technology itself, the potential of TMH seems virtually infinite. The obligations of scientists and clinicians alike are to act as thoughtful consumers of these new options, simultaneously ensuring that we are offering our patients the best options available and taking a critical eye to confirm that technologies are effective and usable and do not undermine the foundational elements of psychotherapeutic care.

Selection of the appropriate technology platform and interventions—ones that are best suited to the needs of both the patient and provider—is a critical first step to integrating technology into a trauma-focused practice. Special care should be taken to ensure that patient expectations and boundaries are not compromised by integration of novel technologies into PTSD care. Less than a generation ago, electronic communications with patients may have seemed completely unacceptable;

now it is almost expected. Thus, it is important that communications are secure and safe and do not unnecessarily increase the liability or burden of the clinician or healthcare system.

Technology will continue to evolve and create opportunities—and challenges—for patients and providers. It is likely that background sensing—from the frequency and duration of phone calls made on the phone to the geodiameter traversed within the course of a day—will soon become available for integration into TMH applications. Already GPS has been used to trigger location-based coping tools (Gustavson et al. 2011), and placeable and wearable sensors provide actigraphy data to better understand momentary biological signals (Morris and Aguilera 2012). The science and practice of mental health will likely benefit greatly from the additional capacities enabled by mobile and other technologies. Just as physical health assesses the multiple bodily systems, mental health needs to take a similar approach by assessing multiple systems including psychological, environmental, behavioral, and social systems. The richness of available information is incredible to consider, but conscientious clinicians will rightly work to ensure that any potential violations of privacy or consideration of the vast data that can be monitored via TMH are transparent to patients to avoid real or imagined breeches in therapeutic alliance.

It is likely that TMH can significantly improve care delivery processes. As noted above, the capacity for routine gathering of outcomes and use data means that this information can be used for clinician decision-making. Currently, decisions about treatment are seldom informed by data derived from validated assessment instruments, and TMH therefore holds promise to advance the potential for data-driven care. TMH also holds potential for advancing the development of stepped-care delivery systems in which frequency and intensity of intervention is matched to client need, problem severity, and preference (including pacing). Having these capacities could result in providers being able to efficiently manage larger panels of patients without compromising quality.

Although not directly related to the primary focus of this chapter on providing TMH services to traumatized populations, TMH has applications for increasing provider access to and improving training in EBTs for PTSD. Availability of online training in EBTs is rapidly increasing, and several comprehensive web-based courses in EBTs for PTSD now exist, including CPT Web (<https://cpt.musc.edu/>), PE Web (<http://pe.musc.edu/>), and a web training for Skills Training in Affective and Interpersonal Regulation (STAIR; http://www.ptsd.va.gov/professional/continuing_ed/index.asphttp).

Finally, it is important to emphasize that much of the international burden of trauma falls on individuals living in geographical regions in which mental health-care infrastructures are not available. In such regions, trained mental health professionals are rare, and traditional delivery of mental health services is doomed to fail (Kazdin and Blase 2011). In time, as more of the world's population gains access to innovative technologies, TMH services hold untold promise of providing significant assistance to millions of affected trauma survivors.

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Part VII

Pharmacotherapy



Pharmacological Treatment for Trauma-Related Psychological Disorders

27

Jonathan I. Bisson

27.1 Introduction

Pharmacological treatments have long been used for trauma-related psychological disorders, such as PTSD. Despite none of the main PTSD management guidelines recommending pharmacological treatments as strongly as trauma-focused psychological treatments (APA 2017; ISTSS 2018; NICE 2018; Phoenix Australia 2020a; VA/DoD 2017), medication is widely prescribed and widely taken for symptoms of PTSD.

The neurobiology of PTSD suggests that pharmacological approaches could be helpful. An enduring neurobiological hypothesis of PTSD concerns a dysfunctional hypothalamic-pituitary-adrenal axis resulting in adrenergic overactivity (Yehuda et al. 1991). Logically, addressing this by reducing adrenaline/nor-adrenaline levels, or by increasing cortisol levels, should represent an effective approach to both preventing and treating PTSD. Unfortunately, despite some signals of potential, the results of trials designed to demonstrate this with drugs such as propranolol and hydrocortisone have been disappointing (Astill Wright et al. 2019). However, as demonstrated in Chap. 4, the neurobiology of PTSD is complicated and it seems unlikely that medications currently available have precise enough actions to successfully treat all the symptoms and manifestations of PTSD.

Medication will continue to be used to treat PTSD, and justifiably so for some medications as there is strong evidence that they can reduce symptoms (e.g., Hoskins et al. 2021). Whilst we wait for further research to expand

J. I. Bisson (✉)

Division of Psychological Medicine and Clinical Neurosciences, Cardiff University School of Medicine, Cardiff, UK

e-mail: BissonJI@cardiff.ac.uk

pharmacological treatment options, it is now critical that we take stock of the current evidence available and ensure it is appropriately used to inform prescribing practice. In common with psychological treatments, the evidence base with respect to trauma-related disorders is strongest for PTSD and much more limited or absent for other trauma-related disorders, not least for complex PTSD (Coventry et al. 2020).

27.2 The Evidence

There have been a number of robustly conducted systematic reviews of randomised controlled trials (RCTs) of pharmacological treatments for PTSD in recent years, not least those conducted to provide information to develop treatment guidelines (e.g., Hoskins et al. 2021). The results of these have much in common but, unsurprisingly, are not identical, given that the evidence is rapidly evolving. This led Australia (Phoenix Australia 2020a) to create its latest guidelines as “living guidelines” that are revised when relevant new research becomes available, rather than once every 5–10 years. For the first time, one of the major international treatment guidelines for PTSD will be updated within 2 years of its publication. This heralds a new era, and one to be welcomed as it should reduce the impact of understandable concerns about the reliability of ageing guidelines.

27.2.1 Results of Meta-Analyses

Hoskins et al. (2021) undertook a systematic review and meta-analyses of pharmacological treatments for PTSD that were used to inform the development of the International Society for Traumatic Stress Studies (ISTSS 2018) and Australian (Phoenix Australia 2020a) Guidelines for PTSD. Forty-nine monotherapy studies were included and data from 39 of these (4951 participants) were used in the meta-analyses undertaken. Participants were, on average, in their early forties and had been exposed to a wide variety of DSM A criterion fulfilling events with combat trauma being the commonest reported trauma type. Sexual and physical violence were the next most common traumatic experiences reported.

The follow-up periods for studies were relatively short with an average of just over 3 months. Although the studies followed standard, placebo controlled RCT methodology, some risk of bias was identified for most studies, although the degree was comparable to that found for RCTs of psychological treatments for PTSD. Of those compounds included where there were at least two RCTs available, fluoxetine, paroxetine, sertraline and venlafaxine were the only drugs found to be superior to placebo. Five other drugs were found to be superior to placebo in a single study (amitriptyline, mirtazapine, a neurokinin-1 antagonist, phenelzine and quetiapine). Of these, the quetiapine study was the only one in which more than 20

people were randomised to each arm; consequently, quetiapine was the only one of these drugs that received any form of positive recommendation in the ISTSS Guidelines (ISTSS 2018).

Hoskins et al. (2021) also considered pharmacological augmentation (i.e., adding another drug when a first drug had not worked). Thirty-four augmentation studies were identified and data from 30 of these (1566 participants) could be included in meta-analyses. Prazosin was the most commonly evaluated drug (10 studies) and, along with risperidone, was found to have a small positive effect when compared to augmentation with placebo. The only other drug evaluated for augmentation in two or more RCTs was topiramate, which was not found to be superior to placebo.

Similar meta-analyses to those undertaken by Hoskins et al. (2021) were undertaken for the other major guidelines produced similar results, but with a few key differences, for example VA/DoD (2017) did not find a convincing effect for prazosin. (Similarities and differences will be further considered in the section on guideline recommendations below.)

A relatively new advance in the statistical synthesis of RCTs is network meta-analysis. Network meta-analysis allows the comparison of both direct and indirect evidence from RCTs and, therefore, allows closer scrutiny of the likely effectiveness of some drugs with a lower number of RCTs (Rouse et al. 2017). Most meta-analyses of pharmacological treatments of PTSD, including Hoskins et al. (2021), did not use network meta-analysis but Cipriani et al. (2018) did. Although network meta-analysis involves a greater number of assumptions and, therefore, arguably a greater risk of erroneous results, than ordinary meta-analysis, the Cipriani et al. (2018) is worthy of further consideration.

Cipriani et al. (2018) used data from monotherapy and augmentation RCTs of pharmacological treatment for PTSD to develop a network including 37 different drugs, with data for eight-week follow-up from 51 RCTs. Statistically significant effects were found for (largest effect size first) phenelzine, desipramine, paroxetine, venlafaxine, fluoxetine, risperidone and sertraline. Phenelzine was found to have an effect size of 0.97 (95% CI = 1.68 to 0.27) over placebo but this was based on only one RCT that directly considered phenelzine.

Cipriani et al. (2018) correctly argued (and this is supported by the results of the Hoskins et al. (2021) and other reviews) that their work provides evidence that drugs from the same class do not have the same efficacy. This is important as it suggests that recommendations for use should be made at an individual drug level rather than according to drug class (e.g., selective serotonin reuptake inhibitors). There are interesting parallels here with cognitive behavioural treatments with a trauma focus; recent guidelines have recommended specific forms of these more than others (e.g., APA 2017; ISTSS 2018).

The RCT evidence for drugs suggests that those considered have been well tolerated overall by participants as judged by an absence of reported major adverse effects or greater dropout from studies of individuals allocated to an active drug rather than a placebo (Cipriani et al. 2018).

27.2.2 Key Points for Interpretation

The effect sizes found for the effective drugs in the meta-analyses considered were low; all below 0.5 (except for phenelzine and desipramine but these were from a network meta-analysis, with wide 95% confidence intervals and limited direct evidence, and should be treated more cautiously than the results from standard meta-analyses). It is important to remember that the effect sizes quoted for drugs are relative to placebo as opposed to wait list or treatment as usual, the standard comparators for psychological treatment RCTs. This is particularly important given the consistent very strong placebo effect achieved by placebo in RCTs of drugs for PTSD, which often approaches 50% itself (Davidson et al. 2006a, b). Consequently, the low effect sizes found in RCTs of drugs for PTSD are also likely associated with considerable benefit for individual participants. Many participants in RCTs of pharmacological treatments for PTSD will have experienced a greater than 50% reduction in their PTSD symptoms over the course of the study.

Another key issue with pharmacological research for PTSD is that much of it has been funded by drug companies that hold a patent for the drug being tested and generation of positive evidence should lead to monetization. Many of the drugs with limited evidence of effect have long since gone off-patent resulting in little, if any, incentivisation for drug companies to put large-scale funding into their further development. As with all interventions with limited research to explore their effectiveness, the adage that absence of evidence is not evidence of absence of effect is important to remember. For example, the superiority of amitriptyline, mirtazapine, a neurokinin-1 antagonist and phenelzine in the single RCTs undertaken for each of these agents suggests a requirement for further evaluation, not least for phenelzine given the network meta-analysis results. The same can be said for a number of other drugs where the only evidence against them being effective is from single, small, neutral trials.

27.3 Treatment Guidelines for PTSD

Despite different timings and different development committees, there is almost absolute consistency between current well-known and respected PTSD treatment guidelines in terms of their main pharmacological treatment recommendations (see Table 27.1). The consistency is far greater than for their main psychological treatment recommendations. All of the guidelines recommend pharmacological treatments but none of them at their highest level, which is reserved for some, but not all, trauma-focused psychological treatments.

Fluoxetine, paroxetine, sertraline and venlafaxine are in the highest rated group of medications by all guidelines although NICE recommends “venlafaxine or a selective serotonin reuptake inhibitor, such as sertraline”. Fluoxetine and paroxetine are both selective serotonin reuptake inhibitors (SSRIs) but NICE’s

Table 27.1 Pharmacological recommendations in PTSD treatment guidelines

Guideline	APA	VA/DoD	ISTSS	NICE	Australia
Year of publication	2017	2017	2018	2018	2020
Highest level pharmacological recommendations	None	None	None	None	None
Lower level pharmacological recommendations	Fluoxetine Paroxetine Sertraline Venlafaxine	Fluoxetine Paroxetine Sertraline Venlafaxine	Fluoxetine Paroxetine Sertraline Venlafaxine	Venlafaxine Selective Serotonin reuptake inhibitor, such as Sertraline	Fluoxetine Paroxetine Sertraline Venlafaxine
Lower still level pharmacological recommendations		Nefazodone Imipramine Phenelzine	Quetiapine	Antipsychotics such as risperidone for disabling symptoms or behaviours or non-response to other treatments	

recommendation is somewhat concerning as there is currently insufficient evidence to recommend other commonly prescribed SSRIs such as citalopram and escitalopram.

There is considerable variation between the guidelines in terms of their second level pharmacological recommendations. This is likely to reflect the very limited evidence available, differences in the scopes of different guidelines. For example, pharmacological augmentation was outside the scope of the ISTSS guidelines (Bisson et al. 2019). NICE recommends the use of “antipsychotics such as risperidone” in some circumstances and ISTSS identifies quetiapine as a drug with emerging evidence of effect. None of the other guidelines recommend any antipsychotic; indeed, VA/DoD recommends against some antipsychotics as a monotherapy. Despite the results of the Cipriani et al. (2018) network meta-analysis, VA/DoD is the only guideline considered to recommend the use of phenelzine, albeit at a lower level than for other recommended drugs. Despite the results of the Hoskins et al. (2021) meta-analyses with respect to prazosin and risperidone, no drug is recommended for augmentation except, implicitly, for “antipsychotics such as risperidone” by NICE. VA/DoD found insufficient evidence to recommend any drug for augmentation and APA found insufficient evidence to recommend risperidone.

The PTSD guidelines considered are very helpful in as much as they give some clear indications as to which medications are most likely to help people with PTSD. They are less helpful in terms of helping clinicians know what next to prescribe and do not provide detailed descriptions of exactly how to prescribe and what dosages of medications are likely to be most helpful.

27.4 Pharmacological Prescribing for PTSD in Clinical Practice

Most recommended psychological treatments for PTSD follow a relatively structured manual in terms of their delivery. The same cannot be said for pharmacological treatment beyond standard prescribing information such as dose ranges. This is likely to result in unhelpful variation that could be addressed by prescribing in a logical, standardised manner, informed by the evidence and the clinical presentation of the individual. A first step to achieving this was the development of the Cardiff PTSD prescribing algorithm (Bisson et al. 2020a). This is primarily based on the recommendations of the ISTSS guidelines and takes into account other evidence. The algorithm recognises that, faced with an absence of relevant evidence, clinicians are quickly faced with having to use evidence and clinical experience to inform practice rather than being able to be truly evidence-based.

Figure 27.1 provides a summarised version of the algorithm which can be downloaded in full from the British Journal of Psychiatry website as a supplementary document to the Bisson et al. (2020a) paper and as an appendix to the Australian guidelines in which it is included as “an example of an evidence-informed clinical tool for use in prescribing medications for PTSD” (Phoenix Australia 2020b).

27.4.1 Using the Algorithm

Medication should only be prescribed by clinicians with the necessary knowledge and skills to do so. Before prescribing medication, it is important that a person with PTSD has been fully assessed, their goals and needs have been fully identified, and that they have been made aware of all possible treatment options to co-produce an appropriate management plan with their clinician. With specific respect to pharmacological treatment, it is vital to ensure that the person with PTSD understands what is being offered, including its potential benefits, possible adverse effects, monitoring requirements and likely duration of treatment, in order to make a fully informed decision about whether or not to proceed.

The algorithm provides clear notes about common adverse effects and drug interactions of the medications recommended along with more detailed guidance on initiating prazosin as a result of the risk of severe first-dose hypotension. Monitoring requirements are also included. For example, for fluoxetine, paroxetine, sertraline and venlafaxine, if suicidal ideation is present prior to starting treatment this should be monitored on a weekly basis initially. For the prescription of quetiapine or risperidone, blood tests should be undertaken to check urea and electrolytes, full blood count, lipids (fasting if possible), glucose (fasting if possible) and prolactin.

Acknowledging the frequency of agitation and insomnia and the unlikely immediate impact on these symptoms of the first-line recommended drugs, it is recommended that adjunctive quetiapine (if marked agitation is present) and trazadone or mirtazapine (if insomnia is present) be considered. As described in Fig. 27.1, a key feature of the algorithm is to increase doses on a monthly basis according to clinical

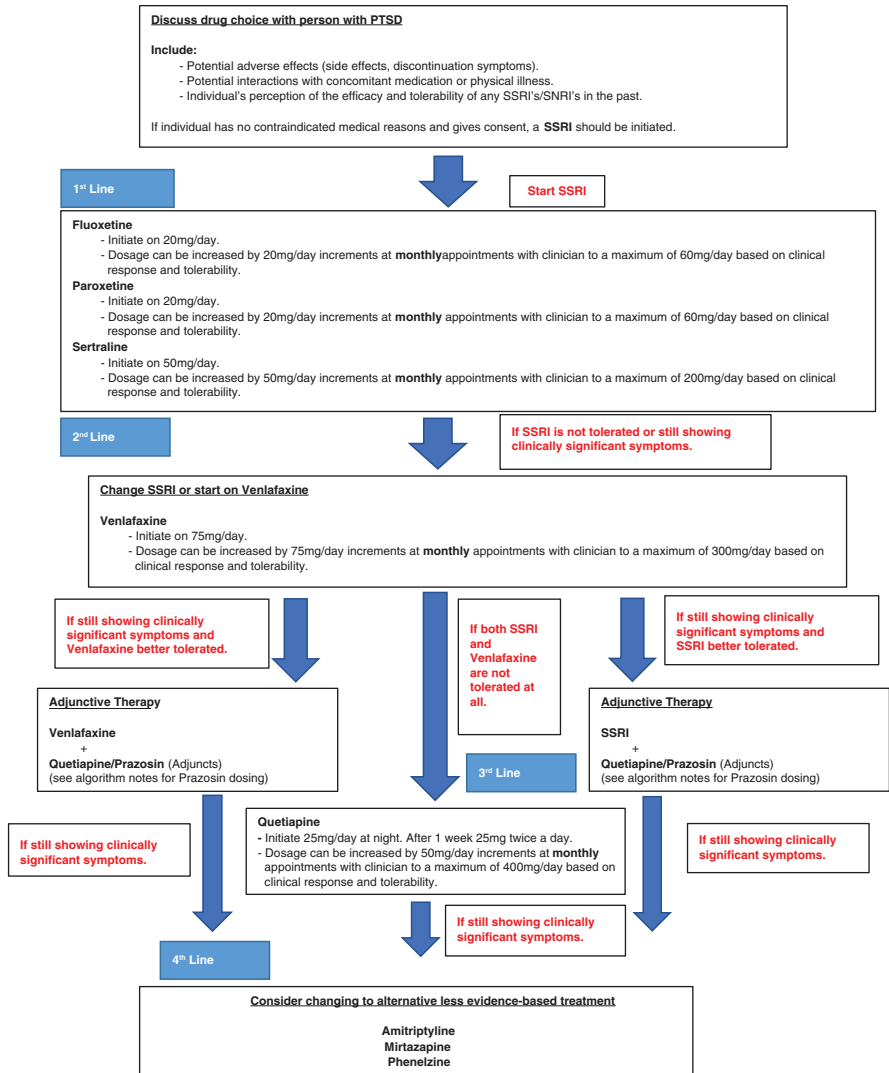


Fig. 27.1 PTSD pharmacological prescribing algorithm

response and tolerability and, if ongoing clinically significant symptoms are present at the maximum tolerated dose then the next step should be followed which involves changing medication or adding another medication as augmentation.

The rationale for dose escalation according to response and tolerability was based on the finding that the mean daily dose of medications used in RCTs of pharmacological treatments for PTSD is high (e.g., fluoxetine 41.4 mg, paroxetine 35.1 mg, sertraline 136.7 mg, venlafaxine 223.1 mg and quetiapine 258.0 mg) (Bisson et al. 2020b). This strongly suggests that starting doses alone are unlikely to provide the majority of people with PTSD an optimal treatment response. The

rationale is also informed by the positive findings of using a measurement/outcomes-based approach to prescribing for depression (Guo et al. 2015).

The final step in the algorithm involves considering changing to an alternative medication with a weaker evidence base but that works in a different way to the other medications suggested. Amitriptyline, mirtazapine and phenelzine all have some, albeit limited, evidence that they may be effective for symptoms of PTSD. These drugs are now off-patent and have not been subjected to the further evaluation their signals of efficacy could have justified. Amitriptyline and phenelzine are older antidepressants; amitriptyline in the tricyclic family of antidepressants and phenelzine a monoamine oxidase inhibitor. Both were originally approved by the US Food and Drug Administration in 1961 and need to be prescribed very cautiously due to the risk of adverse effects and interactions.

27.4.1.1 Algorithm Notes

1. If a person with PTSD is already on psychotropic medication, this should be reduced and stopped as per BNF guidance before starting an alternative.
2. From the start of treatment consider *adjunction* of SSRI with:
 - *Quetiapine*—If marked agitation present.
 - *Trazadone 50 mg–100 mg night/Mirtazapine 15 mg night*—If insomnia present.
3. Side effect profile is similar for all SSRIs, however notable considerations to make when choosing SSRI:
 - *Sertraline*: Generally fewer side effects.
 - *Fluoxetine*: More alerting—potentially less suited if person with PTSD is agitated at start.
 - *Paroxetine*: Greater risk of discontinuation symptoms.
4. SSRIs/SNRIs have many drug interactions—even with common drugs used to manage rudimentary illnesses. Therefore, it is important to be fully aware of what concomitant medications the person with PTSD is on before initiating treatment.

Here is a brief outline of some common drug interactions with SSRIs/SNRIs and their potential consequences if co-prescribed:

- Other serotonergic drugs = Increased risk of serotonin syndrome.
- Drugs that affect haemostasis (e.g. Aspirin and NSAIDs) = Increased risk of bleeding (especially Upper GI).
- Drugs inducing hyponatraemia (e.g. Diuretics) = Increased risk of developing hyponatraemia.
- Other drugs metabolised by CYP2D6.

For a full and detailed outline of the drug interactions for SSRIs/SNRIs and for the other drugs named in the algorithm, please visit <https://bnf.nice.org.uk>.

5. Initiating *Prazosin*:

As there is a risk of severe first-dose hypotension, the first and second doses should be taken whilst sitting on a bed just before lying down. It is important to keep well hydrated whilst taking prazosin and to get up slowly—initially sitting up on the bed and then slowly standing up. For the first two nights, it is important to sit on the toilet to pass water rather than stand up.

Time	Morning (mg)	On going to bed (mg)
Days 1–2	Nil	1
Days 3–7	Nil	2
Week 2	1	4
Week 3	2	6
Week 4	2	10

6. *Risperidone* also has evidence to be used instead of Prazosin or Quetiapine in adjunctive therapy.
7. *Quetiapine* has been used at a maximum dosage of 800 mg/day in PTSD research studies. However, the mean dose of Quetiapine used in people with PTSD in the research studies was 258 mg/day, therefore a lower maximum dose has been recommended in this algorithm although some individuals may benefit from higher doses. It may therefore be appropriate to use higher doses in some instances; the decision should be made based on the clinician's judgement.

27.4.1.2 Common Adverse Effects ¹

Drug	Sedation	Postural Hypotension	Cardiac Conduction Disturbance	Anticholinergic effects	Nausea/Vomiting	Sexual Dysfunction
Sertraline	-	-	-	-	++	+++
Paroxetine	+	-	-	+	++	+++
Fluoxetine	-	-	-	-	++	+++
Venlafaxine	-	-*	+	-	+++	+++
Amitriptyline	+++	+++	+++	+++	+	+++
Mirtazapine	+++	+	-	+	+	-
Phenelzine	+	+	+	+	+	+

Drug	Sedation	Weight gain	Akathisia	Parkinsonism	Anticholinergic effects	Hypotension	Prolactin elevation
Quetiapine	++	++	-	-	+	++	-
Risperidone	+	++	+	+	+	++	+++

For full side effect profile for these drugs and more information see <https://bnf.nice.org.uk>

- = Very low/none
 + = Low
 ++ = Moderate
 +++ = High incidence/severity
 * = Hypertension reported

¹ Taylor D, Barnes TRE, Young AH. The Maudsley Prescribing Guidelines in Psychiatry. Newark: John Wiley & Sons, Incorporated; 2018.

Monitoring requirements

All SSRI's and SNRI's	If suicidal ideation prior to commencing treatment monitor on a weekly basis initially
Venlafaxine	Blood pressure monitoring at initiation , after every change of dose and then at yearly intervals.
Quetiapine	ECG before starting medication for all people with PTSD
All antipsychotics	Blood tests for: Urea and Electrolytes Full Blood Count Lipids (fasting if possible) Glucose (fasting if possible) Prolactin

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Case Examples

The four case examples below provide brief summaries of four people with PTSD/complex PTSD who experienced symptom improvement associated with pharmacological treatment. Not everyone will benefit from pharmacological treatment, even though their adherence is excellent. In such instances, having exhausted all indicated and/or desired steps of the prescribing algorithm, it is important to help individuals to reduce and stop medication that is not working. No medication is risk-free and it is not in anyone's best interests to be taking medication that is not beneficial. Indeed, sometimes people will be better off not taking medication that is helping to a degree, as the impact of adverse effects outweighs the impact of benefits. Undertaking a cost-risk benefits analysis of taking a drug can be a very helpful way to determine if continuation is appropriate.

Bronwyn

Bronwyn, a 40-year-old nurse, developed PTSD after witnessing the unexpected death of a patient she was looking after during the COVID-19 pandemic. She consulted her General Practitioner who diagnosed her PTSD and described the treatment options available, including trauma-focused psychological therapy. After considering the options, Bronwyn decided that, despite its stronger recommendation, she did not want to pursue psychological therapy at that juncture but would rather try medication in the first instance. She was not taking any other medication and it was agreed that she would commence sertraline 50 mg daily, to be taken in the morning after food. A month later she returned to her doctor. She had experienced some nausea in the first 2 weeks of taking sertraline, but this had settled, and she was pleased that her PTSD symptoms had reduced to a degree. She did, however, describe some ongoing symptoms of PTSD. She and her doctor agreed that she should increase the dose of sertraline to 100 mg, which she did. A month later she was continuing to tolerate sertraline and described feeling much better, with mild residual PTSD symptoms only. Subject to her continuing to tolerate sertraline, her doctor recommended that she continue it for a year and, if she remained well, to gradually reduce and try to stop it thereafter.

Jeff

Jeff, a 60-year-old army veteran, described multiple traumatic events during his military service during the 1980s that precipitated PTSD. He had been taking paroxetine 40 mg daily for many years and had recently experienced some benefit from a course of cognitive behaviour therapy with a trauma focus. He and his therapist had decided that he was unlikely to make further significant gains with further psychological treatment and he was keen to explore alternative pharmacological treatment approaches to further reduce his PTSD symptoms. He met with a psychiatrist and they discussed treatment options. He had tried a higher dose of paroxetine once before but did not tolerate this and, therefore, was keen to try an alternative medication. It was agreed that it would be appropriate to slowly reduce his paroxetine and cross-taper with venlafaxine after checking his blood pressure.

Two months later, Jeff had successfully stopped paroxetine and was now taking and tolerating venlafaxine 150 mg daily. Unfortunately, he reported no real change in his PTSD symptoms. Indeed, he had felt a bit worse whilst changing medications. It was agreed that he should increase venlafaxine to 225 mg; a month later he reported a slight improvement and it was agreed he should increase venlafaxine to 300 mg but this was associated with more nausea and sexual dysfunction and when seen a month later he had reduced back to 225 mg of his own accord. After further discussion, it was agreed that augmentation would be tried with prazosin. Following the algorithm, he was able to increase prazosin to 2 mg in the morning and 6 mg at night with some benefit but was not keen to further increase the dose. It was noted that he had achieved a further small reduction in his symptoms and was happy with the current level of control he had achieved. He was keen to continue on this combination of medication, without making further changes, and it was agreed that he would be referred back to his General Practitioner to provide ongoing monitoring and prescribing.

Peter

Peter, a 45-year-old man who was subjected to repeated sexual abuse by a member of staff at the boys' club he attended between the ages of 10 and 15, was diagnosed with complex PTSD by a psychiatrist who assessed him. He had received a lot of psychological and pharmacological treatments over the years, including high doses of selective serotonin reuptake inhibitors and venlafaxine, along with antipsychotic medication in the form of olanzapine. Some skills training work had helped him better regulate his emotions and feel more comfortable with interpersonal relationships, but he did not feel that any medication had helped him, and he did not like the side effects of the drugs he had taken. He had stopped all prescribed medication around 6 months previously and was not using any psychoactive substances. He was keen to try a different pharmacological treatment for his symptoms.

Treatment alternatives were discussed with Peter. After considerable discussion, he decided that he would like to try phenelzine. The psychiatrist provided Peter with detailed information about phenelzine, not least about its potential to interact with certain foodstuffs and alcoholic beverages resulting in potentially fatal raised blood pressure, and side effects such as postural hypotension. Peter remained keen to try

phenelzine and was clear that he would adhere to the dietary restrictions whilst taking it. Phenelzine was commenced at 15 mg three times a day.

Peter experienced some reduction in his symptoms within 2 weeks of starting phenelzine and this improvement was maintained thereafter. Peter continued to experience ongoing symptoms of complex PTSD but described phenelzine as “taking the edge” off them and making them more manageable. He was better able to tolerate phenelzine than other medications he had taken and reported no problematic side effects. Peter agreed with his psychiatrist that he would continue on phenelzine for the foreseeable future, with regular monitoring of his mental and physical health.

Cerys

Cerys, a 30-year-old woman, was subjected to a horrific rape 2 years previously and developed PTSD as a result. She felt totally unable to discuss what had happened and could not engage in trauma-focused psychological therapy; she had tried to on one occasion but felt so overwhelmed she did not continue with this. Cerys had, however, developed a strong therapeutic relationship with her therapist and managed to engage in some non-trauma-focused work. She found controlled breathing techniques and deep muscular relaxation helpful. She and her therapist were very concerned by the impact her ongoing PTSD symptoms were having on her and, having not initially wanted to try pharmacological treatment, Cerys decided she would now consider it.

Cerys was referred to a psychiatrist by her therapist and, after discussion, agreed that she would try pharmacological treatment in line with the prescribing algorithm. She initially tried fluoxetine and then sertraline but stopped both of these within a few weeks of starting them, as they were associated with her experiencing some suicidal thoughts. After further discussion with the psychiatrist, it was agreed that it would not be appropriate to try paroxetine or venlafaxine as they have similar side-effect profiles. Cerys did not want to try quetiapine but was interested in trying mirtazapine instead. Mirtazapine was commenced at 15 mg at night and Cerys immediately reported some improvement in her sleep but described ongoing significant symptoms of posttraumatic stress disorder when reviewed by the psychiatrist at 1 month. They agreed that she would increase the dose to 30 mg at night and a month later Cerys noticed that her PTSD symptoms had reduced and, although still present, were more manageable.

Cerys remained in contact with her therapist and 3 months after starting mirtazapine was able to engage in trauma-focused psychological therapy. Having completed this psychological treatment 4 months later she was feeling much better with some mild residual symptoms of PTSD and was keen to continue to take mirtazapine 30 mg at night.

27.5 Summary

There is strong evidence to suggest that some pharmacological treatments are effective at reducing symptoms of trauma-related psychological disorders and have a role in their management. Despite the need for further research, there is ample

knowledge to inform an evidence-based approach to prescribing and this is likely to harness the positive potential of pharmacological treatment for PTSD and other trauma-related psychological disorders.

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Part VIII

Conclusions



Next Steps: Building a Science for Improving Outcomes

28

Marylène Cloitre, Richard A. Bryant, and Ulrich Schnyder

28.1 Overview

There has been substantial growth in the development of effective treatments for PTSD and while they work well, there is still room for improvement. Loss of PTSD diagnosis immediately following treatment ranges from 44 to 66% and these rates reference cognitive therapies and cognitive-behavioral therapies with exposure (Jonas et al. 2013), which have been identified as the most effective PTSD psychotherapies to date (Forbes et al. 2020). Improving treatment response rates for PTSD is critical in order to reduce the burden of mental health problems across the globe.

This chapter first reviews the progress that has been made toward this goal via the development of treatments that are sensitive to patient characteristics, treatment context, and delivery systems as represented in the pages of this book. The chapter then describes innovative strategies that have been successful in identifying patient characteristics which predict treatment outcomes, such as the personalized advantage index (PAI), that can be used to facilitate effective patient-treatment matching. Next, a brief review of key common factors such as therapeutic alliance as well as the importance of therapist-patient matching along gender, race/ethnicity, and

M. Cloitre (✉)

Division of Dissemination and Training, National Center for PTSD, Palo Alto Health Care System, Menlo Park, CA, USA

Department of Psychiatry and Behavioral Sciences, Stanford University, Stanford, CA, USA
e-mail: marylene.cloitre@va.gov

R. A. Bryant

School of Psychology, University of New South Wales, Sydney, NSW, Australia
e-mail: r.bryant@unsw.edu.au

U. Schnyder

University of Zurich, Zurich, Switzerland
e-mail: ulrich.schnyder@access.uzh.ch

LGBTQ status is provided. The chapter then describes approaches that highlight flexible delivery and sequencing of treatment components to improve treatment efficiency and effectiveness. The chapter concludes with a call for attention to a wider array of outcomes, particularly functional status. Functional status is an outcome of particular interest and research to date indicates only a moderate correlation with symptoms measures, suggesting the potential benefit of developing or identifying treatments or treatment components that contribute to this outcome.

28.2 Progress in Treatment Development

The book chapters contained in this volume reflect the breadth and complexity of traumatic stress that needs to be addressed if optimal care is to be provided. This includes interventions for those who have severe stress reactions immediately post-event (ICD-11, acute stress reaction; DSM-5, acute stress disorder), those who develop sustained reactions (PTSD), and those with more complex forms or variations of trauma reactions (complex PTSD, prolonged grief disorder). Importantly, these chapters also reflect the treatments that are needed that extend beyond trauma-related diagnoses by including treatments that address comorbidity with borderline personality disorder and chronic pain.

Consideration is given to patients' needs as they differ across the life span. Treatment interventions are described that have been designed with the cognitive, emotional, and social developmental needs of children in mind and are sensitive to the trajectory of rapid change and growth associated with the first decades of life. The slow decline in health, memory, and cognition of older adults is also addressed and includes recognition of age-specific life events such as the inevitable deaths of friends and family and the loneliness and loss of meaning and identity which may follow.

The book's chapters also note the need to take into account the social environment, identifying specific interventions that recognize the role of partners and family, as well as that of neurobiology via identification of state-of-the-science knowledge regarding the use of pharmacological agents and mapping of brain activity to behavior. In addition, we have included a chapter that discusses the way in which technology can be used to provide services to patients who cannot obtain or do not want face-to-face care.

28.3 History of Inconsistent Findings Regarding Predictors of Response

Traditional investigations of baseline patient characteristics as predictors of treatment outcome have produced inconsistent results. For example, some studies have shown that depression is a predictor of poor response (Markowitz et al. 2015) while others have not (van Minnen et al. 2002). Several studies have reported that higher levels of dissociation are associated with lower levels of symptom change (Bae

et al. 2016; Murphy and Busuttil 2015; Price et al. 2014), but this has not always been found (Hagenaars et al. 2010; Halvorsen et al. 2014). Widely debated is the role of childhood trauma where some studies have identified childhood abuse and cumulative childhood trauma as a predictor of less benefit (Bosch et al. 2020; Hembree et al. 2004; van der Kolk et al. 2007) while others have reported no reduction (Ehlers et al. 2013; Resick et al. 2014). Mixed findings have been reported for many other subject characteristics including demographic characteristics such as age and education, severity of PTSD, and co-occurring symptoms of anger, anxiety, borderline personality features, and personality disorders as well as factors such as intelligence, self-esteem, and beliefs about self and the world.

Reasons for these inconsistencies include low sample size which limits power to detect real differences as well as great differences in study samples (e.g., inpatient versus outpatient) and the type of intervention evaluated. In addition, the statistical and conceptual approach to identifying predictors may be flawed. The traditional approach presented in reports has been to evaluate individual factors as predictors of outcome, in an effort to find the “silver bullet.” However, as is well known, there is great symptom heterogeneity across PTSD patients (Galatzer-Levy and Bryant 2013) and, by implication, a multitude of possible predictors, suggesting that this strategy will likely fall short of capturing clinical reality.

Statistical analyses have revealed that there are typically multiple moderators of outcome, each of which is weakly predictive and no single predictor is identified as one of overwhelming influence. Alternative statistical approaches that are becoming more frequently used, such as latent profile analyses (LPA), allow the empirical generation of a *combination* of characteristics (i.e., a profile) which provides a more robust prediction of outcomes. Examples of studies that use this and similar approaches are described below.

28.3.1 Patient Profiles as Predictors of Response across Treatments

Patient profiles that are identified irrespective of the type of treatment or are associated with only one known treatment are called “prognostic” as they provide a prognosis about outcome in a general way. These differ from “prescriptive” predictors where a specific profile is associated with different outcomes depending on the treatment and can provide guidance regarding patient-treatment matching. Several studies have identified prognostic symptom profiles. One example of this approach is a trial of PTSD that compared prolonged exposure (PE) to sertraline and organized patient profiles by the type and severity of depression in conjunction with PTSD symptoms (Burton et al. 2021).

The analyses identified three subgroups: those with high depression and PTSD (high distress group), those with moderate depression and low PTSD symptoms (depressive group), and those with low depression and low PTSD with the exception of high avoidance symptoms (avoidant group). Results indicated that the rate of retaining a PTSD diagnosis was significantly higher for the distress group (31%) as

compared to the depressive and avoidant class (11% and 8%, respectively). Notably, this outcome did not differ for either the PE or the sertraline group.

In a similar approach, Wolf et al. (2016) evaluated whether the PTSD dissociative subtype (defined empirically by latent profile analysis) was predictive of poorer outcome in a sample of US female veterans and active duty service members enrolled in an RCT in which they received either PE or present-centered therapy (PCT). Results indicated that while both treatments provided significant reductions in PTSD symptoms, those with the dissociative subtype did not respond as well to treatment as those without the subtype, and this was equally true for both PE and PCT.

Childhood abuse and neglect characteristics have been demonstrated to organize into distinct profiles that have been associated with different degrees of treatment benefit. Assessing patients in a residential treatment program, Schilling et al. (2015) identified three different patterns of abuse and neglect reported at baseline: a group that had not experienced emotional, physical or sexual abuse, a group with emotional abuse but no physical or sexual maltreatment, and a group that had experienced physical and sexual maltreatment as well as emotional abuse and neglect. Results indicated that treatment response as measured by depression and general mental distress was increasingly poor relative to the severity and complexity of trauma history, with the first group experiencing moderate levels of improvement and the third group obtaining minimal to no benefit.

An alternative but related strategy identifies different subgroups of patients by their treatment trajectories and then examines predictors associated with each trajectory (see Elliott et al. 2005). For example, in a residential treatment program for veterans, Currier et al. (2014) identified three treatment trajectories: one group (48% of sample) demonstrated significant reductions in PTSD, one group did not improve over time (41%), and the third group (11%) began treatment with low levels of PTSD symptoms which remained stable over time. Predictor analyses indicated that the subgroup with improving trajectory had less combat exposure and superior mental and physical health than the group that did not improve which was younger, and had more problems and more substance abuse. The results suggested that patients with an intermediate range of problems benefited most from residential treatment.

The above studies offer examples of data analytic approaches that provide predictors of treatment outcome which represent a type of patient rather than a type of symptom. They can generate relatively comprehensive descriptions of patients and provide insight about a range of characteristics that hinder recovery. This information can be used to revise and adapt treatments to increase patient benefits.

28.3.2 Patient Profiles as Predictors of Differential Treatment Outcomes

Some studies of prescriptive predictors have used baseline patient characteristics to determine whether certain characteristics provide better outcomes in one versus another treatment. For example, an analysis of data from an RCT of women with

PTSD related to childhood abuse found that total symptom burden (PTSD severity, depression, dissociation, and interpersonal difficulties) relative to an identified patient strength (emotion regulation capacity) predicted differential outcomes across three different therapies: trauma-focused, skills-focused, and a combination treatment which included both components (Cloitre et al. 2016). Patients with scores indicating more symptoms than emotion regulation did less well in the trauma-focused treatment than in the skills-focused treatment as measured by PTSD symptom reduction, while all patients did equally well in the combination treatment and better than in the other two treatment conditions alone. The results indicate that the combination treatment is the preferred treatment but that skills-focused therapies might be preferable to trauma-focused interventions among those with high symptom burden combined with low emotion regulation.

Another approach, called the personalized advantage index or PAI, identifies the relative benefits of one treatment over another for a particular individual (DeRubeis et al. 2014). This type of personalization of treatment is particularly useful when two or more treatments have been shown to produce equivalent outcomes. The PAI identifies patient characteristics for each treatment that are associated with outcome. Notably, many of these characteristics differ by treatment. These characteristics are organized into an algorithm and the extent to which a particular patient satisfies these characteristics generates an expected outcome score for each treatment and the difference between the two scores identifies the patient's preferred treatment, or the "advantage" of being in one treatment over the other.

In a recent study of women with PTSD related to childhood abuse, Hoeboer et al. (2021) identified the PAI from an RCT of two types of extended (16-session) PE interventions as compared to a 16-session treatment consisting of eight sessions of skills training in affective and interpersonal regulation plus eight sessions of PE (STAIR+PE) in which it was found that all three treatments were associated with significant and equivalent benefit. PAI analyses showed that more depressive symptoms, less social support, more Axis I diagnoses, and higher severity of childhood sexual abuse were predictors of worse treatment outcomes in the PE treatments. Higher baseline PTSD symptoms, more emotion regulation difficulties, and lower general health status were predictors of worse treatment in STAIR+PE. The characteristics associated with poorer outcome in the exposure therapy conditions are consistent with previous studies, namely childhood abuse (Hembree et al. 2004; van der Kolk et al. 2007), poor social support (Fletcher et al. 2021), and symptom complexity (Ford and Kidd 1998) while the greater PTSD symptoms and greater emotion regulation symptoms associated with STAIR+PE might reflect greater overall symptom severity as a predictor of poorer outcome. Thus, the reduced effectiveness of exposure therapy appears to be associated with a greater diversity of patient characteristics relative to those associated with the combination treatment. Follow-up analyses indicated that randomization into the preferred or optimal treatment based on these predictors resulted in more improvement than in the suboptimal treatment as measured by clinician assessed and self-reported PTSD symptoms (Cohen's $d = 0.55$ and 0.47 , respectively), supporting the PAI personalization approach in comparing these two treatments.

Stirman et al. (2021) developed a prognostic indicator for women with military service, predominantly veteran but some active duty, who were randomized into a trauma-focused treatment, PE, or a non-trauma-focused treatment, present-centered therapy (PCT). Because PE was identified to be a stronger treatment than PCT, the analyses did not focus on “which treatment was better for whom,” but rather which patients would have optimal versus suboptimal or poor prognosis in PE. The analyses indicated that poor prognosis was associated with higher baseline PTSD symptom severity, the presence of military sexual trauma, worse mental and physical functioning, and lower endorsement of treatment and this was true for both treatment conditions. Patients with good prognosis who received PE experienced significantly greater improvement than those with good prognosis who received PCT, whereas patients with poor prognoses experienced little to no advantage when receiving PE versus PCT. These results identified patients for whom PE would be expected to be particularly beneficial and leave the issue of how best to treat patients with poor prognosis an open question.

Studies investigating prescriptive predictors have been successful in providing information that can potentially guide patients and therapists in decision-making about which treatment will provide optimal outcome for a particular patient. In addition, like prognostic findings, prescriptive data provide an empirical basis for guiding the adaptation and revision of treatments to improve outcomes for the subgroups of patients predicted to have a less good outcome relative to another treatment.

28.4 Common Factors: Therapeutic Alliance

The therapeutic alliance is identified as the most consistent predictor of psychotherapy outcome across types of treatments and patients (Horvath and Symonds 1991; Martin et al. 2000). It is typically defined as comprised of various dimensions including the patient’s sense of being understood, sense of being liked by the therapist, agreement on treatment goals, and agreement on tasks or means toward reaching those goals. Concern that the therapeutic alliance may be diminished in trauma-focused therapies is not supported. Recent studies have shown that the therapeutic alliance is equally strong in trauma-focused as compared to non-trauma-focused treatments (Chen et al. 2020) and that it contributes to adherence and outcome of exposure therapies (Buchholz and Abramowitz 2020). A recent study of the behavioral health records of several thousand active duty soldiers in the USA found that therapeutic alliance was the only variable assessed associated with decreased PTSD, depression and anxiety symptoms, both within and between diagnoses, even when controlling for type of treatment and other risk factors (Hepner et al. 2021). Therapeutic alliance accounted for symptom reduction, response to treatment, and remission of diagnosis. The study provides a very recent example of the impact of the therapeutic alliance in a large and diverse sample where treatment

is provided in “real” treatment settings and “real” providers and has impact on reduction in several types of symptoms measured in different ways.

28.4.1 Patient-Therapist Matching

A factor influencing therapeutic alliance is the match of patient and therapist on various aspects of identity and life experience. Several studies have found that matches in culture, ethnicity, gender, and sexual and gender identity can improve treatment engagement although effects on outcome are highly variable. Meta-analyses are uniform in finding a strong patient preference for and positive perception of therapists of the same ethnic background, particularly among minorities (Cabral and Smith 2011; Jones et al. 2003). However, the benefits of this match on treatment outcome are highly variable as indicated by a meta-analysis which reported that the effect size of patient-therapist match on outcome was nearly nil ($ES = 0.09$) (Cabral and Smith 2011).

The benefits of the match may be eliminated without shared values and, indeed, potentially result in increased hostility and guardedness. Benefits may vary depending on severity of baseline symptoms and outcome of interest. For example, in a treatment study of patients with comorbid PTSD and substance use disorder (SUD), ethnic/cultural match produced better PTSD outcomes among those with more severe baseline PTSD, while it did very little to influence substance use outcomes (Ruglass et al. 2014). Additional factors may be the patient’s interpersonal skill, determination, and overall resilience in managing the therapeutic relationship and working toward good outcome. For example, it has been found that Black Americans can be less impacted by therapist match than White Americans with the explanation that Black Americans are already quite acculturated to working outside their ethnic/cultural group than Whites (Ruglass et al. 2014).

In summary, ethnic/cultural matching has benefits in facilitating engagement into treatment and in the initial phases of the therapeutic alliance. However, the benefits of match on outcome are influenced by contextual factors such as the presence or absence of shared values, the severity and nature of the problem, and the history behind the relationships of certain ethnic/cultural groups. Therapists need to develop multicultural competencies (e.g., understand different worldviews) while simultaneously avoiding the assumption that any one individual holds the beliefs of his or her ethnicity or culture (Schnyder et al. 2016). Therapists also need to be aware of their local cultural/ethnic context and the fact that racial and ethnic tensions and differences are dynamic and change over time and across regions.

28.5 Flexible Delivery and Sequencing of Treatment Components

It is unlikely that the “one-size-fits-all” approach to treatment will provide patient-centered care that delivers optimal outcome for each individual patient (see Cloitre 2015). An important goal for maximizing outcomes is to devise treatment programs

that offer the interventions most relevant to the patients' treatment goals and where the length of treatment is based on regular but rapid assessment of symptom change over sessions. This approach reflects an increasing trend in mental health interventions, sometimes described as a process therapy perspective that tailors interventions to specific clinical needs (Hofmann and Hayes 2019). This strategy does not identify trauma survivors simply in terms of the trauma-related diagnosis but rather identifies key symptoms or problems and targets them with evidence-based strategies. For example, trauma survivors with re-experiencing symptoms may be provided with emotional processing strategies (e.g., imaginal exposure), avoidance with in vivo exposure, depressive symptoms with behavioral activation, rumination with mindfulness, overgeneral memory with memory specificity training, and anhedonia with positive affect training.

A few studies have begun investigating flexible delivery of the number of sessions for the treatment (Galovski et al. 2012; Levitt et al. 2007), as well as the number of sessions related to a type of intervention (Levitt et al. 2007), and found that treatment outcome is equal to or better than when requiring a commitment to a particular number of sessions. An example showing the benefits of sequencing treatment elements or modules is a recent study of Pigeon et al. (2021) who demonstrated that addressing insomnia prior to administering cognitive processing therapy (CPT) results in better outcomes with regard to both quality of sleep and PTSD symptoms.

This PTSD research highlights the role that flexibility plays in optimizing treatment outcomes and the potential value of integrating multiple interventions into a single treatment matched to identified problems. Sequencing interventions does not necessarily mean that clinicians need to use multiple protocols, a tremendously inefficient and burdensome enterprise. Intervention modules can be relatively specific and brief with the duration guided by weekly symptom change and collaborative decision-making by patient and therapist about when to move on. Several studies have been completed on intervention sequencing in child and adolescent mental health programs and have reported that flexible sequencing based on patient-specific problems is superior to a standardized sequence of interventions in terms of greater reduction of symptoms and greater reduction in the total number of diagnoses (e.g., Weisz et al. 2012). Chorpita and Daleiden (2014) describe a fairly straightforward strategy where three top symptoms or problem areas are identified with standardized measures and then rank ordered by patient priorities. The problem identified as most severe is treated first with an intervention or module that maps onto that problem domain; duration of the intervention or module is determined by weekly symptom assessment and patient feedback.

Although there is not a similar body of research in the trauma field, this type of treatment approach is feasible given the diversity of interventions available in the treatment of PTSD (e.g., integration of pain management with cognitive re-appraisal of trauma) and would involve the addition of prioritizing treatment goals and introducing measurement-based flexibility in the sequencing of interventions.

28.6 Expanding Attention to a Range of Outcomes: Functional Impairment

The efficacy of treatments tends to be evaluated on a single criterion, namely, symptom reduction, typically PTSD symptom reduction. The reliance on a single indicator of outcome is a reasonable metric in initial efforts. It maximizes construct specificity (i.e., what exactly is this treatment good for?). However as multiple treatments emerge which perform in an equivalent fashion, the guideline of symptom reduction may not be sufficiently informative to support the discrimination task that the clinician faces in selecting a treatment program.

One approach is to consider how treatments fare with regard to multiple outcomes, particularly including functional improvement. Research to date indicates that most PTSD therapies still do not effectively resolve problems in functioning. While symptom severity and functional impairment may be positively associated, they are sufficiently distinct to warrant separate consideration (Becker et al. 2011). Indeed about one-third of PTSD patients who complete treatment end with significant impairment (Bradley et al. 2005). Moreover, from the patient's perspective, symptom severity may be of less interest than actual day-to-day functioning. The relationship to symptoms may vary depending on the individual's characteristics (personal resilience, social support) as well as on any number of symptoms which the person experiences. McCaslin et al. (2019) found that post-9/11 veterans with high levels of PTSD symptoms differed significantly by their functional capacity. Veterans with high symptoms and high functioning differed from those with low functioning in having significantly lower alcohol use and sleep problems and higher post-deployment social support, posttraumatic growth, and optimism. These observations indicate that PTSD symptoms are only one of several contributors to functional status and that other characteristics support or reduce functioning. The articulation of other factors have implications for treatment improvement, where incorporating strategies to enhance social support, improve sleep, consider growth through trauma or build optimism may improve functioning independent of strategies that focus on PTSD symptom reduction.

28.7 The Potential of Machine Learning

One of the promising avenues of research in expanding tailored treatments to specific patient needs involves machine learning. This data-driven approach uses computational techniques to allow complex arrays of variables to be analyzed in terms of their relative capacities to best predict associations, which allows for more nuanced and less biased examination of potential predictors of treatment response (Schultebrucks and Galatzer-Levy 2019). Whereas most machine learning studies in PTSD have focused on identifying risks for PTSD (Schultebrucks et al. 2020), some have also addressed treatment response (Herzog et al. 2021; Stuke et al. 2021).

Although in its infancy, machine learning has the potential to expand on previous attempts at identifying single predictors of treatment outcome by integrating many diverse candidate predictors that can potentially match different phenotypic presentations to treatment modality outcomes. Future research will elucidate the extent to which this approach can achieve the goal of precision psychiatry in treating PTSD and achieve optimal matching of patients with treatments.

28.8 Summary

This chapter has reviewed a wide range of factors that need to be considered in order to improve patient response to treatment. Innovative methods of identifying patient characteristics as predictors of outcome provide new opportunities to support effective patient-treatment matching. It is critical for therapists to be educated about the values and culture of the patient and to respect and learn from the patient during the course of collaborative work. There is a need to investigate the benefits of flexible sequencing of interventions and treatment modules, how to sequence interventions and when to move from one intervention to the next. Shifting attention from a single specific outcome (PTSD symptoms) to other outcomes of interest to the patient will help guide the selection of specific interventions to improve treatments and outcomes. Lastly, it should be mentioned that attention to and funding of treatment innovations is important so that the field does not stagnate and allows the possibility of improvement through discovery of new and more powerful techniques.

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