Post-Traumatic Stress Disorder

A Guide for Primary Care Clinicians and Therapists

J. F. Pagel

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Preface

PTSD has become a marker diagnosis for our species, denoting the limits of our capacity to function in the sometimes-extreme realities of the modern world. PTSD as a diagnosis develops at the border of our capacity to handle stress, marking the limits for both individuals and society, of our available compassion, and our capacity to adapt and change. PTSD is in no way an easy diagnosis for either the patient, the provider, or for the therapist. While few diagnostic deniers remain in the medical and therapeutic community, it persists as politically correct to emphasize malingering and positive therapeutic outcomes, thereby deemphasizing PTSD's chronic nature and suppressing its associations with family disarray, social decompensation, substance abuse, and suicide. Flexibility, patience, and almost endless compassion are often required of the therapist and the medical provider. PTSD develops at a site of cognitive disarray where mind sometimes no longer equals brain, where individual patient requirements can trump theory and belief.

Much has changed in both diagnosis and treatment of PTSD. After a series of contentious changes in diagnostic criteria, PTSD diagnosis has become far more consistent, based on timeline protocols, and amenable to screening and questionnaire. This book is designed to provide a window into the still-evolving theory and logic underlying the diagnosis. Newer diagnostic areas including disaster response, acute trauma, complex PTSD, and social PTSD are addressed in detail. Treatment modalities are approached with emphasis on empiric evidence rather than theory, anecdote, or case report. While many groups of similarly aligned therapists have issued position papers as to the appropriate treatment that should be used to treat PTSD, most have chosen to give little weight to alterative and competing approaches. Even in the largest of these directives (e.g., American Psychological Association, American Medical Association, U. S. Army, etc.), proven approaches outside practitioner areas of focus are often unaddressed, ignored, or deemphasized. Prior to this book, there was no one place for the therapist to go to review the existing evidence supporting and/or detracting from the varied therapeutic approaches used to treat PTSD. This book utilizes an evidence-based approach to evaluate and present the therapies proven to have success in the treatment of PTSD.

History and Theory

The psychological sequelae of trauma, as noted by the ancient Greeks, was used as evidence for locating the site of consciousness in the brain. At the turn of the twentieth century, theories of traumatic origin were incorporated into Freudian constructs meant to explain the psychodynamics of psychiatric illness. At the same time, physiologists were describing first neuro-endocrine aspects of the human stress response. In today's world, PTSD persists as the diagnostic posterchild for this Cartesian dichotomy of mind versus brain. The theoretical constructs describing why individuals develop PTSD after trauma remain a matter of contention. Is PTSD a disease that develops from a psychological inability to respond and recover from trauma, or is it a neuro-physiological dysfunctional response to extreme stress? PTSD clearly has both psychological and physiologic attributes. There is no one-sided and "correct" theoretical perspective of PTSD available to explain the vagaries of either diagnosis or treatment. No matter the therapist's training, beliefs, or anecdotal experience, in order to address PTSD, real-world, clinically based evidence is required.

The Timeline of PTSD

In 2015, the American Psychiatric Association instituted a profound change in their Diagnostic and Coding Manual (DSM-V), altering the diagnostic timeline both for PTSD and for the acute response to trauma and loss—Acute Stress Disorder (ASD). Historically, grieving (referred to as ASD) was defined as the 6 months after trauma during which almost any psychological response could be viewed as a variant of the normal grieving process. Now, such responses can be considered as normal only during the first month after trauma. At that point, the patient is evaluated for PTSD. Individuals meeting diagnostic criteria are then treated. Some of the therapies started at the time of diagnosis produce short-term positive responses in >75% of those treated. Cures can be described as the decline in PTSD symptoms to the point at which the individual can function in an apparently normal fashion. But it is still unclear as to what percentage of PTSD patients can actually be "cured." PTSD often becomes a chronic disease. Even for those whose symptoms improve with treatment, the memory and the psychological sequelae of a severe trauma never goes away. The experience of trauma will continue to affect any individual who has PTSD. At times of stress or recurrent trauma, PTSD symptoms will often recur, requiring repeated psychological and/or medical therapy. For anyone diagnosed with PTSD, a potential for symptom recurrence and significant functional decompensation persists throughout life.

Social Aspects of PTSD

PTSD can be a complex and complicated disease. In many cases, individuals develop additional, sometimes comorbid, medical and psychiatric diagnoses. Many PTSD patients will develop substance use disorders, primarily abusing alcohol and/or

opiates. Substance abuse deconstructs social support, interferes with PTSD therapy, and increases both morbidity and mortality. A diagnosis of PTSD puts the individual at risk for repeated and sometimes complex forms of trauma, altering basic aspects of an individual's ability to self-regulate and self-integrate, affecting the ability to develop secure attachments with others. Presenting with sometimes severe levels of cognitive dissociation, this pattern of presentation is referred to as Complex PTSD—a form of PTSD that is even more difficult to treat. PTSD becomes a general social characteristic when there is no care available to treat psychological sequalae of trauma, leaving symptomatic and untreated PTSD to be integrated into the "normal" social fabric. Untreated PTSD has significant societal cost, contributing to family disruption, job loss, homelessness, and increased levels of incarceration. A persistent, long-term association exists between PTSD and suicide, particularly among those untreated.

PTSD Treatment—Positive Outcomes for Evidence-Based Therapies

PTSD has been treated with almost all of the medications and psychological therapies known to alter the activity of the central nervous system and to affect waking and sleep behavior. The evidence supporting many of these approaches, even those adopted as primary therapies, has most often been provider experience, anecdote, and/or case reports. When subjected to controlled clinical trials, it has turned out that most of these approaches work poorly. Some have even contributed to negative outcomes. Yet there are treatments for PTSD that work. Psychological therapies producing high levels of short-term positive response (>75%) include prolonged exposure, imagery rehearsal, and EMDR. These treatments vary markedly one from another and have different, even contradictory, theory and objective. Excellent treatment response can be obtained by emphasizing the psychological re-experience of trauma. Other effective treatment approaches emphasize the suppression of symptoms. Some psychotrophic drugs (ex. SSRI and SNRI antidepressants) produce positive responses. Yet excellent responses can also be obtained by using antihypertensive medication to ameliorate disturbing physiologic symptoms developing from neuroendocrine stress. The treatment of breathing dysfunction (obstructive sleep apnea) in individuals who also have PTSD is the one treatment approach with proven long-term benefits. PTSD has a varied psychological and physiological basis that responds to very different approaches to therapy, different medications, and even the treatment of sleep associated disturbances in breathing. These various therapies have very different rationales and objectives. The response of PTSD to these very different approaches highlights the limitations in our current understanding of both physiological and psychological effects induced by severe trauma.

Complementary Therapies

The PTSD treatment approaches that lie outside what is currently viewed as science (e.g., yoga, meditation, and art) are generally referred to as complementary. These approaches are complements to conventional care rather than alternatives to

better-studied and proven treatment approaches. The designation "complementary" does indicate that these approaches are unimportant. When viewed against the timeline of lives chronically affected by PTSD, complementary approaches have major importance, particularly when utilized to help give meaning to what may be difficult and painful lives. The complementary PTSD therapies have been developed from alternative fields of study such as art, drama, and dance. Others such as yoga and meditation are derived from techniques utilized in Eastern religions. Most effective complementary therapies require the affected individual to take an active role in personally addressing their experience of trauma. As used to treat PTSD, most have been the focus of outcome studies, but few have been subjected to rigorous evidence-based evaluations such as those used to characterize conventional therapies.

PTSD—A Guide for Primary Care Providers and Therapists

PTSD is at a crucial point. The diagnosis symptomatically affects many of the patients presenting in primary care, to therapists, and to hospital emergency rooms. Many current approaches to treatment are now based on evidence, rather than theory, anecdote, or case report. The evidence-based approach has had definitive value. Psychological approaches to PTSD have been developed that have a >75% positive short-term response rate as based on clinically excellent research. Today, medications are less often primary therapy, and more likely to be appropriately utilized in treating symptoms and addressing comorbid PTSD diagnoses. Treatment of sleep apnea in the PTSD population produces a positive effect on symptoms and a persistent reduction in morbidity and mortality. Complementary treatment approaches offer the many individuals chronically affected by PTSD assistance in coping with symptoms and opportunities to functionally integrate their experience of trauma.

This book differs from what else is available. It differs in attempting to present not just one perspective, but rather the background, diagnosis, and treatment of PTSD from an eclectic, inclusive, clinical, and evidence-based standpoint. This book addresses the point-in-time experience of trauma, yet it is among the first to approach PTSD in its most common form—a chronic disease that affects the individual across his/her lifespan. PTSD is an expected outcome for at least a quarter of those subjected to significant trauma. This includes the soldiers and first/emergency responders whose socially prescribed roles put them in harm's way. PTSD is considered as a social disease, potentially preventable by reducing levels of societal trauma. The treatments reviewed in this book can be used to consistently help PTSD patients with their symptoms. For some, there is a possibility for "cure." Yet we have no easy answer. No single approach to treatment works for everyone. For anyone subjected to major trauma, the psychological sequelae and memory of that experience is life altering.

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Shell Shock and Society

1

The human species has evolved in a world of trauma, predator and prey, internecine strife, disease, and loss. Our earliest records document this reality; visually in the cave paintings of Southwest Europe (30,000 BCE), and in our earliest written records, as in the 6000 BCE nightmarish vision of the Gilgamesh apocalypse (Chap. 5). It is less clear that experiences of trauma altered the minds of our ancestors. Some evidence does exist. Viking berserkers were notorious in their inability to peacefully integrate into society [25]. In Homer's Iliad, Achilles experienced personal humiliation and rage in the years after the battle for Troy, refusing to fight in further battles [15]. Nightmare images, some apparently related to trauma, can also be found in the rock art of prehistory. In 1696, the Northern New Mexico Pueblo Indians after evicting the Spanish were subjected to a bloody reconquest in which soldiers cut off a foot from the males of fighting age [29]. This event is apparently immortalized in a petroglyph image of a crying, one-legged anthropomorphic bird/human filled with the killing rage of the morning star, striking downward with a knife from within the circle of its soul [23]. This image is likely to be a metaphoric nightmare image produced after an experience of irreconcilable trauma (Fig. 1.1).

Historic Wars

Mental disorders associated with trauma were described during the American Civil War when tens of thousands died in battles that were often a conflagration of wounds, corpses, filth, and flies. Civil War doctors made the diagnosis of "nostalgia" based on symptoms of lethargy, despair, homesickness, and emaciation. They blamed the illness on feeble will, moral turpitude, and inactivity and chose to treat affected soldiers with added drilling, shaming, and reinsertion into combat. Soldier diaries, particularly those from post-conflict asylums, include symptoms of flashbacks, insomnia, panic attacks, and suicidal thoughts [17]. This Civil War "camp illness" included a complex of mental, rather than physical, symptoms developing after exposure to war-associated trauma. It is likely a version of what we now call

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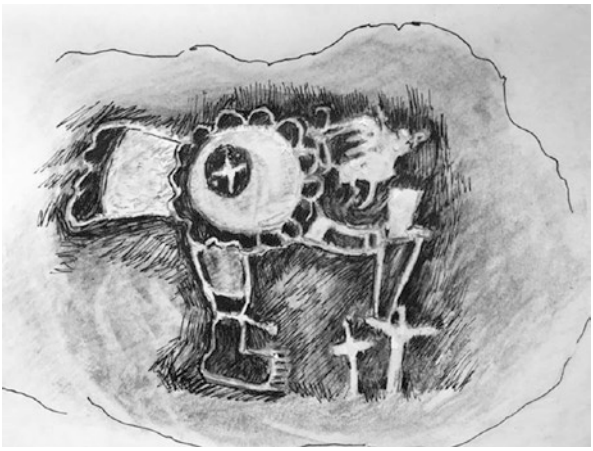

Fig. 1.1 Petroglyph: Rio Grande Valley, Northern New Mexico. Contact era. Crosses added subsequently

post-traumatic stress disorder (PTSD). It was associated with disability and dysfunction, insomnia, and suicidal thoughts. It lasted long term, and some soldiers never recovered. The symptoms of nostalgia meet a portion of the diagnostic criteria that we currently use to diagnose PTSD (Chap. 2).

Shell Shock

With the onset of the conflictual twentieth century, war changed radically, not just in the technology of killing and the sheer number of casualties but also in the relationships and expectations of performance for officers and soldiers. It was only in World War I that the practice of summary execution by battlefield officers finally became controversial. Until that point, soldiers had been executed for desertion, for running the wrong way after succumbing to battlefield confusion, and for terror. During the battles of World War I, there were days when more than 100,000 men succumbed each day to artillery, bullets, gas, and disease. But it was psychiatric dysfunction that produced the largest number of casualties. The symptoms of shell shock included sudden muteness, deafness, general tremor, inability to stand or walk, episodes of loss of consciousness, and convulsions [7]. Part concussion, and part mental disturbance, shell shocks' nonobvious relationship to physical trauma predated PTSD in its relationship to traumatic brain injury (TBI). Treatment was most often short rest followed by return to combat. The number of men affected, and the need for replacement soldiers, led to the loss of an entire generation used as cannon fodder. Eventually there was a re-examination of the status of war-associated mental trauma.

Early Psychoanalysis

Sigmund Freud proposed that unassimilated trauma was at the basis of all psychiatric illness [37]. He used the techniques of free association and dream interpretation to explore the unconscious psychodynamics of what he called "traumatic neurosis"

[11]. Nightmares, Freud's anxiety dreams, were common symptoms reported after trauma. Freud suggested that these nightmares were evidence of the failure of the ameliorative process of dreams, what he proposed to be the protectors of sleep [12]. In 1926 Carl Jung dreamt of riding back from the front lines of battle with a little man in a horse-drawn wagon. All about them, shells exploded. He interpreted the shells falling as "emaciations" from the unconscious, the shadow side of his mind. For Jung, the outer war was over, but the inner war continued, fought within his psyche [18]. In these years before the advent of psychotropic drugs and behavioral therapies, psychoanalysis became the primary modality used to treat psychiatric illness. Freud and his many followers emphasized the need to treat all cases of war neurosis with psychoanalysis.

Unfortunately, psychoanalysis is a therapeutic technique beset with problems. It requires long-term, costly, and intensive interpersonal therapy that has the potential to alter both the patient and the therapist. As the century descended into conflict, war neuroses became increasingly common. During World War II, at one point the number of psychiatric casualties exceeded the number of new recruits being inducted [5]. Psychoanalysis as a treatment modality was applied, across the board, to all psychiatric illness. The results of such therapy were rarely analyzed as to efficacy. In general use, psychoanalysis eventually led to the warehousing of patients into huge psychiatric institutions in which the number of beds rivaled the number utilized in medical care. Today, despite being generally discredited as an approach to treating psychiatric illness, psychoanalysis continues to have profound effects, particularly in the areas of PTSD, dreams, and nightmares.

World War II

Trauma-based psychiatric symptoms were extensively studied in World War II survivors. Many soldiers returned home uncelebrated, embittered, and psychologically isolated, with symptoms consistent with what we now call PTSD. With the advent of mass air bombing, the nature of war again profoundly changed. The preponderance of casualties changed from male soldiers to civilians, who now bore the brunt of warfare. And after the battle, psychological symptoms persisted. Four decades later in a group of civilians who had been incarcerated during the war, 82% were still experiencing intrusive recollections and nightmares of their wartime captivity [8].

Vietnam and the Advent of Post-traumatic Stress Disorder

In 1952, the American Psychiatric Association released their contentious *Diagnostic and Statistical Manual of Mental Disorders* (the DSM-I). It was designed as an attempt to provide an objective baseline for the diagnosis of all mental disorders. Among the diagnoses was "gross stress reaction," described as a temporary mental disturbance caused by extreme environmental stress in patients with no previous signs of a mental health problem [9]. The DSM-II released in 1968 reflected the beliefs of many psychiatrists and deleted all trauma-associated diagnoses. In part due to this deletion of available diagnostic categories, during the Vietnam War,

acute psychiatric disorders were reported to affect only 1.15% of all casualties [4]. Soldiers with trauma-associated mental dysfunction were treated as delusional, diagnosed with paranoid schizophrenia, psychomotor epilepsy, or as having sensory-triggered hallucinations (flashbacks) due to addiction to LSD, the psychedelic drug then being studied by the military [35]. The diagnosis of drug addiction (to a nonaddictive drug) was particularly malicious since until 1976 the VA refused medical services to anyone diagnosed with substance use. Despite the low levels of diagnosis at the battlefront, after the war more than 700,000 Vietnam veterans (almost a quarter of all soldiers sent to Vietnam from 1964 to 1973) would eventually require some form of psychological help. Responding to the announcement that the upcoming version of the DSM would once again contain no trauma-associated diagnosis, the psychiatrists Chaim Shatan, Robert Lifton, and Jack Smith and the sociologist Sarah Haley worked with the Vietnam Veterans Against the War to publish and present their concerns at public and governmental events such as the My Lai hearings [30]. After presenting over 700 case studies of veterans suffering from war neurosis to the American Psychiatric Association [1], Lifton and Shatan forced into existence the newly coined diagnosis "post-traumatic stress disorder" that was added to the DSM-III [32]. Thirty percent of Vietnam veterans were eventually diagnosed with PTSD [2]. Five decades after Vietnam War, many veterans continue to experience difficulty with PTSD. For this group, the initial denial of diagnosis, support, and care contributed to a general distrust of governmental agencies. The level of social dysfunction is higher among Vietnam veterans than among the veterans of other wars so that today many of the estimated two hundred thousand homeless veterans in the United States are veterans of the Vietnam War [28].

Civilian Casualties of Trauma

Historic records itemize the trauma experienced by men fighting as soldiers in war. Trauma outside organized war is less likely to be reported. Humans have always been a violent species. Modern DNA testing provides a window into the level of civilian trauma. After the Mongol invasion of Asia/Europe, and more recently the reinvasion of the Spanish after the Pueblo Revolt in New Mexico, the assimilation between cultures that took place reveals an inheritance dominated by a single individual (the associated examples – Genghis Khan and Juan de Oñate). In war, the violence of rape was used as a modality to subjugate a defeated foe. Today the primary traumatizing effect of modern warfare is on civilians. As based on the new DSM-V criteria, between 17 and 20 percent of deployed soldiers from the United States, most recent conflicts will meet full criteria for PTSD (VA 2015). Among some civilian traumatized groups such as displaced immigrants, the incidence of PTSD approaches 70 percent [24].

While our best information about PTSD comes from the military, most trauma and most PTSD occurs outside modern organized war. In 2016, the National Institutes of Health (NIH 2016) conducted an epidemiologic study of PTSD in the United States that included 36,309 face-to-face interviews. Only 7.7% of

respondents indicated that their most stressful life event stemmed from military combat, prisoner-of-war status, being a civilian in a war zone, or being a refugee. Far more (56%) identified their trauma as sexual assault before age 18, or intimate partner violence. The lifetime prevalence of PTSD was 6.1% – higher for those who were female, white, Native American, younger, previously divorced, with less than a high school education, and with lower incomes [14].

PTSD Today

In our modern world as in the environment of our ancestors, PTSD has a social basis. For many professions, soldiers, police, and first responders, PTSD has become a socially acceptable, if unfortunate, result of trauma. It is the only psychiatric disorder clearly induced by the exterior environment, and it is among the most common of psychiatric disorders. PTSD is rarely a short-term diagnosis and often negatively affects individuals for decades after their experience of trauma. The prevalence rate for PTSD (6.1–9.2%) is the same range as such major medical diagnoses as asthma and diabetes (Table 1.1). In its close association with suicide, it may be the most dangerous of sleep and psychiatric diseases [22]. Substance use, mood, anxiety, personality disorders, disability, suicidal ideation, and suicide attempts are all significantly more common among individuals diagnosed with PTSD. PTSD has a close and comorbid association with other chronic medical conditions including cardiovascular disease, arthritis, asthma, chronic pain, diabetes, bone and joint conditions, and gastrointestinal disorders. PTSD as a disabling condition negatively affects millions of Americans throughout their lives [14]. Yet, after trauma, many individuals with PTSD will not seek medical or mental health assistance. The 2016 NIH study indicated that only 59% of those with lifetime PTSD had sought treatment. When treatment was requested, it was usually 4.5 years after trauma and the onset of symptoms.

Generals, politicians, accountants, and CEO's of managed health systems have considerable discomfort with the diagnosis of PTSD. The annual cost to society for this diagnosis has been estimated to be over $42.3 billion, including psychiatric and non-psychiatric medical treatment costs, indirect workplace costs, mortality costs, and prescription drug costs [10]. As based on yearly cost and the duration of required care, it is the most expensive warfare-induced diagnosis addressed in veterans' medicine [26]. Societal structures are often overextended in their attempts to integrate and treat PTSD. In failed states, in countries at war, and in those experiencing high levels of traumatic violence, minimal or no care may be available.

Table 1.1 Comparative prevalence rates[a]

Psychiatric disorders	Prevalence	Medical disorders	Prevalence
PTSD	6.1–9.2%	Asthma	8.4%
Mood disorders/depression	4.4%	Diabetes	13.4%

[a]These rates must be considered approximate and tabular, potentially incommensurate indicators not adequately representing the realities they are taken to stand for, differing by geographic location, ages, and gender [36]

PTSD Denial

PTSD care is costly. The governmental cost estimate for PTSD treatment is somewhere between $4100 and $8300 per patient per year. PTSD care consumes 60% of the VA health budget [6]. A common way to address the expense and care burden of PTSD has been to try to find a way to make it go away, as with the elimination of diagnostic categories. This approach, successfully utilized in Vietnam to improve initial statistics, did not eliminate the symptoms and the personal and/or the social effects of trauma and, in the end, did not make PTSD go away. The actual results of diagnostic suppression beyond the limiting access to needed care and support for those affected were eventually higher levels of PTSD as well as severe and persistent effects on both affected individuals and society.

PTSD is a psychiatric disorder, and as such, there is no objective blood test or brain scan that can be used for diagnosis. The DSM criteria are subjective, based on provider reporting and evaluation of patient suffering. This has contributed to the perspective of PTSD as a "pseudo condition," a societal rather than an individual diagnosis, a disorder of psychic disenchantment in which those affected choose to present themselves as medicalized victims rather than as feisty survivors [33].

Malingering

Feigning illness or malingering is an ancient human tendency. It is documented in our oldest texts [3] in which David, the future king of Israel, feigns insanity to avoid a king's wrath. Soldiers and sailors who pretended to be sick or insane to shirk duty were classified as "malingers." Since today, in Western societies, some receive compensation for psychic discomfort in the context of the diagnosis of PTSD; it has become fashionable to assert that a high percentage of the individuals applying for disability based on PTSD are malingering [20]. There are some estimates from the US military suggesting that malingering is part of the presentation for 20% of combat veterans seeking PTSD compensation. Internet access to medical and psychological diagnostic information gives those who would wish to take advantage of system resources the ability to fool some testing and observational diagnostic methods [31]. The American Board of Neuropsychology has published work suggesting that malingering and symptom exaggeration affect up to 30% of all case disability evaluations [21]. Malingering, like PTSD, is not diagnosed using an objective blood or scanning test. The diagnosis is confirmed by clinical impression. Without an actual admission by the patient, the detection of malingering becomes a probabilistic judgment by the clinician. Clinicians who believe that PTSD is a form of malingering are those most likely to make such an assessment. Malingering turns out to be more closely tied to the process of disability assessment rather than to any particular diagnosis. For the vast majority of those affected with PTSD who are outside the arena of disability, potential diagnostic benefits, and reimbursement, there is little to suggest that they are more prone to malingering for any other subjectively defined diagnosis. It is unclear as to the actual percentage of claimants for PTSD-based disability who are malingering.

Shaming

Many victims of trauma will suppress the humiliation, embarrassment, and memory of their experience. This is, in part, why less than 28% of major sexual assaults are reported to the police [27]. Public exposure to criticism (shaming) has a long history of being used to modify the behavior of others. In the Iliad (approx. 400 BCE) both Helen and Achilles were shamed into reentering a battle that they would have otherwise deserted ([16] Homer 400 BCE). In its most pernicious form, shaming can be used by superior officers to induce others to risk themselves in attempting behaviors that they are too afraid to do. As far back as the American Civil War, shaming was used to "treat" mental trauma, inducing traumatized soldiers into returning to combat. This approach persists. As an example, Donald Trump at a 2018 Retired American Warriors event pointed out to attending veterans, "When you talk about the mental health problems, when people come back from war and combat, and they see things that maybe a lot of the folks in this room have seen many times over; you're strong and you can handle it — but a lot of people can't handle it" [34].

PTSD Cures

Others arguments used to denigrate individuals with PTSD include the assertion that the diagnosis is not valid because memories of trauma are suspect, that verbal reports are unreliable, that PTSD is primarily a litigious European-American syndrome, and that the diagnosis of PTSD needlessly makes a pathology of what can be considered a normal reaction to abusive violence [13]. Today, most medical and psychiatric practitioners accept the diagnosis. One approach utilized in the attempt to reduce care and cost has been to emphasize "cures." Short-term studies (less than 1 year) indicate that some treatment modalities (specifically prolonged exposure, imagery rehearsal, and EMDR, combined with medication and the treatment of apnea) can significantly reduce symptoms in up to 80% of PTSD patients [22]. Unfortunately, none of these approaches have been studied over the long term. PTSD is a diagnosis noted for its persistence, increased morbidity and mortality over time, and negative effects on functioning even unto extreme old age.

Clinical Approaches to PTSD

Even when treatment is provided short term and limited to the PTSD patients who actually ask for treatment, there are not nearly enough psychiatrists and psychologists available to treat those affected [14]. In the United States, active duty military and VA medical establishments have been overwhelmed. Currently, attempts are underway to shift as much as possible of PTSD diagnosis and therapy to Internet and mail-based interactions [19]. Outside the military, access to care is even more limited. Most traumatized individuals receive their medical care in emergency rooms and primary care clinics, often from providers with limited awareness of the diagnosis. Many of those who assist PTSD patients through episodes of medical and

psychiatric decompensation have limited understanding of the diagnosis, the potential for further dysfunction, and the spectrum of locally available treatment. Those providing care can be frustrated by their patient's intransigence to therapies that according to their handbooks and protocols should be curative, and by lack of institutional and social support. The objective of this book is to help provide a better understanding of PTSD theory and diagnosis and to provide evidence-based help for the provider in selecting individually appropriate care from the wide spectrum of available treatments. While treatment can be difficult, many approaches to addressing PTSD actually work and make significant differences in what are often heroic experiences of life.

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Unzipping PTSD: Criteria and Screeners

2

[Zac Recruit's story]

When I arrived in Iraq, I was assigned to work in a civilian burn clinic, where they had no anesthetics and few supplies. Another medic pointed to my ears, "Where are your earbuds?" he asked, and then shrugged. I walk into a steel shipping container that's been turned into a medical clinic. Everything is very quiet. There's a beautiful little girl standing there. I look around at the room and when I look back, she's sitting on a medic-litter set on steel stands. I can smell her burnt flesh. I take off her dressings and began to scrub and she begins to scream. She changes from being an unknown little girl to being my daughter (In my nightmares I see her as my daughter but know that she's not.) I keep working on her. I'm so horrible. I keep scrubbing and scrubbing and wake to the sounds of screaming. I'm sweating, alert – awake but not awake – not where I'm at. Not awake and never really asleep. The nightmares are vivid and real, what's really happening. It's waking up that is a dream. These days I wear earbuds, and try to avoid traumas at the clinic, but I'm a medic. They tell me that I do a good job. When I have to work, I get someone else to keep notes. I'm away. When I hear my child cry, when I tell you my story, I'm not at all sure that I'm really here.

Diagnostic Criteria

Diagnostic criteria can be used as list-making shortcuts, medical algorithms, and even approaches to reducing medical diagnosis to something within the capacity of computer systems. Diagnostic criteria exert exceptional power over both practitioners and patients. In the case of PTSD, criteria present the therapist with a tool that can be used to objectify a subjectively reported response to an experience of horrendous, often irreconcilable trauma. Yet diagnostic criteria can also be used to control and limit care – as during the Vietnam War. PTSD criteria have gone through extensive changes since their first description in 1972. Symptom specifications have tightened. Other parts of the algorithm have loosened, such as the addition of victims of "false memory" therapy as a form of experienced trauma. The primary criteria for PTSD diagnosis now include (1) an experience of major trauma, (2) a description of significant secondary functional impairment, (3) specific symptoms in four different categories, and (4) the exclusion of individuals whose symptoms

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• History of exposure to major trauma
• Symptoms for more than 1 month
• Significant functional impairment
• Symptom clusters (aspects of all required for diagnosis) ○ Intrusive symptoms (1) ○ Avoidance symptoms (1) ○ Negative alterations in cognition and mood (2) ○ Alterations in arousal and reactivity (2)
• Not secondary to medication, substance abuse, or other medical illnesses

Fig. 2.1 Overview of DSM-V PTSD diagnostic criteria

are secondary to other diagnoses. While this tightening of criteria has better circumscribed the diagnosis, ongoing changes have made it difficult to determine whether incidence, lifetime persistence, and treatment outcomes have changed since PTSD's initial description. The current DSM-V diagnostic criteria are summarized in Fig. 2.1 [1].

The Experience of Trauma

No one can develop PTSD without exposure to trauma. But in the United States, significant traumas are extraordinarily common (82.8% of individuals describe significant trauma as part of their life experience) [4]. As required in making the diagnosis of PTSD, trauma is defined as a catastrophic event in which individuals were exposed to situations in which they witnessed or were personally threatened with death, physical harm, or sexual violence [1] (Fig. 2.2). Studies using these defined criteria indicate that in the United States, the lifetime risk of experiencing a major traumatic stressor is 60.7% for men and 51.2% for women [21]. In the vignette presented at the beginning of this chapter, trauma is both witnessed and direct (an experience of causing a young child excruciating pain). In most cases, the experience of trauma is direct, however, symptomatic PTSD also develops in those who witness traumatic events [6]. In some cases, that experience can be at a distance among those who witness the event electronically, with examples including the World Trade Center attack and drone plots inflicting damage from great distance [9]. PTSD is more likely to occur when the trauma affects a close relative or friend. PTSD can also be induced by therapy. Some individuals, especially those with dissociative symptoms, or repressive coping styles, have a tendency to forget negative and trauma-related experiences [7]. Some therapists have approached individuals with symptoms associated with PTSD, such as frequent and recurrent nightmares, with the supposition that their nightmares must have their origin in a suppressed experience of childhood sexual trauma. Therapists have convinced patients that they must have experienced such trauma even when such experiences cannot be

- The direct experience of a traumatic event
  - PTSD develops in approximately 25% of individuals directly experiencing significant trauma
  - The rate of PTSD occurrence increases as based on the severity of the experienced trauma

- The experience of trauma can also be:
  - Actually or remotely witnessing a traumatic event [drone pilots]
  - Learning of a traumatic event in a close relative or friend
  - Repeated exposure to the aversive details of a traumatic event [false memory syndrome]

Fig. 2.2 DSM-V trauma criteria

documented and very possibly never occurred. Patients with such induced "false memory syndrome" can demonstrate the full spectrum of PTSD symptoms, leaving their families and support systems in serious disarray [3]. The DSM-V criteria for PTSD-associated traumatic experience are summarized in Fig. 2.2 [1]. Trauma exposure is common, and as noted few clinical resources may be available, so that trauma is often evaluated using checklists. The instruments used most often include the Life Events Checklist [2] and the Traumatic Life Events Questionnaire [13]. A limited trauma assessment is included as part of the PC-PTSD-5 checklist – a general population screen available in the public domain [18] (included at the end of this chapter as part of Fig. 2.7).

Symptom Clusters

The symptoms that affect individuals suffering from PTSD are divided into clusters: categories of (1) intrusion, (2) avoidance, (3) negative mood, and (4) alterations in arousal and reactivity. In order to meet full criteria for the diagnosis of PTSD, an individual is required to have at least one symptom of intrusion, one of avoidance, at least two symptoms of negative mood, and altered arousal and reactivity. These symptoms must be present for more than 1 month (earlier manuals required 6 months). Children less than 6 years of age are more likely to express PTSD symptoms though behavior rather than speech. In preschool children, PTSD diagnosis requires only one symptom from each cluster, except in the category of altered arousal and reactivity where two are still required [1].

Intrusion (Fig. 2.3)

Zac Recruit re-experiences his trauma as recurrent nightmares, when he works as a medic, and when his child cries (quote at the start of this chapter). Recurrent, distressing nightmares are the most common of PTSD symptoms [14]. For half of PTSD patients, nightmare content is a re-experience of their trauma. Others will

• Recurrent, involuntary, and intrusive distressing thoughts and memories
• Recurrent distressing dreams (nightmares) in which content is related to the traumatic event [most commonly reported symptom in individuals with PTSD]
• Flashbacks (dissociative reactions) in which the individual feels or acts as if the traumatic event were recurring
• Intense psychological distress after exposure to internal or external cues that remind the individual of the trauma
• Marked physiological reactions to cues that symbolize or resemble an aspect of the trauma

Fig. 2.3 Intrusive symptoms [DSM-V]

• Avoidance of distressing trauma associated memories, thoughts, or feelings
• Avoidance of external trauma reminders that arouse such distress

Fig. 2.4 Avoidance criteria [DSM-V]

incorporate their trauma experience into dream metaphors and representations. Some will have repetitive bad dreams without content clearly reflecting their traumatic experience. Flashbacks are dissociative reactions – intrusive symptoms in which the individual feels as if traumatic events are recurring [12]. For some these intrusive symptoms have personal value and become habitual, allowing the individual repeated contact with the intense experience and lost friends of trauma. Zac dissociates during flashbacks, losing awareness of his present experience and his surroundings.

When dissociative symptoms are severe, the clinical course and response to treatment can differ. Individuals in the dissociative subtype of PTSD experience episodes of derealization during which the exterior world seems strange and unreal. Feelings of depersonalization can occur in which one feels as if one is an outside observer of one's mental and physical processes [1]. As based on his loss of awareness when working with new trauma, and the experience of waking as something more like a dream, Zac meets criteria for this dissociative category.

Avoidance (Fig. 2.4)

Avoidance is the rational component, the survival function, that comes with nightmares. Most humans have nightmares at least once a month [15]. Nightmares can be horrible and distressing and seem very real. In theory, they may be an attempt by our psyche to teach us to avoid waking traps and traumas by preparing for those events in the safety of sleep [20]. But in today's world, as in the case of Zac Recruit, our

• Inability to recall an important aspect of the traumatic event
• Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world
• Persistent distorted thoughts about the cause and consequences of the trauma that lead the individuals to blame himself/herself or others
• Persistent negative emotional state
• Marked diminished interest or participation in significant activities
• Feeling of detachment or estrangement from others
• Persistent inability to experience positive emotions

Fig. 2.5 Negative cognition and mood [DSM-V] 2 + required

good medic, there is little that the repeated nightmare can help in avoiding trauma either behaviorally or in thought and memory.

Negative Cognition and Mood (Two Required)

Memory impairment and dissociative amnesia affecting the recall of important aspects of the event are a characteristic aspect of the experience of irreconcilable trauma that induces PTSD (Fig. 2.5). Zac persists in a belief that he has been horrible to the child he is treating (torturing), even when his work had aspects of heroism, part of a required component of burn therapy. Faced with the intensity and horror of his experience, he withdraws from contact, becoming detached and estranged not only from his work as a medic but also from much else of the experience that is his life. Such negative cognition and mood is often part of the experience of PTSD and is a major rationale in using antidepressants in treatment.

Reactivity and Altered Arousal (Two Required)

Many of the symptoms of PTSD are secondary to the associated psychophysiological hyperarousal. Hyperarousal is so characteristic of PTSD that for years the psychological response to trauma was classified under anxiety disorders. Insomnia and sleep disturbance, independent of the experience of nightmares, are among the most common of arousal symptoms. Hyperarousal is experienced during waking in exaggerated startle responses and problems with concentration often associated with angry outbursts and irritability. Irritability and anger can be expressed in reckless and self-destructive behaviors negatively affecting both the individual and others in the society (Fig. 2.6). Zac complains of insomnia, difficulty focusing, and panicked hyperarousal after awakening from his intrusive nightmares. Symptoms of hyperarousal have led many practitioners to use hypnotic and antianxiety medications in treating PTSD.

• Irritable behavior and angry outbursts
• Reckless or self-destructive behavior
• Hypervigilance
• Exaggerated startle response
• Problems with concentration
• Sleep disturbance (difficulty falling or staying asleep or restless sleep)

Fig. 2.6 Arousal and reactivity criteria [DSM-V] 2 + Required

Functional Impairment

In order to meet full diagnostic criteria, PTSD must also produce levels of impairment and distress negatively affecting the individual's ability to function in society. Medical disorders are generally defined by objective markers. Quantifiable functional impairment is the psychiatric equivalent used to define the presence or absence of a psychiatric disorder. Like Zac who needs a little help from his friends to keep records of his performance when he is working as a medic, there are many, even those with severe symptoms of PTSD, who can function at high levels in society. Unfortunately for most, PTSD is a chronic, lifelong experience. Many individuals will continue to have symptoms of PTSD throughout their lives. Decompensation in function is most likely to occur during the periods of stress, grief, and disappointment that characterize the human experience. At some point with time and support, and if the individual responds to medication and therapy, functioning can return to normal, often despite the persistence of at least some PTSD-associated symptoms. Such individuals are considered "cures."

Comorbid Illness and Substance Abuse

The final major DSM-V criterion that must be met in the diagnosis of PTSD is a sometimes difficult exception – that the symptoms and psychological disturbance must not be attributable to the physiological effects of a substance (e.g. medication, alcohol or drug of abuse) or other medical conditions. Subtextually, this criterion does not exclude an individual who has another psychiatric diagnosis from also being diagnosed with PTSD. This is an important consideration since some studies suggest that more than 80% of PTSD patients meet criteria for another psychiatric diagnosis [5]. This is in part due to overlapping diagnostic criteria since any individual meeting the DSM-V criteria for PTSD has already met criteria required to qualify for another psychiatric diagnosis such as mood disorder/depression, anxiety, panic disorder, or chronic insomnia.

While head injuries have always been a significant aspect of warfare; artillery, weaponized aircraft, and improvised explosive devices (IEDs) induce extremely high rates of post-concussive traumatic brain injury (TBI). TBI has become one of the most common physical injuries affecting soldiers and war zone civilians. Outside the military, TBI is among the most common diagnoses inducing emergency room visits and trauma-associated hospitalizations [8]. PTSD often presents concomitantly in individuals diagnosed with TBI. It can be difficult to differentiate one from the other. Both diagnoses can induce problems with memory, concentration, irritability, insomnia, and other behavioral changes [19]. While brain imaging studies are more likely to be abnormal in individuals with TBI, currently it is sometimes impossible to differentiate between the diagnoses.

Substance abuse is extremely common among individuals with PTSD. An NIH epidemiologic study found that 46.4% of PTSD patients meet criteria for substance use disorder (SUD), while 22.3% also meet criteria for the diagnosis of substance dependence disorder [16]. The agents of abuse are most often ethanol, cannabis, and/or opiates used to treat chronic pain. While some studies suggest that PTSD is more common among those who abuse these agents before trauma, in most cases substance abuse develops as an approach to self-treatment. PTSD patients who also have SUD can be more difficult to treat. Currently, it is unclear as to whether treatment approaches that address SUD are more likely to produce positive outcomes for individuals with the diagnosis of PTSD [10].

The Politics of Exclusion

Exclusionary criteria were used during the Vietnam War to bias data and avoid providing care to victims of trauma. Today, recommended approaches to PTSD care are based on meta-analytic surveys – reviews of multiple smaller studies addressing diagnosis and treatment. Authors of meta-analytic studies use exclusionary criteria to reject the data from a majority of the smaller clinical studies used to produce actual data. Commonly cited reasons for exclusion of clinical PTSD studies are (1) patients with comorbid SUD (45–50% of PTSD patients), (2) individuals with mild TBI (>50% war zone casualties), and (3) patients using psychotropic medications and/or drugs of abuse (up to 80%). Yet meta-analytic studies are those most likely to be used to justify general recommendations for diagnosis, treatment, funding, and support. The large majority of typical PTSD patients are excluded from PTSD clinical trials and neurophysiological and scanning studies. Fortunately for researchers, and unfortunately for those affected, PTSD is a chronic disorder. Over time without recurrent injury, the symptoms of concussion-based TBI tend to improve. The symptoms of PTSD persist as traumatized patients recover from other sequelae of trauma. Drugs of abuse and many prescribed psychotropic medications have significant side effects as well as limited efficacy. PTSD patients become habituated and less responsive, eventually becoming drug-free and available for inclusion in the studies used to characterize the diagnosis and develop appropriate approaches to treatment.

Sometimes things happen to people that are unusually or especially frightening, horrible, or traumatic. For example:

- A serious accident or fire
- A physical or sexual assault or abuse
- An earthquake or flood
- A war
- Seeing someone be killed or seriously injured
- Having a loved one die through homicide or suicide.

Have you ever experienced this kind of event?
YES/NO
If no, screen total=0. Please stop here.
If yes, please answer the questions below.

In the past month, have you...

1. Had nightmares about the event(s) or thought about the event(s) when you did not want to?
   YES/NO
2. Tried hard not to think about the event(s) or went out of your way to avoid situations that reminded you of the event(s)?
   YES/NO
3. Been constantly on guard, watchful, or easily startled?
   YES/NO
4. Felt numb or detached from people, activities, or your surroundings?
   YES/NO
5. Felt guilty or unable to stop blaming yourself or others for the event(s) or any problems the event(s) may have caused?
   YES/NO

"Yes" to any three of five questions about how the traumatic event(s) have affected them over the past month) is optimally sensitive to probable PTSD. Optimizing sensitivity minimizes false negative screen results. Using a cut -point of 4 is considered optimally efficient.

Fig. 2.7 PC-PTSD-5 screening test for PTSD

PTSD Screening Tests

The diagnosis of PTSD is not easy. A huge number of individuals are affected and the majority of the individuals experiencing major trauma have not been evaluated or diagnosed. For the medical professional and therapist, the commonly utilized structured interviews for PTSD are complex and require time, effort, and extensive training in their administration [11]. Many practitioners will screen for PTSD using simple screening questionnaires for both initial evaluation and routine follow-up. The PC-PTSD is the most commonly used questionnaire in the primary care setting. It screens for trauma and includes five questions addressing the most commonly reported PTSD symptoms from the four different categories. This instrument has achieved an 80% accuracy in diagnostic clinical trials [17]. An updated version of the screen (Fig. 2.7) is available from the National Center for PTSD ([18]; www. ptsd.va.gov).

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Disasters and Societal Trauma: Complex and Societal PTSD

3

I am standing in a circle of friends outside a movie theater on a dark, wet night – just talking story. A black car drives up and a man steps out wearing a black raincoat. He pulls out an automatic weapon and spins firing into my friends. He begins at the side of the circle away from me. I see my friends die, one by one, blown to bits by the gun. He spins towards me firing his weapon. I am rooted to the spot, my friends dying, and I cannot move. Sometimes when I have this dream, I feel the bullets

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cutting into me. Other times, I wake before it happens in a cold sweat. (Nightmare Post-Hurricane Iniki – Kauai, 9/11/92; [25])

Natural Disasters

Since the 1960s natural disasters have occurred with increasing frequency [14]. Many of these events are not fully natural, since they are in part due to increased population, resource depletion, and the unstable weather associated with the planet's warming. Many other major disasters are clearly secondary to human behavior including war, industrial catastrophes, failed states, ethnic cleansing, disease, depletion of natural resources, and terrorism. Even if living in a "safe" location, during a practitioner's career of practice, he or she is likely to experience at least one of these events of widespread societal trauma.

For the author of this text, that disaster was Hurricane Iniki. It came ashore on Kauai on September 11, 1992 with winds in excess of 200 mph, destroying and damaging every house on the island [24]. The author had just moved away from a medical practice on the island's West Side. He arrived 3 days after the storm to take over shifts from his exhausted cohorts who had been living in the emergency room of the local hospital. Such a disaster not only kills; it destroys places, uproots friends and family, and replaces beauty with twisted metal and long lines for water and food. This was an event of trauma and stress, forcing everyone affected to respond both physically and mentally. There were some who died during the event, but many more, medically unstable before the disaster, succumbed in its aftermath to chronic illnesses that had previously been controlled (Fig. 3.1 [E]). Almost everyone went through grief and loss and a period of mental distress after the event. After weeks

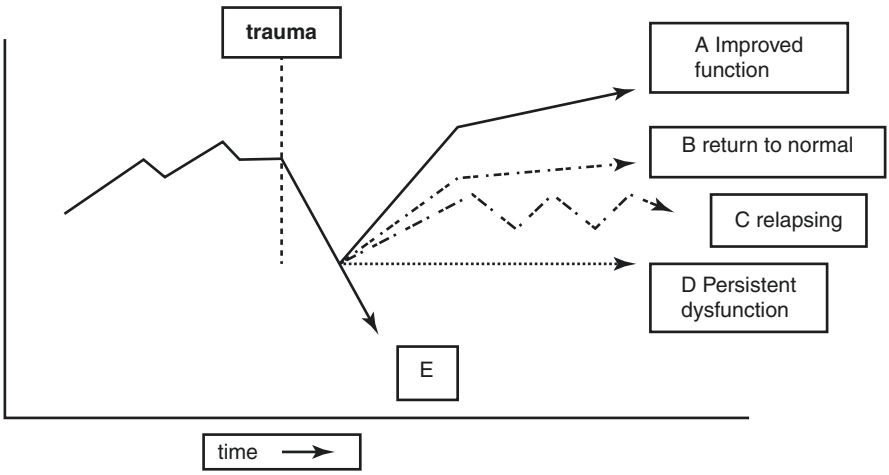

Fig. 3.1 Function and quality of life effects induced by major physical and psychological traumas and potential outcomes [26]

and months, as conditions improved, and normal life resumed, most resumed their previous levels of functioning (B). Some, however, were faced with the long-term loss of homes, employment, and support. Some exhibited recurrent nightmares, insomnia, and depression. Some divorced, developed substance abuse, and wandered away. Some became chronically homeless. Some would eventually meet the criteria for PTSD (Chap. 2). Of these, some would eventually recover. But even after recovery, when confronted with negative stressors, many would relapse into repeated bouts of dysfunction [C] [24–26].

Acute Stress Disorder: Grief

Any experience of significant trauma alters everyone in its path. Almost everyone (>70% worldwide) will at some point experience a significant level of trauma [4]. Through the process of grief, most eventually return to normal levels of functioning, but the experience of that trauma never goes away. Grief can be viewed as a process with stages of denial, anger, depression, bargaining, and eventually acceptance, processes that can persist and occur out of order [19]. Prior to the advent of the DSM-V, in the 6 months after trauma during the process of grief, an affected individual could report significant psychiatric symptoms without another psychiatric diagnosis being applied. Currently, however, Western psychiatry is making a strong attempt to circumscribe the experience of grief. Now as based on new criteria, acute stress disorder (ASD), the modern diagnostic term describing grief, can only be applied from 3 to 30 days after the experience of trauma or loss. One month after trauma, therapists and practitioners are asked to make psychiatric diagnoses including mood disorders, psychoses, anxiety disorders, etc. if any psychological symptoms persist after the experience. During this period formerly classified as "grief," many individuals will begin therapy or be started on medication, despite the lack of evidence that medication or therapy used acutely in the period after trauma has any significant effect on an individual's tendency to develop PTSD or another psychiatric disorder [13]. With or without therapeutic intervention, the vast majority of individuals embroiled in the experience of grieving will return to their normal level of functioning within 6 months of their experience of trauma and/or loss. A great question has been why some individuals after a period of grieving recover from their trauma and why others do not.

Risk Factors for Developing PTSD

The Woodworth Personal Data Sheet was developed during World War I in the attempt to assess the personality profile of individuals prone to developing shell shock [9]. Multiple such tests have been developed through the years and applied in the evaluation of soldiers. Few have been validated, or proven useful in demonstrating that personality factors actually affect an individual's propensity to develop PTSD. Multiple studies do indicate, however, that certain groups are more likely to

develop PTSD after major experiences of trauma. Adolescents and young adults are more likely to develop PTSD than are young children and the more mature. PTSD occurs at higher levels among women, those of lower socioeconomic class, those who live in rural areas, those with lower percentile scores on intelligence testing, and among those who have family members with the diagnosis (Ford et al. 2015).

The most powerful factor affecting whether an individual might develop PTSD is the magnitude of the experienced trauma [5]. After a single exposure to a powerful traumatic stressor, approximately 25 percent of individuals will go on to develop PTSD. The possibility that an individual will develop PTSD is also affected by the nature of the trauma. Sexual violence, the involvement of a human perpetrator, betrayal by a person of trust, and involvement in an atrocity as a victim, perpetrator, or witness are all characteristics of an experienced trauma that increase the likelihood for developing PTSD. The experience of stressful events that would be considered psychologically traumatic for almost anyone (a level of trauma outside the range of usual human experience) produces a much higher incidence of PTSD (67–75%) (Ford et al. 2015, p. 44). PTSD is most likely to develop when a traumatized individual has been isolated and coerced and when the experience is repeated over time. Repeated and prolonged experiences of trauma such as captivity, coercion, torture, and forms of profound humiliation and violation are sometimes described as "complex" traumas [15]. After experiences of extreme levels of trauma, e.g., survivors of Nazi death camps, at least 1/2 of those so affected will have symptoms of PTSD [18].

A lack of social support is the second of primary risk factors for developing PTSD. After major experiences of trauma, social support can protect an individual from extending an experience of grief into the diagnosis of PTSD [31]. And while little can be done to ameliorate the severity of experienced trauma, social support can be affected by outside input. The best support provides actual assistance and embeds that help into a web of loving, caring, and readily available social relationships [17]. The loss of social, family, and economic function is a primary diagnostic criterion for all psychiatric disease [2]. While there are a series of studies indicating that having a previous psychiatric diagnosis, particularly depression and substance abuse, increases an individual's risk for developing PTSD, socioeconomic variables overwhelm the effects of personality and psychiatric variables [13]. There is, however, one psychiatric diagnosis that definitively predisposes an individual to having a much higher risk for developing PTSD – that is, a previous experience of major trauma that has already led to the diagnosis of PTSD.

Complex PTSD

Repetitive complex episodes of trauma can produce what has been classified by the World Health Organization (WHO) as complex PTSD (C-PTSD). Complex PTSD can develop after an experience of irreconcilable trauma that is recurrent over time – a process sometimes referred to as polyvictimization. Polyvictimization affects up to 25 percent of individuals diagnosed with PTSD. It is particularly common among adolescents [10]. Individuals with C-PTSD meet the full DSM-V

criteria for PTSD, but also exhibit other persistent symptoms. These include disturbances in affect, in attitudes toward self, and in interpersonal relationships [21]. Individuals with C-PTSD can demonstrate impulsivity, dissociation, rapid and unpredictable changes in mood, and interpersonal difficulties and are more likely to express their emotional distress with physical symptoms. Some have severe symptoms of identity dissociation and may, in some cases, exhibit multiple personalities [13]. C-PTSD symptoms can include a pattern of prolonged feelings of terror, worthlessness, helplessness, and deformation of one's identity and sense of self so that symptoms have similarities with the DSM-V dissociative subtype of PTSD (Chap. 2). Persistently victimized individuals tend to live in families where violence is common, have histories of childhood maltreatment, as well as have family members who are unemployed or are abusers of alcohol and drugs. The four major risk factors for polyvictimization are (1) residing in a dangerous community; (2) living in a dangerous family; (3) living in a chaotic, multiproblem family environment; and (4) having emotional problems that lead to risky behaviors and foster antagonism [11].

Complex PTSD can produce a spectrum of distressing symptoms. Sometimes those affected meet diagnostic criteria for a spectrum of other psychiatric diagnoses including insomnia, dysthymia, and mood disorders such as depression. Since many of those affected are anxious and irritable, with symptoms of unrealistic worry, apprehension, and stress-associated physical symptoms, they meet criteria for generalized anxiety disorder. Many have phobias, particularly social anxiety, and agoraphobia, associated with their generalized hyperarousal. Some respond to re-experience triggers with episodes of panic that include intense anxiety and physical symptoms such as palpitations, shortness of breath, dizziness, sweating, and a sense of impending death. Many C-PTSD patients also meet criteria for substance abuse disorder [2]. A panel of the WHO has suggested that complex PTSD might be better classified as an entirely new disorder called "enduring personality change after a catastrophic experience" (EPCACE). EPCACE is described as a chronic syndrome (>2 years) manifested by a hostile and distrustful attitude toward the world, social withdrawal, feelings of emptiness and hopelessness, a chronic feeling of being constantly threatened, and estrangement from family and friends that involves emotional numbing [32].

Theoretically, complex PTSD develops in those individuals in which the severity of traumatic experience has induced a change in the core self-altering their psychobiological and socioemotional development [12]. Viewed as a developmental disorder, C-PTSD has particularly negative effects on children who can lose their ability to control their feelings, and their actions, their ability to achieve a sense of self-integrity, as well as their ability to experience nurturing relationships. Many have a sense of damaged self and the perception of negative self-worth [8]. This pattern of symptoms has led some psychiatrists to make a diagnosis of borderline personality disorder among those so affected (Ford et al. 2015, p. 23). During the first Gulf War, the diagnosis of borderline personality disorder (2.6% of total discharges) was made and used to dishonorably discharge soldiers affected by traumatic experiences. Since personality disorders are presumed to be integral to an individual's

personality and pre-date their deployment, this approach allowed the government to avoid providing veteran-associated care. After negative publicity, since 2008 while the diagnosis persists in the military, incidence has declined by 31% [20].

Clinically, there are suggestions that C-PTSD may require a different approach to treatment than other forms of PTSD. Treatment is invariably a long-term proposition with treatment of SUD generally required as part of therapy. C-PTSD is most common in societies with high rates of trauma and PTSD in which support systems are overwhelmed and less readily available. The families are often in disarray, and many of those affected become homeless.

The Social Context for PTSD

History suggests that humanity is an extraordinarily violent species. There have been periods in which almost all of society has shared experiences of violence and repetitive trauma. These periods include the violent eras of prehistory, the dark ages with their famines and epidemic disease, as well as our modern era of recurrent and persistent wars, political upheaval, failed states, and mass emigration. During these periods, for major segments of society, PTSD as a diagnosis extends beyond the individual diagnosis to describe the context in which the society attempts to function [29]. Trauma-related mental dysfunction may affect a majority of the members of the society. Today in our more modern and "civilized" world, for the specific populations of war zones, refugee camps, Native American reservations, and failed states, the rate of PTSD may exceed 80 percent [1]. Even for protected Western societies, the overall rate of PTSD is quite high (a prevalence rate in the range of 10%). Rates are much higher among subpopulation groups that are the most likely to experience trauma. These groups include first responders, police, firemen, and prison guards, professions that also include many previously traumatized war veterans. Among the homeless, on some Native American reservations, in institutionalized refugee camps, and among prison populations, a majority of members of the society will meet criteria for the diagnosis of PTSD. In these societies trauma is often recurrent, and PTSD is often complex in nature.

In such societies PTSD can be persistent and difficult to treat. The associated functional impairments are highly prevalent, and there are high rates of alcohol and drug abuse, family dysfunction, depression, risk-taking behaviors, violence, and suicide. As PTSD reflects the level of major trauma experienced in the society, the prevalence of these impairments reflects the rate of PTSD (Table 3.1). PTSD becomes multigenerational. A cycle of trauma and PTSD develops, with the psychological burden of trauma assumed by the ensuing generation [28]. In these situations the societal structures meant to be of assistance can be overwhelmed by the number of individuals affected. Mental health facilities, if still in existence, are unable to address the influx of patients, and any treatment that might help affected individuals becomes increasingly difficult to convey. In war zones and failed states, psychological support at any level is rare. In societies affected by extreme levels of trauma, data is rarely available. This is a consistent problem among studies of PTSD outside the context of the organized military.

Table 3.1 The social context for PTSD (social PTSD)

Social structure	PTSD rate (mean)	Examples	Mental health services	Social outcome measures	Economic costs
Safe	5%	Scandinavia	Generally available		
Troubled	10%	United States	Selectively available	>10%: SUD, family breakdown, >5% homelessness, institutionalization,	>10% of health-care budget
Stressed	20%	US military veterans, disaster zones	<50% utilization	>20%: SUD, family breakdown, >10% homelessness, institutionalization, >3% Suicide	>20% of health-care budget
Failed	35%	Reservations, refugee camps, at-risk adolescents	Generally unavailable	>35%: SUD, family breakdown, >20% homelessness, institutionalization, suicide	
Post-catastrophe	> 50%	War zones Failed states	Nonexistent	Societal dissolution	

In the United States, there is excellent data from the military describing the levels at which PTSD stresses and potentially overwhelms treatment services. Today, the reported rate of fully developed PTSD among soldiers returning from deployment is between 15% and 20% [6, 16]. The overall prevalence rate among all veterans may be as high as 30% [3, 30]. At this current level, PTSD care engenders the highest cost of any diagnosis in the Veterans Affairs budget [27]. Veterans currently experience substance abuse, family dysfunction, joblessness, violent crimes, incarceration, and homelessness at levels higher than in the general population [7, 22]. The US military is currently experiencing what has been called an "epidemic of suicide." Up to 3% of veterans now die of suicide compared to a comparative rate of 1.7% in the general population (VA 2016). A clear association exists between the diagnosis of PTSD and suicide, an association that persists for many years after the experience of trauma (Chap. 16). The above data suggests that a PTSD rate greater than 20% can be used as a marker for societal stress. Above this tipping point, social services and mental health care become increasingly stressed and more difficult to access as PTSD-associated dysfunctions affect a larger and larger percentage of individuals in the society. The society itself begins to slide into increasing levels of dysfunction.

Societies are generally considered and judged based on their relative economic status, the availability of food, housing and modern medical care, and the potential for upward mobility and unrestricted travel. But a society can also be viewed from the inside, through the lens of societal trauma, and the associated level of physical/mental impairment. During epidemics of war, famine, and disease, as a society unravels, it becomes more difficult to make such an assessment. There are fewer and fewer healthy individuals, records are no longer a priority, and there is a general

lack of available information. In such a precarious situation, members of the society may respond to the recurring trauma of their life experience with overstimulated numbness – a societal state of PTSD in which emotional affect including envy, irritation, paranoia, and boredom becomes the predominant societal attitude [23]. The diagnosis and treatment of mental disorders becomes increasingly difficult and often impossible. Those societies in which trauma is so pervasive and severe to induce more than a third of its members to meet criteria for PTSD are those that we generally consider to be failed states. Such societies lose the capacity to protect and provide safety for members (Table 3.1).

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The Origins of PTSD: Psychodynamic Trauma and the Human Stress Response

4

In our current era, most believe that body and mind are one and the same. Most therapists and most patients believe that psychiatric illnesses are secondary to an underlying, if undefined, biological dysfunction. But while widespread, this is a belief system based on limited scientific evidence. Just a few decades ago, most people believed that body and mind were separate. PTSD as a diagnosis is defined by the extremes of this Cartesian dilemma. On one hand there are psychologists and psychoanalysts who have developed psychodynamic theories for PTSD. Therapies for treating PTSD as a disorder of mind have been developed that work quite well based on those theories. From the opposite perspective, the perspective of the body, physiologists and physicians have studied the chemistry and neuroanatomy of the human stress response in the body in order to develop their own theories and working treatments for PTSD. PTSD can be viewed and treated as a disorder of the body, or it can be viewed and treated as a disorder of mind. From the differing perspectives, the disorder that is PTSD is not at all the same.

Cartesian dichotomy offends many neuroscientists, who tend to be monists, entranced by the possibility that with new technology they might finally produce proof as to the unity of body and mind. These neuroscientists have repeatedly produced theories of neuroconsciousess postulating that body and mind are one and the same. The crux of their argument, among the primary proofs that mind = brain, has been their pervasive and widely held belief that the brain state of rapid eye movement (REM) sleep, a physiological state that can be identified and monitored in the laboratory, is equivalent to the sleep consciousness that we call dreaming. The belief that REM sleep = dreaming has become a pervasive building block and part of the basic theoretical context included in many biology and psychology texts. There is, however, almost no evidence that it is true. Overwhelming evidence indicates that REM sleep can occur without reported dreaming and that dreaming occurs in all stages of sleep, not just REM sleep. Unfortunately for the proponents of these major theories, the brain state of REM sleep is not equivalent to dreaming. There is a lack of clear evidence supporting the apparently self-evident construct that brain functioning (what we call mind) is based on biologic brain activity.

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The diagnosis of PTSD is embroiled within the midst of this argument. REM sleep is altered in individuals with PTSD. These alterations include the tendency for PTSD-diagnosed patients to enter REM sleep directly after falling asleep, something characteristic of individuals with narcolepsy and depression and exceedingly rare in others, as well as the dissociation of their nightmares from REM sleep (in individuals without PTSD, nightmares are almost always a REM sleep phenomena). These REM sleep alterations, present in some but not all patients with PTSD, are the closest thing to a biological marker that exists for the diagnosis of PTSD. The changes in REM sleep associated with PTSD have been used by both sides of the Cartesian divide as evidence for their perspective. But REM sleep has proven itself to be among the most insecure of foundations on which to build a theory. While dreams are often reported from REM sleep, they are also commonly reported from other sleep stages. The association of dreaming with REM sleep is quite loose, except for the negative dreams (nightmares) that are almost always restricted to REM sleep. In PTSD, even that association is lost.

The purveyors of mind = brain have yet to produce a unified theory to logically explain or diagnose PTSD, or a working treatment modality that combines biological and psychological approaches. Theoretical constructs of the biological human stress response can be used to design medications that successfully treat PTSD (brain). Psychodynamic and behavioral constructs (mind) have been used to design a variety of successful treatments with both psychotropic medications and psychological therapies that have excellent efficacy in treating PTSD. An extant PTSD literature, theory, and approach to treatment exist that are based on the human biological response to stress. An even larger corpus of literature, theories, and treatments are based on the psychodynamics of trauma. At this point in time, there is little evidence to support the seemingly logical belief that PTSD, a disorder of mind, results from an identifiable abnormality induced by trauma in the brain. In order to avoid confusion, misunderstanding, and conflation of diagnoses and therapies, the clinician involved in the treatment of PTSD must be able to understand each perspective independently. A majority of evidence indicates that PTSD is a disorder of mind, yet there is also good evidence that PTSD is also a biological dysfunction in the human response to stress.

The Mind of PTSD

Many of Freud's proposed postulates of mental dynamics have fallen into disrepute and/or disuse, but his perspectives of the effects of trauma on mental functioning persist as the basis for modern psychiatric theories as to the origin of PTSD. Symptoms of PTSD occur most often after traumas of indigestible intensity, traumas capable of breaking down normally effective cognitive defenses – what Freud referred to as our protective shields. As based on this psychodynamic theory, the symptoms of PTSD develop when our capacity to process negative experiences and emotions is overwhelmed:

> We describe as "traumatic" any excitations from outside which are powerful enough to break through the protective shield. It seems to me that the concept of trauma necessarily implies a connection of this kind with a breach in an otherwise efficacious barrier against stimuli. Such an event as an external trauma is bound to provoke a disturbance on a large scale in the functioning of an organism's energy and to set in motion every defensive measure…there is no longer any possibility of preventing the mental apparatus from being flooded with large amounts of stimulus.... [6]

It was Freud's belief that traumatic experiences were the origin for almost all psychiatric disorders. According to Freud, when a trauma overwhelms our capacity for adjustment and compensation, we develop symptoms of hyperarousal, insomnia, and the intrusion of the previous experience of trauma into our lives. Recurrent, distressing nightmares can be part of this process. Freud developed what he called "the talking cure" in which the putting of the event into words by the patient could sometimes result in a diminishment of symptoms [7].

After the discovery of REM sleep, concepts of Freudian psychodynamics were incorporated into theories of neuroconsciousness. REM sleep is present in even primitive mammals and controlled neuroanatomically in the brain stem. This "primitive" brain stem origin for REM sleep fit readily into Freudian concepts of dream formation in the bestial, yet childlike and primitive *id* – particularly those dreams that included apparently demonic content such as the nightmare. More recent brain scanning studies have demonstrated that many of the neuroanatomic areas involved in the processing of fear and negative emotions have increased activity during REM sleep [13]. This finding has lent support to theories proposing a function for REMS in emotional regulation [12]. It has been postulated that PTSD nightmares might be secondary to the failure of a system of fear memory extinction that functions during REMS dreaming. Trauma-related nightmares that persist over time and continue to generate distress could be a marker for the failure of this system [11]. Quoting Matthew Walker, "…one of the functions of REM sleep is to tell the brain to sift through the day's events, process the negative emotions attached to them, then strip it away from memories" [17]. Walker proposes that REM sleep somehow acts as a filter during sleep, able to strain out the negative emotions of waking life experience. This is a simplistically reductive version of a complex of neuroscience systems, but it does form a nice image.

Emotions are often defined as agitations or disturbances of the mind. Emotions consist externally of emotional expression and the internal conscious sensations that we refer to as feelings [4]. Major emotions include pleasure, pain, elation, euphoria, ecstasy, sadness, desire, hope, aversion, despondency, depression, fear, contentment, anxiety, surprise, anger, and hostility; mental experiences that affect and color all action and thought. The cognitive processing of emotions and feelings has at least four major characteristics:

1. Experiences and perceptions that acquire emotional significance can become "emotionally competent stimuli,"
2. Once a stimulus acquires emotional competence, autonomic and motor responses are triggered that extend throughout the body,

3. Circuits in the cerebral cortex are then triggered that process feelings and associated sensations, and
4. Feedback from the disseminated peripheral, autonomic, and skeletomotor systems of emotional expression interact with the conscious states of feeling in the cerebral cortex [8].

It is possible that PTSD nightmares are a symptom of a "failure" in the emotional systems for processing trauma that are most active during rapid eye movement sleep (REMS) [11]. Central to this theory is the suggestion that nightmares reflect psychopathology and that changes in nightmare prevalence, frequency, and severity reflect a patient's emotional pressure and distress. This theory postulates that PTSD severity changes in association with changes in nightmare frequency and distress [18]. While the neuroanatomic systems of emotional processing are active during REMS, it remains unclear as to whether this activity is associated with dreaming. Emotional dreams occur in all stages of sleep with emotional neural processing taking place both in waking and in dream sleep outside of REMS. In PTSD, even nightmares occur outside REMS, indicating that in patients with PTSD, emotional processing takes place throughout sleep [14]. PTSD nightmares occur when an individual is unable to process a severe and overwhelming experience of trauma. The emotional processing of trauma occurs not only during REMS but also in other stages of sleep and waking.

When compared to other approaches, traditional psychoanalysis and psychotherapy have some of the least efficacy of PTSD treatment modalities [1]. However, a variety of psychotherapeutic approaches based on cognitive and behavioral therapy including imagery, exposure, and EMDR have produced excellent short-term results in treating patients with PTSD. Case reports indicate that almost all psychoactive medications have at least occasionally produced positive responses in some patients with PTSD. Today, the use of SSRI antidepressants is sometimes used as a marker for a provider meeting standards of appropriate care in treating PTSD. Each of these psychological (mind-based) approaches to treating PTSD will be addressed at chapter-depth later in this book.

The Human Stress Response

Concomitantly during the era of Freud, medical physicians and scientists were discovering the role that the endocrine system played in the body's physiological "flight-or-fight" response to stress [2]. This neuroendocrine system exerts its physiological effects primarily through a neurochemical cascade that includes the adrenocorticotropin and thyroid hormones, epinephrine, and norepinephrine. In situations of acute stress, alterations in these neurochemicals can be detected in both blood and urine [16]. It is less clear, but suggested, that when this system is depleted by severe and/or chronic exposure to stress, physiologic dysfunctions might lead to the psychological symptoms associated with PTSD. The cognitive excitation and

anxiety associated with PTSD are postulated to result from augmentation of excitatory neurotransmitters, suppression of inhibitory neurotransmitters, neuronal activation, and neuromuscular arousal [5].

There are distinct neuronal circuits that control emotions and feelings. The peripheral expression of emotions is mediated in the hippocampus, an area that also plays an important role in the processing of memory. Feelings are processed in the limbic system, a group of interconnected brain sites that includes the amygdala and the frontal, cingulate, and parahippocampal cortices of the cerebral cortex [9]. Neural networks form maps of specific emotional memories. Our emotion-associated feelings can be viewed as our internal "perceptions" of these maps [3]. In the CNS, this system is integrated and extensively connected with sensory and perceptual systems and with memory, processing, and integrating systems. Outside the brain, extensive networks of motor, sympathetic, endocrine, and parasympathetic connections express and modulate emotions throughout the body.

It is very unusual for a dream to not include emotion. Emotion is a primary cognitive component of all forms of dreaming. Intense emotions are present in the dream-associated parasomnias (unwanted behavioral events occurring during sleep) from all of the sleep stages, particularly those associated with sleep onset, REM sleep, and deep sleep. Emotional processing systems are particularly active during dreaming, particularly during the disturbing and frightening dreams that we call nightmares – the most commonly reported symptoms of PTSD. After sleep that includes dreaming, waking emotional mood is known to change. Pre-sleep mood is different from post-sleep mood, with the variability and intensity of emotion decreasing across the night [10]. For many dreamers, this change is in the positive direction. In individuals with PTSD, however, the change is opposite with negative dreams inducing insomnia and waking distress [18].

The detection, generation, maintenance, and remembering of fear – the primary negative emotion – neuroanatomically take place in four primary areas of the CNS operating in concert. Emotionally contextual memories (fear memories) stored in the hippocampus are relayed to the amygdala – a brain area interconnected with the medial prefrontal cortex and the anterior cingulate cortex. All of these areas interact with brain regions controlling sensory, autonomic, motor functioning [12]. The postulated roles for each of these brain regions implicated in the processing of fear and fear-associated emotions are summarized in an appendix to this chapter.

The neurological systems involved in the processing of negative experiences and emotions have extensive interactions with the neuroendocrine systems modulating the human stress response. Dysfunctions in this system induced by trauma are likely to be the basis for at least some of the symptoms of PTSD. Antihypertensive medications that block catecholamines (norepinephrine and epinephrine) have been shown to reduce nightmare frequency and anxiety symptoms for a majority of those with PTSD [15]. Therapies that utilize relaxation therapy to address stress in individuals with PTSD have also proven to have at least mild effectiveness in improving PTSD symptoms.

Conclusion: PTSD – A Disorder of Mind and Body

It would be convenient and easier for both the patient and practitioner if there was but one theoretical construct underlying the diagnosis and therapy of PTSD. Despite efforts from wide-ranging neuroscientists to come up with a unifying theory that might somehow tie together mind and brain around dreams, REM sleep, and PTSD, few of their constructs have survived experimental assessment or clinical application. Therapies derived from neural consciousness constructs have proven disingenuous and even dangerous (e.g., Matthew Walker's recommendation that SSRI antidepressants, among the few drugs shown to improve symptoms and reduce suicide in PTSD patients, should not be used since they suppress REM sleep) [17]. In the treatment of PTSD, the Cartesian divide has had a primordial effect on the bias of therapists. Medically trained therapists ascribe the diagnosis and orient therapy to treatment of abnormalities in the biological stress response. Those with psychiatric and psychological training use therapies addressing the psychodynamics of trauma. In the short term, both approaches work to some extent in treating PTSD. Many therapists, and most controlling organizations, develop their diagnostic perspectives and suggestions for treatment based on their own bias and training in the specific therapies for which they have training, available manpower, and resources. Yet the diagnosis of PTSD does not easily lend itself to simple answers. The experience of overwhelming trauma and the development of PTSD psychological symptoms involves and alters both biological and psychological components of the central nervous system. The evidence from each Cartesian perspective must be filtered and "stripped of emotional memory" if it is to fit into the same monist box.

Appendix: Neuroanatomic Areas of the CNS Involved in the Processing of Fear

Amygdala: control center for processing affect load; critical area for the processing of conditioned fear, fear memory, fear detection, and autonomic activation, activated with visual perception, in PTSD, hyperactive response to trauma-related stimuli

Medial Prefrontal Cortex (mPFC): downregulator for amygdala emotional activity, extinction memories utilized in inhibiting conditioned fears, decreased activity during traumatic imagery in PTSD

Hippocampus: regulates the extinction and expression of conditioned fear via the amygdala and mPFC, controls the context of fear memories

Anterior Cingulate Cortex (ACC): Regulates the degree of affect expression during emotional activation, involvement in the neural circuitry of pain

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Nightmare Science

5

> I took hold of a wild bull of the wilderness. He bellowed and kicked up earth; dust made the sky dark. I ran from him. With terrible strength he seized me and tore into my flank - a second dream: a mountain toppled. It laid me low and took hold of my feet. The glare was overpowering. A man appeared, the handsomest in the land…From under the mountain he pulled me out, gave me water to drink - a third dream, in every way frightening: the heavens cried out; earth roared. Daylight vanished and darkness issued forth. Lightning flashed, fire broke out, clouds swelled; it rained death. The glow disappeared, the fire went out, and all that had fallen turned to ashes.
>
> (The Epic of Gilgamesh – 4000 BCE))

Nightmares are different from other dreams. They are almost always significant, impactful, and remembered, not just at waking, but into our extended personal futures. Nightmares are frightening dreams that include distressing negative emotions – particularly fear. Few of us, if we are lucky, will ever experience an actual waking negative experience as profound and distressing as those in our nightmares, the overwhelming fear, the sensation of danger, entrapment, and impending death, from which the only escape is transcendence – into waking. Yet the nightmare is something routinely experienced; 70% of us experience at least one nightmare each month (Table 5.1). We will continue to have these frightening and distressing dreams even into the extremes of old age (Fig. 5.1). Archeology and history indicate that since the dawn of records, the visions and stories of nightmare have been intrinsic to the human experience (see initial chapter quote).

There are disturbing and negative dreams reported from all stages of sleep; however, almost all nightmares take place in REM sleep. REM sleep reports are longer and include more words than dream reports from the other sleep stages so that a disproportionate number of the long dreams reported in literature are likely REM sleep dreams [22]. Due to their length, complexity, and organizational requirements for presentation, REM sleep dreams are usually reported on awakening as narrative stories. The content, just like the content of dreams from other stages of sleep, is most often based on waking experience. Long REM sleep dream content includes interactive, self-organized narratives of our daily life and experience that resembles

J. F. Pagel, *Post-Traumatic Stress Disorder*,
https://doi.org/10.1007/978-3-030-55909-0_5

Table 5.1 Reported dream and nightcall frequency per questionnaire from three sleep laboratory studies (1999–2003) (*N*# = 1150)

Recall	Never	Monthly	Weekly	3 x/week	Nightly
Dreams	9.6%	27.7%	42.2%	16.5%	3.48%
Nightmares	29.4%	34.7%	26.8%	7.57%	1.34%

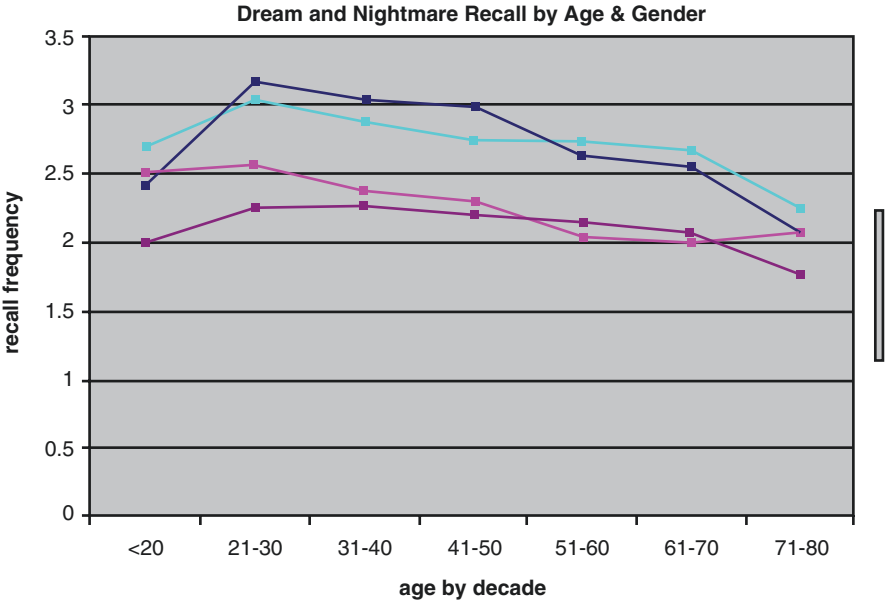

Fig. 5.1 Reported dream and nightcall frequency per AGe and gender from three sleep laboratory studies (1999–2003) (N# = 1150) [upper two lines are female]

the narrative genre of the "soap opera" [21]. Nightmares are the "Dark Shadows" version of this genre, typically beginning as a seemingly real and coherent dream sequence, becoming increasingly more disturbing as they unfold. The negative emotions in nightmares include anxiety, fear or terror, as well as, anger, rage, embarrassment, and disgust. The content and story present during a nightmare most often focuses on imminent physical danger (e.g., threat of attack, falling, injury, death). Common and distressing themes include aggression toward others, potential personal failures, as well as being trapped drowning and suffocation [4]. The visual imagery of the nightmare is more likely than in other dreams to be experienced as an unmitigated perception of external reality [25].

While most of us can agree on what is and is not a nightmare, experts and scientists have done much to confuse the definition. Freud redefined frightening sleep experiences as "anxiety" dreams. In his era, anxiety was defined as the experience of all-pervasive and unfocused fear. Through the intervening years, the definition for anxiety has morphed into one of generalized and unfocused agitation and discomfort [24]. Rather than being a nightmare, today's "anxiety" dream is most often a dream of frustration, difficulty, and stress reflecting the difficulty of waking life experience.

Recently, some dream scientists have attempted to "clarify" the definition for nightmares by including objectively measurable aspects of the state. Some dream scientists require that a nightmare occur in REM sleep. This has turned out to be a particularly difficult criterion, since for individuals with PTSD, nightmares often occur outside of REM sleep [20]. Others behaviorally define the nightmares as a negative dream that leads to awakening, differentiating nightmares from "bad dreams" from which the dreamer never fully awakens [25]. It is unclear, however, whether these forms of negative dreams are actually different. For individuals experiencing nightmares, negative daytime symptoms are based on the dreamer's level of distress rather than their frequency or how often the dreamer awakens [8].

Most of us have at least the occasional nightmare; however, we have these experiences at a lower frequency than other dreams. Far more individuals report never having experienced nightmares than report never having dreamed (Table 5.1). Most individuals reporting frequent nightmares also report higher dream recall [11]. Factors that can induce nightmares include febrile illness, neurological diseases such as epilepsy and Parkinson's disease, mental illness, stress that involves feelings of helplessness, and a wide variety of medications. The prescription medications most likely to induce nightmares are SSRI antidepressants (most commonly Paxil) and antihypertensives (primarily beta-blockers). Type 1 antihistamines such as the ubiquitous diphenhydramine (Tylenol PM, Benadryl, etc.) are the agents most likely to induce nightmares due to their over-the-counter use for allergies and inducing sleep [15] (Table 5.2).

Both age and gender affect nightmare frequency. Adolescent females report nightmares at the highest frequency and older males at the lowest rate [10]. Nightmares are reported by individuals who score high on psychological tests for anxiety, neuroticism, and general distress; however, the only personality types clearly documented to have a higher incidence of nightmares are those sharing the characteristic of "thin borders" [5]. Thin-bordered individuals tend to experience life as a series of shades of gray rather than in black and white. Wake and sleep, day and night, and dark and light are viewed as a continuum rather than clearly different states. Right and wrong are viewed as relative rather than concrete. Such individuals can be unusually sensitive, open, undefended, and expressive. They may describe their dreams and daydreams as unusually real. At the extreme, some individuals with thin borders have difficulty differentiating waking life from dreaming and experience periods of depersonalization, déjà vu, and extrasensory experiences. While some psychiatric disorders such as schizotypal personality are more likely, the clearest behavioral correlate for thin borders is one of creativity. Individuals with thin borders are more likely to invest themselves in the creative experience, produce creative products, and assume creative roles in society [4].

Not having nightmares is not necessarily a good thing. Insomniacs report a significantly higher frequency of nightmares [14]. However, this does not reflect the objective data of how long or little an individual actually sleeps. Nightmare frequency is actually higher for those with the best sleep: longer sleep time, increased REM sleep time, increased light sleep (Stages 1 and 2), better sleep efficiency, and lower amounts of wake during sleep. Nightmare recall is lowest in

Table 5.2 Medications reported to induce nightmares or disordered dreaming by >1% of individuals in clinical trials (CT) and large case studies (CS) [15]

Affected neuroreceptor drug	Evidence base
Norepinephine – Beta-blockers	
Atenolol	CT [3/20 patients]
Bisoprolol	CT [3/68 patients]: CR [1] – de-challenge
Labetalol	CT [5/175 patients]
Oxprenolol	CT [11/130 patients]
Propranolol	CT [8/107 patients]
Norepinephrine effecting agents	
Guanethidine	CT [4/48 patients]
Antidepressants	
Serotonin specific reuptake inhibitor [SSRI]	
Fluoxetine	CT [1–5% – greater frequency in OCD and bulemic trials]: CR [4] – de- and rechallenge
Escitalopram oxalate	CT [abnormal dreaming – 1% of 999 patients]
Nefazodone	CT [3% (372) versus 2% control]
Paroxetine	CT [4% (392) versus 1% control] – statistically significant difference
Agents effecting serotonin and norepinephrine	
Duloxetine	CT [>1% report of nightmare/abnormal dreaming – 23,983 patients]
Risperidone	CT [1% increased dream activity – 2607 patients]
Venlafaxine	CT [4% (1033) versus 3% control]
Agents effecting serotonin, acetylcholine, norepinephrine, and histamine	
Doxepine	CT [altered dreaming common at low doses]
Amitriptyline	CT [nightmares less than 0.1%], case reports
Agents effecting norepinephrine and dopamine	
Bupropion	CT [13/244 – dream abnormality]
Dopamine – agonists	
Amantadine	CT [5% report abnormal dreams]: CR [1]
Levodopa	CT [2/9 patients]
Ropinirole	CT [3% (208) report abnormal dreaming versus 2% placebo]
Selegiline	CT [2/49 reporting vivid dreams]
Amphetamine-like agents	
Bethanidine	CT [2/44 patients]
Fenfluramine	CT [7/28 patients]: CR [1] de- and rechallenge
Phenmetrazine	CT [3/81 patients]
GABA	
Gaba hydroxybuterate	CT [nightmares >1% 473 patients]
Triazolam	CT [7/21 patients]
Zopiclone	CT [3 – 5/83 patients]
Orexin – antagonists	
Suvorexant	CT {nightmares 2% – 1% for placebos]; sleep paralysis and hypnagogic hallucinations reported
Nicotine agonists	
Varenicline	CT [abnormal dreams 14/821 patients]
Nicotine patches	CS [disturbed dreaming in up to 12%, affects tendency to use treatment]
Anti-infectives and immunosupressants	
Amantadine	CT [5% reporting abnormal dreams]: CR [1]
Fleroxacin	CT [7/84 patients]
Gusperimus	CT [13/36 patient]
Antipsychotics – histamine effects	
Clozapine	CT [4%]
Olanzapine	CT [abnormal dreaming 1-10%]

Table 5.2 (continued)

Affected neuroreceptor drug	Evidence base
Antihistamine	
Chlorpheniramine	CT [4/80 patients]
ACE inhibitors	
Enalapril	CT [0.5–1% abnormal dreaming – 2987 patients]
Losartan potassium	CT [>1% dream abnormality – 858 patients]

those who have the most difficulty getting to sleep and in those who slept for less than 65% of the night. Among insomniacs, the report of nightmares can be a marker for better objective sleep since in order for nightmares to occur, an individual needs to have a framework of sufficient sleep including at least some REM sleep. As sleep objectively deteriorates, fewer nightmares are reported. Clinically, for most individuals with insomnia, insomnia is a symptom, a complaint of poor, non-restorative sleep rather than an objective lack of sleep that can be demonstrated in the sleep laboratory. It is the complaint of poor-quality sleep rather than the actual objective and measured amount and quality of sleep that is associated with increased nightmare frequency. Among patients being evaluated for sleep apnea, those with worst apnea, as determined by the number of respiratory events during sleep, are those who report the lowest incidence of nightmares. Just like those with severe insomnia, individuals with severe sleep apnea (>30 events/hour) have very few nightmares [16].

Nightmare Disorder

Psychiatry and sleep medicine have historically confounded those PTSD patients with nightmares with individuals reporting frequent nightmares that have no history of trauma. In some cases, particularly in adolescents, therapists would hypothesize that unremembered trauma had occurred during the childhood of anyone presenting with the complaint of frequent nightmares. Twenty-five percent of adolescent girls have more than two nightmares per week, a finding that has led some to suggest that those 25 percent of young women are victims of childhood sexual abuse [23]. Some individuals and their families have been subjected to extensive investigations and therapeutic interventions in situations in which there was no evidence that abuse had ever occurred [2]. In 2005 a new diagnosis, nightmare disorder, was added to the diagnostic lists. This alternative diagnosis can be applied to individuals without a history of trauma who present with the complaint of recurrent, distressing nightmares that disrupt their sleep [13]. As noted above, such individuals often have thin borders and creative personalities. In 2013, the DSM-V added the category of iatrogenically induced PTSD to describe situations in which providers induce the trauma in therapy that leads to a diagnosis of PTSD [1].

PTSD Nightmares

Recurrent, repetitive nightmares are the most commonly reported symptoms of PTSD. Nightmare frequency, easily assessed with questionnaires or simple queries, has become the marker most commonly used to assess patient response to PTSD treatment. A decline in nightmare frequency is often associated with an overall improvement in other subjectively reported PTSD symptoms that are more difficult to assess. PTSD nightmares differ from other nightmares in that they often include trauma-associated content. For up to 50% of patients, this content is an apparent re-experience of the traumatic event, though many individuals will have metaphoric nightmares in which the association with trauma can be inferred or interpreted. Many PTSD nightmares include the negative emotions of fear and dread of death. Dream content turns out to be, however, quite difficult to assess. A century of psychoanalytic focus on dream interpretation has, if nothing else, clarified the huge number of variables affecting dream content. Dream content is altered by sleep stage of origin, time since dream experience, time since awakening, the site of collection, the type of recording, distraction, personal relationship to the individual collecting the information, as well as their gender, ethnicity, age, attitude, and perspective toward, definition of, and interest in dreams, bias, beliefs, and expectations [17]. It is often impossible to attain consistently repeatable results when dream content is collected and assessed by other humans. Modern content analysis is often based on computer-assisted analysis of individually submitted dreams. Despite the huge volume of studies from the psychoanalytic era purported to demonstrate personality, psychiatric illness, and other factors affecting dream content, studies using these computer-assisted protocols have found only a few variables that consistently affect dream and nightmare content. Those variables are waking experience or continuity and gender [3]. Some descriptions of complex PTSD and the proposed diagnoses of trauma-induced psychiatric disorder require in their criteria that the patient has recurrent, repetitive nightmares of the actual traumatic experience. The seemingly straightforward criteria of dream trauma re-experience is subject to these many variables affecting content and is quite difficult to consistently and rationally apply.

Other Frightening Dreams

Sleep Onset Hypnagogic Hallucinations and Sleep Paralysis

Powerful, emotionally negative dream experiences are reported from all of the stages of sleep. Sleep onset (Stage 1) parasomnias can be even more bizarre and discombobulating than the classic REM sleep nightmare. These sleep onset dreams are most often intensely visual with little thought and “story” content. Sleep onset dreams, even in otherwise normal people, can include “hypnagogic” hallucinations,

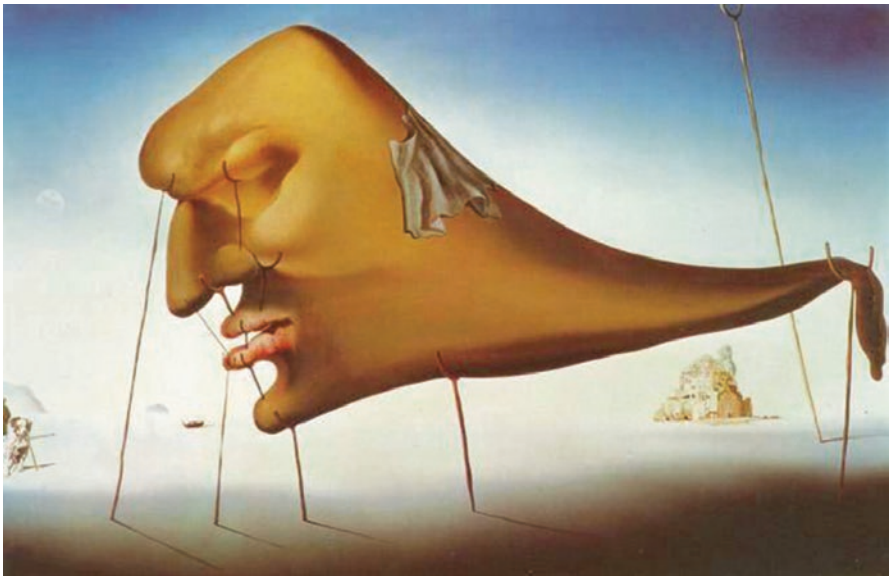

Fig. 5.2 Sleep – Salvador Dali

true hallucinations most often visual, but sometimes auditory, that are seemingly real to the dreamer. These experiences can be quite bizarre and frightening, ranging from the milder experience of the sounds of a dog barking, a baby crying, or an alarm ringing, to extreme and disturbing experiences such as a dreamer's suffocation at the hands of a succubus. Surrealist painters were known to induce such hypnagogic images. Salvador Dali would fall asleep while sitting in a chair and holding a coin between thumb and index finger. With sleep onset, his hand would relax, and as the coin fell into a dish set beside the chair, he would be startled awake. There are those who insist that such sleep onset dreams are less bizarre than REMS dreams [6]. The bizarre and nightmarish images that he derived using this technique argue otherwise (Fig. 5.2).

Episodes of sleep paralysis, a parasomnia most commonly associated with REM sleep, can also occur at sleep onset in normal individuals. These experiences in which the awakened dreamer is unable to move can feature agonizing dread, a sense of oppression, and a conviction of helpless paralysis. Like sleep onset hallucinations, these dreams can even feature the definitional motif of nightmare – the succubus sitting on your chest and sucking out the essence of your soul. It is suggested that an experience of sleep paralysis may be the basis for Fuseli's famous painting "The Nightmare." Both hypnagogic hallucinations and sleep paralysis are associated with the neurological disease of narcolepsy; however, these parasomnias are also quite common among otherwise normal individuals. Up to half of Americans report having experienced either sleep paralysis or hypnagogic hallucinations [9].

Light Sleep (Stage 2): Panic Attacks

We spend a majority of our sleep (approximately 70%) in light sleep. This Stage 2 sleep includes all sleep that cannot be fit into the other stages. Dream recall is lower than from REM sleep and Stage 1, and the dreams tend to be an often uninteresting reworking of waking experience [19]. Yet, it is during light Stage 2 sleep that we are most likely to experience the brief but frightening moments of terror that are nocturnal panic attacks. Panic attacks in sleep occur most often in individuals who have such experiences when awake.

Deep Sleep (Stage 3): Disorders of Arousal

The frightening dreams of Stage 3 (deep sleep) are the most bizarre and disconcerting of all dreams [17]. The pathememonic symptom of the night terror is a "blood-curdling" scream. That scream is accompanied by autonomic discharge: sweating, flushing, and the terrorizing sensation of impending doom and personal danger. On arousal, individuals experiencing another of the deep sleep parasomnias – confusional arousals – are typically disoriented. They can have slow speech, diminished mentation, and sometimes vigorous, highly resistive, and violent inappropriate behaviors [7]. Sleepwalking is the most common of the deep sleep arousal parasomnias, an inspiration for the zombies of literature and film. The dreamer sometimes exhibits remarkably complex automatic behavior: ambulating, opening doors and windows, turning on stoves, loading bullets into firearms, as well as running from or chasing perceived threats, complicated behaviors occurring without the subject's conscious waking knowledge. Night terrors, confusional arousals, and somnambulism (sleepwalking) often include intensely negative dream content, associated with confusion and cognitive dysfunction that persists for minutes and even hours after arousal from deep sleep. These arousal disorders reported by at least 4% of children often diminish or disappear with the onset of adolescence. They are considered normal developmental experiences for children, but in adults are sometimes associated with psychiatric or medical disorders [12].

Special Nightmares

Frightening dreams are remarkable cognitive experiences. Many are significant, the kind of dream that we remember years later, the kind of dream that artists and writers use in their work [18]. Night terrors, hypnagogic hallucinations, and the dreams of sleep paralysis are exceedingly frightening and bizarre. Nightmares can be terribly disturbing and seemingly real, leading to long episodes of nighttime waking and disrupted sleep. They can be used as a marker for an individual's status as to the activity and discomfiture associated with their PTSD. Surprisingly, perhaps, they are among the easiest of PTSD associated symptoms to treat. Imagery rehearsal therapy (IRT), a form of cognitive behavioral therapy (CBT) focusing on changing nightmare storylines, has had extraordinary success in reducing nightmares and

their associated distress even in patients with diagnosed PTSD (Chap. 13). EMDR and other CBT therapies used to treat PTSD such as prolonged exposure are rated as to their effectiveness based on their ability to reduce nightmare frequency (Chaps. 11 and 12). Even some of the medications used to treat the stress response have shown an excellent efficacy in reducing nightmares (e.g., the alpha-agonist antihypertensives) (Chap. 14). While these treatments can work to reduce or eliminate nightmares, it is sometimes a clinical question as to whether nightmares should actually be treated. Some individuals will have minimal waking distress from their nightmares. Others might successfully use nightmares in their creative work. Almost all of us have nightmares, experiences that are likely to have a function in processing stress and trauma. It may not always be appropriate to help to make something go away, even something distressing like the nightmare, when it is an aspect of normal life experience.

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Chronic PTSD

6

> The world breaks everyone and afterward many are strong at the broken places. But those that will not break, it kills. It kills the very good and the very gentle and the very brave impartially. If you are none of these you can be sure it will kill you too but there will be no special hurry.
>
> (Ernest Hemingway – A Farewell to Arms)

An experience of irreconcilable trauma never goes away. Affected individuals must find ways to live with that experience. Some of these ways are functional and productive, and some are not. For those who develop PTSD after trauma, symptoms often persist and recur. Despite the short-term success of available therapies, PTSD can be extraordinarily difficult to cure. Despite therapy, suicide risk and the negative effects of PTSD on waking life can extend into extreme old age. Often PTSD becomes a chronic diagnosis with symptoms waxing and waning throughout life. Life experience is altered even for those whose symptoms diminish and go away. Major trauma, preserved in memory, affects life decisions and life course from that point onward.

PTSD Over the Lifespan

Few studies have followed PTSD patients for an extended length of time and into old age. The course of the illness varies. Some individuals are continuously troubled so that for approximately 1/3 of veterans affected by PTSD, the disorder becomes a chronic and persistent problem [21]. Others have waxing and waning symptoms throughout their lives, while others become symptom free [38]. There is work suggesting that PTSD symptoms become less intense with increasing age [1]. The veterans of Vietnam report a greater severity of PTSD than the veterans of World War II, with Vietnam vets reporting significantly higher levels of depression, hostility, guilt, derealization, suicidal tendency, and work impairment [11]. This difference in symptom severity may be secondary to traumatic and social differences in the warfare

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experience, but it may also be due to a diminishment in negative effects with time since the experience of trauma. Comparisons of World War II, Korea, and Vietnam veterans indicate that PTSD symptoms are typically less severe for the older veterans [13]. Older adults are more likely to exhibit arousal rather than intrusive PTSD symptoms and dissociation [37]. It may be that in the context of PTSD, as with some other psychiatric disorders, age has benefits. Increasing age and temporal distance from the experience of trauma may lead to a decline in emotional and psychiatric symptoms [9]. This difference is, however, also based on the severity of the experienced trauma [12]. Older adult survivors of less severe trauma such as natural disasters may not only have a persistent decline in symptoms but seem also to be inoculated to the experience of future stressors [23]. The experience of more severe trauma (e.g., Holocaust survivors) can lead to an increased vulnerability to both external and internal stressors [36].

At least one study suggests that PTSD symptoms present on a biphasic curve, severe and intense shortly after trauma followed by a gradual decline for decades and resurgence later in life [29]. That reactivation of PTSD late in life is often tied to loss of control and increased vulnerability associated with repeated trauma, illness, decreased functioning, bereavement, or changes in occupational social and familial roles [15]. For the elderly, negative changes in health, social support, and financial status can increase their PTSD symptoms [31].

The Negative Effects of PTSD on Normal Functioning

Invariably, diagnostic criteria for psychiatric illnesses include the loss or diminishment in waking function. Narcissistic personalities, sociopaths, obsessive-compulsives, and even those schizotypal personalities wandering through a life of visions and waking hallucinations do not meet criteria for psychiatric illness until they lose at least some of the capacity to function in "normal" society. Individuals routinely experiencing black moods and negative thoughts are not actually ill as long as there is no decline in function. In Northern Scotland, the persistent experiential gloom of a life of rain and cold, referred to in Gaelic as "ghruaim," is considered a normal response to the environment. Such individuals can be considered eccentric rather than psychiatrically ill. Loss of the ability to function normally is particularly apparent among individuals with the diagnosis of PTSD. Risk-taking behaviors, family breakups, personal conflicts, drug and alcohol abuse, job loss, economic difficulty, homelessness, and suicide often overwhelm other aspects of the diagnosis. The social aspects of PTSD may exclude the individual from normal interactions with society, limit access to support and care, as well as contribute to chronicity and persistence of symptoms.

Social Disengagement

The presence and viability of a personal and social support system are a primary marker determining an individual's long-term level of functioning and response to therapy for most psychiatric and medical illnesses. For PTSD, as with most chronic

psychiatric illnesses, the loss of that support system is often the norm. As noted in Chap. 2, the loss of normal professional and social functioning is one of the major diagnostic criteria defining PTSD. PTSD changes the affected individual. Often those changes include agitation and angry, apparently irrational outbursts directed toward family, friends, and caregivers. Many individuals with PTSD will go through periods of black moods and depression, as well as disassociation from the people and world in which she or he is involved. In such situations it is only the rare and heroic family that has the fortitude to stand by a patient descending into a period of profound disarray.

During the period directly following the experience of trauma, families and social support systems are sometimes able to assist the affected individual. Yet the PTSD diagnosis, more often than not, is not short term. Over time, the patient, the family, and the available resources often become exhausted, and the PTSD patient becomes isolated. The lack of job and family, homelessness, and diminished access to support and care are not uncommon. Isolated, homeless individuals with PTSD are prone to experiences of repeated trauma, eventually meeting criteria for complex PTSD. Some are be lost to medical and psychiatric follow-up, and systems of family and social support, wandering homeless on the streets, or incarcerated in the jails of our modern, affluent societies.

Drug and Alcohol Use and Abuse

Some individuals with PTSD self-treat with alcohol and street drugs. Alcohol, sedating drugs, marijuana, and opiates can be used to acutely suppress PTSD symptoms. Some of those using these agents will become addicted and tied into a cycle of intoxication and withdrawal. For the society and for the therapist, such individuals are difficult to address and treat. During withdrawal and the loss of the blunting effects provided by these drugs, PTSD symptoms can become extreme. Many clinicians and treatment centers refuse to treat intoxicated and addicted patients. Most facilities require that the individual commit to a SUD treatment program such as Alcoholics Anonymous or Narcotics Anonymous before beginning PTSD therapy [14]. Drug and alcohol dependence contributes to social disengagement and predisposes affected individuals to negative interactions with the justice system and periods of incarceration.

The opiates are among the most addictive, sedating, numbing, and dangerous in overdose of the drugs of abuse. Many individuals with PTSD will also have chronic pain associated with their trauma. After trauma, many are prescribed opiates for their complaints of pain [18]. In the last 18 years, more than 400,000 individuals have died in what is now described as an epidemic of opiate overdose [19]. Opiates are also utilized to induce intentional deaths by suicide [34]. It is an increasing focus of concern that many victims of opiate overdose have a history of PTSD. These dangerous drugs continue to be prescribed at high levels for this population [4].

Psychiatric Illness

Most adults (80%) diagnosed with PTSD meet established criteria for at least one other psychiatric diagnosis [10]. Almost 1/2 can meet criteria for three or more other psychiatric diagnoses. The disorders most commonly associated with PTSD include the mood disorders (primarily depression), anxiety disorders, substance abuse, and somatoform, eating, and dissociative disorders. Bipolar disorder and psychosis are also diagnosed at higher frequency among individuals with a diagnosis of PTSD [21]. It should be noted, however, that in general surveys, almost 1/2 of the US population (46%) meet lifetime criteria for at least one of the DSM-IV psychiatric diagnoses, while 28% meet criteria for two or more [22]. However, most individuals reporting psychiatric symptoms on questionnaires never describe their symptoms to a physician or therapist and therefore never actually receive a psychiatric diagnosis. Additional psychiatric diagnosis is more likely for patients with PTSD since they are more likely to be part of the psychotherapeutic system. The high level of PTSD psychiatric comorbidity is also, in part, due to the crossovers in diagnostic criteria. Many other psychiatric disorders also have the symptom criteria of disturbed sleep, depressed mood, and anxiety [3]. This wide crossover between psychiatric disorders has some positive benefits. As based on published case reports, almost all psychotropic drugs and therapies occasionally produce positive treatment results for patients diagnosed with PTSD [14].

PTSD is associated both clinically and theoretically with the mood disorders and depression. In sleep laboratory studies, both diagnoses can demonstrate shortened times to REM sleep and increased REM sleep pressure [2]. This finding has led to suggestions that both disorders affect the same REM sleep nightmare associated emotional processing system [35]. Some of the medications used for treatment and forms of cognitive behavioral therapy that seem to work overlap between diagnoses. These are also the two major psychiatric diagnoses with the highest risk of suicide.

An Epidemic of Suicide

In the United States, the national suicide rate increased by more than 25% between 1999 and 2016. By 2017 suicide had become the tenth leading cause of death overall in the United States, claiming the lives of over 47,000 people. Suicide is the second leading cause of death among individuals between the ages of 10 and 34 and the fourth leading cause of death among the group at greatest risk – middle-aged white men between the ages of 45 and 54. Seventy percent of suicides occur among this at-risk grouping. In 2017, there were more than twice as many suicides (47,173) in the United States as there were homicides (19,510) [26].

Of the major psychiatric diagnoses, PTSD is associated with the highest rate of both successful and unsuccessful suicide attempts [7]. This is a particular problem for the military. Currently, the suicide rate for male veterans with active duty experience is 32.1/100,000 compared to a rate of 20.9 in the general population [24]. The corresponding rates for women veterans are 28.7 and 5.2/100,000 for those

who have never served in the military [20]. In 2012 more active duty veterans succumbed to suicide that year than were killed in combat [27]. The total number of suicides differs by age group; 31% of these suicides were by veterans 49 and younger, while 69% were by veterans aged 50 and older [17]. It should be noted that during the confused stress of warfare, the return of individuals to the battlefront has been, and often still is, an approach used to address the conundrum of PTSD. An experience of acute trauma can facilitate risk-taking behavior that on the front lines can be viewed as self-sacrifice and/or heroism. At its worse, when applied to an individual experiencing depression, hostility, guilt, and derealization after an experience of extreme trauma, the acute redeployment of individuals with clear symptoms of PTSD can have the appearance of socially condoned suicide.

There appears to be a close association between PTSD and suicide among veterans of combat [32]. This risk of suicide is independent of whether the individual with PTSD is also diagnosed with depression [30]. The risk of suicide is present after major experiences of trauma even when the individual does not meet full criteria for PTSD diagnosis [25]. Suicide rates have also been reported at high levels among family members, with reported attempts at greater than 60 percent among the psychiatrically hospitalized adolescent offspring of some war veterans [5]. Despite recent political and funding efforts addressing suicide in US veterans, rates persist at a level of approximately 20 veteran deaths each day (Steinhauer NY Times 4/14/19).

In the United States, suicide deaths occur at twice the murder rate. Despite the high levels of mortality, this epidemic has received limited study. The association between suicide and PTSD has received even less attention. Retrospective reviews of suicides indicate that 54% have no psychiatric history [8]. In American society, however, more than 80% of individuals report having experienced major trauma [6]. Many of those meeting criteria for PTSD will never see a therapist or begin therapy [33]. Both suicide and PTSD apparently follow a biphasic curve, with PTSD worsening for men in late middle age, the age at which suicides peak [16]. Anecdotally, for those who see these patients in the clinic and emergency room, it is rare to see an adult victim of suicide without a significant history of past trauma.

Chronic PTSD: Treatment Issues

When an individual with a past history of PTSD suddenly requests help, it is often at a time of life change, one that disrupts the individual's ability to cope with the demands of family, work, and/or society. Sometimes that event is another experience of trauma. A previous experience of major trauma that led to symptoms of PTSD is a risk factor for the development of recurrent PTSD [28]. Often the precipitant for a re-onset of PTSD symptoms is an abrupt experience in waking life that reminds the individual of the original trauma: a rape victim being sexually harassed, a first responder confronted with a trauma similar to that originally experienced, or a therapist treating a patient who has gone through the same type of trauma. Such events can be vicarious, without apparent relationship to the original trauma – something seen

on television, the death of a loved one, job loss, relationship difficulty, and even dreams [14].

For the therapist and clinician confronted with an increase in PTSD symptoms, a diminishment in an individual's ability to function, and the associated social disarray in support systems, there are basic questions that must be addressed:

1. Is this a psychiatric emergency? Is the individual a danger to self or others? In other words, is there a need for setting up a safe structure, a time out, or even an in-patient hospital bed, in order to assist the patient through a period of decompensation?
2. Are the increased symptoms and diminished functioning secondary to a serious comorbid disorder such as substance abuse or depression? In both of these situations, treatment of these disorders will likely be required before specific PTSD therapies can be attempted.
3. Has there been a collapse in the patient's support systems, a crisis in relationship, family, or workplace that needs immediate attention?

In many situations, particularly those in which the therapist has legal or pecuniary obligations to report on patient interactions, the patient may attempt to hide information and symptoms. In some situations when additional support is unavailable, the clinician has little option but to provide emotional support and try to assist the patient in finding a safe way through the experience of crisis. Unfortunately, however, it is not unusual that such episodic supportive psychotherapy is all the treatment that some PTSD patients will ever receive.

Once the above questions have been addressed and as necessary confronted, the therapist's next decision is one of helping the individual with the appropriate and available PTSD therapies. Excellent short-term therapies are available that can achieve improvement for more than 80% of those who fully utilize the treatments. Some approaches are more likely than others to have long-term benefits. Unfortunately, there are commonly used approaches to treating PTSD that produce far fewer positive outcomes. There are also approaches that are not appropriate for some patients. In the next chapters, we will address these therapies for PTSD in detail, attempting to provide the therapist and clinician assistance in choosing the best care.

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Treating the Emergency: Acute Trauma

7

"I made my living as a photographer, and had been hired on to shoot a site for a prospective golf course from above. The owner had twice sent me up in an ultra-light. He didn't want to spend much money, but he was unhappy with the coverage so hired a 69′ vintage helicopter to take me up. We go up and I'm hanging out to take photos of potential fairways and the sites for each green. He's low and in the wrong place, yells 'hold on!' and backs the copter into a tree. The next thing I know, I'm being slung around the cabin, my head hits the wind-shield, and the last thing that I see is the spinning propeller, and I'm thinking, 'This is how I go out.' I can somehow see myself from above and the helicopter crashing. When I get vision again, there are men trying to get me out, and the pilot is releasing me from behind. They drag me from the wreckage. I see the pilot on the phone. I try to get up, but my body isn't working. I'm bleeding from the mouth. My back and chest are hurting. He holds three fingers in front of my face and asks, 'How many?' and says 'You're OK.' I lay there, and they pick me up and take me to the ER. They call my girlfriend at the time. She comes in and says 'You broke your neck.'"

It is the rare human that does not feel empathy and concern for the victim of trauma. Most of us, particularly those who have rarely been confronted with such horrors, want to do something immediately to help. We want to do something to make the nightmare go away, not just for the victim but also for us – the observers. Even a century ago, in the midst of a World War I-associated epidemic of shell shock, the holy grail of trauma work was the search for an acute treatment that might somehow help to immunize the trauma victim from psychological aspects of trauma. The vicarious experience of trauma is traumatic in itself, and those working in such situations are themselves at high risk for developing PTSD (see the Zac Recruit quote leading into Chap. 1). Clinicians, first responders, and those working in disaster relief have taken a multiplicity of different approaches at different times in their attempts to develop an initial treatment for trauma that might help prevent the development of PTSD. A majority of such work has been done by the military among physically and psychologically traumatized young men. The assumption is that this work should also apply to other victims of trauma including rape victims,

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disaster victims, and even abused children – populations less often studied despite yet often the recipients of such applied treatment protocols.

The Acute Stress Reaction

The acute stress reaction to trauma includes *emotional reactions*: shock, fear, grief, resentment, guilt, shame, helplessness, hopelessness, and constricted affect. It includes *cognitive reactions* such as confusion, disorientation, dissociation, indecisiveness, difficulty concentrating, memory loss, self-blame, and unwanted memories. The *physical reactions* to trauma often include tension, fatigue, edginess, insomnia, startle reactions, racing heart rate, nausea, loss of appetite, and changes in sex drive. *Interpersonal reactions* affecting the individual's response to caregivers, support providers, and family members can include distrust, irritability, withdrawal, feeling rejected, being distant, judgmental, or being over-controlling [14]. These symptoms are present in up to 1/3 of trauma survivors. Many of those with these reactions to trauma will meet criteria for acute stress disorder (ASD). The DSM-V symptom criteria for ASD are the same as those for PTSD (Chap. 2) for those individuals whose symptoms present within the first month after trauma [2]. Approximately 70–80 percent of individuals diagnosed with ASD will eventually meet criteria for PTSD [9].

Crisis Intervention: Pie

During World War I, military psychiatrists developed the concept of PIE (proximity, immediacy, and expectancy) as a basic response for crisis intervention [23]. In this approach, proximity means the provision of serves as close to the site of experienced trauma as possible, urgency defines a tight timeline to the provision of services, and expectancy is taking the perspective that the current state of disequilibrium is due to the current crisis rather than predisposing conditions [12]. While the results of early studies can be critiqued for not including comparison groupings, clumping of variously traumatized victims, and by sometimes improving results by keeping affected soldiers in combat situations that they did not survive, recent controlled studies have confirmed the efficacy of PIE. A longitudinal 2005 study of Israeli soldiers found that traumatized soldiers receiving front line crisis intervention had lower rates of post-traumatic symptoms and better social functioning than soldiers who did not receive front line intervention – an effect still evident two decades later [24]. Individuals receiving crisis intervention after the 9/11 disaster reported significantly lower rates of PTSD symptoms, alcohol use, depression, anxiety, and global impairment, an improvement persisting 2 years after the disaster [6]. This worksite crisis intervention used after the World Trade Center disaster had better outcomes than a comparison group treated with traditional multi-session psychotherapy (a cohort that tended to get worse with time after the disaster) [7]. As based on a meta-analysis of multiple studies, the PIE approach to crisis intervention has positive

effects in reducing stress, depression, and anxiety, evidencing its strongest effects on reducing PTSD symptoms [25]. There is good evidence that the core components of PIE apply positively in crisis intervention, in warfare, and in disasters, but PIE is not a panacea. Many traumatized individuals treated with a PIE approach will still go on to develop PTSD, but PIE is an approach with the potential to reduce the occurrence of PTSD after trauma. Not all of the commonly applied approaches work nearly as well.

Medications in the Acute Trauma Setting

The use of medications in situations of acute trauma is a staple of late-night war movies. Today at the battlefront, medics still give doses of opiates, particularly to those with severe physical injuries, sometimes using that medication to ease death after mortal injuries. Ethanol, chloral hydrate, barbiturates, and valium have also been utilized in a "therapeutic" attempt to reduce the panic and anxiety affecting the victim of trauma. None of these medications reduce PTSD symptoms or lower the chance that an individual will develop PTSD. Some, including opiates, barbiturates, and chloral hydrate, are dangerous, particularly when combined with ethanol. Benzodiazepines, while less dangerous in overdose, are relatively contraindicated for use in treating PTSD. Used acutely, benzodiazepines such as valium can induce adverse effects of disinhibition and panic and actually increase an individual's tendency to develop chronic symptoms of PTSD [16]. Almost all psychoactive and sedating drugs have been at some point used as a treatment response to acute trauma. Most have toxicities and negative side effects. Many have addictive potential. None have been shown in controlled studies to prevent or reduce the symptoms of PTSD.

As based on our current understanding of the chemistry of the human stress response, there are agents that can theoretically block that response. These drugs include corticosteroids, beta-blockers, and the alpha-adrenergic antihypertensives. Some theorists have suggested that these agents might be able to block the incorporation of traumatic memories. At this point, however, there is no actual evidence supporting this possibility or any positive evidence supporting the use of these medications in the situation of acute trauma. There is little evidence supporting the use of any medication to acutely treat psychological trauma. Psychotropic medications are best characterized as to their negative effects. Anecdotal reports of benefits are likely based on placebo effects on both affected individuals and providers.

Critical Incident Stress Debriefing (CISD)

Critical incident stress debriefing (CISD) was originally designed as "debriefing," an opportunity for individuals to share their experience of trauma in an interview within days of the traumatic event. It is the most widely used form of psychological treatment in the acute situation of trauma. CISD is most often administered by police officers, military personnel, and disaster workers who are regularly exposed

to traumatic events. In some cases these reports have legal and organizational importance and are later used as evidence in legal attempts to address potential malfeasance. CISD typically includes an emotional processing component and a psychoeducational component in which the affected individual is taught the symptoms of stress reactions and encouraged to share their attempts to assimilate emotional components of their trauma [13].

The process of CISD is also referred to as psychological debriefing (PD). PD/CISD as generally described has having seven components:

1. Introduction: The debriefer states that the purpose of the meeting is to review the participant's reaction to the trauma, to discuss those reactions, and to identify methods to help the individual deal with their problems. Three rules are made explicit: (A) the participant is under no obligation to say anything, (B) confidentiality is emphasized, and (C) the focus is on the participant not the debriefer.
2. Expectations and facts: A detailed description of the occurrence and as to whether the event was expected.
3. Thoughts and expressions: The individual's reaction to the occurrence.
4. Emotional reactions: Often the longest stage of PD/CISD.
5. Normalization: Reassurance that even extreme reactions to profound stress are entirely normal [5].

CISD has been conceptualized and used as a secondary prevention intervention in the attempt and expectation that an individual's tendency to develop PTSD might be reduced or better handled [22]. Both providers and those who have been traumatized tend to appreciate this opportunity to tell the story of the experience of trauma and describe their emotional reactions to that trauma [19]. However, when addressed within the context of controlled studies, there is no evidence that CISD has the capacity to "inoculate" victims of trauma against PTSD [17]. In the situation of acute trauma, CISD is often administered as part of the protocol, an institutional requirement for first responders, medics, and disaster workers. Yet to this point, there is little evidence supporting CISD as having beneficial effects for victims of trauma [21].

Some studies suggest that CISD may actually contribute to delays in recovery from trauma [4, 20]. Such results have found theoretical support in suggestions that premature exposure to traumatic memories can interfere with natural recovery processes, lead to negative cognitions about oneself, as well as facilitate the encoding of intrusive memories [15]. Despite the findings from controlled studies showing negative and non-contributory results, and the realization that this one-size-fits-all approach may not work for everyone experiencing severe trauma, CISD persists as a primary approach used acutely to address trauma. CISD is the organizationally approved approach utilized by the US military to address psychological components of trauma [10]. In military protocols, CISD is often the initial component of a longer course of extinction/re-experiencing therapy, preserving the individual's initial recall and response to trauma, a recall that may change with interference, future experience, and time. CISD is currently the approach used most often worldwide by militaries to treat PTSD.

Psychological First Aid (PFA)

Creating an environment after episodes of serious trauma in which a helpful, empathetic, nonintrusive, and informative human presence is available has been called "psychological first aid" (PFA) [18]. Such an approach has proven its importance most clearly in situations in which there is an absence of existing social support or when the individual suffering the experience of trauma has an unstable support network [3]. For the last 75 years, the ability to provide psychological first aid in disaster and crisis has been adopted as a core requirement for disaster workers, first responders, and military medics [1]. PFA, described in different formats, emphasizes the teaching of providers to recognize common reactions to disaster and to assist the victims of trauma in coping with that trauma by providing a safe and supportive environment. The goals of PFA are described as:

1. Helping to manage functional incapacities caused by the trauma
2. Promoting positive coping strategies and healthy behaviors
3. Assisting affected individuals in taking advantage of existing social support
4. Targeting the experience of traumatic grief
5. Helping the individual to cope with the possibility of subsequent threat [13]

The core elements of PFA as generally applied are:

1. An assessment of need for intervention (Level 1 Assessment)
2. An attempt to stabilize the current physical or psychological damage in order to prevent or reduce a worsening of that status
3. Reassess and triage (Level 2 Assessment), particularly requirements for functioning
4. Communicate – concern, reassurance, and information regarding stress management
5. Connect – the person in distress to informal and formal support systems [11]

The general protocol for rapid PFA is as outlined above. This framework was designed as a teaching protocol to be taught to public health personnel, emergency services, and disaster relief providers and then integrated as required into more advanced clinical intervention. PFA is almost universally recommended as the acute approach that should be used to address psychological trauma (American Psychiatric Association – 1954, National Institute of Mental Health – 2002, Institute of Medicine – 2003, World Health Organization – 2003, Department of Health and Human Services – 2004). Because of its ubiquity and ties to recommended "best practice," any professional working in the field of disaster, trauma, and/or PTSD needs to be both aware and up-to-date as to its current format and application. Despite its apparent rational and widespread acceptance, PFA has been the focus of limited empiric study [13]. The best data supporting its use comes from the positive results attained after using a PFA-based crisis intervention in the 9/11 disaster [6].

Cognitive Behavioral Therapy

As it is usually applied, PFA includes a limited component of cognitive behavioral therapy: most often education, relaxation training, behavioral refocusing, and cognitive reframing. Several small but well-designed studies have shown that the multiple session and more extensive cognitive behavioral therapy (CBT) used to treat chronic PTSD can be applied acutely with trauma victims [8]. The CBT approach used in these studies requires that trained therapists be engaged with the individual in multiple sessions over an extended period. Considerable demands are placed on the victim of trauma. Typically this CBT approach will include psychoeducation, training in anxiety management, imaginal exposure, cognitive reappraisal, and homework assignments that involve the practicing of these techniques (see Chap. 12). This approach has shown positive results among victims of car accidents and in sexual assault survivors [18]. It is unclear, at this point, as to how much of the treatment package, and what level of therapist training, is required. Such considerations have limited the use of CBT in the situation of acute trauma, tending to curtail its use by first responders, the military, and in disaster situations.

Treating Acute Trauma: Conclusions

In situations of significant trauma, the approaches that work best are those that follow a rational, commonsense logic. Provide stabilization, support, and safety. Don't make the situation worse than it already is. Don't cause harm. Help connect the victim to the available systems of social support and service. And don't decompensate yourself. In such calamitous situations, the caregiver is always at risk.

Some organizationally approved structured approaches have shown positive effects. Others, not so much. And some have caused harm. There is a long literature suggesting that the acute care for trauma should be provided as physically and temporally as close to the trauma as possible. But such an approach has been misused, as when psychologically traumatized soldiers are immediately returned to combat. A report of the trauma and the victim's psychological response to that trauma needs to be obtained and recorded. When this information is collected in a caring and supportive manner, most victims are willing and even relieved to share the report of their experience. But while this information may be important to the individual and for later therapy, neither psychological debriefing nor psychological first aid can prevent PTSD. Such acute approaches can negatively affect some individuals particularly when the approach is coercive or insensitive. Providing information as to the normal cognitive response to trauma and behavioral information as to techniques for handling reactions to trauma is apparently a useful approach with the potential to positively affect longer-term outcomes. Much more work needs to be done to evaluate all of these approaches.

Currently the best evidence supporting an approach to acute psychological trauma is the long-term and established approach of PIE crisis intervention. The

more modern version of psychological first aid incorporates components of psychological debriefing and cognitive behavioral therapy that have demonstrated positive outcomes. There is less evidence to support universally applied CISD and much less evidence to support using medications in the situation of acute trauma. A significant percentage of the victims of severe trauma will develop PTSD no matter what therapeutic approach is initially used to respond to the psychological experience of trauma.

The caregiver is also at risk. In order to provide the best care for the victim, the first responder needs to have experience, training, and social support. Yet even then, the experience of severe trauma, particularly when it is repetitive or affecting close friends and family, can have negative effects even for the experienced and well-trained responder. As the severity of trauma escalates, and the significance of loss increases, the involved relief workers, first responders, medics, and other caregivers can themselves develop symptoms of PTSD. The confrontation with trauma can give rise to heroes. But heroes can also get PTSD.

Appendix: Rapid PFA

1. Reflective listening of:
   - The event or critical incident
   - Personal reactions sustained
2. Assessment of need:
   - Medical
   - Physical
   - Safety
     - Ability to function so as to discharge daily responsibilities
3. Prioritize – Triage benign distress vs. malignant dysfunctional reactions
4. Intervention – Brief cognitive behavioral interventions
   - Education: Explanatory (flight-fight) and or anticipatory guidance
   - Acute cognitive/behavioral refocusing/reorienting
   - Deep breathing/relaxation
   - Cognitive reframing
     - Correction of errors in fact
     - Disputing illogical thinking
     - Challenging catastrophic thinking
     - Instillation of a future orientation…Hope
   - Delay making any life altering decisions/changes
   - Caution! Do not interfere with natural recovery process
5. Disposition: Assess that the person can adequately function
   - Identify relevant resources
   - Make initial contacts, as appropriate
     - Follow-up, as indicated [12]

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Classic Psychotherapy for PTSD

8

> We need to redraw the cartography of the mind, to venture beyond the paths on which Freud, safely and unsafely, was willing to tread. We need insane visionary moments, including the world of dream and hallucination, to be credited as part of the landscape of trauma – the psychic equivalents of 'upsurge' and 'turbulence'…Such moments arrive unbidden, erupting from what feels like another world [17].

There are multiple forms of psychotherapy that are based on different training approaches and alternative approaches to credentialing. Yet whether the practitioner is psychodynamic, Jungian, cognitive, existential, or humanistic by training and orientation, all derive essential aspects of their practice from the psychoanalytic movement begun by Sigmund Freud. Over 100 years ago, Freud suggested that a trained therapist could discover and interpret the psychodynamic structure of a patient's mind from their free associations and reported dreams. This dynamic could then be used to develop a treatment plan for the individual patient's psychiatric symptoms.

The Psychoanalysis of Trauma

Freud's published his proposals just before and during the time of WWI and its associated epidemic of shell shock. He proposed that such war neuroses developed from the individual's failure to protect themselves from the experience of trauma:

> We describe as "traumatic" any excitations from outside which are powerful enough to break through the protective shield. It seems to me that the concept of trauma necessarily implies a connection of this kind with a breach in an otherwise efficacious barrier against stimuli. Such an event as an external trauma is bound to provoke a disturbance on a large scale in the functioning of an organism's energy and to set in motion every defensive measure…there is no longer any possibility of preventing the mental apparatus from being flooded with large amounts of stimulus… [8].

Extending this concept, Freud proposed that traumatic expereince was the origin for almost all psychiatric disorders. According to Freud, when any trauma overwhelms

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our capacity for adjustment and compensation, we develop symptoms of hyperarousal, insomnia, and the intrusion of the previous experience of trauma into our lives. Recurrent, distressing nightmares are often part of this process.

From the psychoanalytic perspective, PTSD is a primary example of an anxiety-based diagnosis occurring secondary to psychic trauma from the overstimulation of combat stress and alteration of internal fantasy systems [19]. Freud developed what he called "the talking cure" in which putting of the event into words by the patient could sometimes result in a diminishment of symptoms [3]. This perspective is strongly supported by a large volume of psychoanalytic literature. At the end of the twentieth century, individuals with traumatic war neurosis were considered to have the following characteristics:

1. Faced with combat stress, they have the potential for forming overly dependent relationships with a peer or an important figure back home – in that relationship, there is a lack of differentiation from the other.
2. A resulting vulnerability to loss can result in overwhelming feelings of insecurity, resulting in chronic hostility and a desire for vengeance – this hostility can change to a feeling of threat to themselves from people or their environment.
3. They have a diminished capacity to regulate self-esteem, becoming dependent on others for feelings of self-worth.
4. They are susceptible to concerns about maintaining their psychological intactness and their belief that the world is a safe place.
5. They have a pervasive depression with felt inability to reinvest in new relationships and identify gratifying activities – they have the sense that something basic about themselves has been altered.
6. They are preoccupied with their bodies and health.
7. There is a vacillation between feelings of utter helplessness and terror and feelings of omnipotence and yearnings for idealized figures [20].

Ignoring the somewhat judgmental aspects of these descriptions, some of these characteristics affect individuals with the diagnosis of PTSD. Freud proposed that these behavioral processes led psychodynamically to the development and persistence of PTSD [21]. Much of PTSD psychotherapy was designed to address the "maladaptive" coping mechanisms used by patients with the disorder. Just a few years ago, psychotherapy emphasizing these shared and presumably maladaptive behaviors was the accepted and organizationally recommended approach for treating PTSD [4].

Freud's Anxiety

Freud rarely used the term nightmare, alluding rather to distressing dreams as anxiety dreams that were most often associated with fears of falling, loss of control, and particularly castration [8]. It is likely that sexual connotations associated with the nightmare contributed at least, in part, to Freud's focus on the sexuality of dreams. Freud often interpreted dreams, including nightmares, from this perspective. But,

dreams and nightmares can be legitimately interpreted in many different ways. Carl Jung critiqued his mentor:

> Now if one begins, as the Freudian school does, by taking the manifest content of the dream as "unreal" or "symbolical," and explains that though the dream speaks of a church-spire it really means a phallus, then it is only a step to saying that the dream often speaks of sexuality but does not always mean it, and equally that the dream often speaks of the father but really means the dreamer himself.…The whole dream-work is essentially subjective, and a dream is a theatre in which the dreamer is himself the scene, the player, the prompter, the producer, the author, the public and the critic [12].

Freud considered the nightmare to be an expression of intense mental conflict centering around repressed sexual desire – most likely incestuous [6]. This "insight" was supposed to contribute to an understanding of the experienced nightmare for the sufferer. However, for many of those who experience nightmares, such an insinuation can be distracting, if not personally insulting. When used by "therapists" in its most malign form (the search for false memories in patients complaining of nightmares), Freud's "insight" has led to needless personal disarray and family destruction in the search for unremembered and/or unexperienced incestuous encounters.

Classically, Freudian-based psychoanalysis concentrates on the verbal elaboration of dream reports. The therapist is trained to analyze semantic condensations of patient dream reports. Such dream analysis has spawned an extensive literature utilizing what can be opaque language. The terms utilized to describe the psychoanalytic narrative process of dreaming include dream-ellipsis, pleonasm, regressions, repetitions, appositions, metaphor, catachresis, autonomasis, allegory, metonymy, and synecdoche [18]. The ability to read and understand much of this literature requires training and an extensive background in the psychoanalytic system. In order to reach deeply into this literature, understanding generally requires that the adherent develop a belief in the efficacy of the psychoanalytic approach. Unfortunately, there is remarkably little actual evidence that therapies based on the psychoanalytic perspective work in treating psychiatric illness. The supporting evidence is almost all anecdotal, based on individual case reports. Most often, this research is poorly controlled for competing variables such as transference (the tendency of a personally involved subject to attempt to please the therapist), researcher bias (the expectation that results should support the therapy and training of the therapist), and continuity (the strong tendency for dream content to reflect waking experience). These are powerful competing variables that can clearly alter research findings that attempt to address the cognitive process of dreaming [5]. When such variables are controlled, very few of what are commonly perceived as psychoanalytic insights into dreams and nightmares can be demonstrated to actually exist. There is little evidence supporting a role for dreams either as wish fulfillment or as protectors of sleep [15]. While nightmares can reflect the waking life experience of individuals with psychiatric illness, there is little evidence that nightmares lead down a royal road to psychopathology [10]. That is not to say that the psychoanalytic approach does not have value. It is an approach that can be used to contribute

to personal insight and has proven an excellent tool for developing and critiquing film, literature, and visual art. But there is little evidence that psychoanalytic approaches work any better than supportive reassurance in reducing distress or treating psychiatric disorders [22].

Freud: Trauma and Creativity

Some of Freud's most positive and hopeful work was in the area of creativity and art. He suggested that the psychological origin of creativity was based on childhood trauma, yet this defined trauma was often quite mild – life-stage separations and family relationship transitions [7]. Freud suggested that the creative process could be therapeutic. He proposed that beyond psychoanalysis, art could offer an alternative and therapeutic path:

> For there is a path that leads back from phantasy to reality – the path, that is, of art…It is well known, indeed, how artists in particular suffer from a partial inhibition of their efficiency owing to neurosis…A man who is a true artist has more at his disposal. In the first place, he understands how to work over his daydreams in such a way as to make them lose what is too personal about them and repels strangers, and to make it possible for others to share in the enjoyment of them…Furthermore, he possesses the mysterious power of shaping some particular material until it becomes a faithful image of his phantasy; and he knows, moreover, how to link so large a yield of pleasure to his representation of his unconscious phantasy, that, for the time being, at least, repressions are outweighed and lifted by it. If he is able to accomplish all of this, he makes it possible for other people to once more derive consolation and alleviation from their own sources of pleasure in their unconscious which have become inaccessible to them; he earns their gratitude and admiration and he has thus achieved through his phantasy what originally he had achieved only in his phantasy – honour, power, and the love of women [7].

Art therapy, psychodrama, and other creative therapies were quite popular during the mid-twentieth century. Creative endeavors were postulated to promote psychiatric health and even happiness by followers of Freud [14]. Conducted in group settings, the approaches of art therapy and psychodrama could be used to treat a far larger number of individuals than the rare individuals able to afford one-on-one psychoanalysis. However, in this twenty-first century, such creative therapies are utilized far less often as therapeutic approaches in the treatment of trauma and PTSD.

Jung's Nightmares

In our post-psychotherapeutic era, some have argued that nightmares serve a philosophic function for our psyche – opening up a world of image and myth that is sorely missing from concrete waking experience [11]. Historically, in both literature and religion, nightmares have supplied subjective, sensuous, and personal images of gods, demons, beasts, and angels that comprise the human panorama of psychic images both sacred and profane. For Jung and his followers, these images

are archetypes, empirical, and instinctual representations of the human experience [12]. Nightmares provide the dreamer access to the dark side of this world. The nightmare experience can be the concrete metaphor of horror or a version of reflective fantasy. It may be that experiences of apparent psychopathology such as nightmares are essential for "normal" functioning in our psychological lives. Nightmares, like other dreams, can provide access to fantasy and spontaneous insights that are not generally available in the concrete requirements of the exterior world. Such an access to ecstasy is something that many artists need for their work [16].

Modern Psychotherapy

Despite this Freudian legacy, modern psychotherapy is not overtly psychoanalytic. Most therapists eventually came to the conclusion that psychoanalysis had failed as a clinical approach for treating psychiatric illness. The training of psychoanalysts takes many years, and once trained each therapist could see only a few patients for the required, repeated, and extended one-on-one visits. With access to therapists limited, long-term therapy required, and questionable therapeutic success, the unfortunate result of psychoanalytic therapy became the warehousing of patients into giant mental hospitals. By the 1960s, in the United States psychiatric patients occupied more than 1/2 of the available hospital beds. An extensive literature documented anecdotal single patient responses to treatment; however, there were few controlled clinical trials and almost no large studies that could be used to evaluate outcomes. With the advent of psychotropic medications, despite side effects and limitations, the treatment of psychiatric illness with drugs produced a better response than psychoanalysis and allowed the majority of psychiatric patients to leave the hospital and return to the community.

Modern one-on-one psychotherapy whether provided by a physician, a nurse, a psychologist, a sociologist, a therapy extender, or an emergency medical technician shares both the limitations and successes associated with the psychoanalytic approach. While there are a large number of providers with at least some training in providing psychological therapy, disadvantages include the requirement of repetitive, long-term involvement between patient and therapist and the associated cost. Modern versions of "talk" therapy tend to share the aversion to empiric outcome analysis, and only limited empiric data indicates as to whether classic psychotherapy has value in the treatment of PTSD. A few controlled studies have attempted to compare classic psychotherapy to support and reassurance. The 9/11 study compared classic psychotherapy to well-designed crisis response to determine that classic psychotherapy produced poorer results at higher cost over both the short and long term [1, 2].

In any one-on-one setting in which a therapist works with a patient, there is the problem of transference. Because of this, some texts suggest that therapists treating trauma should maintain a significant distance from their patients. This approach is sometimes referred to as therapeutic neutrality in which the provider reveals as little

of themselves as possible so that the thoughts, memories, and feelings developed during the therapeutic process come from the patient's psyche rather than from the interpersonal therapeutic relationship [9]. Some of the providers working with situations of severe trauma will themselves develop symptoms of PTSD (see the Zac Recruit story – Chap. 2). Because of the difficulty and risk to the provider, in situations in which the level of trauma is extensive, such as in the military during war, the diagnosis and therapy of PTSD often moves down the chair of command and care to the lowest-ranking provider. In today's military world of PTSD, in order to avoid the problem of transference and provider burnout, typical care may be provided through the mail or computer access [13].

Conclusion: Classic Psychotherapy for PTSD

Today when addressing psychological aspects of trauma, almost all clinicians and therapists use the DSM protocols to make diagnoses. Beyond classic psychotherapy, almost all providers addressing PTSD utilize or offer access to various cognitive and behavioral treatments that have been empirically proven to provide excellent results. These approaches include prolonged exposure (Chap. 10), EMDR (Chap. 11), as well as imagery rehearsal therapy (Chap. 12). In controlled clinical trials, these therapies have proven more likely to produce positive outcomes for patients with PTSD than has classic psychotherapy.

Psychotherapists, no matter what their training or credentials, have an important role in the treatment of PTSD. A major, important legacy of psychoanalysis has been an understanding of both the advantages and the problems of transference. While therapeutic neutrality may be required to protect the therapist, any approach to PTSD works best when a therapist who has a developed relationship to the patient is involved and available for support. Addressing the experience of significant trauma often leads to distress. For some individuals that response can be severe psychological decompensation that requires hospitalization. Individuals who have PTSD are at a higher risk for suicide, as well as dangerous, socially, and personally destructive behaviors. Any therapist working with a traumatized patient, no matter their training or approach, should be able to provide a supportive environment for the patient, as well as to provide access to protection and emergency psychiatric support when required.

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Group Therapy for PTSD

9

All men are moulded to be unanimous in the utmost degree in bestowing praise and blame, and they even rejoice and grieve about the same things, and at the same time [16].

An Overview

Group therapy has a long and rich history of use in treating PTSD. After the experience of the Vietnam War, "rap groups" became the treatment of choice for veterans complaining of trauma-associated psychiatric symptoms [9]. Today support groups still play a significant role in many of the agencies that serve trauma survivors, especially for the Department of Veterans Affairs (VA) [12]. The popularity of group therapy comes from two basic truisms:

1. Individuals diagnosed with significant medical and/or psychiatric disorders such as PTSD have better outcomes when they have a functional social support system. Many PTSD patients have become isolated from others and strive for some form of safe and interactive outside contact. Group therapy offers at least the illusionary structure of such support.
2. And, group therapy should be less expensive to provide than individual therapy, as based on funding and required therapeutic effort. At times when the social epidemic of PTSD overwhelms available resources, group therapy has become the great hope and applied emphasis for politicians, technocrats, families, and accountants controlling access to care. These factors have made the various group therapies among the most popular and most available.

Yet despite this emphasis on group therapy as a predominant mode of care for PTSD, there has been a surprising lack of methodologically rigorous studies documenting its efficacy. The studies that do exist are most often open trials that rarely attempt to control competing variables, transference effects, or bias and almost never utilize control groups (e.g., [17]). While such open trials can be helpful in the

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beginning stages of developing treatment, in many areas of medicine and psychiatry, treatment developed and funded based on such a limited level of understanding has led to less than optimal care. Open trials need to be followed by refined and defined research protocols if they are to be incorporated in standardized evidence-based medical and psychiatric care. There are few such clinical trials addressing PTSD group therapy. At this point, only a few small and limited studies support the primary hope for group therapies – care equivalent to that obtained from individual therapy. As a consequence, the American Psychological Association indicates that no PTSD group-based therapy meets evidence-based criteria [22]. Be that as it may, much of current PTSD care is provided in a group therapy setting. Today's versions of group therapy can be classified by type, as related to the individual therapies used to treat PTSD.

Supportive Group Therapy

Many of the classic therapy groups are supportive. While some supportive therapy groups are led by therapists, many utilize the peer-directed step models typical of Alcohol and Narcotics Anonymous. Participants, generally individuals who have similar experiences of trauma, are encouraged to discuss their ongoing stressors. Other group members respond by providing feedback, assistance with problem-solving, and emotional support. Most groups focus on present rather than past events. The core component of supportive groups is the enhancement of interpersonal connections through the giving and receiving of emotional support and feedback. Common experiences among group members are emphasized, involvement from each group member is actively encouraged, and members are praised for displaying adaptive behaviors [11].

When studied in Vietnam combat veterans, supportive therapy led to improvement for 38% of participants, no change in 43%, and worsening symptoms in 18%. These results are similar to those attained using other forms of group therapy [19]. As noted in previous chapters, an active and involved support system is particularly important in the response to trauma. Any individual with a poor support system is more likely to develop symptoms and functional impairments associated with PTSD [2]. An additional advantage of this approach is the incorporation of techniques used to address substance abuse issues, a particular problem for many PTSD patients and a problem that is often best addressed in the group setting rather than in the medical/psychiatric clinic [10].

Psychodynamic and Interpersonal Groups

Psychodynamic and interpersonal groups focus on increasing awareness of internal conflicts and defense mechanisms, attempting to help the patient in gaining insight into how trauma influences the sense of self, affective experience, and interpersonal functioning [7]. Group participants help one another to understand how their

assumptions about themselves have been shaped and negatively distorted by the experience of trauma. Personal growth from within the safety of the group can produce improved ego strength, insight, and self-understanding. Interpersonal groups emphasize insight-based learning and change, attempting to identify personal behaviors that make the individual vulnerable to exploitation by others as well as discouraging others from providing social and personal support [10].

These groups are almost always led by a trained therapist. Trauma material typically arises in a slow and unstructured manner. The pace of discussion of trauma memories is often much slower than in other approaches. The few studies addressing the efficacy of this approach to care has focused on female survivors of sexual trauma. Small to moderate positive effects have been noted when compared to an untreated "wait list" cohort [13].

Cognitive Behavioral Therapies (CBT)

A wide spectrum of therapies utilizing learning and conditioning approaches can be classified under the banner of CBT. While these approaches have similarities in application, their theoretic constructs and rational are so diverse as to make it difficult to define an overall construct that defines all forms of CBT. Classic CBT as a restructuring approach has been proven to have value when resolutely applied in the treatment of insomnia, anxiety, and depression. Other forms of learning/conditioning proven to be of use in the treatment of PTSD including extinction/ re-experiencing therapies, imagery, and lucid dream control have little in common with classic approaches to CBT other than their utilization of psychologically based behavioral manipulation. These are disparate approaches. In this text these therapies are viewed independently, each with its own theoretical construct, rational, and research data supporting or confounding its application.

Classic CBT in a Group Setting

All of the CBT approaches are typically directed by a trained therapist. These groups include skills training and trauma-focused techniques such as cognitive restructuring as well as prescribed changes in behavior. Skills-based approaches target specific problem areas commonly experienced by patients with PTSD, such as anger and stress. Patient commitment to the therapy is required for multiple ongoing sessions that often include homework. A variety of technological approaches have been developed to administer CBT outside the clinic including postage, telehealth, virtual reality, and the Internet. Variations include a cognitive-only version (CPT-C), group CPT-C modified for cultural considerations, and a combined individual and group format of CPT [5, 14]. A recent study addressing the efficacy of CPT-C in treating a military PTSD population utilizing 12 90-minute sessions indicated that a significant reduction in PTSD severity could be attained for most participants [18]. This is an isolated empiric study, but it does indicate the

potential for CBT in treating PTSD. However, more, larger, and better controlled studies using consistent therapeutic approaches within set protocols are needed in order to determine what components of CBT therapy have actual effect, how many sessions are required, and whether patient-therapist interactions form a necessary part of CBT therapy.

Prolonged Exposure in Groups

Prolonged exposure (PE) groups focus on the original experience of trauma rather than on the present response to that event. These therapies incorporate prolonged and repeated exposure to the personal experience of trauma. PE has become the most commonly utilized approach used to address PTSD by most military organizations. When administered individually, excellent short-term individual responses are noted. In the group setting, the exposure component can include imaginal exposure to the trauma memory through writing or speech within the group and homework such as listening to session tapes [3]. Some groups act out and share re-exposures to feared stimuli associated with the traumatic event [17]. There is ongoing debate within the PTSD treatment community as to whether conducting trauma exposure within the group setting is problematic, due to the potential for inducing vicarious traumatization in other members. It is clear that the members of prolonged exposure groups need to be carefully selected based on trauma type and gender [8]. The approach may be counterproductive outside the military setting, particularly in the setting of sexual trauma. A large literature documents the efficacy and effectiveness of prolonged exposure therapy, and a recent meta-analytic study suggests that prolonged exposure groups may have better overall results in reducing symptoms of PTSD than other forms of group therapy for those who might not be able to access alternative treatments [20]. Despite such suggestions, group prolonged exposure therapy is not a one-size-fits-all approach. It has risks for inducing harm even for those individuals who have shared an experience of trauma. The current PTSD epidemic has exposed the limits in availability and the cost of resources needed for PTSD treatment. Far more work needs to be done, if exposure-based group CBT is to become an accepted evidence-based standard of care for PTSD [1].

Medication

Some forms of therapy are more difficult than others to provide in a group setting. The social constraints of the patient-physician relationship require that medication for PTSD be individually prescribed. Organizational, financial, and best-practice constructs are used in an attempt to define what is considered to be an appropriate standard of care applied to medical prescribers. In the United States, military providers are monitored and graded as to their use of medications for the treatment of PTSD, primarily in their use of antidepressants, for which the rationale for use in

every individual diagnosed with PTSD is less than compelling. It is unclear whether antidepressants actually have benefits for PTSD patients who are not depressed. The rationale for their use is in part based on the significant danger for suicide among individuals diagnosed with PTSD. It is unclear, however, that the use of medications without further support, treatment, and protection offers any benefits in preventing suicide [6]. Medications are best provided individually by a trained and licensed practitioner as based on presentation, symptoms, and personal requirements rather than as part of a group therapy or policy.

Group Therapies for PTSD: An Overview

Group therapy has the potential to offer benefits beyond those that can be provided in individual therapy. Groups can provide a safe environment for patients with PTSD to become more socially connected with others and offer the opportunity in that supportive environment to build trust and self-belief. Group therapy should be able to treat more individuals at lower cost, so that group therapy for PTSD could be used for the large number of traumatized individuals who are not treated. It is important, however, to carefully consider the conclusions that can be drawn from the limited research that has been done. The strongest evidence indicates that group therapy can have benefits when compared to PTSD groupings that receive no treatment at all [21]. Most studies suggest that group therapy is not as effective as individual therapy. Research has also been unable to demonstrate that any of the group therapies can provide unique benefits beyond those provided by individual therapies [22].

Supportive group therapy remains popular, particularly among military veterans diagnosed with PTSD. Supportive groups can provide adjunctive social support for individuals involved in individual therapies. Supportive, peer administered group therapy has the potential to reduce the levels of stress otherwise assumed by families and therapists. There is no data, however, indicating that groups reduce PTSD symptoms or improve care outcomes when they are the only therapeutic care provided. Exploratory studies suggest that some of the CBT approaches can produce positive effects in treating PTSD, yet it remains unclear as to what approaches used in what manner are most likely to produce positive results [20]. The research that exists evaluating group therapy is limited, with the data that does exist has sometimes proved contrary to therapeutic expectations. There is little to guide clinicians as to what group treatments for PTSD should be used.

There are, however, some logical, if limited, considerations that can be generally applied. It is important to consider the composition of the group when deciding whether or not a specific patient might be suitable for a group. Single members of the group should not differ in some important way from other group members, such as sex or type of trauma. Individuals who are severely depressed or psychotic, have severe cognitive impairment, or are currently in a chaotic, unstable, or homeless situation are unlikely to benefit from group treatment. Some patients do not feel comfortable in a group setting, and this discomfort may inhibit them from actively engaging

in their treatment. From the organizational standpoint, except in the institutional setting, scheduling group treatment is often more difficult than individual treatment because of the need to accommodate the schedules of all group members [23].

Combined Groups

There is one situation in which groups are the indicated approach to therapy. Approximately 1/3 of individuals diagnosed with PTSD will develop alcohol dependence [4]. Such substance abuse often has adverse effects on both social support networks and an individual's ability to assess and utilize available care. Individuals actively abusing substances are a considerable challenge in individual therapy [10]. They are also more likely to be disruptive in the group therapy setting. Among the best approaches to substance abuse are the peer-directed, group step models such as those used by Alcohol and Narcotics Anonymous. Seeking Safety (SS) is a well-known group treatment that utilizes a combined approach in targeting PTSD comorbid substance use. Frequently used in VA health-care settings, SS is a present-focused, coping skills approach that includes training in distress tolerance and affect management. Unfortunately, efficacy findings for this approach have been mixed. The early studies demonstrating that SS could reduce symptoms of PTSD were open trial designs and had no treatment comparisons controlling for bias and confounding variables [15]. In the common clinical situation in which substance abuse is comorbid with PTSD, such groups can be considered as a primary component of therapy.

Conclusion

Group therapy is popular among both patients and providers. It is among the most likely treatment approaches to be used for individuals diagnosed with PTSD. This is largely due to its widespread availability and lower cost. There is little helpful research evaluating the various approaches to group therapy for the therapist involved in selecting appropriate care for an individual affected with PTSD. The primary import from research is that group therapy for PTSD is likely to be better than no therapy at all (when group therapy outcomes are compared to the outcomes of individuals left on interminable wait lists for therapy) [20]. There is almost no data suggesting that group therapy is better than any of the individual forms of PTSD therapy, even when compared to those approaches with limited proof as to their efficacy. Due to lower cost and provider limitations, meta-analytic compilations of small uncontrolled studies are currently being used as evidence to push for the acceptance of the group approach with the best track record, prolonged exposure, to become the primary treatment modality used to address PTSD [20]. Despite such emphasis, the evidence is quite limited suggesting that any group therapy should be the primary approach used to treat PTSD, while solid evidence documents the excellent results that can be achieved in treating PTSD with a wide spectrum of individual approaches.

Group therapies have an integral adjunctive role in the treatment of PTSD. Groups are the standard of care for the treatment of substance abuse. Supportive groups have an important role in providing social support. However, as based on current evidence, there is little question that an individual's primary therapy for PTSD should not be obtained in a group setting. That indicated therapy for PTSD should be one that has been proven to work – one of the individual therapies that will be discussed in the next chapters. Yet, when a group therapy is all that is available, despite the lack of evidence as to efficacy, it is likely to be better than no therapy.

The argument as to what constitutes appropriate care is taking place throughout medicine. It can be argued that it is better to provide inferior, less costly care to a greater number of people than to provide high-quality, more efficacious care to just a few. Politics and finance exert significant effects on the provision of PTSD therapy. Group care has a lower initial cost, so more individuals end up receiving that care. Unfortunately any approach utilizing a therapy proven to have a lower success rate will provide poorer care at higher cost over the long term to the individual in need. Such logic seems particularly suspect when applied to groups traumatized during the provision of socially accepted service: the military, first responders, police, and those providing emergency care. On an ethical basis, it can be cogently argued that these individuals, those we often refer to as heroes, should receive the best available care.

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Classic Cognitive Behavioral Therapy

10

Cognitive behavioral therapy (CBT) has become a very broad topic. CBT as initially developed was part of a structural approach to psychotherapy, based on techniques in behaviorism developed in the 1920s combined with late psychoanalytic cognitive theory as developed by Afred Adler. CBT was developed in an attempt to utilize psychotherapy to address unhealthy behaviors and life goals. Initially behavioral approaches were contrasted with cognitive therapy, but in the 1980s the two approaches were merged into CBT [2]. The primary assumption of CBT is that changes in maladaptive thinking can be altered to lead to changes in behavior. Through most of the twentieth century, Freudian psychoanalysis had been the predominant approach utilized to provide psychological care. Psychological approaches based on intensely individual psychoanalysis were by their very nature qualitative and untestable. In response, from the very first, a primary requirement for any approach classified as CBT was that the therapy be both empiric and testable. Unfortunately, no one has figured out a way to design a double-blinded CBT study (i.e., a study in which neither the subjects nor therapists know whether the subject is receiving therapy). CPT therapy cannot be disguised as something other than an attempt to change an individual's patterns of thought. In CBT studies, the patient is always an active participant in therapy and quite aware that he or she is receiving therapy.

CBT was initially developed as a controlled protocol designed to address specific identified maladaptive behaviors. In most cases those maladaptive behaviors were sufficiently severe to result in psychiatric diagnoses. CBT therapy was most often used in the treatment of anxiety, or for mood disorders such as depression. The results attained have been much better than those that were possible using previous versions of psychotherapy. In many cases, results were even better than those which could be attained using medication [21]. The spectrum of psychiatric disease being treated with CBT expanded to use in schizophrenia, other psychosis, eating disorders, personality disorders, substance abuse, and various forms of chronic pain [25]. Evidence-based studies supported the effectiveness of different CBT protocols tailored to treat particular diagnoses [6]. As classically developed, CBT was a safe

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therapy that almost never induced negative side effects [21]. CBT eventually achieved its status as the most appropriate and effective psychological therapy available for most psychiatric disorders, as well as an adjunctive therapy for many difficult to treat medical disorders with a psychosomatic component [18].

CBT: A Family of Interventions?

CBT developed in several distinct eras, in different waves. First-generation CBT was structured behavioral therapy in which well-evaluated learning principles were used to change overt behavior. The 1980s were the era of classic CBT – methods and concepts focused on the role of maladaptive thinking and patterns of emotion and behavior associated with specific diagnoses and the use of methods to detect and change those patterns. Classic CBT, extraordinarily successful as an approach used to treat psychiatric diagnosis, expanded in a second wave and became the standard of care throughout psychology and much of the medical field. Early in this century, a "third wave" of CBT arrived in which many independently developed psychological therapies were moved under the umbrella of CBT [9]. With this third wave, almost all psychological approaches became considered as forms of CBT. Approaches that emphasized issues such as mindfulness, prolonged exposure, emotions, imagery, acceptance, extinction, the relationship, art, values, lucid dreaming, goals, and metacognition became versions of CBT. But this spectrum of diverse approaches now classified as CBT was based on varied, sometimes contradictory theoretic constructs, as well as extremely varied processes and application. Third-generation CBT includes methods of therapy with differing objectives, varied outcomes, and sometimes negative side effects to treatment. Today in current practice, the term CBT is often used to describe any form of psychological talk therapy (as opposed to drug or surgical therapy) that is not psychoanalytic. The term CBT used as an umbrella concept, may no longer refer to a particular form of therapy. Comparative and meta-analytic studies addressing CBT effectiveness will often conflate multiple forms of therapy as all being CBT, an approach sometimes used to import general evidence supporting CBT effectiveness to bias of the evidence supporting a circumscribed approach to treatment [14]. Today, "CBT" is often used in such a global fashion. The third-generation concept of CBT has been further expanded into the denotation of process-based therapy so that CBT as used currently identifies the family set of psychological treatments that is based on empirical support. Today any therapy evaluated using an evidence-based approach can be considered to be a form of CBT [9].

Classic CBT: A Typical Protocol

CBT as classically conceived has six phases: (1) psychological assessment in which excesses and deficits in critical behaviors are categorized; (2) reconceptualization, much of the "cognitive" portion of CBT; (3) skills acquisition, generally based on the training and expertise of the provider; (4) skills consolidation and application

training; (5) generalization and maintenance; and (6) posttreatment assessment when after treatment the therapist identifies whether or not the intervention succeeded [13]. A typical CBT program consists of 6–18-hour-long face-to-face sessions between patient and therapist with a gap of 1–3 weeks between sessions. This initial program is generally followed by booster sessions, from 1 month to 3 months after completion of initial therapy.

CBT's evidence base, short-term nature, and economical use of resources have made it attractive to clients, practitioners, and service providers. However, in many places CBT is unavailable due to high level of demand, the limited availability of therapists, and a lack of clear referral criteria and pathways to care. Some forms of CBT are now conducted as Internet interactions. In one Internet-based study, significant improvements in PTSD were observed for 3 months after task completion with 69.2% of the sample showing clinically significant improvement. In this study, the average total therapist time required was quite high – 194.5 min [15]. Computerized versions of CBT generally, however, require less therapist time and are less costly than face-to-face versions of care [16].

Using CBT to Treat Insomnia

Almost all individuals with a psychiatric diagnosis, particularly those with the diagnosis of PTSD, have significant difficulty initiating or maintaining sleep or have the complaint of non-restorative sleep negatively affecting their ability to function when awake (i.e., they have insomnia). CBT has proven to be an excellent therapy, one even better than medication when used to treat chronic insomnia [7]. The primary care specialties have applied considerable effort in the training of physicians and physician-extenders in the use of CBT protocols in treating chronic forms of insomnia [3].

On initial intake, the clinician attempts to determine whether the patient has a specific insomnia inducing diagnosis such as restless leg syndrome, sleep apnea, and/or an insomnia inducing medical and psychiatric diagnosis. If such is present, that diagnosis is treated concomitantly with the use of CBT. If the patient meets diagnostic criteria for depression, a depression rather than an insomnia-oriented CBT protocol is utilized [24]. When CBT is used to treat insomnia, maladaptive thoughts and behaviors regarding sleep are emphasized including but not limited to (1) poor sleep hygiene; (2) poor sleep habits; (3) the use of activating agents, drugs of abuse, and prescription medications (including the chronic routine use of sedating medications that negatively affect sleep); (4) overemphasis on the importance of sleep; and (5) clock watching. Behavioral approaches are then used in an attempt to break the stimulus – response pattern leading to agitation at sleep initiation. Patients are taught different versions of relaxation, to limit prolonged time in bed while awake, and to proscribe such potentially negative factors as daytime napping and before bed exercise. Multiple sessions over an extended period are required if treatment is to be successful [20]. Beyond a lack of side effects, one of the great benefits of CBT over the medications used to treat insomnia is that benefits from treatment can persist for years after therapy [19].

CBT: Problems in Application

Some individuals have minimal or no response to CBT. In most studies that nonresponse rate fluctuates in the range of 20%; however, there are studies in which the nonresponse to CBT when used to treat PTSD is as high as 50% [14]. Response rate is affected by comorbidities such as SUD and other psychiatric diagnoses and the nature of the study population [21]. A key issue in CBT has been the high levels of dropout from treatment [23]. Levels of non-completion are even worse for computerized protocols. Completion rates and treatment efficacy improve when therapy is supported personally and with outside support [15].

CBT can also be difficult for the therapist. Protocols are repetitive, working best when presented in a routine and consistent manner. Therapeutic neutrality can be difficult to maintain. The practitioner is often tempted to share thoughts, memories, and feelings, particularly during periods of disseminated and shared trauma. Therapists can develop into victim advocates who become rescuers, disempowering the patient and perpetuating beliefs of personal incompetence [5]. In the worse-case scenario, the therapist also develops symptoms of PTSD.

Treating PTSD with CBT

CBT is generally a safe therapy without negative outcomes. Classic CBT can be an effective intervention in the treatment of PTSD [6]. But, treating PTSD has altered the attributes of CBT in basic ways. Confronting trauma is difficult, and some individuals will respond in a negative way. Anxiety and distress is common, with some finding the experience to be so aversive that they discontinue therapy. Some individuals avoid care. In the case of PTSD, such a persistent lack of care is associated with long-term functional impairment, reduced social support, and homelessness, potentially contributing to a greater risk for suicide. These are negative side effects secondary to what is perceived as aversive therapy. In this setting, when CBT is used in treating traumatized patients, the therapy can no longer be considered as fully safe [14].

The forms of CBT used to treat PTSD incorporate the cognitive and behavioral aspects of other PTSD treatment protocols, adapting portions of insomnia, depression, and anxiety CBT protocols to treating PTSD. Some CBT approaches used to treat PTSD focus on the habitual patterns and personal ties to the trauma experience. A component of prolonged exposure is a part of the therapy. Other approaches attempt to alter distressing trauma-associated memories by altering the imagery of experienced nightmares. PTSD-focused CBT differs widely based on therapeutic objectives, provider training, and apparent patient need. This variability in approaches makes it difficult to evaluate and compare approaches to care when all are classified in an overall category called CBT [14].

Short-form trauma-focused CBT administered by minimally trained volunteers has been effectively incorporated into therapeutic disaster response. After the World Trade Center attacks, CBT was taught de novo as an addition to psychological first aid

protocols to disaster workers. When compared to a cohort treated with classic psychotherapy, this approach was associated with lower rates of PTSD and functional impairment [17]. Following Hurricane Katrina this approach was again used to train community therapists in post-disaster therapy [8]. CBT and CBT training is sometimes provided online. Such short-form CBT has a potential preventive role in the development of PTSD, but the evidence is limited that might support definitive recommendations for its use. According to the American Psychological Association, all PTSD sufferers should be offered a course of what they broadly describe as trauma-focused CBT presented on an individual outpatient basis by a trained provider. The recommended duration of this trauma-focused treatment is 8–12 sessions when the PTSD results from a single event. When the trauma experience is addressed in treatment, longer sessions are suggested. It is recommended that treatment should be regular and continuous and delivered by the same person [1]. Despite such recommendations, today, due to the lower initial cost and resource requirements, computerized versions of CBT are becoming increasingly popular for treating acute trauma and PTSD [11].

Relaxation Training

When CBT is used to address PTSD, a diagnosis associated with anxiety and agitation, the behavioral component of treatment almost always includes a form of relaxation training. Some therapists will train subjects in the use of a physical method such as the Jacobson technique of muscle tightening and relaxation [12] (Fig. 10.1). Other providers will encourage their patients to take up exercise programs, particularly those that focus on techniques such as yoga. Biofeedback techniques give the patient information about their own physiological processes in order to help them in reducing tension and anxiety. Biofeedback targets include muscle tension as monitored by EMG or galvanic skin sensors, heart rate, and various EEG frequency targets. Patients are taught to use these techniques to confront episodes of anxiety when they occur. Relaxation training as a stand-alone therapy works only minimally when used in treating PTSD. In research studies, it is sometimes used as a control therapy for monitoring the efficacy of other PTSD therapies [4]. Any approach to treating PTSD is likely to induce episodes of what is sometimes severe anxiety when powerful traumatic memories arise. This strongly suggests that all psychological approaches to therapy for PTSD need to include a relaxation component.

Treating PTSD with Third-Generation CBT

Classic forms of CBT are altered based on the diagnosis being addressed. Depression CBT focuses on negative mood, and anxiety CBT addresses agitation, while insomnia approaches address sleep disturbance. For third-generation approaches, CBT is a component rather than the focus of therapy. Even medication-based treatments incorporate a CBT component into patient instructions – cognitively addressing the value and side effects of the drug and a behavioral component stressing the

Relaxation sequence:

1. Right hand and forearm. Make a fist with your right hand.
2. Right upper arm. Bring your right forearm up to your shoulder to make a muscle.
3. Left hand and forearm.
4. Left upper arm.
5. Forehead. Raise your eyebrows as high as they will go, as though you were surprised by something.
6. Eyes and cheeks. Squeeze your eyes tight shut.
7. Mouth and jaw. Open your mouth as wide as you can, as you might when you're yawning.
8. Neck. (Be careful as you tense these muscles.) Face forward and then pull your head back slowly, as though you are looking up to the ceiling.
9. Shoulders. Tense the muscles in your shoulders as you bring your shoulders up towards your ears.
10. Shoulder blades/back. Push your shoulder blades back, trying to almost touch them together, so that your chest is pushed forward.
11. Chest and stomach. Breathe in deeply, filling up your lungs and chest with air.
12. Hips and buttocks. Squeeze your buttock muscles.
13. Right upper leg. Tighten your right thigh.
14. Right lower leg. Pull your toes towards you to stretch the calf muscle.
15. Right foot. Curl your toes downwards.
16. Left upper leg. Repeat for the right upper leg.
17. Left lower leg. Repeat as for the right lower leg.
18. Left foot. Repeat for the right foot.

Fig. 10.1 Jacobsen's relaxation protocol [12]

maintenance of a support system, sleep, and symptom control [22]. Third- generation PTSD focused CBT includes less developed and studied approaches, including mindfulness, emotion therapy, eclectic psychotherapy, acceptance, narrative exposure, extinction, meditation, relationship, art therapy, value training, lucid dreaming, goal setting, suicide therapy, and meta-cognition. Recent published works and meta-analytic research conflate all these approaches as versions of CBT [14, 23]. While most incorporate components of classic CBT, many of these therapies are fully developed approaches with variant theoretic basis, major differences in application and treatment modality, different histories, and significant differences in attained results and side effect profiles. Some approaches, particularly those using well-developed meditation approaches, have shown excellent response results among some PTSD groups, including veterans [10]. Some of these approaches (i.e., meditation) expand the concept of cognitive-behavioral manipulation to describe those approaches that require significant personal investment and training used in developing personal cognitive and behavioral control. While such are likely to be of benefit for the individual with PTSD, the evidence supporting third-generation therapy use in treating PTSD is yet to be fully developed. In the current PTSD therapeutic environment, there are psychotherapies available that are proven to produce excellent results. The clinician needs to be cautious if selecting a third-generation treatment as the primary approach for addressing a patient's diagnosis of PTSD.

Conclusion

CBT has become an extremely broad topic. Prolonged exposure, EMDR, and imagery rehearsal therapy (IRT) are all sometimes referred to as forms of CBT. These are very different approaches to treating PTSD based on different theories, requiring

specific training and certification, and with varied and sometimes contradictory applications. These therapies were developed independently with their approaches and results documented autonomously. These are approaches that have been successfully utilized and extensively studied. They have been proven to work for a high percentage of patients diagnosed with PTSD. In the following chapters, these approaches are addressed independently of the global construct that has become CBT.

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Prolonged Exposure Therapy

11

Once bitten by a snake, a man turns panicky at the sight of a coiled black rope. [25]

Prolonged exposure (PE) is the most widely applied form of psychological therapy used to treat PTSD. PE has become the PTSD therapy of choice for the United States Military and Department of Veterans Affairs. It has received the stamp of approval by the American Psychological Association (APA), an organization that "strongly recommends" its use in the treatment of PTSD. Prolonged exposure is an approach markedly different from many of the other forms of PTSD therapy, both in theory and application. Many CBT approaches emphasize the control and suppression of trauma symptoms, particularly the PTSD-associated recurrent nightmare. Prolonged exposure builds on Freudian perspectives, attempting to address and incorporate, rather than avoid, the psychodynamic experience of trauma. PE focuses on and uses PTSD-associated re-experiencing of the traumatic event as experienced in intrusive and upsetting memories, nightmares, flashbacks, and the strong emotional and physiological reactions triggered by reminders of the trauma (Image 11.1).

Prolonged Exposure: The Theory

Prolonged exposure is based on a theoretical construct first developed to treat anxiety and phobias. Repeated imaginal reliving of the trauma is thought to promote extinction of fear reactions through habituation. Anxiety associated with the traumatic memory is reduced by correcting the patient's erroneous belief that symptoms will last forever without avoidance or escape. Deliberately confronting the memory of trauma is thought to block the negative reinforcement associated with the cognitive and behavioral avoidance of trauma-related thoughts, feelings, and reminders. When the trauma is relived in a therapeutic and supportive setting, safety information can be incorporated into the traumatic memory helping the individual to realize that the trauma experience is no longer dangerous. The trauma event can become a

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Image 11.1 Reveal (1) – Cheye Pagel 2013

specific and delineated memory of past experience rather than the reflection of a dangerous world. This process of imaginal reliving can be used to change the meaning of PTSD symptoms from signs of personal incompetence to one of mastery and courage. Such a realization can change the individual's personal construct of negative self-evaluation [10].

Exposure-based therapies focus on confronting the cues and triggers associated with previous trauma in order to unpair them from feelings of anxiety and stress [20]. In addition to reducing PTSD symptoms, PE attempts to instill confidence and a sense of mastery, improve various aspects of daily functioning, increase the ability to cope with stress, and improve an individual's ability to discriminate between safe and unsafe situations [6]. The goal of treatment is to promote further processing of the trauma memory in order to reduce distress and avoidance and allow the individual to reintegrate socially and reengage in enjoyable activities [22].

Prolonged Exposure: The Application

Many individuals with PTSD attempt to ward off intrusive symptoms and avoid trauma reminders. PE treatment begins with the cognitive component that includes: psychoeducation, the therapist's attempt to understand the patient's past experiences, and an overview of the technique. Dysfunctional thoughts are challenged as either inaccurate or too extreme for the situation that prompted them. Maladaptive

belief systems are also addressed including self-blame and attempts to mentally undo the traumatic event [7].

Therapists will also teach a behavioral technique of relaxation such as focused breathing or progessive relaxation (Chap. 10) in order to help manage the patient's anxiety. After the assessment and initial session, the process of trauma exposure begins. This is often a difficult and anxiety-provoking experience, and the therapist must work hard to ensure that the therapy relationship is perceived as a safe interaction taking place in a protected space. Almost all PE approaches begin with, at least, moderately disturbing aspects of the experience. Other approaches to exposure therapy begin by "flooding" the affected individual with re-exposure to the most anxiety inspiring aspects of the traumatic experience [9].

Exposure proceeds at a pace acceptable to the patient. During imaginal exposure, the patient describes the traumatic event in detail in the present tense with guidance from the therapist, discussing, as well, the emotions that arise. The patient repeatedly revisits the traumatic memory, recounting and reprocessing it aloud. The patient's record of recall for the event may be recorded for later use. The therapist and patient identify specific places and people connected to and stimulating the traumatic fear. The patient agrees to confront situations and objects that cause distress but are not really dangerous in a graduated fashion between sessions. This confrontation with feared stimuli may be assigned as homework. The objective is to facilitate emotional processing so that the individual becomes desensitized and able to better tolerate problematic traumatic memories and avoidances [16].

Success Rates

Strong empirical evidence supports the effectiveness of prolonged exposure in ameliorating PTSD symptoms when results are compared to untreated (wait list) populations [5]. Meta-analysis indicates that the average response rate is approximately 60% [21]. Four treatment response trajectories have been noted: fast responders (13%), slow responders (26%), partial responders (32%), and non-responders (29%) [14]. This data can be repackaged to indicate a > 70% success rate for PE. Almost all of this work has been conducted in the military environment. Success rates for PE therapy are lower when it is used to treat rape victims, where up to 45% still meet full criteria for PTSD after completing a therapeutic course [11]. There are few studies comparing PE to other approaches known to demonstrate success in treating PTSD, in part, based on assertions that because of the proven efficacy of PE, it would be dangerously inappropriate not to treat all PTSD patients with PE [10]. In one of the few studies comparing prolonged exposure to another therapeutic approach for treating PTSD, there was no significant difference in treatment outcome between acute stress management and prolonged exposure [3].

Therapy with prolonged exposure typically requires at least 3 months of weekly individual sessions (8–15 sessions overall). 60–120 min sessions are usually required for an individual to fully engage in exposure and sufficiently process the experience [9]. In application, prolonged exposure therapy can be difficult, inducing

anxiety and discomfort for the patient and stress for the therapist. Many therapists, like their patients, have difficulty with the repetitive confrontation with the experience of trauma-based horror that characterizes prolonged exposure therapy [2]. A therapeutic distance can be difficult to maintain. Therapeutic burnout is common. Organizationally, as in the military, the actual one-on-one therapy sessions may be conducted by the lowest-ranking, most poorly trained extender. In order to address such difficulties in providing therapy, the most recent trend in PE has been to incorporate nonpersonal mail and/or Internet interactions [24].

PE treatment can be viewed as aversive. Dropout rates from prolonged exposure are quite high. Overall dropout rates from the various forms of PTSD treatment are approximately 18%, while for PE dropout rates can be as high as 52% [15]. In a study by the developers of PE, 50% of those recruited discontinued their involvement and dropped out of their therapeutic protocol [8]. Even in PE trials in which PTSD subjects are paid, from 10 to 38% of subjects will terminate their treatment before the program is complete [20]. Patients are more likely to drop out from treatment programs of greater duration that include more weekly sessions. Shorter duration highly intensive PE treatment protocols are better tolerated [15]. The suggested 3-month typical duration of PE treatment was derived from other CBT therapy protocols, approaches that include an ongoing and supportive interaction with the patient. Rather than being supportive, prolonged exposure is often difficult and aversive. Several studies indicate that a high frequency of sessions early in treatment enhances treatment tolerance and outcome [12]. Exposure delivered on a short-term basis in an intensive format is more effective for both treating PTSD and for lowering dropout rates than the longer protocols [26]. The positive effects of intense short-term PE protocols can persist 6 months after completion of therapy [14].

Prolonged Exposure in SUD and Complex PTSD

Prolonged exposure is among the few therapies shown to have efficacy among the most difficult and complex of PTSD patients. PE has positive response rates in the rage of 60 percent among individuals with multiple childhood traumas meeting the World Health Organization ICD-II criteria for Complex PTSD. PE even has an excellent response rate among individuals with chronic PTSD who have failed other forms of PTSD treatment [14]. This data suggests that PE can be useful after retraumatization or relapse in individuals with complex and chronic PTSD. However, far more work needs to be done in order to clarify this possibility.

Prolonged exposure has also been used to good effect among those PTSD patients who also have substance use disorder (SUD). A randomized control trial indicates that there are a paucity of negative effects (among those measured) when PE is used in patients with SUD [17]. In 2001, prolonged exposure for PTSD received an Exemplary Substance Abuse Prevention Program Award from the US Department of Health and Human Services Substance Abuse and Mental Health Services Administration (SAMHSA) and was selected as a model program for national dissemination [4].

Prolonged Exposure: Current Recommendations

PE can be used as an effective and safe therapy for patients diagnosed with PTSD. In its high-intensity, shorter-term treatment protocol, prolonged exposure is currently recommended by major US governmental agencies for use in patients with a likely diagnosis of ICD-11 complex PTSD, and those with concomitant SUD. PE has produced better short-term results in reducing PTSD symptoms than the classic approaches of psychotherapy and/or psychotropic medication. Currently, a prolonged exposure protocol is being marketed as a direct-to the consumer treatment for all individuals who have experienced psychological sequelae of trauma [18]. Prolonged exposure therapy has received a "strong" recommendation for its use in treating PTSD from the APA [1].

Narrative Exposure Therapy (NET)

With less emphasis, an alternative narrative approach to exposure therapy was also recommended by the APA as an approach for treating PTSD [1]. Narrative therapy as originally developed was a method of therapy that could be used to distance a person from their trauma by encouraging an individual to rely on their own skills to minimize problems in their lives. Narrative exposure therapy (NET) turns that approach on its head. Instead, the patient with the assistance of the therapist focuses on his or her traumatic experiences. NET has most often been used with individuals who have experienced trauma as a result of political, cultural, or social forces (such as refugees). Small groups of people receive 4–10 sessions of NET, together and with the guidance of the therapist. Each patient establishes and writes a chronological narrative of his or her life, concentrating mainly on their traumatic experiences. NET has an explicit focus and a legal/political function in recognizing and creating an account or testament of what has happened [23].

Prolonged Exposure: An Overview of the Remaining Questions

Significant questions remain despite efforts to enshrine prolonged exposure as the standard of care for patients with PTSD. The research supporting PE is limited. Most studies are small, and minimally controlled, and often use non-specific questionnaires as diagnostic methodology. Almost all prolonged exposure studies have been conducted in the military (the one large study with female rape victims and reported as using PE actually uses imagery therapy study to focus on the treatment of nightmares) [19]. PE studies have rarely attempted to address competing variables that have the potential to affect their findings (e.g., sleep apnea, trauma-associated cognitive impairment, social support). There are almost no studies comparing prolonged exposure to other therapeutic approaches also shown to have excellent short-term results in treating PTSD. "Long term" in PE research is most often construed as 6 months after initial therapy. It remains unclear as to whether the benefits

of prolonged exposure persist on the longer term. It is also unclear as to whether prolonged exposure can produce persistent improvements in life-quality, waking function, and associated medical and/or psychiatric illness or as to whether PE reduces the risk of suicide in a patient diagnosed with PTSD.

Prolonged exposure is at its basis an aversive therapeutic approach. It produces discomfort, anxiety, and other negative effects in many patients. Dropout rates from treatment are high and therapeutic courses have had to be shortened. In our clinic, anecdotal reports indicate that some patients will report a fallacious improvement in their symptoms of PTSD in order to avoid the negative experience of therapy, an approach that is easy and perhaps common, particularly when assessment of status is based on standerdized questionnaire response. Prolonged exposure has only a limited record of use outside the military among populations such as rape victims. Particular caution must be applied to the use of such aversive therapies among at-risk populations such as children and the cognitively impaired.

PE therapy can also be difficult and aversive for therapists. Current health-care systems providing treatment for PTSD are overwhelmed due, in part, to the limited number of trained therapists. Many therapy approaches are now designed in the attempt to avoid the "human" factor utilizing postal, telemedicine, and/or Internet patient interactions. Post-Covid distancing has contributed to this becoming the most typical approach used to administer psychiatric therapy. With the computer-based infrastructure already in place, PE is likely to be among the first psychological therapies conducted sans-human using an artificial intelligence (AI) applied treatment protocol. The potential positive aspects of using this approach include maintained distancing, lower cost, increased therapeutic neutrality, less stress and burnout among therapists, and the requirement for an increased personal commitment to self-care from each patient. A negative characteristic of the AI approach is the lack of human interaction – many individuals with PTSD need to have personal contact with a therapist. The need for a level of personal interaction goes beyond an analysis of interface response. Humans, like other animals, are quite good at gaming AI systems in order to get rewards. That reward can be an escape from what is perceived as an aversive interaction. Since treatment results are based on repetitive questionnaires. Questionnaire responses are easily "gamed" by individuals seeking release from uncomfortable situations. Such individuals can be viewed as improved or cured. They may be released from therapy, lost to follow-up, and understandably more likely to avoid further care.

Prolonged Exposure: The Overview

Individual prolonged exposure therapy reduces symptoms over the short term (up to 6 months) for a high percentage of individuals diagnosed with PTSD. The response rate to PE is better than that which can be achieved using supportive therapies and classic forms of psychotherapy. Prolonged exposure is also the only therapy shown to produce positive results among the difficult group of PTSD patients diagnosed with complex PTSD or having concomitant problems with substance abuse.

However, questions remain:

1. Beyond the short term decrease in symptoms, does prolonged exposure produce positive long-term effects, leading to improved personal and social functioning over the lifespan. Can PE therapy lower suicide rates among those diagnosed with PTSD?
2. Is prolonged exposure a useful therapy for treating trauma and PTSD among individuals who are non-male and non-military?
3. How do the results achieved with prolonged exposure compare to those achieved using other treatment approaches with high PTSD success rates: imagery, EMDR, medication, and the treatment of sleep apnea?
4. How common are PE associated negative psychiatric side effects and outcomes for both patients and therapists?
5. How much of what is being measured as therapeutic success is actually treatment avoidance?
6. Can prolonged exposure work in the group, Internet, or AI-based setting?

Prolonged exposure is marketed as the "effective" treatment for PTSD" [13]. It produces better results than many of the approaches in current use. As seems typical, however, for the various specialties that treat PTSD, many practitioners have chosen to wear blinders as to the other options for treatment outside their particular area of expertise and focus. Multiple questions remain to be answered, as itemized above, before prolonged exposure can be recommended as the appropriate treatment for all individuals who develop PTSD. Currently there is little actual data supporting the leap ahead to the use of prolonged exposure in group, Internet, and AI protocols. Other and less aversive approaches to treatment exist, and some of these are proven to have long-term benefits for the affected individual. Prolonged exposure is definitively a good treatment option for treating PTSD, but is not the appropriate answer for everyone. And it is not the only PTSD treatment producing excellent results.

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Eye Movement Desensitization and Processing (EMDR)

12

Look for me in the whirlwind. [9]

In the nation's nascent sleep laboratory, a young graduate student by the name of Bill Dement awakened a subject during an episode of sleep in which his eyes were conjugantly tracking back-and-forth. It was 1965 when he asked, and the subject agreed that he was dreaming [5]. Independent of other supporting and/or detracting evidence, this episode, filmed in grainy black and white, led an entire generation to believe that this sleep state with its rapid back-and-forth eye movements (REMS) was equivalent to dreaming. Voila! The Cartesian dilemma was solved, mind was equivalent to the brain, and Freud proved correct in his assumptions that the psychodynamics of neurologic disease were revealed in dreams. Entire theories of neurologically based consciousness (activation-synthesis, activation, input, modulation [AIM], search-attention, and proto-consciousness) rose, built on the belief that an electrophysiologic marker had been discovered that was equivalent to dreaming [11].

It has taken more than 50 years for neuroscientists to agree that this is not so. Even at the time of the discovery of REMS, it was obvious that not every awakening from REMS elicited a dream report. Dream researchers pointed out that dreams occurred, sometimes at REMS equivalent frequency, in the other sleep stages that were not REM sleep [7]. Yet during the long era of REM sleep = dream, almost all funding and research effort into dreaming was applied to the study of REMS. Today we know more about the neuroanatomy, neurochemistry, and electrophysiology of REM sleep than we do about the biology of dreaming [17].

Beyond the biology, it was more difficult to identify the associated cognition and mind-based functions of REMS. Many neuroscientists presumed that there was no need to prove what was now the widely held assumption that REMS was dreaming. REM sleep was clearly a brain stem-based emanation (a dream) of the ancient reptilian mind – a lab-described version of the Freudian "Id" [8]. In PTSD, REMS is altered, with higher pressure and shorter latencies. Nightmares usually occur during REMS. These congruences led to proposals that REMS functions in emotional

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processing during sleep, particularly in the case of negative emotions and trauma [16]. The evidence was mounting that sleep plays a major role in memory processing, with REMS postulated to have a primary role in the processing and incorporation of negative memories [27]. It has been difficult, however, to find evidence supporting such a proposed functional role for REMS [25]. Even the original purveyors of this proposal note that while sleep as a global cognitive process is somehow involved in memory processing, there is little indication that this process is sleep state specific [18]. There is no clear evidence to suggest that the processing of emotional memories is confined to any sleep stage including REMS [26].

Eye Movement Desensitization and Processing (EMDR)

During the period of REMS = dreaming, Francine Shapiro, a graduate student at the Professional School of Psychological Studies in San Diego, developed a therapeutic technique that focused on the conscious use of conjugate eye movements during wake. EMDR as originally developed was primarily used to address traumatic memories [20]. And from the very first, remarkable results were obtained anecdotally and in clinical trials in patients diagnosed with PTSD [21]. In teaching patients who have had a traumatic experience to repetitively move their eyes in a conjugate manner while contemplating that memory, the EMDR therapist was attempting to consciously copy the REMS eye movements. Shapiro postulated that through the process of EMDR, a parody of REMS brain processing would take place during wake. The eye movements of EMDR were postulated to provide a critical window of REM-like activity involved in negative memory integration and learning [22]. REM sleep is ubiquitous in humans, mammals, and among many birds. It is preserved after trauma and illness and into great age. It must have a profoundly important neurocognitive function. Yet, despite intense study, still today that function remains theoretical and undefined. The conjugate eye movements of REMS may function to support corneal hygiene during sleep [12]. These repetitive eye movements could function to support memory consolidation or mark nocturnal periods of time [17, 18]. Currently, the best evidence for conjugate eye movement function in information processing is the "spectacular" effectiveness of EMDR in reducing the distress of traumatic memories [22].

After inducing confusion by conceptually basing their therapy on a theoretical yet experimentally unprovable role for REMS in memory processing, EMDR advocates have had to go on to propose a theoretic framework for EMDR that attempts to avoid the originally proposed association with REM sleep. This approach emphasizes the role of EMDR in desensitization and information integration. Eye movements are proposed to act as a focus for an orienting response that is able to unblock information-processing centers of the brain, creating a connection between stored information on previous events and adverse outcomes. The response to a therapeutically prescribed stimulus (EMDR) induces a new series of physiological responses reconnecting to the stored information of previous adverse experiences. Reintegration

of this new information produces a state of induced relaxation [23]. An important factor may be a distancing process during EMDR treatment that is facilitated by the eye movement task. This distancing can induce more improvement than that produced when participants relive their experiences of trauma [15]. While the specifics are unclear, EMDR is likely to involve a number of underlying processes so that an integrative model theory may be necessary in order to somehow explain the effects induced by therapy [13].

EMDR Protocols

In a typical EMDR protocol, the therapist asks the traumatized individual to think of the event and then teaches the patient a technique of inducing repetitive conjugate eye movements. While this technique can be taught in one or two sessions, most therapeutic protocols for EMDR are comprised of multiple sessions (usually 8) conducted on a weekly or bi-weekly basis and incorporating aspects of other forms of CBT therapy used to treat PTSD [22]. As taught to therapists, the typical EMDR protocol includes eight phases of treatment:

1. In the first visit, a through history is taken and a treatment plan is developed. The patient's specific problem and experience of trauma are discussed in a supportive, non-threatening manner, avoiding any intense re-experiencing of the trauma.
2. The preparation phase: an effort is made to explain the theory behind EMDR and establish a relationship of mutual trust.
3. Assessment: when the target memory for treatment emphasis is selected. Negative cognitions about that memory are verbalized.
4. Desensitization: the therapist leads the patient through sets of eye movements until a level of relaxation and reduced distress is attained.
5. Installation: during which the therapist places emphasis on positive improvements and attained levels of self-control.
6. Body scan: the patient is asked to bring the original target into mind and monitor the association of that traumatic memory with any residual body tension.
7. Closure: self-calming, control, and equilibrium are emphasized at the end of each session.
8. Re-evaluation takes place at the end of each session after the first in order to assess whether progress is being made and whether goals of therapy and targets of treatment may need to be reset ([22], pp. 50–55).

Better results are attained when therapists are experienced in treating PTSD and when the treatment sessions conducted by trained therapists are longer than 60 min [3]. Therapists can be certified in EMDR through EMDRIA – the EMDR International Association. Certification requires the completion of an approved training course, a minimum of 50 EMDR clinical sessions, and 20 h of consultation by an EMDR Approved Consultant. In order to maintain certification, 12 hours of continuing education are required every 2 years [6].

EMDR: The Evidence

A huge number of studies document the excellent results attained with the use of EMDR in treating PTSD. However, these studies have multiple methodological limitations. Most are small and use limited or no control groups to treat patients meeting varied diagnostic criteria. Longitudinal studies, > 1 year, have yet to be attempted. Most research has been conducted by a group of clinician/researchers associated and/or trained by the developer of the technique. Most research results have been published by the small group of journals willing to publish EMDR studies. Recently meta-analytic studies have been published based on the very few EMDR research protocols meeting author-defined criteria [2, 3]. The most recent of these studies is a meta-analytic study of EMDR that uses the novel criteria of excluding all studies that are not meta-analyses. Using this approach, this study was able to exclude >90% of EMDR research and base its findings and recommendations (later adopted by the World Health Organization) on only two studies [28].

The results attained by using EMDR on a short-term basis to treat PTSD are, however, quite remarkable. As based on meta-analytic review, EMDR therapy consistently demonstrates large effects in treating subjective distress and moderate effects in treating PTSD and depression. EMDR therapy improves self-awareness, helps in changing maladaptive beliefs and behaviors, reduces anxiety and depression, and leads to more reports of positive emotions [3]. When EMDR therapy is conducted by a trained therapist, there can be a significant improvement in PTSD diagnostic markers, as well as reduction in PTSD distress and other trauma-related symptoms. When used in different cultures, EMDR also produces positive effects [28].

EMDR demonstrates significantly positive effects when compared with groups receiving no treatment and in pre-post EMDR comparisons [4]. In comparative studies to other trauma therapies, EMDR has been shown to be effective, decreasing symptoms of intrusion and arousal when compared to classic CBT [3]. There is evidence suggesting that EMDR is equally effective to trauma-focused therapies (prolonged exposure) when used immediately post-event. Four months after treatment EMDR persists in producing better results than non-exposure-based CBT protocols [1].

These results are interpreted differently by proponents of prolonged exposure (PE) therapy. The active processes of EMDR and those of prolonged exposure are clearly quite different. From the perspective of proponents of exposure therapy, since EMDR does not address physiological habituation and trauma associations, EMDR therapy should produce negligible or even negative effects [19]. Perhaps unsurprisingly since the two treatments have opposing objectives (distancing and calming for EMDR; focus on trauma for PE), in prolonged exposure protocols, no difference in results is obtained when EMDR is added to treatment [4]. The question has been raised as well as to the value of eye movement training in the overall EMDR therapeutic process since the best results are attained when the entire EMDR protocol is utilized. In comparative studies, the addition of eye movement training to the full eight-phase protocol produces only a moderate effect [14]. This has led

some proponents of PE to suggest that the eye movements integral to treatment, and to its name, may be unnecessary. They point out that in comparative studies, EMDR therapy is no more effective than prolonged exposure [4]. EMDR has little or no effect on nightmare frequency and distress when used among war veterans to treat PTSD ([24]. Yet there are more studies and meta-analyses supporting the effectiveness of EMDR therapy in treating PTSD than there are for any other form of PTSD therapy [1–3, 14]. In 2013 the World Health Organization (WHO) selected EMDR as the psychotherapy of choice for treating PTSD in children, teenagers, and adults [29].

The Enigma of EMDR

EMDR is an enigma. It is a therapy demonstrated to empirically work in treating PTSD, producing better or at least equal results to that produced by any other treatment approach. Yet EMDR is a therapy without a coherent theory as to why it actually works. REM sleep and its presumptive cognitive correlate, the dream, in their application to EMDR have turned out to be a red herring. Despite more than 50 years of sustained focus on REMS, the primary function and role of conjugate eye movements in information processing are yet to be discovered. The poorly understood area of information processing is the only physiological process that can be construed to potentially support a theoretic neurocognitive function for EMDR.

Yet EMDR has a solid clinical basis, a basis sound enough to allow the therapy to survive its presumed and apparently discredited ties to REMS. In a recent review of the potential mechanisms of action underlying EMDR, the situation is compared to that of the parable of the Blind Men and the Elephant in that there is no agreement as to what the candidate mechanisms for the action of EMDR might be [13]. Some argue that despite its acknowledged success in application, it is improper to implement a treatment such as EMDR before its mechanism of action has been specified [10]. But in this situation, EMDR is far from unique. There are many commonly utilized approaches in medicine and especially psychiatry that are known to produce positive clinical results yet have a theoretic basis that is sketchy and problematic (e.g., electroshock therapy, antipsychotic and anti-seizure medications).

EMDR: Conclusions

EMDR shares with prolonged exposure, the distinction, as based on current evidence, of being the most effective therapy for PTSD. It is a fairly new therapy, and far more research needs to be done in order to determine whether it induces maintained, long-term effects on PTSD or might even be able to reduce the chance that an individual will develop PTSD when used acutely after trauma. It would also be useful to have at least some coherent understanding as to the biology and/or psychodynamics that contribute to its therapeutic effects. It is clearly an effective treatment for treating the distress of significant trauma. EMDR offers the affected individual

a level of personal control, an action, a repetitive motion of the eyes that the individual can use in response to distress. When presented within the context of a therapist who has training in phased, ongoing, and CBT-oriented therapy, EMDR can be used to reduce the overall levels of PTSD symptoms. EMDR does not require the repetitive re-experiencing of trauma. It is not aversive and produces few, if any, negative side effects. It is apparently ideal for use in at-risk populations such as abused children. There are a plethora of trained therapists. There are few reasons to suggest that EMDR should not be offered as an option in therapy to any traumatized patient with symptoms of PTSD.

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Imagery Rehearsal Therapy

13

Valerie Eguchi – "La dernière vague" (The last wave)

The challenge in addressing the utility of our dreams is not whether to reject them outright in an effort to privilege the sort of logical truth the rational mind offers us. It's to picture a conversation between imagination and intellect, one that might produce an advantageous vision, one the intellect itself cannot discern and which the imagination alone is not able to create [24].

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Some therapies treat PTSD without focusing on the experience of trauma. The most common symptom of PTSD is the repetitive, distressing, trauma-associated nightmare. Imagery rehearsal therapy (IRT) was developed to treat those nightmares. It is an approach that can be used to reduce both their frequency and their associated distress. IRT was developed from within the field of dream science, independently of classic cognitive behavioral therapy CBT, EMDR, and the exposure/extinction therapies such as prolonged exposure (PE).

During the late twentieth century when this approach was being developed, many therapists were working from the perspective that nightmares developed as a part of trauma. This perspective was intertwined with the existent Freudian bias that psychiatric disorders developed from trauma. Freud had postulated that dreams functioned as "protectors" of sleep [6]. Nightmares, what Freud termed as anxiety dreams, were viewed as a marker for dysfunction in this psychic system active in the processing of emotion, particularly those negative emotions occurring after the experience of severe trauma [23]. As based on this perspective, if nightmares could be changed into dreams that were not nightmares, normal sleep would return, undisturbed by the psychic disruption of nightmare. Waking anxiety and stress could be reduced, relieving, at least in part, the psychiatric/psychodynamic symptoms associated with the experience of trauma. Some studies seem to support this perspective. The best functioning of Holocaust survivors demonstrate a decrease in both dream and nightmare recall and have fewer symptoms suggestive of PTSD than those with poor levels of waking functioning [21]. A reduction during adulthood in the frequency of recurrent traumatic nightmares is associated with reports of increased psychological well-being [31].

From the Freudian perspective, PTSD provides the best example of trauma inducing a psychiatric illness. The close association of PTSD with trauma-based nightmares has been used to support theories that postulate dreaming to have a function in emotional processing. The association of REMS with nightmares, as well as the disruption in REMS in PTSD, suggests that the basis for many of the symptoms of PTSD might be the disruption of a REMS modulated emotional processing system. This simple, elegant construct is still actively endorsed, and is a background for much of current psychodynamic theory and practice. There is, however, considerable evidence that both dreaming and the emotional processing system in the brain are far more complex than generally assumed. Dreaming occurs in all stages of sleep. For most individuals, nightmares occur in REMS, except in PTSD, where nightmares often occur outside REMS in the other stages of sleep. Medications affecting PTSD have no consistent effect on REMS, while those that affect REMS rarely, if ever, alter the symptoms of PTSD [26].

In this era of empiric assessment or the outcomes of therapy, the association between nightmares and PTSD has become even more important. There is no objective serum, electroencephalogy, or scan-based marker that can be used to make the diagnosis of PTSD. Both the diagnosis and the assessment of change in an individual's status after treatment must be made subjectively, through the use of either an interview or a questionnaire. Recurrent nightmares are the most common symptom of PTSD [32]. A treatment that decreases or eliminates nightmares often leads to a

decrease in patient complaints of insomnia – one of the PTSD arousal symptoms [9]. Decreasing the frequency or eliminating nightmares also produces a reduction in waking arousal [19]. Arousal produces agitation, and the individual will search for ways of preventing this cycle from recurring, seeking to avoid the trigger so that some trauma survivors avoid sleep in the hope of avoiding more bad dreams. For these individuals, nightmares can also be fit into another PTSD symptom cluster – avoidance. For individuals with PTSD, recurrent distressing dream experiences can contribute to the negative mood of the next day [20]. From the perspective of PTSD diagnostic criteria (Chap. 2), reducing nightmares has a positive effect on all four PTSD symptom categories: intrusion and re-experiencing, arousal, avoidance, and negative mood.

Since nightmares affect multiple categories of the PTSD diagnostic criteria, for in any study or assessment of PTSD, nightmare frequency is a marker of prime importance. Since multiple PTSD categories are affected, any therapy that reduces nightmare frequency will also alter the reported level of PTSD symptom criteria, the markers most often used to determine whether a patient's condition is improving or declining secondary to therapy. Today, therapies for PTSD are assessed as to their efficacy as based on their effects on one of the easiest markers to measure – reported nightmare frequency as assessed using a questionnaire. Even therapies such as prolonged exposure that theoretically consider nightmares a positive factor in the process of re-experiencing are most often assessed as to their efficacy based on their ability to suppress nightmares.

Imagery Rehearsal Therapy: The Technique

Imagery rehearsal therapy (IRT) focuses on changing the storyline of a nightmare in order to produce a change in frequency and associated distress. The cognitive component of IRT focuses as in other CBT therapies on maladaptive cognition, addressing the nightmare as a learned disorder in sleep. In IRT there is a specific focus on helping the patient to understand any habitual component associated with their nightmares. When chronically experienced over many years, nightmares can function as a way to maintain memories of the traumatic experience, providing vignettes of personal contact with the individuals and the experience of loss. Though distressing, these nightmares are often viewed as quite precious, and the sufferer resists giving up the nightmare and resents any suggestion that it is not real and significant. In IRT, the individual's nightmare is never discounted or ignored and rarely interpreted as to its meaning. An attempt is made to address the nightmare independently of the experience of trauma and any other symptoms of PTSD [13].

Imagery rehearsal therapy is both a cognitive and a behavioral approach. Sleep hygiene and maladaptive sleep behaviors contributing to disordered sleep are assessed and addressed. The patient is asked to provide and report a typical nightmare. The nightmare sufferer is then asked to change the content of this nightmare "in any way you wish" and then advised to rehearse the "new" story of that dream while awake. For children, and for some adults, the nightmare image or "monster"

is best addressed visually, a drawing of the monster or experience that is then altered as leading to a different outcome than in the initial nightmare scenario. This approach can change the import and meaning of the dream. The dreamer utilizing imagery therapy will often change the nightmare from something realistic, frightening, and meaningful to an experience that is easier to reconcile. The changed dream story will have its own meanings and associated memories, perhaps less distressful, but sometimes just as difficult to understand and accept. Each night during the period of therapy, the patient is asked to have that changed story or image posted by the bed and spend a period of time before sleep onset focusing on that changed story.

Multiple sessions, at least three visits with the therapist, are required. An available on-call access to support is required. As with all PTSD therapies, the re-experience of trauma, even through its metaphoric reflection as a nightmare, can lead to patient distress and decompensation. Some therapists treating nightmares in patients with PTSD will begin to address therapy by using a negative dream that has lower intensity and distress. For many patients with PTSD, nightmares will recur during stressful life events, event reminders, or new experiences of trauma. Re-training in IRT in a supportive environment is often required [12].

IRT Results

IRT has been successfully used to treat idiopathic, recurrent, and PTSD-related nightmares [13, 15, 16, 17, 18]. These studies indicate that following successful nightmare treatment, there is a consistent pattern of decreased psychiatric distress: decreases in anxiety, depression, and the overall levels of PTSD symptoms. Of the hundreds of PTSD patients treated in research protocols with IRT, 70–80% have reported clinically meaningful improvements in nightmare frequency. Among individuals who regularly used the technique for 2 to 4 weeks, a significant clinical change in nightmare frequency has been reported by greater than 90% [10]. In some studies, primarily those conducted by Krakow in New Mexico, success rates for this therapy in reducing or eliminating nightmares are reported as greater than 95% [14–16, 17, 18]. Significant improvements in sleep quality, anxiety, and reported levels of waking distress are also reported [9].

Lucid Dreaming

Some therapists will couple IRT with instruction in lucid dreaming so that the individual can learn to control and change the storyline of a nightmare during the experience. Lucid dream control coupled with imagery therapy can be used to reduce both nightmare frequency and waking distress [11]. Some individuals predisposed to focus on their dreaming are able to alter a nightmare storyline without any instruction beyond being asked to focus on changing the nightmare storyline before sleep. Such control exerted while in sleep to alter the dream is what many call lucid dreaming; however, dream lucidity is widely defined. Most dreams have a lucid

component in that the dreamer is present in the dream occupying the point of view from which the dream story forms. From the other extreme, dream lucidity has been defined as the ability to push buttons or make consciously controlled eye movements while still asleep. This capacity allows the individual to signal the outside observer that they are dreaming [22]. Unfortunately these individuals are so rare that major studies have been published based on the actions of as few as three subjects. That work appears to indicate that lucidity takes place in an in-between state of consciousness that may not actuality be sleep [30].

In order to teach lucidity, the clinician needs to have his or her own capacity to achieve at least some version of the state. Such a capacity can develop as a cognitive response to teaching IRT. Many communities have therapists that may sometimes use an IRT approach to treat the complaint of recurrent nightmares, but unlike some of the other therapeutic approaches used to treat PTSD, training and certification options for IRT are limited. This best approach for therapists and patients interested in IRT is to contact an organization that includes members with such a focus who avow their adherence to a code of ethics (e.g., the International Society for the Study of Dream – iASD).

IRT and Lucidity: The Taro Snake Dream

Since it seems clear that IRT works well in reducing nightmare frequency and distress and has the capacity to improve PTSD, an example nightmare from the author of this text is included as follows.

Like almost everyone, this author of this text has had his own share of trauma, with the worst being his brother's death in a climbing accident and the messy dissolution of a marriage that led to his leaving Kauai. In this dream: *he follows a flooded path across a taro field, his wife and child trailing behind. The surrounding land, colored by its dirt, is intensely red reflecting the light of the sun setting over the sea. A huge snake slithers towards them through the muddy water. Trapped in a field that is deep mud and leaves, there is nowhere to turn. The huge snake keeps coming, and as in many nightmares, there seems to be no way out. The level of fear and distress is extreme, but almost at waking, he takes lucid control of the dream. The snake changes into a giant clown-like, brightly painted blow-up pool toy that is blown away by the wind.*

Taking lucid control changes the import and meaning of a dream. The dreamer changes the nightmare from something frightening, meaningful, and apparently real to an experience less mentally confrontational – an outdoor game with blow-up pool toys. Yet that changed dream has its own meanings and associated memories, perhaps less distressful, but just as difficult to understand and accept. In the Taro snake nightmare, that rewriting included the incorporation of pool toys, an associated memory from another experience of trauma – his brother's near-drowning as a child. The interpersonal message, associated memories, and insights presented in metaphor by the nightmare were altered into a different story by the exertion of lucid control. Lucid dreamers can sometimes avoid the distress of dream-associated insights by changing and controlling their dreams [8]. Changing a nightmare to

something more digestible, laughable, or even happy is a non-aversive and apparently reasonable approach that can be used to treat the nightmare symptoms of PTSD. This approach can be used to lower levels of waking distress and reduce the chance that another nightmare will occur [1]. This approach produces excellent results when used to reduce nightmare frequency [12].

IRT: From Prolonged Exposure (PE) Perspective

IRT is popular among therapists who work with dreams and generally accepted among members of the sleep medicine community. Despite reasonable supporting data as to efficacy when compared to other treatments for PTSD, its non-aversive aspect, and popularity among those so treated, IRT is rarely utilized outside these fields. Some major textbooks on PTSD address IRT only briefly as an experimental approach [5, 7]. Posttraumatic stress disorder: scientific and professional dimensions. Amsterdam: Academic Press.). Despite significant findings, the data supporting IRT has been critiqued as being less robust for treating PTSD than the results obtained using prolonged exposure therapy [3]. This negative assessment is worse than that used to describe either medication or other psychological therapies with less of an evidence basis [27]. One reason behind such negative assessments of IRT as a therapy for PTSD is its variant theoretic basis.

Currently, much of the field of PTSD therapy is dominated by PE and its emphasis on the re-experience of trauma. In the political arena of PTSD, decisions for governmental agency research and therapy funding are based on the orientation and belief systems of politically involved clinicians, many trained in the military with its emphasis on prolonged exposure. For PE proponents, it has been difficult to accept that IRT might have therapeutic value since it focuses on avoiding and restructuring a symptom of trauma (the nightmare) that according to PE theory has positive value as a re-experience of trauma. It is difficult for some therapists working in the difficult area of trauma re-exposure to take seriously the focusing of therapeutic effort on something so effervescent as a dream. IRT like narrative therapy has been redefined by some PE-oriented therapists as an opportunity for imaginal emphasis on trauma re-experience rather than as a method that can be used to escape or positively change the nightmare. Some PE therapists, even those working with traumatized children and adolescents, focus on incorporating the content of trauma-associated nightmares into a therapy that emphasizes the patient's need to imaginably re-experience trauma [29].

Imagery Rehearsal Therapy: An Overview

For some victims of trauma such as those in at-risk populations – children, the disabled, the homeless, rape victims, and many others – the routine use of exposure therapies and emphasis on the re-experience of trauma can be difficult and sometimes disingenuous. PE can be an aversive approach that traumatizes the patient. In such situations, IRT is an ideal, minimally aversive option; a generally safe

psychological therapy that can be used to address PTSD [2]. IRT has been used with excellent results among the victims of war-associated trauma [4, 25]. However, a majority of the studies assessing the value of IRT in treating PTSD have focused on rape victims and childhood victims of sexual trauma. In these populations, IRT has demonstrated an excellent short-term efficacy when used as a treatment for nightmares and PTSD [14, 28].

IRT focuses on nightmares. It may not be helpful for the 20 percent of PTSD patients who do not report having nightmares. But IRT is an ideal approach for treating those individuals whose nightmares are persistent and distressing after other PTSD therapies including PE, EMDR, and medication. It is an excellent approach that can be used in PTSD patients with a strong interest in dreaming, for those whose primary symptom is recurrent and distressing nightmares, and for those who prefer a less aversive approach to care than that offered by prolonged exposure to their trauma. There is no clear reason that IRT should not be offered as an alternative approach to any individual who has nightmares associated with their diagnosis of PTSD.

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PTSD: The Medications

14

> Perhaps down on the molecular level there's been a chemical accident while he slept – something like a spilled tray of drinks, prompting dopamine-like receptors to initiate a kindly cascade of intracellular events [21].

At some point most patients with PTSD will be treated with medication. All varieties and types of psychotropic medication have been used – most used despite a lack of evidence or clear indication of benefit (this is often referred to as off-label use). Anecdotal reports in the literature indicate that almost all drugs known to have psychotropic effects and/or side effects have been reported as helpful for some individuals diagnosed with PTSD. Many patients are treated with medication and nothing else; however, these agents are often used with some form of psychotherapy. Of the PTSD medications that have been evaluated in controlled clinical trials, very few have produced consistently positive results when compared to placebos. Outside the clinic setting, many PTSD patients resort to recreational drugs of abuse such as alcohol and cannabis in their attempt to assuage symptoms. Others will use opiates, psychedelics, and other drugs generally postscribed due to dangerous side effects and toxicity. The evidence from clinical trials supports the use of only two categories of medication in treating PTSD – SSRI/SNRI antidepressants and antihypertensives affecting the catecholamine system. Other agents have proven effectiveness in treating comorbid diagnoses commonly associated with PTSD (e.g., insomnia and depression). But there is very little evidence indicating any effectiveness for many of the drugs and medications that have been used historically, and are still being used, to treat patients with PTSD.

For many individuals experiencing the misery of PTSD, taking a pill to get rid of unwanted and distressing symptoms is an attractive, culturally and medically acceptable approach to therapy. Today in the field of psychiatry, medications are the primary form of therapy used to treat almost all patients, including those with PTSD. Any individual experiencing significant trauma who comes into contact with a system of conveyance of modern medical care is likely to be treated with medication – drugs inducing cognitive effects and side effects that run the gamut of the

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Table 14.1 Medication-induced basis for sleep-associated cognitive effects and side effects

Basis for CNS activity	Sleepiness	Insomnia	Alterations in dreaming
Neurotransmitter-mediated effects			
GABA	+++	+	++
Neuromodulator-mediated effects			
Acetylcholine	++	+	–
Adenosine	–	+++	–
Dopamine	+++	+++	+++
Histamine	+++	+	++
Nicotine	–	+++	+++
Norepinephrine	++	++	+++
Orexin	+	++	++
Serotonin	+++	++	+++
Other medication effects			
Effects on inflammation	++	++	++
Addictive drug withdrawal	+	+++	+++
Altered conscious interaction with environment	+++	+	++

Key:
(+++) a majority of drugs with this activity cause this effect in >10% of patients
(++) some drugs with this activity induce this effect in 1–10% of patients
(+) an idiosyncratic effect for some agents in this group or a withdrawal effect
(−) reported in less than 1% of patients using agents with this effect

psychoactive pharmacopoeia (Table 14.1). Medications that have at some point and in some locals been the primary treatment of choice for PTSD include antianxiety agents, benzodiazepines, antidepressants, antihypertensives, opiates, anticonvulsants, anti-seizure medications, and antipsychotics [34]. The current medications of choice for the treatment of PTSD are the SSRI antidepressants [9]. These medications are prescribed either on a long-term basis in individuals with chronic symptoms or periodically during times of stress or patient decompensation. Medically, psychotropic medications are considered a standard of care for the treatment of PTSD, so that any other therapy that is either used or proposed must be considered in this context. Over the long term, many individuals with the diagnosis of PTSD will discontinue their medications due to side effects, loss of effects, or a personal desire to be medication free.

Anti-anxiety Agents

Gamma aminobutyric acid (GABA) is among the most powerful of neuroactive agents, the primary negative feedback neurotransmitter (i.e., inhibitory neurotransmitter) in the central nervous system (CNS). Most hypnotics and many sedatives exert their effects on GABA, a primary neurochemical affecting the neuronal populations involved in sleep, dreaming, and nightmares [28]. Almost all of the drugs affecting GABA (whether agonists, antagonists, modulators, or reuptake inhibitors)

can induce patient complaints of nightmares and abnormal dreaming [36]. Despite a lack of evidence as to benefit, and evidence suggesting negative effects for some, sedatives and antianxiety medications are often prescribed soon after trauma to treat the distress associated with the trauma.

When individuals experience trauma, medics, first responders, and emergency room personnel have historically dispensed antianxiety agents such as benzodiazepines (Valium-type agents). Up until the 1990s, benzodiazepines were the primary agents used to treat PTSD [12]. There is no evidence that such treatment can help to prevent or diminish the longer-term symptoms of PTSD. There is no evidence that they have efficacy against any of the core PTSD symptoms [13]. These agents also have significant side effects including tolerance and dependence, falls, daytime sedation, the inducement of chronic insomnia, cognitive dysfunction, and increased mortality [3]. Benzodiazepines can exacerbate the response to trauma for some patients, suppress natural capacities to cope with stress, and sometimes induce an aroused disinhibited state – particularly in adolescents. Today, benzodiazepine use is contraindicated in the situation of acute trauma [12].

Antidepressants

Antidepressants exert their psychotropic effects by altering the activity of the various neuromodulators involved in CNS functioning (Table 14.1). Most antidepressants suppress REM sleep, yet antidepressants are among the agents most commonly reported in case reports and clinical trials to induce nightmares [26]. Intense visual dreaming and nightmares can also be associated with the acute withdrawal from some antidepressants, suggesting that the role for REM sleep in mood disorder/depression is complex and may not be fully understood [24, 25]. Some drugs of abuse also exert their effects by altering these neuromodulator systems (e.g., amphetamine stimulation of dopamine receptors) [36]. Antidepressants, particularly serotonin reuptake inhibitors (SSRIs), are often used in the treatment of major psychiatric disorders such as depression, anxiety, panic disorder, social anxiety disorder, bipolar disease, and obsessive-compulsive disorder. All of these disorders are frequently diagnosed in patients with PTSD. Sometimes initially, and usually quite early in therapy, antidepressants are incorporated into the PTSD treatment regimen. The antidepressants are among the few medications showing any consistent pattern of positive effects in patients with PTSD [2]. Antidepressants are among the medications most likely to suppress REMS, and it seems disingenuous to suggest that these drugs with positive effects on anxiety and depression should be discontinued as based on constructs suggesting a theoretic role for REMS in the processing of negative emotions [38].

Older antidepressant medications such as the tricyclics and monoamine oxidase inhibitors predate the diagnosis of PTSD and have been the focus of only limited study. Despite potentially lower cost, their use has been limited by their side effects and toxicity in overdose, particularly when used to treat diagnoses in which suicide is a significant risk. This potential for an agent to be used in self-harm (such as the tricyclics or the opiates) must clearly be taken into consideration by the prescriber.

Of the antidepressants, the serotonin reuptake inhibitors (SSRIs) sertraline (Zoloft) and paroxetine (Paxil) have produced positive responses (>30%) in most studies of patients with PTSD [6, 37]. Results obtained with fluoxetine (Prozac) have been less consistent. Along with sertraline and paroxetine, fluoxetine can also induce clinical relapse when treatment for PTSD is abruptly discontinued [19, 20]. These agents have been linked to an increased risk of suicide when used in children and adolescents [14]. More recent studies have focused on the use of venlafaxine (Effexor), a serotonin-norepinephrine reuptake inhibitor (SNRI). This drug has produced positive results in several large studies [10]. Both mirtazapine (Remeron), nefazodone (withdrawn from regular availability in the United States due to liver toxicity), and escitalopram (Lexapro) have produced positive results in smaller studies [13]. Other antidepressants have received less study in treating PTSD. Some such as bupropion (Wellbutrin) and citalopram (Celexa) are apparently less effective in treating PTSD [1].

Currently, these antidepressants are the primary medication component of mainline medical treatment regimens for the treatment of PTSD. Paroxetine and sertraline are recommended as a primary treatment in some PTSD treatment protocols. Most recommendations for their use in treating PTSD, however, follow the World Health Organization (WHO) suggestions that they be used (1) when individuals with PTSD also have moderate to severe depression, (2) in those who fail to respond to individual psychological therapy, or for (3) when psychological therapies are unavailable [40].

Patients with PTSD have a wide range of reactions to medication based on strong placebo responses, comorbid psychiatric and medical diagnoses, as well as the use of other medications and drugs of abuse. From 30% to 80% of patients diagnosed with PTSD will report improvement after treatment with antidepressants [13]. SSRIs have minimal toxicity in overdose and a lack of abuse and addictive potential. The most commonly reported side effects are benign; however sexual dysfunction, as well as sedation, agitation, and insomnia, may be reported. In treating veterans with PTSD, there has been considerable emphasis on guideline-concordant care that requires treatment with an SSRI (over the 10-year period between 1999 and 2009, prescribing frequency or PTSD increased from 49.7% to 59% in the US military care system) [4]. Studies suggest that prolonged treatment with an SSRI beyond the normal 12 weeks can produce positive responses in up to 1/2 of those who had yet to respond [18]. Some authors suggest that when an initial treatment is unsuccessful, an alternative antidepressant, such as venlafaxine or mirtazapine, should then be used as a second-line agent [18]. It remains unclear as to whether the benefits of using antidepressants in treating PTSD apply to those individuals with PTSD who do not have a mood disorder. It should be noted, as well, that the results obtained in even the most successful antidepressant trials are still less impressive than those attained using the psychological therapies of prolonged exposure, imagery, and EMDR. Adding a proven-to-be-effective psychological therapy to the treatment regimen of a patient only partially responding to an antidepressant medication has the potential to produce complete remission [32].

Antihypertensives

As discussed in Chap. 4, there is no unified theory as to the nature of PTSD. PTSD is both a psychiatric diagnosis with mental components, usually treated with psychological therapies and psychotropic medications, and a stress disorder, the body's physical response to the experience of overwhelming trauma. In response to severe trauma, changes are induced in the hormone systems utilized in the response to stress. Chronic stress induces changes in sympathetic catecholamine nervous system function, parroting situations present in patients with high blood pressure (hypertension). Increased sympathetic discharge leads to hyperarousal, experienced by some as the most distressing symptoms of PTSD. In some patients diagnosed with PTSD, increased levels of norepinephrine have been documented in the urine [5]. Many of the drugs in general use for treating hypertension affect norepinephrine receptors. These antihypertensive agents work by blocking the chemical cascade of sympathetic discharge.

Antihypertensive medications have yet to achieve full traction in the treatment of PTSD despite a sometimes remarkable level of effectiveness. The clearest symptomatic effect of these agents when used in patients with PTSD is a decline in the frequency and distress of nightmares. As noted (Chap. 13) a reduction in nightmares is often associated with an improvement in sleep, a decline in reported insomnia, and an improvement in all four PTSD symptom categories [31]. Of the antihypertensive agents in general use affecting noradrenergic receptors, decreased nightmare frequency is associated with use of both alpha antagonists (REM suppressants) and beta-blockers (non-REM suppressants). Among individuals treated with alpha-agonists and beta-blockers who do not have PTSD, nightmares may be reported as an adverse effect to treatment [25, 36].

The alpha-1 postsynaptic antagonist prazosin is the antihypertensive used most often to treat PTSD. Significant decreases in disturbing dreams and improvement in both sleep onset and maintenance insomnia have been achieved short term, with one study documenting positive effects up to 3 years after initiating treatment [31]. Prazosin has been used for many years as a treatment for hypertension. It is well tolerated, has few side effects, and has low levels of toxicity. Despite these attributes, it is not a psychotropic medication, and it has been difficult to convince some prescribers to use such an agent to treat a psychiatric diagnosis (PTSD), particularly since its primary action is to reduce nightmare frequency. In essence, to many providers dreams are viewed as mental rather than physical phenomena. The one proposed biological correlate for dreaming (REMS) decreases after the use of prazosin. So once again, in the field of PTSD, there is an excellent agent for treatment that fits poorly into some of the widely accepted theoretical constructs used to ascribe a basis for the disease. Prazosin remains viewed as an alternative agent for the treatment of PTSD, though recent surveys indicate an increase in its use among military veterans [4].

Other antihypertensive agents affecting norepinephrine have received less study. The beta-adrenergic antagonist propranolol has a theoretic advantage over prazosin in that it increases amounts of REMS. It has shown some effectiveness in reducing

PTSD symptoms in small studies and has been used with limited effectiveness as a prophylactic agent after trauma [11]. Clonidine, a presynaptic alpha-2 receptor agonist, sometimes used in the treatment of childhood attention deficit hyperactivity disorder (ADHD), has shown positive effects in small uncontrolled studies, but like propranolol it has not been evaluated in larger trials [16].

Alternative PTSD Medications (Prescription)

Antipsychotics

In the 1970s many Vietnam veterans were treated with antipsychotic medications. The older agents used then had such significant side effects that they have been generally replaced with newer medications called atypical antipsychotics. One of these, risperidone (Zyprexa), has been used as an adjunctive agent for PTSD patients who are not fully responsive to antidepressants. Unfortunately, when subjected to a larger randomized trial, this sedating agent with the unfortunate potential of inducing serious metabolic side effects was shown to be no better than placebo [17]. Currently antipsychotics are not recommended for use in treating PTSD unless they are treating actual symptoms of psychosis. It should be noted, however, that in the emergency room setting, these agents are commonly used to treat extreme, otherwise apparently uncontrollable behaviors, such as sometimes evidenced by decompensating PTSD patients.

Anticonvulsants

Anticonvulsants as a class of medications have modes of action less clearly defined than other types of psychotropic medication. Some of these agents, especially topiramate (Topamax), have been used clinically to treat PTSD. Clinical trial results have, however, been disappointing. Many anticonvulsants induce daytime sedation along with other significant side effects and should probably not be used to treat PTSD unless new evidence of their efficacy is more encouraging [1].

Hypnotics

One of the pharmacological success stories of the last several decades has been the development of modern hypnotics – agents that can help an individual to fall asleep that have low toxicity, minimal side effects, and low rates of addiction and abuse. This accomplishment is particularly important since earlier, and still available sedative-hypnotic medications (barbiturates, barbiturate like agents, benzodiazepines, chloral hydrate, type 1 antihistamines, etc.) were among our most abused and toxic yet ineffective psychotropic medications. The newer agents, benzodiazepine congenitors that selectively affect the GABA receptor, are classified as alpha-1 GABA A agents. These prescription medications include zolpidem (Ambien, Intermezzo),

zaleplon (Sonata), and eszopiclone (Lunesta). These are agents are indicated for use in treating both short-term and chronic forms of insomnia, an extremely common symptom and diagnostic criteria among individuals with the diagnosis of PTSD [27]. These agents are often used to treat insomnia in individuals with PTSD; however, few studies have addressed their use in this setting. One small study indicates that eszopiclone may be a better hypnotic for use in PTSD than the more widely available versions of zolpidem [30]. While some practitioners are reluctant to use these new hypnotics because of their chemical relationship to the benzodiazepines, these hypnotics have high efficacy, do not induce disinhibition reactions, and have significantly fewer side effects, toxicity in overdose, addiction potential, and next day sleepiness. These agents, especially zolpidem, can potentiate an individual's tendency to have unusual nighttime behaviors called parasomnias. Many of the adverse reactions to these medications are reported when an individual attempts waking functions such as driving shortly after taking such medications designed to help induce sleep [28].

Alternative PTSD Medications (Non-prescribed)

Ethanol

Ethanol abuse is extremely common among those diagnosed with PTSD. Anecdotally, many individuals report using alcohol as a form of numbing self-treatment that at least for a time decreases their PTSD symptoms. This effect, if attainable, is very short term, and the abuse of ethanol produces considerable personal, social, and therapeutic disarray. When ethanol use is coupled with the use of pain medications (opiates) and/or the use of other agents that induce respiratory depression (sedatives, tricyclic antidepressants, and others), the resulting effects can be lethal.

Cannabis

Cannabis (marijuana) despite widespread and increasing availability is still classified in the United States as a Class 1 narcotic. Because of this designation, the chemical complexity of the plant, and the lack of pharmacologic industry support, cannabis has received minimal scientific study. Many PTSD patients use cannabis, attempting at least in part, to alleviate their symptoms [8]. Available studies suggest that cannabis has fewer negative physical, personal, and social effects than ethanol, especially as regards its effects on motor vehicular operation [29]. Several small studies indicate that this agent may reduce insomnia and the frequency of nightmares among individuals diagnosed with PTSD [7, 15]. Larger government-funded studies note that cannabis sometimes produces worse outcomes and violent behaviors when used by individuals with PTSD, as well as interfering with cognitive behavioral forms of therapy [39]. While not toxic in overdose, cannabis is an addictive drug now available in formulations that are far stronger than those illegally available in the past.

Psychedelics

The psychedelics are Class 1 narcotics currently illegal for use in almost all government jurisdictions. As such they are even more difficult than cannabis to evaluate as to their potential effects on PTSD. Psychedelics also have their own negative history with PTSD. During the Vietnam War, soldiers with dissociative and apparently psychotic PTSD symptoms were sometimes diagnosed as being addicted to "LSD." Since psychedelic agents have never been subjected to clinical trials, side effect profiles are limited, but small studies, anecdotal personal reports, and emergency room visits indicate that their effects include drug-induced psychosis and personal/social decompensation sometimes leading to psychiatric hospitalization.

The strongest study supporting the use of these agents in treating PTSD included only 18 patients using MDNA (ecstasy) at a onetime dose in a controlled and supportive situation. Most subjects reported positive and long-term results, primarily reduced agitation [23]. Another small study using three doses of MDMA reportedly enhanced PTSD-associated traumatic memory (a positive effect?) [33]. These small studies have received extensive positive press including the suggestion that other psychedelic agents such as psilocybin might be useful in the treatment of psychiatric illness in patients not responding to therapy [22]. Some authors suggest that these drugs might have potential use in the revisiting or exposing of repressed traumatic memories [35]. For most therapists and practitioners involved in the treatment of PTSD, it is difficult to suggest that agents illegal due to their known negative psychiatric side effects be used to treat PTSD, especially when well-studied agents and approaches with proven effectiveness are available. Such drugs, when available, are often impure and adulterated rather than the agents used in the controlled and psychiatrically supportive settings of clinical research.

Conclusion: Treating PTSD with Medication

In the recent past, many medications with extensive side effects and little or any benefit were the primary forms of therapy used to treat PTSD. These medications, including the antipsychotics, the benzodiazepines, and the sedative-hypnotics, are still in wide use today. However, large, controlled, evidence-based studies have provided the evidence as to their associated negative side effects and what has often been a lack of positive effect on the course of PTSD. These same studies have provided strong evidence that two very different types of medication, the SSRI and SNRI antidepressants (sertraline, paroxetine, and venlafaxine) and the antihypertensive medication prazosin, are excellent medications for treating PTSD. Yet, the results attained even in the most successful medication trials are far less impressive than those attained using such non-drug psychological therapies as PE, IRT, and EMDR. The addition of one of these psychological therapies to the treatment regimens of patients treated only with medication is strongly recommended [3, 9, 13, 40].

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Sleep Apnea and PTSD

15

> The Nightmare generally seizes people sleeping on their backs, and often begins with frightful dreams, which are soon succeeded by a difficult respiration, a violent oppression of the breast, and a total privation of voluntary motion. In this agony they sigh, groan, utter indistinct sounds, and remain in the jaws of death, till, by the utmost efforts of nature, or some external assistance, they escape out of that dreadful torpid state. As soon as they shake off that vast oppression, and are able to move the body, they are affected with a strong Palpitation, great Anxiety, Languor, and Uneasiness; which symptoms gradually abate, and are succeeded by the pleasing reflection of having escaped such imminent danger [2].

The Nightmare of Sleep Apnea

Only the rare individual with sleep apnea reports such a nightmare of suffocation. Since dreams often reflect waking experience, it seems logical that individuals who have the profound experience of stopping breathing during their sleep should have nightmares of that experience. Such reports were included among the earliest "scientific" descriptions of nightmares as in this classic description of a nightmare published in 1753 (above). Yet, apnea-associated nightmares are rare. Among the many thousands of patients that our labs have evaluated for sleep apnea and asked as to the content of their dreams and nightmares, only a very few report nightmares that can be construed as metaphors for suffocation or an inability to catch one's breath. Patients with apnea stop breathing for at least 10 seconds (by definition). Some with severe apnea may stop breathing for minutes, before startling arousals from sleep that end with loud snoring marking the resumption of sleep. In individuals with apnea, this sleep is most often resumed without conscious awakening and without nightmares or disturbing dreams being reported the next morning. The severity of sleep apnea is rated primarily on the average number of respiratory events experienced every hour, reported as the Apnea-Hypopnea Index (AHI) – the number/hr. of episodes of breathing cessation (apneas) and hypopneas (events associated with diminished breathing and a drop in oxygen saturation). For patients, an AHI greater than 30 per hour indicates the presence of severe sleep apnea. The worse the apnea

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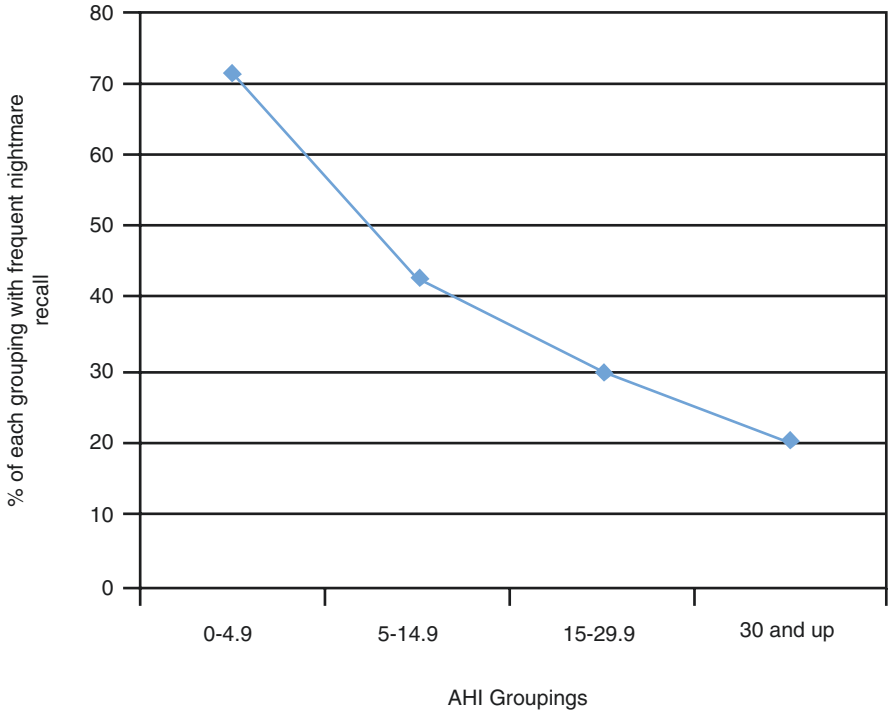

Fig. 15.1 The association between apnea severity and reported nightmare frequency

is based on AHI, the fewer nightmares reported (Fig. 15.1). This decrease in the frequency of nightmares is most likely due to the fact that they must wake constantly to breathe, disturbing their sleep to the point where almost no REM sleep is recorded [17]. While there are no significant differences in dream recall between this group and the others without apnea who are having sleep studies, individuals with severe apnea have significantly fewer nightmares.

Obstructive Sleep Apnea (OSA)

In sleep, individuals with obstructive sleep apnea (OSA) experience repeated airway obstructions during which they continue to try to breath. In order to open their airway, they must arouse or awake from sleep. Then after a few deep and loud breaths (snores), they will once again fall asleep and stop breathing once again. If an individual were to experience such a series of events during waking, such an episode of stopping breathing would be the basis for a call to 911 and the initiation of resuscitation protocols. Yet such events, sometimes occurring >100 times per hour, are quite commonly experienced. OSA is present in approximately 8% of the population, but the prevalence is likely much higher. This figure is based on symptomatic patients with a positive response to questionnaires (a minority of the total

Table 15.1 Adult OSA diagnostic associations (evidence basis included)

Obesity	A – consistent systemic meta-analyses
Cognitive impairment (daytime sleepiness)	A – consistent systemic meta-analyses
Motor vehicular accidents	A – consistent systemic meta-analyses
Hypertension	A – cross-sectional analysis of prospective cohort studies, consistent systemic meta-analyses
Increased mortality	B – retrospective cohort studies
Congestive heart failure (right and left sided)	B – cross-sectional analysis of prospective cohort studies, inconsistent systemic meta-analyses
Coronary artery disease	B – cross-sectional analysis of prospective cohort studies, retrospective diagnostic cohort study
Cerebral vascular accidents	B – cross-sectional analysis of prospective cohort studies, retrospective cohort study
Metabolic syndrome	B – cross-sectional analysis of prospective cohort studies, retrospective cohort studies
Atrial fibrillation	B – multiple retrospective cohort studies and treatment follow-up studies
Diabetes	C – retrospective cohort studies
Post-traumatic stress disorder	C – multiple small retrospective studies with high significance and treatment follow-up studies
Other cardiac arrhythmias	C – case series, usual practice

grouping of individuals experiencing apneas) and not based on testing that actually assesses breathing during sleep [25]. Large studies that have used breath screeners indicate that 10% of the population has moderate to severe apnea and 16% milder OSA [27]. That figure, however, is likely higher and increasing as obesity, a major risk factor for OSA, increases at an epidemic rate in the modern world.

Stopping breathing during sleep has significant negative physiological and psychological effects on both morbidity and mortality. The Sleep Heart Health Study designed to study the prospective effects of OSA in 6440 men and women over 40 years of age found that OSA contributed significantly to pulmonary, cardiac, endocrine, and cognitive disease [26]. Research supports the association between OSA and increased mortality, congestive heart failure (both right and left sided), myocardial infarction, and cerebral vascular accidents [21]. Adult OSA has a clear association with obesity and daytime cognitive impairment that includes daytime sleepiness [20]. Other significant correlates include heart arrhythmias and metabolic dysfunctions including diabetes (Table 15.1). Most individuals with OSA are treated with continuous positive air pressure (C-PAP) conveyed through a mask worn at night. OSA treatment with PAP has been documented to improve the status of comorbid diagnoses, waking function, and the quality of life experience.

Sleep Apnea and PTSD

OSA is still viewed as a novelty diagnosis by some medical practitioners. It is even less apparent to the psychologists and psychiatrists attempting to treat PTSD. Yet when looked for, sleep disordered breathing is found at high frequency levels among

traumatized individuals and among those with the diagnosis of PTSD [9]. In some groups (e.g., the military) this high incidence is in part demographic. Most members of the military are male, many are muscular with large necks, and some abuse alcohol – all significant OSA risk factors. The risk of OSA in the veteran population is rated at >69% [16]. OSA is a comorbid diagnosis in >35% of veterans in psychiatric care. It is even more common in those with both PTSD and comorbid major depression [4]. Sleep apnea is also quite common in non-veteran PTSD populations who do not share these risk factors for OSA, including rape victims and the victims of natural disasters [11, 12]. One small study found that sleep apnea was present at high frequency (17/19 studied with polysomnography) among disaster victims seeking treatment for insomnia [13]. Since alterations in breathing occur with anxiety-associated behaviors such as nightmares and panic attacks, this finding led the authors to suggest that significant psychological trauma might actually induce difficulty with breathing during sleep.

It was Freud's proposal that dreams functioned in protecting sleep [5]. Failing to do so, trauma-based anxiety dreams (nightmares) disrupted sleep and induced disturbed waking [6]. Dream-based psychoanalytic therapy could assist disturbed patients in replacing these anxiety dreams with more positive sleep-protective dreams. Apnic events induce arousals from sleep. Treatment of these apneas can potentially change distressing nightmares into dreams that do not induce awakenings, subverting Freud's classic concept of dreams as the protectors of sleep into an alternative construct in which breathing is the protector of dreaming [18].

Studies in which C-PAP is used to treat OSA in individuals with PTSD demonstrate a significant decrease in nightmare frequency, improved sleep, improved daytime performance, and a persistent (21 month) decline in reported symptoms of PTSD [10]. Other studies have emphasized the association between OSA and insomnia in the PTSD population, and the improvements in reported levels insomnia noted when these patients are treated with PAP systems [24]. In PTSD patients with sleep disordered breathing, using PAP to control the airway can lower nightmare frequency and improve disordered sleep and PTSD symptoms while potentially preventing the development of full-blown PTSD for traumatized patients meeting only partial criteria [22]. Some PTSD patients, particularly those who have experienced a trauma of suffocation, will have more difficulty than most OSA patients in tolerating a facial mask during the night [3]. Options for addressing this situation include mask desensitization, the use of small nasal interfaces, the use of hypnotics to assist the patient in initiating sleep, and optional, if less efficient, approaches to treating OSA including dental mouthpieces and ENT surgery.

Finding Sleep Apnea

The diagnosis of OSA can be obvious when apneas are severe and associated with loud snoring, daytime sleepiness, and observed apneas. Yet sleep apnea can be far from obvious. Questionnaires designed to screen for the diagnosis are noted for their low sensitivity and low specificity. The best studied of these screening

measures, the Berlin Questionnaire, has a sensitivity of only 37.2% and a specificity of 84.0% when used to determine which individuals in a general population sample stop breathing more than five times/hour (the cutoff point for mild OSA) [7]. These questionnaires are even less useful when used to determine which patients with PTSD might have apnea. Daytime sleepiness is less common among individuals with a diagnosis that induces waking agitation and arousal such as PTSD.

Because of the limitations of questionnaires, clinicians screening for OSA often use a portable home screening monitor that collects a few physiologic data points (oxygenation, breath disruption, heart rate, actigraphy, etc.) in order to determine whether an individual might have apnea. It is suggested that individuals to be screened for apnea should include those individuals who have a diagnosis commonly comorbid with OSA such as PTSD [23] (Table 15.1). While these tests are much more sensitive than questionnaires, most do not determine whether an individual is asleep. The results attained have a wide variability when used to assess actual levels of apnea severity (AHI) and cannot be used to prescribe the setting of PAP pressure required for treatment [14]. A typical protocol used to address sleep apnea in the general population is included as Table 15.2. In order to diagnose and manage OSA, many sleep physicians will routinely utilize more extensive tests (e.g., sleep laboratory polysomnography) for evaluation and treatment.

Table 15.2 A diagnostic approach to addressing adult obstructive sleep apnea (OSA) – the individual must fulfill A or B plus criterion C

A. Excessive daytime sleepiness that is not better explained by other factors
B. Two or more of the following that are not better explained by other factors
Choking or gasping during sleep
Recurrent awakening from sleep
Unrefreshing sleep
Daytime fatigue
Impaired concentration
C. Overnight monitoring demonstrates five or more obstructed breathing events per hour during sleep. These events can include any combination of obstructive apneas, hypopneas, or respiratory-associated arousals
D. Associated features
Snoring
Obesity
Systemic hypertension
Pulmonary hypertension
Congestive heart failure
Sleep fragmentation
Sleep-related cardiac dysrhythmias
Nocturnal angina
Gastroesophageal reflux
Impaired quality of life
Insomnia
Diabetes
Metabolic syndrome
Post-traumatic stress disorder

Conclusion

Not everybody with PTSD has sleep apnea. But studies indicate that when tested, somewhere between 40% and 60% of PTSD patients will meet diagnostic criteria for having at least mild OSA [15]. OSA is a diagnosis with considerable negative long-term effects on morbidity, quality of life, and mortality. It can be addressed by treatment with room air blown through a nasal mask at night, a treatment noted to have very few negative side effects. Most individuals with PTSD have nightmares and most have significant levels of insomnia. For individuals with PTSD and sleep apnea, treatment of their apnea produces improvements in both sleep and PTSD symptoms, improvements that are likely to be maintained across their lifespan. Currently, only a subset of clinicians and therapists consider the possibility of sleep apnea in their evaluation and treatment of PTSD.

The primary argument to be made in not addressing the possibility of OSA for those diagnosed with PTSD is that of the initial cost of evaluation. Viewed over the long term, however, this argument falls away when weighed against the high long-term cost of untreated OSA for both the patient and society [8]. Beyond living longer with fewer medical problems, OSA patients treated with PAP report a greater appreciation of life and better functioning [1]. Among treated patients, motor vehicular accidents, health-care utilization, and hospitalization markedly decline [19]. There is no question that further study is required, but current evidence indicates that PTSD is a major risk factor for sleep apnea (Table 15.1). The treatment of apnea is the one approach that can be used to treat PTSD that has proven long-term benefits. For the many PTSD patients with undiagnosed sleep apnea, treatment of their apnea could improve their lives, their sleep, and reduce their symptoms of PTSD.

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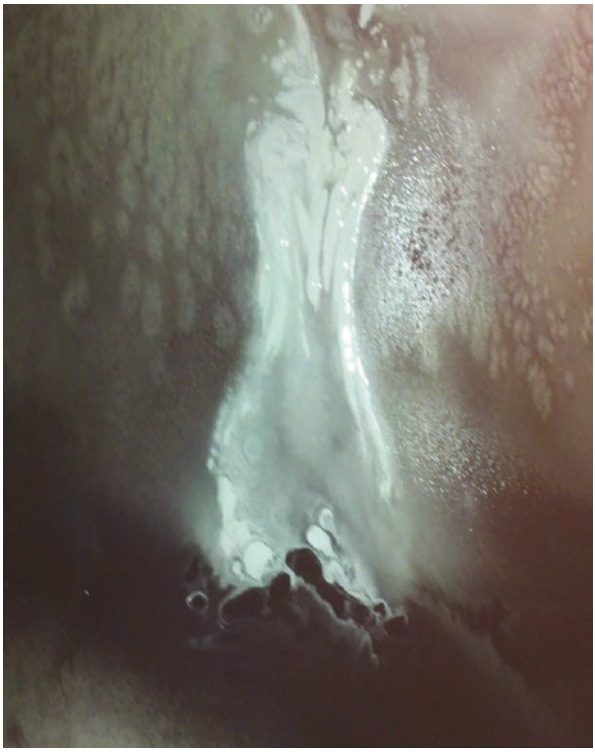
Complementary Approaches to Healing PTSD: Art, Body, and Mind Awareness

16



Kim Le Nguyen, MS-AT "Submerged in My Mind" Watercolor, 2015

Healing PTSD

Life experience can be difficult for anyone diagnosed with PTSD. With time and therapy, some will be cured – with cure defined as when reported symptoms no

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longer meet full diagnostic criteria. Many are left with some level of PTSD symptoms that increase in intensity during the experience of new life stressors. The experience of irreconcilable trauma never goes away.

When used to treat PTSD, prolonged exposure, imagery rehearsal, and EMDR can be used with medication and the treatment of apnea to achieve a greater than 80% rate of positive response. Yet, many clinicians, therapists, and affected patients will choose other approaches to care. These approaches include therapies with a long and fully developed clinical history, such as art, meditation, and body awareness (including yoga and psychodrama), approaches that come from traditions that are often outside classic Western allopathic medicine and psychiatry. Most are perceived by both patient and therapist as approaches that attempt to integrate rather than exclude adverse experience, approaches that emphasize personal growth, insight, and the potential healing of trauma. These approaches are often referred to as complementary therapies: acupuncture, mindfulness, meditation, yoga, music, deep-breathing exercises, guided imagery, hypnotherapy, relaxation, tai chi, and many others.

Art Therapy

Art therapy was among the first of constructive therapeutic approaches used to treat psychological symptoms of trauma – what would later be described as PTSD. Art was developed as a therapy by the two very different fields of psychoanalysis and art. In the field of psychiatry, art therapy was viewed to have a calming influence. In mental hospitals the goal was to help patients to "build a strong defense against their misfortunes" [19]. Used in this fashion, art therapy became a primary component of the psychiatric hospital treatment milieu. It was most often to help treat schizophrenia and depression. Some art created in this milieu is of exceptional quality and has received accolades when shown in galleries and museums as part of the genre denoted as "outsider art." Such art, especially that produced by the seriously mental ill, can present a mysterious and ambiguous world created without an apparent awareness of aesthetic or cultural criteria [15]. The art was sometimes utilized to evaluate the emotional, cognitive, and developmental status of patients. For traumatized patients, the art was often based on trauma-associated nightmares. Trained observers could infer improvement as well as deterioration in a patient's illness. Today, viewed in empiric retrospect, it is unclear what role art produced in therapeutic settings played in a patients' return to health. Some patients were occupied and distracted by their work. Their art sometimes provided information that was utilized by psychodynamically trained therapists in developing personally directed therapies. Artwork was psychoanalytically analyzed as a presented or manifest dream – an approach that still has resonance in the complex epistemology of art criticism [31].

This approach of using visual art to make a psychological assessment was also applied to diagnosis. The most widely used of art-based assessments is the "draw-a-man" test, developed in 1906 by Fritz Mohr and used initially to measure intelligence in children [26]. More modern versions include the Diagnostic Drawing

Series, House Tree Person, Road Drawing, and the Mandela Assessment Test, used by trained therapists to measure aspects of personality and levels of mental functioning. Current versions of art therapy incorporate and borrow from many different approaches to therapy and self-help, including cognitive and behavioral therapy, gestalt, personal growth, self-awareness, narrative therapies, and dream analysis. As with many of the psychoanalytically based therapies, there have been few evidence-based studies assessing the benefits and/or outcomes of art testing and therapy. The beneficial effects of therapy are often qualitative and difficult to quantify – changes in perspective such as stress relief and relaxation, reduction of boredom, pride and self-confidence, reduced frustration, increased enjoyment and fun, improved ability to concentrate, and an improved perspective on how the individual is being treated [30]. There is some evidence that trained art therapists can assess changes in mood in patients and improvements in self-control in patients with depression [17]. However, it is unclear whether these tests clearly describe a patient's psychological status or fully reflect levels of intelligence or mental functioning [32].

Art Therapy as Projection

It is only recently that art therapy has been used as a specific approach used to treat experienced trauma and PTSD. As with other applied PTSD treatments, art therapy has often had different and sometimes contradictory psychodynamic foci and objectives. Psychoanalysis views art as a projection of the psyche, allowing access to unconscious and repressed memories and emotions. There are Hieronymus Bock's nightmare-like images of darkness and William Blake's attribution of paintings to his dreams [40]. In the age of enlightenment, Fuseli painted, and the romantic poets explored in their dreams, their behaviors, and their drugs, the essence of nightmare. At the turn of the last century, both Freud and Jung used artworks and artists to exemplify "unconscious" revealing [10, 22].

The psychoanalyst James Hillman pointed out that episodes of what logically appear to be psychopathology, such as nightmares, can be essential for "normal" functioning in our psychological lives, particularly for the artist: "Concretism obscures the light and blocks the movement of fantasy….From this perspective, a pure spark of reflective life must be kept intact at all costs. A spontaneous insight gives the freedom to move away from nature's oppression and igniting the capacity to imagine life and not only to be driven by it" [20]. Artistic creativity and inspiration sometimes requires a moment of ecstasy – a dipping in to pre-rational or irrational sources – while maintaining an ongoing contact with surface reality and societal structure [7]. The painter Edvard Munch, hospitalized more than once in psychiatric hospitals, pointed out, "A German once said to me: 'But you could rid yourselves of your troubles.' To which I replied: 'They are part of me and my art. They are indistinguishable from me, and it would destroy my art. I want to keep those sufferings" [38].

Successful artists continue to utilize their dreams and nightmares to create films, music, literature, and pictorial art. Some successful artists that incorporate

frightening dreams into their work have experienced significant trauma [28]. It has been suggested that the functional impairment of symptomatic PTSD might preclude an individual from becoming a successful artist [11]. But neither trauma nor PTSD prevents some artists from using the frightening dreams of traumatic experience to create high-quality art [21]. For some artists, their most successful work is created after an experience of irreconcilable trauma [29]. They integrate their nightmare experience into their life and work, choosing to utilize rather than suppress the frightening dreams. Such individuals may avoid PTSD treatment if that therapy suppresses the nightmares they use in attaining creative and social/financial success.

Art Exposure Therapy

The art therapist working with victims of trauma is working with visual thinking – the language of lines, shapes, forms, textures, and colors. The objective is to help the patient to visually create metaphors and thoughts that stand in for ideas, feelings, experiences, objects, sensations, and actions. That art can be a recreation of the experience of trauma with visual metaphors that can then be modified or transformed. Art therapy can be another path to the re-experiencing of trauma, an approach easily incorporated into prolonged exposure (PE) therapies. In the arena of combat-related PTSD, art therapy is sometimes viewed in the context of a "nation's obligation to do everything possible to improve the care for PTSD" [37]. The US military has chosen to develop an alternative therapy approach also called ART (accelerated resolution therapy), a heavily marketed short-term and primarily Internet-based approach to exposure therapy. ART, administered short-term directly after trauma, is marketed as having a significantly lower cost and therapist involvement than conventional exposure therapies [24].

Art and Imagery Rehearsal Therapy (IRT)

Traumatized children often describe their nightmares with images – often some form of a monster. The child treated with IRT is asked to draw that monster and then to alter that monster in a fashion that leads to a change in the experienced content of the nightmare. He or she tacks the image of the redrawn monster next to their bed and contemplates that image before sleep [14]. This is among the least traumatic and most successful approaches to address nightmares, traumatic and otherwise, in children [35].

Visual artists and others with flexible personal approaches to the exterior world are those most likely to experience imaginal nightmares [18]. Even traumatic nightmares, contributing to the diversity and extent of an individual's life experience, are transformed into creative art. Such images can be altered therapeutically to transform behavior, manage stress, and make changes in their perception of life [5]. Nightmare images, as a projection of the experience of trauma, have the potential

for moving that trauma from the individual's interior world into the outside world of shared experience, extending to others the insights, emotions, and impact of the experience of trauma. Among art students, the use of such sources can improve and expand their artistic focus and their capacity for creating original works [34]. A successful artist has the chance to create a bi-directional nightmare – work can affect not only the artist's creative genre but also the society itself [28, 42].

Art Therapy for PTSD: Effectiveness

Tantalizing suggestions, particularly in the pediatric literature, suggest that art therapy can have beneficial effects in addressing trauma. When used as part of a therapeutic regimen for acutely traumatized children, art therapy can reduce symptoms of acute stress [4]. Children undergoing painful procedures demonstrate less resistance to treatment and less anxiety. Children doing art therapy and their parents are more likely to work in a collaborative fashion with caregivers [9]. Today art therapy is utilized less often as an approach to treating PTSD and psychiatric illness. When it is part of treatment, art therapy is most often used to explore the traumatic experience as part of a PE approach. Outside the combat arena, art therapy has been introduced into rape crisis centers providing support and resources for survivors of rape and sexual abuse [27].

Art therapy has a long history of use in treating trauma. Art therapy was an integral part of the psychoanalytic approach to treating psychiatric illness, an approach now often discredited as a useful approach for treating mental illness. Today, art therapies are being revisited in treating PTSD. Individuals trained as artists who experience significant trauma, sometimes report that their best work was produced after the trauma [29]. This is a rare situation in the field of PTSD: an individual with persistent, sometimes severe symptoms, functioning better in the socioeconomic/financial arena than they did before their diagnosis.

Treating PTSD with Body Awareness

Body awareness therapy developed from psychodrama – a psychoanalytic approach used in a group format among institutionalized psychiatric patients in which participants would assume roles in tableaus derived and based on constructs of family, relationships, and myth. The protagonists became directors of their own plays creating around them a past that was both real and imaginary. Experienced and unconscious trauma, accepted by many psychoanalysts as the origin of psychiatric illness, was often the focus of performance. As with art therapy, a major advantage of psychodrama was its ability to include a group rather than just one individual patient in psychoanalysis [16]. At the end of the twentieth century with the decline in use of psychoanalysis as a therapeutic tool for psychiatric illness, psychodrama almost vanished from the scene. Today psychodrama is primarily used as a tool by actors to expand "subconscious" aspects of their assumed roles [36].

Psychodrama has re-emerged as the therapy called body awareness, in which victims are counselled to explore and connect their physical sensations to the psychological events of their trauma. This approach emphasizes the traumatic basis of PTSD. Practitioners of body awareness therapy view psychiatric symptoms as markers of unconscious and/or repressed/unremembered trauma [41]. Sensorimotor techniques facilitate re-experiencing, relaxation, and the expression of traumatic memories [33]. Anecdotally, body awareness can be used to induce reports of physical and mental relief. Unfortunately the emphasis of this approach on unconscious, repressed, and sometimes non-reality-based memory can lead to new symptoms and even the diagnosis of PTSD (this untoward outcome is addressed in DSM-V as therapy-induced PTSD) [1]. Such an outcome can negatively affect patients and support systems, particularly when used in allegations of abuse.

Treating PTSD with Yoga

Yoga in its many forms is an approach to body awareness integrated with Eastern religions. Yogas' history of use predates Western science and medicine. Most approaches utilize a combination of breath practices (pranayama), stretches or postures (asanas), and meditation. This focus of yoga on breathing potentially reflects the loss of breath noted in PTSD patients who also have sleep apnea (Chap. 15). When used to treat patients with PTSD, emphasis is often on addressing body pain and discomfort. A yoga practice can reduce physiological arousal and improve somatic regulation, body awareness, and emotion regulation [8]. Several clinical trials have addressed the use of yoga in treating PTSD (284 participants). Meta-analysis of these studies indicates that low-quality evidence exists supporting the clinical effects of yoga on PTSD symptoms compared to no treatment. This finding has led some psychiatrists to offer a weak recommendation for yoga as an adjunctive intervention for PTSD [6]. More research is needed. Very few negative outcomes have been reported in treating PTSD with yoga.

Treating PTSD with Meditation

There are many forms of meditation, most like yoga of ancient Eastern and religious origin. As with yoga, a fully developed meditation practice requires the individual to invest significant time, energy, and focus. Meditative approaches teach practitioners to observe thoughts, feelings, and sensations in a non-judgmental manner and orient their attention to the experienced present. The technique of experiencing the present moment can be used to encourage an individual with PTSD to approach rather than avoid distressing thoughts and feelings [12]. Present orientation also helps to free an individual from excessive orientation toward the past, potentially reducing worry and rumination. Meditative practice that focuses on attention can be used to assert control of intrusive memories and help the patient to shift attention to coping strategies and problem-solving [25]. Many meditation practices have

elements of exposure, cognitive change, attentional control, self-management, relaxation, and acceptance, all potentially useful in addressing symptoms of PTSD [2]. To this date, there have been more than 19 randomized control studies (1173 participants) addressing the use of meditation in treating PTSD. Statistically, positive effect response is in the small to medium range, with reported negative outcomes rare [13]. While meditation approaches require significant time and personal effort, they are likely to have benefits for individuals with PTSD, particularly when provided within a socially supportive setting. When used in the setting of PTSD therapy, however, more study is clearly required.

Other Complementary Approaches to Treating PTSD

Classic psychotherapeutic support, primary medical care, groups, and social support can all be viewed as forms of complementary therapy helpful in treating PTSD. The PTSD care provided through religious belief systems is often integrated with other applied therapies. Such an approach works best for individuals with a history of such a developed social structure before their experience of trauma. Limited work indicates that hypnosis can be used to reduce the acute stress associated with PTSD re-experiencing symptoms [3]. It is unclear as to whether such effects persist after therapy. Anecdotally, positive effects have also been reported in using acupuncture, music, guided imagery, relaxation, and tai chi.

Complementary Approaches to Treating PTSD: An Overview

Many patients will use complementary therapies as alternatives to the sometimes personally demanding and difficult mainline approaches to treating PTSD that have been proven in controlled clinical trials to produce positive results. Complementary therapies work best, however, when utilized as part of an overall treatment strategy that also includes psychologic and/or medication approaches with high levels of proven effectiveness. Recent studies indicate that interest is growing in complementary approaches with 40% of US adults using some form of complementary health [23]. Military personnel engage in these health practices at similar rates, and 80% of VHA facilities offer meditation and stress management to patients [39]. Many of these approaches emphasize intrapersonal insight and understanding attempting to integrate rather than suppress an individual's experience of trauma. But each approach can be used in alternative fashion, either in the attempt to explore the experience of trauma or as an approach used to project the trauma outside oneself and get on with one's life. These approaches require the individual to personally invest in their self-care. The role of the therapist is primarily one of availability in case of decompensation and may require little more than providing a supportive and non-threatening context for personal interaction. Used appropriately, complementary therapies help the traumatized individual to find meaning in exploring positive aspects of life experience, as well as help in reintegration into outside society. For

the individual with PTSD these can be heroic, existential accomplishments. For the individual diagnosed with PTSD, what we call "complementary" therapies have an importance far beyond any such designation.

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When Treatment Doesn't Work

17

Fall is the time for it.
Harvest done,
Insurance paid up. (Staying Awake, [31])

Many who develop PTSD will never receive treatment. In war zones, failed states, among the poor, and the socially abused, treatment is rarely available. In these situations the societal structures meant to be of assistance are either nonexistent or overwhelmed. Mental health facilities, if they still exist, are unable to address the influx of patients. Treatment becomes increasingly difficult to convey.

Some traumatized individuals will never ask for treatment or admit that anything is actually wrong. Extreme psychological trauma and symptoms of PTSD are viewed as part of normal life experience. In the military setting, "normalization" to trauma is sometimes used to encourage warriors to deemphasize their stress reactions and return to duty [34]. Trauma, even when severe and inducing an extremely negative response, is sometimes viewed as a test of "manhood" and a rite of initiation [21]. Considerable social pressure may discourage the individual from admitting to symptoms or asking for help. In such situations, the only individuals actually diagnosed with PTSD will be those at the extreme end of the diagnostic spectrum, those no longer able to function.

Many PTSD patients will present to clinicians with limited expertise, understanding, and/or limited resources for addressing PTSD. Some present to practitioners who do not believe in the diagnosis (a situation less common than in the past) or those who believe that PTSD symptoms reflect malingering. In this situation, another diagnosis besides PTSD may be made and treated (i.e., insomnia, depression, substance abuse, bipolar disease, psychosis, etc.).

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Quitting Treatment

Yet even those PTSD patients with ready access to excellent care will often quit treatment, even those in prepaid support systems such as provided by the VA. There are multiple reasons for quitting therapy. For many, if not most affected, PTSD becomes a chronic illness, the experience of severe trauma negatively affecting life experience into extreme old age [2]. It is the rare individual who will continue therapy throughout the long life course of the illness. While psychological therapies for PTSD when combined with appropriate medication and the treatment of apnea have a positive response rate of greater than 75%, these response figures are based on their short-term use in individuals willing to complete therapy. Many individuals will discontinue even short-term courses of PTSD therapy, particularly if that therapy is aversive. In the situation of therapeutic trials in which therapy is free and subjects often paid, up to 1/3 of those enrolled in prolonged exposure therapy (PE) will drop out [19]. In the situation in which therapy does work and is well tolerated, PTSD patients often discontinue their access to care when persistent symptoms decline to a level that they can be tolerated. Such individuals are considered to be cures. Many will have recurrent and increased symptoms with the onset of new stressors. In our small study of successful artists with a history of significant trauma who use nightmares in their work, all had chosen to discontinue their PTSD therapy. Reasons given included cost, difficulty of access to care, negative symptoms including side effects to medication, fewer significant dreams and nightmares, and reduced life "intensity" secondary to both medication and psychotherapy that reportedly interfered with their creative work [25].

Loss of Access to Care

Most individuals diagnosed with PTSD will discontinue treatment at some point. The lucky ones are cures – those whose symptoms no longer interfere with functioning. Some will require intermittent therapy when their symptoms recur. For many others, symptoms of PTSD become chronic and recurrent requiring ongoing care. Of these, the unlucky ones will lose access to care secondary to diagnosis-based dissolution of their personal lives. After major trauma, social support is the primary factor that protects an individual from extending an experience of grief into the diagnosis of PTSD [33]. For those who develop PTSD, social support is what can help keep them functional and involved. The best support embeds that help into a web of loving, caring, and readily available social relationships [18]. It is not uncommon for individuals with PTSD to live in families where violence is common, among family members who are unemployed or are abusers of alcohol and drugs. The four major risk factors for polyvictimization are (1) residing in a dangerous community; (2) living in a dangerous family; (3) living in a chaotic, multiproblem family environment; and 4) having emotional problems that lead to risky behaviors and foster antagonism [12, 13]. Individuals diagnosed with PTSD are more likely than others to lose all family connections and become homeless. Among

400 homeless men and women in St. Louis, for 3/4 a diagnosis of PTSD preceded their onset of homelessness [22]. Except among veterans, mental health care is rarely available for the unemployed homeless. Even for veterans, access to care for the homeless individual without transport is difficult and often confounded by the loss of functional capacity, other associated psychiatric illness, SUD, and medical illnesses. Crimes of violence, substance abuse, and risk-taking behavior occur at higher frequency among those diagnosed with PTSD. Individuals with PTSD are more likely than others to be incarcerated for various crimes. In a meta-analysis of 21,099 imprisoned men and women in 20 countries, point prevalence of PTSD ranges from 0.1% to 27% for male and from 12% to 38% for female prisoners (the extremely wide range in findings is most likely methodological in that very different criteria were used by different countries and different systems in making the diagnosis of PTSD) [3]. In today's world of prolonged incarceration, it is the rare convict whose symptoms of PTSD will be addressed behind bars.

An Epidemic of Suicide and PTSD

Among the major concerns affecting any individual diagnosed with PTSD is the increased lifetime risk of suicide. Data as to suicide risk is often difficult to fine and sometimes institutionally suppressed, but recently more information has become available from a US military confronted with an "epidemic of suicide." From 2005 to 2010, the suicide rate among US veterans increased from 234/100,000 to 340/100,000 [7]. By 2014, a veteran was 22 percent more likely to die by suicide compared to adult civilian peers [32]. Currently, US military suicides account for approximately 20% of all military deaths.

Many veterans who choose the path of suicide have experienced major trauma [1]. The association of PTSD with suicide makes PTSD among the most dangerous of psychiatric disorders, with suicide rates greater than or equal to that seen with the depressive illnesses. Among diseases affecting sleep, PTSD has an equivalent or higher mortality rate than any other diagnosis, including obstructive sleep apnea [24]. The US Army service members from 2001 to 2009 who died by suicide (n = 874) were almost 13 times more likely to have received a diagnosis of PTSD [5]. For the current and former military included in the Millennium Cohort Study (n = 151,560), the sex- and age-adjusted association for PTSD and suicide was 1.8 (an 80% increase in suicide risk among those diagnosed with PTSD) [20]. Among Vietnam-era veterans included in the Department of Veterans Affairs Agent Orange Registry Veterans with PTSD (n = 4247), male veterans with PTSD had 1.8 times the rate of suicide those without PTSD, while female veterans with PTSD had 3.5 times the rate of suicide compared to female veterans without PTSD. The hazard rate for suicide increases within the first year of separation from the military with suicide risk remaining high for many years after discharge [28]. The greatest number of suicides among male veterans is observed for those ages 50–69 [32]. While in the United States, the most concerning data concerning the association of PTSD with suicide comes from the military, suicide rates are also increasing worldwide

throughout the civilian population. As based on the Danish national health-care database, from 1995 to 2011, individuals diagnosed with PTSD had 13 times the rate of suicide compared to those without a PTSD diagnosis (n = 22,716) [14].

The studies documenting the association between diagnosed PTSD and suicide were followed by work that attempted to determining which military veterans were at highest risk for suicide. Among patients who used VA service in 1999 (n = 2,962,810), those patients with PTSD and any psychiatric comorbidity had 2.6 times the rate of suicide than those with no psychiatric diagnoses [8]. Veterans who used VA care had higher suicide rates than civilians. But an even greater increase in suicide rate was observed for those veterans who did not use VA services [32]. The PTSD subgroup with symptoms of "emotional numbing" and those in the "cognitive-affective" cluster with depressed mood were those most likely to experience suicidal ideation [15]. Suicide rates are highest for veterans who are in treatment for psychiatric illness and for those who have been hospitalized in the last year. A substance abuse diagnosis, especially opiate abuse disorder, increases suicide risk [32].

The Opioid Crisis

What began as a seemingly compassionate and efficient means of using opiates to address pain has become a waking nightmare devastating communities and claiming the lives of almost 400,000 people in an 18-year span [17]. The apparently benign attempt to improve comfort for those with chronic pain turned out to be, in part, programmed misinformation from pharmaceutical companies pushing the liberal prescribing of opiate pain medication, a successful approach that produced escalating rates of opiate use, misuse, opioid use disorder, and overdoses [27]. This high frequency of opiate prescribing coincided with the return of deployed military from the Iraq and Afghanistan conflicts, a group exposed to high levels of physical and psychological trauma. Between 2002 and 2008 prescription opioid dependence and abuse rose from 1% to 10% among US military service members [9]. Having a prior PTSD diagnosis significantly increases the odds of developing opiate use disorder after exposure to opioid analgesics [16, 29]. Some individuals with chronic pain will self-medicate with opiates to avoid experiencing PTSD symptoms. In a dangerous pattern of "mutual-maintenance" PTSD and chronic pain affect one another, inducing a cycle in which pain increases PTSD symptoms and vice versa, so that the individual turns to opioids for rapid relief [30]. Providers contribute to the cycle in their attempt to relieve the distress associated with physical and mental trauma by prescribing opioid pain medication and sedatives, thus dangerously increasing overdose risk [4]. Ethanol is the final element in the overdose triad, a respiratory sedative that when used with opiates and other sedating medications potentiates the risk of fatal overdose – alcohol use disorder affects 42% of veterans [26].

A significant number of those who take their own life are concealed in the alarming number of overdose deaths. In the absence of a suicide note, it is difficult to assess the intentions of someone who overdoses. The individual's intentions may

not be clear-cut. In a Flint, Michigan emergency department, 39% of those who had overdosed on opiates or sedatives reported wanting to die or not caring about the risks, while another 15% reported they were unsure of their intentions [6]. While we don't know exactly how many opioid overdose deaths are suicides, experts estimate that up to 30% of opioid overdoses fit this description [23].

Addressing Suicidal Ideation in the Patient with PTSD

There is no clear evidence for a proven approach that prevents suicide. Most experts recommend hospitalization for the individual who is dangerous to self and/or others and treatment with a combination of social support, CBT, and medication. But as noted above, PTSD patients receiving ongoing psychiatric care are a group with the highest suicide risk during the year after hospitalization [32]. One approach with proven efficacy is limiting the individual's access to potentially lethal methodology. In the United States, veterans with a diagnosis PTSD and substance abuse are significantly more likely to use a firearm than another means to commit suicide [32]. Opiate overdose, as noted above, is another commonly utilized approach to suicide. In the United States, for political and social reasons, limiting access to lethal methods is rarely possible, even for the high-risk individual with previous suicide attempts.

Any rational approach to addressing suicide must somehow attempt to help the individual find a way to want to live. For the individual with PTSD, life can be difficult and painful and difficult to appreciate, filled sometimes with nightmare images and the experience of loss. Treatment, while helpful, particularly during times of stress or crisis, can never remove that original experience of overwhelming trauma.

PTSD as a Chronic Disease

The therapies discussed in this book have excellent short-term efficacy when used to treat PTSD. But the long-term value of treatment has rarely been addressed. For some of those with PTSD, symptoms diminish to a level that they no longer affect waking function. These individuals can be considered cures. But even for those successfully treated, during times of stress or repeated trauma, symptoms are likely to recur. For many others PTSD symptoms will recycle in intensity, persisting throughout life. The functional disarray associated with the diagnosis means that over time, many will lose access to care. Others, frustrated and experiencing negative side effects associated with interminable therapies, will choose on their own to quit treatment. Suicide, the most terrible potential outcome of PTSD, persists as a problematic risk though out the life of an individual affected by PTSD. It peaks in occurrence the first year after trauma and then peaks again as a risk in late middle age [32]. Even for those at the extreme end of age (> 80), suicide risk remains higher than for the rest of the population. Caveats that can be gleaned from this dark side of the PTSD story:

1. The memory of an expereince of irreconcilable trauma never goes away.
2. For individuals diagnosed with PTSD, cures are relative and perhaps rare (they should be celebrated).
3. Psychological and medical therapies for PTSD have been proven to work on the short term, but symptoms will often recur during times of stress that require repeated therapy. Therapy, as required, should be available to PTSD patients throughout the course of their lives.
4. The functional disarray associated with PTSD can lead patients into substance abuse, the loss of support systems, employment, family, and sometimes homelessness and/or incarceration (any approach to treating PTSD should attempt to provide assistance, and therapy even in these difficult settings).
5. Individuals diagnosed with PTSD are at a higher risk for suicide throughout their lives.
6. Complementary therapies for PTSD including art, movement, yoga, and meditation, while less successful than other therapies at treating the short-term symptoms of PTSD, offer what can be even more important value when used over the long term – personal responsibility and emphasis on the value, uniqueness, and possibility of the individual's life.

Integrating Belief Systems

Among the most important considerations in the long-term chronic treatment of PTSD is the need to preserve and support the individual's pre-trauma family, social support, and belief systems. The symptoms and difficulties of PTSD can lead to the disruption of important support. Individuals with PTSD may become isolated, losing access to care and social support systems. Even strong social and religious ties can be disrupted by trauma. It is difficult for some to continue to believe in a loving God after an experience of irreconcilable trauma [10]. Some evidence suggests that individuals able to maintain their belief and social support systems do better emotionally when faced with severe trauma and grief than those who, after trauma, enter a period of religious struggle and negative religious coping [11]. There is no one path to cure for PTSD. The individual's belief and social roles need to be addressed, even if outside the usual perspectives of the involved therapist. All of the available forms of psychological and medical treatment for PTSD, as well as the complementary therapies, must be viewed in this context. Unfortunately, most PTSD patients will be presented with few therapeutic options other than the particular approach utilized by their therapist. But in today's world of widespread information, many individuals with PTSD will find their way on the Internet to both the "good and bad" of therapies used to treat PTSD. The individual selects an approach based on their personal views and beliefs of what might be helpful. It becomes the therapist's role both to understand their perspectives and to provide their patients with the current and best of evidence-based information on the diagnosis and treatment of PTSD (such as that presented in this book).

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An Evidence-Based Approach to PTSD Therapy

18

PTSD has been a discrete diagnosis for only 50 years. As a diagnosis, it has evolved as our understanding of the illness has changed. Symptom-based DSM diagnostic criteria are now widely used in classifying and addressing psychological trauma. Easy to use screening tests such as the PC-PTSD-5 are available in the public domain (Fig. 2.7). Despite limitations, DSM criteria have allowed the diagnosis to be more rationally defined and followed and have allowed both the researcher and the clinician new ways to evaluate the life course, comorbidities, social effects, and mortality associated with what is now understood to often be a chronic disease. The many approaches used in treatment can now be evaluated as to whether they actually work when used to treat multiple individuals and groups, with that evidence utilized to suggest an appropriate course for therapy for each individual affected (Fig. 18.1).

While the diagnostic protocol for PTSD has become more consistent, PTSD treatment has become more diverse and fragmented. Treatment is likely to be defined by the approach in which the particular provider is trained. In the US military, almost all PTSD patients will be treated with prolonged exposure and group support. Outside the military EMDR and imagery rehearsal therapy (IRT) are more often available, and prolonged exposure is utilized less often. In order for medication to be used, a medical provider must be available with at least some understanding of the PTSD medications. The evaluation and treatment of apnea requires the involvement of a provider trained in sleep medicine and the support of a payment system that will cover the cost of testing. PTSD treatment modalities are limited by the individual's health coverage and the system of providers. Any form of treatment is only available when there is a therapist or provider trained in that method. Unfortunately, it is rare that any PTSD patient will have access to all of the therapies discussed in this book.

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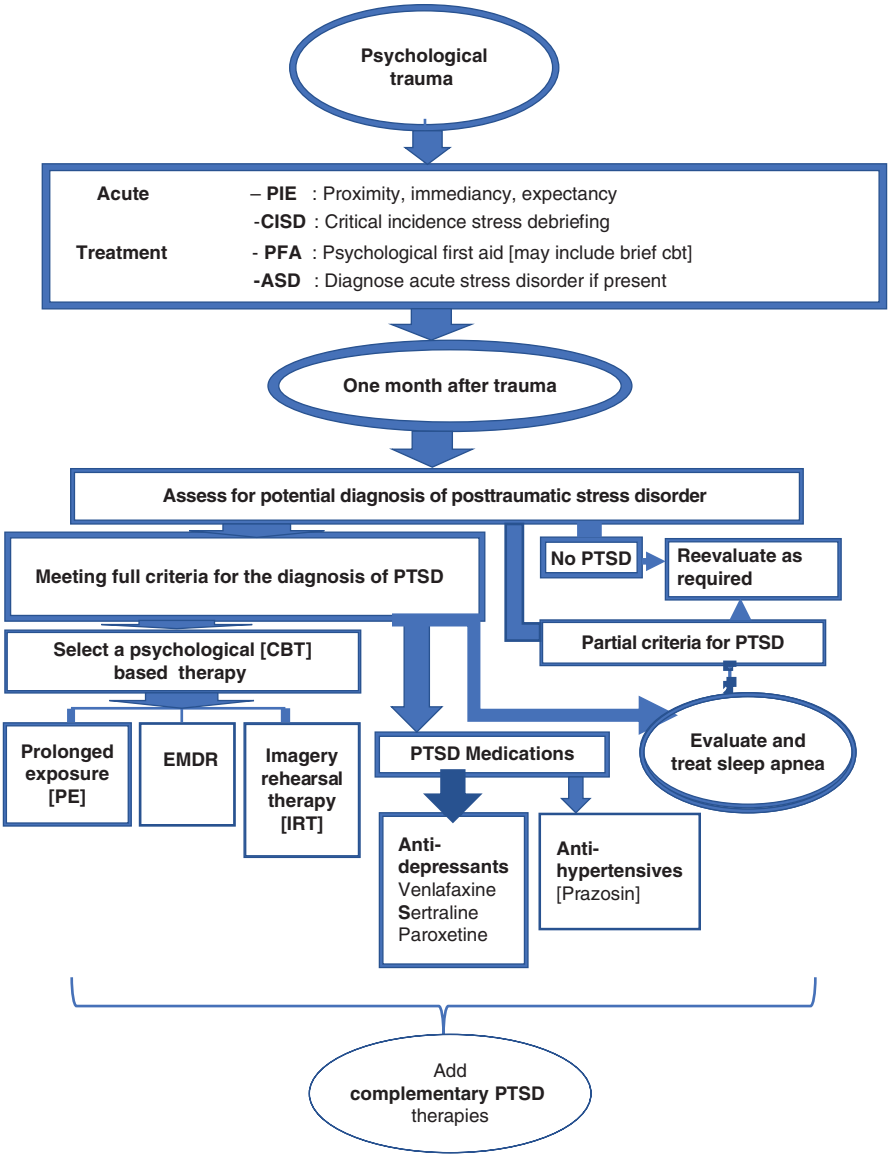

Fig. 18.1 A PTSD diagnosis and treatment paradigmn

Assessing Treatment Results

Evaluating evidence for treatment outcomes is easiest when a diagnosis responds to one or perhaps two general approaches. It is more difficult to evaluate treatments for a diagnosis such as PTSD that has at some point been treated with

almost all of the medications and psychological therapies known to alter the activity of the central nervous system or to affect waking and sleep behaviors. Some of the therapies producing high levels of short-term positive response (>75%) proselytize the perspective that their proven approach is the only approach that should be used. For these successful therapies (prolonged exposure, imagery rehearsal, and EMDR), entire literatures, training programs, and certification systems have been developed. Alternative therapies are sometimes ignored and misrepresented. Medication is something that can be provided only by a medical practitioner. Psychologists who cannot prescribe may present medication as an alternative or collateral approach to treating PTSD. Medical providers may indulge in the converse, using medication while suggesting that psychological therapies are difficult to both access and endure. Psychiatrists, trained in the theory and use of psychotropic medications, are sometimes adverse to using non-psychotropic medications such as antihypertensives to treat what they view as a psychiatric illness. The treatment of sleep apnea lies even further afield, poorly addressed and understood by most psychologists and many medical practitioners. The approaches that lie outside medical and psychological treatment protocols, outside what is currently viewed as science (e.g., yoga, meditation, and art), are even more difficult to evaluate. For these fields, concepts of evidence, comparative trials, and/or prospective monitoring of effects over time are rarely understood or applied.

Many of these fields have issued pronouncements as to the appropriate treatment approach(es) that should be used to treat PTSD. But there has not been any one place that the patient or provider can go to review the existing evidence supporting and/or detracting from the many therapeutic approaches used to treat PTSD. Most often in even the largest of these directives (e.g., American Psychological Association, American Medical Association, US Army, etc.), proven approaches outside practitioner group areas of focus are unaddressed, ignored, or deemphasized. While information is recent and still evolving, this book provides a current window into the supporting and detracting evidence for the various approaches used to treat PTSD.

This chapter includes a series of summary, evidenced-based tables applied to diagnosis and therapy in the timeline after the experience of severe trauma. These summary tables are developed from the data and studies referenced in the previous chapters of this book. In evaluating treatment, less positive outcomes and their potential to negatively affect patients and therapists are also addressed and included in text and table format. Patient-oriented evidence is rated on a SORT taxonomy protocol in which [A] = validated meta-analysis or high-quality/prospective cohort studies; [B] = multiple case controlled studies; and [C] = disease oriented case series [1]. The connotation [+] or [−] is used in these tables to indicate that consensus guidelines have been developed to address this therapy to either recommend [+] or dissuade [−] its use. The connotation (*) indicates that the treatment is recommended by the NIH in a position paper.

Acute Trauma

After acute, severe trauma, approximately 25 percent of those affected develop PTSD. Primary risk factors affecting this tendency include the severity of trauma, age (greatest in adolescence), a lack of social support, and a previous diagnosis of PTSD. In the situation of acute trauma, no applied treatment has been to empirically alter the tendency for an individual to develop PTSD. Evidence for commonly utilized approaches are addressed in Table 18.1.

Many of these approaches are currently undergoing further study. Some of these treatments for acute trauma, including return to combat, benzodiazepines, and CISD, have at some point been the primary recommended approaches to therapy. When considering medication use, questions remain as to the potential for use of the newer GABA receptor hypnotics such as zolpidem, to assist the acutely traumatized individual in attaining sleep. Most clinical guidelines address these medications as benzodiazepines, inferring that they should not be used in the setting of acute trauma. However, these agents are quite different from classic benzodiazepines. They are hypnotics rather than sedatives, with more specific pharmacologic effects, shorter duration of action, lower toxicity, and lower addictive potential, and they rarely, if ever, induce benzodiazepine-like psychological reactions. The guidelines restricting their use are based less on reports of untoward outcomes and more on the theoretical belief of their potential to interfere with the psychological processing of trauma.

In the Month After Trauma

Traumatized individuals used to be allowed a 6-month period in which almost any form of behavior was viewed as a normal variant of the grieving process. DSM-V made major changes in that timeline. The diagnosis of acute stress disorder (ASD) is now applied only to individuals with PTSD symptoms in all four categories during the period from 48 h up to 1 month after severe trauma (Chap. 2). Psychotropic medications are used during this period to treat symptoms associated with ASD that fit into other diagnostic categories (e.g., depression, anxiety, psychosis). Some treatment protocols now include the initiation of exposure-based cognitive behavior therapy (CBT) 2 weeks after the experience of severe trauma in patients meeting the diagnostic criteria for ASD (Table 18.2).

One Month After Trauma [The Event Horizon of PTSD]

Any individual experiencing severe trauma needs to be evaluated for PTSD 1 month after the event. While a PTSD diagnosis can be made using a questionnaire, such a formatic approach works best as screening. A diagnosis of PTSD can be a life-changing experience. It is best made as based on a structured interview by a trained provider, so that the severity of trauma and the extent of associated functional

Table 18.1 An evidence-based comparison of approaches to treating acute trauma

Applied approach	Positive factors	Negative factors	Level of evidence
Proximity, immediacy, and expectancy [PIE]	Long history of use Reduces stress, depression, anxiety, and PTSD symptoms	Can be locally abused: by returning soldiers to battle or first responders to disaster work	Multiple studies suggesting positive response A few small controlled studies suggesting lower rates of diagnosed PTSD after use [B]
Psychological debriefing [Critical Incident Stress Debriefing (CISD)]	Preserves documentation of the individual's experience and response to trauma [important for future legal proceedings and exposure therapy] Positive responses are commonly reported	Early focus on PTSD symptoms potentially: 1. Interferes with natural recovery 2. Fosters negative cognitions about oneself 3. Adds responder stress	Multiple studies indicating no effect on an individual's tendency to develop PTSD A few studies indicating no benefit or a worsening of symptoms.
Psychological first aid (PFA)	Provides a structured approach to addressing trauma for first responders Emphasizes the maintenance of patient support systems	None noted	No evidence that PFA alters any individual's tendency to develop PTSD No negative side effects
Cognitive behavioral therapy [Brief] (CBT)	Sometimes added as a component to PFA	Significant training in administration generally required In situation of acute trauma – unclear as to level of training required	One study suggesting possible decline in development of PTSD symptoms after use
Benzodiazepines (BZD)	Waking sedation for the affected individual Short-term sleep improvement	1. Tolerance, dependence, withdrawal 2. Sedative-associated dysfunction 3. Potential interference with recovery	Case reports suggesting worsened outcomes after trauma [C], [−] (*) Multiple clinical guidelines suggesting BZDs should not be used in the situation of acute trauma
Opiates	Pain relief	1. Tolerance, dependence, withdrawal 2. Sedative-associated dysfunction 3. Overdose toxicity	[−] (*) Limit to short-term use [−] Not indicated for chronic use in PTSD population

(continued)

Table 18.1 (continued)

Applied approach	Positive factors	Negative factors	Level of evidence
Return to Trauma/ Combat Theatre	Can reflect patient request, and contribute to Heroic behavior	Increased reckless and suicidal behavior, Functional incapacity, >Complex PTSD, Increased mortality	[−] Current US Army recommendations

Table 18.2 An evidence-based review of approaches to treatment of psychological trauma during the month after trauma

Applied approach	Positive factors	Negative factors	Level of evidence
Diagnose ASD from 48 h after trauma in individuals with the full complement of PTSD symptoms	A diagnostic category with applied treatments that can be reimbursed	Potentially: 1. Interferes with natural recovery 2. Fosters negative cognitions about oneself	(+) Clinical guideline
Exposure based (CBT) initiated 2 weeks after trauma in patients meeting diagnostic criteria for ASD	Positive response, particularly in rape victims Potential reduction in PTSD rates	Potentially: 1. Interferes with natural recovery 2. Fosters negative cognitions about oneself	A case series indicating reduced ASD symptoms and reduced PTSD rates compared to psychotherapy and support [C]
Discontinue benzodiazepines and/or opiates if initially prescribed	In patients diagnosed with ASD or PTSD there are no indications for chronic use	1. Tolerance, dependence, withdrawal 2. Loss of effect 3. Sedative-associated dysfunction 4. Overdose toxicity	Multiple meta-analytic studies [A], (−) Multiple clinical guidelines

disturbance can be evaluated, as well as the four areas of symptom criteria. A diagnosis of PTSD should not be made in individuals who meet only partial criteria for the diagnosis. Yet some individuals will go on to develop full-blown PTSD months or even years after their trauma. Limited evidence suggests that progressive exposure (PE), and/or the treatment of associated sleep apnea, may prevent some individuals from moving from partial PTSD to the full diagnosis. When nightmares and disturbed sleep are the primary complaint, excellent evidence indicates that both imagery rehearsal therapy (IRT) and the use of alpha-adrenergic antihypertensives (e.g., prazosin) can reduce and sometimes eliminate trauma-associated nightmares. Opiates should almost never be used as a chronic treatment in patients with PTSD;

however, cautious use of short-term acute courses of pain relieving medication may be required when the experienced physical trauma requires multiple surgeries, as in the case of burn victims. The evidence for and against the specific psychological therapy approaches, sometimes referred to under the all-inclusive label of CBT, are considered independently in Table 18.3.

There are three primarily psychological therapies that have high-level, short-term efficacy when used to treat PTSD. These are prolonged exposure (PE), imagery rehearsal therapy (IRT), and EMDR. Yet each is very different as to theory, origin, and type of supporting evidence, application, and objective. Attempts at combining approaches have been malproductive, sometimes producing strange and contradictory hybrids of therapy as when EMDR is used to lower trauma-associated stress in a patient being treated with PE or when dream imagery is used to increase access to traumatic experience. The evidence suggests that these approaches should be used independently of one another. PTSD has a varied psychological and physiological basis that responds to very different approaches to therapy, medication, and even the treatment of sleep associated disturbances in breathing. These various therapies have very different rationales and objectives. This does not mean that they do not work. Rather, this response of PTSD to varied types of therapy strongly highlights limitations in our current understanding of the physiological and psychological effects induced by severe trauma.

Table 18.3 of PTSD therapies is not inclusive. Many other psychological therapy protocols have been used to treat PTSD, as well as every medication with known psychotropic effects and/or side effects. The evidence supporting the use of other medical and psychological approaches is, however, primarily limited to anecdotal testimonies and isolated case reports. Evidence supporting antidepressant use in PTSD is best for the serotonin reuptake inhibitors (SSRIs) paroxetine (Paxil), and sertraline (Zoloft) as well as or the serotonin/ norepinephrine reuptake inhibitor (SSNRI) venlafaxine (Effexor). Adrenergic antihypertensive medications include propranolol, clonidine, and guanfacine; however, prazosin has been used in almost all of the studies and clinical trials producing positive findings in treating PTSD.

Complementary PTSD Therapies

A wide variety of complementary therapies used to treat PTSD exist outside the conventional medical and psychological approaches reviewed above. These approaches are complements to conventional care rather than alternatives to the better studied and proven treatment approaches included in Table 18.3. The designation “complementary” does indicate that these approaches are unimportant. When viewed against the timeline of lives chronically affected by PTSD, complementary approaches have major importance, particularly when utilized to help give meaning to what are often difficult and painful lives. The complementary PTSD therapies have been developed most often from alternative fields of study such as art, drama, and dance. Others such as yoga and meditation are derived from techniques utilized in Eastern religions. Most effective complementary therapies require the affected

Table 18.3 An evidence-based review of PTSD treatment

Applied approach	Positive factors	Negative factors	Level of evidence
Prolonged exposure therapy (PE)	Reduces PTSD symptoms (>75%) Wide availability in the military	High dropout rate Limited availability outside the military Perceived as aversive ? Long-term effectiveness	Multiple meta-analysis [A] (+) (*) Included in multiple guidelines
EMDR	Reduces PTSD symptoms (>75%) Wide availability among psychologists Utilized as an approach to acutely address stressors	Does not specifically address traumatic experience Limited military availability Limited evidence assessment (in field) ? Long-term effectiveness	Multiple meta-analysis [A], (+) (*) Included in multiple guidelines
Imagery rehearsal therapy (IRT)	Reduces nightmare frequency and distress (> 80%) Reduces PTSD symptoms	Limited availability A nightmare-specific approach also affecting PTSD symptoms Perceived as positive ? Long-term effectiveness	Nightmare treatment: Meta-analysis [A] (+) Sleep medicine guidelines Positive effects on PTSD symptoms [B]
Treatment of Sleep apnea with positive airway pressure (PAP)	Reduces PTSD symptoms and nightmares in individuals with both apnea and PTSD Positive long-term effects on morbidity and mortality	Cost of screening, evaluation, and treatment Mask associated complaints – rubbing, nasal congestion, claustrophobia	(+) (*) Multiple meta-analysis support treating apnea in patients with comorbid diagnoses [A] Meta-analysis: use in PTSD [A]
Antidepressant medication (SSRI or SNRI)	Reduces PTSD symptoms (35–50%) Treats comorbid depression	Limited effectiveness Multiple side effects Patient dislike Increased pediatric suicide ? Long-term effectiveness	Inconsistent meta-analysis [B], (+) (*) Included in multiple guidelines
Antihypertensive medication (antiadrenergics)	Reduces nightmare frequency (> 60%) Persistent effect (> 4 yrs.)	Dizziness (possiblity of falls) on standing after initial use A nightmare-specific approach	Nightmare treatment: Meta-analysis [A] (+) Sleep medicine guidelines
Antipsychotics Anti-epilepsy, and anti-anxiety medications	Anecdotal positive responses, Can be used to treat comorbid psychiatric illnesses	Multiple side effects and toxicities Minimal evidence supporting use in treating PTSD	Sometimes suggested as alternative treatments when other approaches fail

Table 18.3 (continued)

Applied approach	Positive factors	Negative factors	Level of evidence
Cognitive processing therapy, eclectic psychotherapy, narrative exposure therapy	Some evidence of positive effects on PTSD symptoms	Limited research Limited availability Developed to treat other psychiatric diagnoses and applied to PTSD	Small studies [C] (+) Recommended by American Psychological Association (APA)
Seeking safety (SS), relaxation therapy, family therapy	Some positive evidence in treating PTSD SS used to treat substance abuse	Limited research in PTSD Developed to treat other psychiatric diagnoses and applied to PTSD	Small studies [C] Evaluated by APA

individual to take an active role in personally addressing their experience of trauma. As used to treat PTSD, most have been the focus of outcome studies, but few have been subjected to rigorous evidence-based evaluations such as those used to characterize conventional therapies (Table 18.4).

Some complementary therapies (e.g., yoga and meditation) are widely available and routinely utilized by segments of the general population. Existing social structures, religious systems, and even veteran support groups often integrate these therapies into their PTSD treatment protocols. There are other complementary therapies than the ones reviewed in Table 18.4, but most have received even less study. Some complementary approaches have focused on the use of conventionally illegal drugs of abuse such as psychedelic agents. The strong potential for negative outcomes when using such agents should limit their use to controlled and psychologically supported environments. Many individuals affected by PTSD will self-medicate with alcohol, an approach that often exacerbates negative personal and social outcomes.

Chronic, Complicated PTSD

PTSD is often a chronic disease. Cures are described when PTSD symptoms decline to a point at which the individual can function normaly in their society. However, the memory and the psychological sequelae of a severe trauma never goes away. The experience of that trauma will continue to affect any individual who has been at some point diagnosed with PTSD. At times of stress or recurrent trauma, PTSD symptoms will recur, often requiring repeated psychological and/or medical therapy. The potential for symptom recurrence and associated significant functional decompensation persists throughout the affected individual's life.

PTSD is a complex and complicated disease process. In many cases, individuals will develop additional, sometimes comorbid medical and psychiatric diagnoses that must be addressed in concert with PTSD therapy. Many PTSD patients will develop substance use disorders, primarily abusing alcohol, cannabis, and/or opiates. Substance abuse deconstructs social support, interferes with PTSD therapy, and when opiate

Table 18.4 An evidence-based review of complementary therapies use to treat PTSD

Applied approach	Positive factors	Negative factors	Level of evidence
Art therapy	Useful in children Can be integrated with both PE and IRT Can improve waking functioning Integrative approach to trauma	May work best when utilized by trained artists Limited availability	Best evidence supports use in traumatized children [C]
Yoga	General availability Relaxation and meditative components Long-term social and physical commitment	Teachers often untrained in addressing PTSD	Small/moderate effects on meta-analysis, best evidence as a complement to PE [B]
Meditation	Relaxation and body movement component Long-term social and mental commitment Multiple approaches	Teachers often untrained in addressing PTSD	Small/moderate effects on meta-analysis, best evidence as a complement to PE [B]
Body movement/ awareness	Developed from psychodrama Emphasis on patient reassurance A popular approach for addressing major trauma	Marketed as an alternative to other PTSD therapies Emphasis on false memory > family and social disruption	Anecdotal uncontrolled case reports suggesting positive response
Cannabis	Widely used Now legal as a medical therapy in many locales	Case reports of violence when used by PTSD subjects	Limited study; contradictory outcomes

an/or alcohol are abused, increases both morbidity and mortality. It is difficult to treat such patients, and the evidence-based determination of appropriate treatment is still being developed. Complex PTSD is even more difficult to treat, particularly when social and government systems, rather than attempting to lower traumatic exposure and provide treatment for PTSD, decide instead to integrate symptomatic and untreated PTSD into the "normal" social fabric.

PTSD in Overview

The theoretical constructs describing the underlying reasons why individuals develop PTSD after trauma remain a matter of contention. Is PTSD a disease that develops from a psychological inability to respond and recover from major trauma, or is it a neurophysiological dysfunctional response to extreme stress? Both of these sometimes contradictory theoretic models underlie current diagnostic and treatment protocols. PTSD is a diagnosis with both psychological and physiologic attributes.

Excellent treatment response can be obtained by emphasizing the psychological re-experience of trauma. But excellent responses can also be obtained by ameliorating disturbing physiologic symptoms developing from neuroendocrine stress and breathing dysfunction. Some effective treatment approaches emphasize the suppression of symptoms, while others emphasize integration of the traumatic experience. A "correct" theoretical perspective of PTSD does not exist. No matter a therapist's training, beliefs, or anecdotal experience, in treating PTSD, clinical evidence is required to determine whether any treatment modality actually works.

PTSD as a diagnosis is at a crucial point. Few diagnosis deniers remain in the medical and therapeutic community. While it remains politically correct to emphasize positive therapeutic outcomes, there are fewer in the field denying its chronic nature or suppressing its association with the bad outcomes of family disarray, social decompensation, homelessness, substance abuse, and suicide. Many approaches to treatment are now based on evidence, rather than theory, anecdote, or case report. This approach has produced definitive value. Several psychological approaches to PTSD therapy have been developed that demonstrate a greater than a >75% positive short-term response rate as based on clinically excellent research. Today, these therapeutic approaches are more likely to be available and used to address the affected individual rather than institutional needs. Medications are less often primary therapy and more likely to be used to treat symptoms and address comorbid PTSD diagnoses. Treatment of sleep apnea in the PTSD population produces a positive effect on symptoms and a reduction in morbidity and mortality across the span of life. Complementary treatment approaches offer the many individuals chronically affected by PTSD assistance in coping with symptoms and opportunities to attempt to functionally integrate their experience of trauma.

PTSD is in no way an easy diagnosis for the patient, the provider, or the therapist. It is a diagnosis that develops at the border of our capacity to handle extreme stress. For both individuals and society, PTSD can mark the limits of our available compassion and the limit of our capacity to adapt and change in order to protect ourselves from the dangers of the environment and other humans. PTSD exists at a place where mind sometimes no longer equals the brain, a point at which individual patient requirements must often trump theory and belief. There are treatments for PTSD that work at least on the short term. Yet these treatments vary markedly one from the other and often have different, even contradictory theory and objective. Flexibility, patience, and almost endless compassion are required of the therapist and the medical provider treating PTSD. Their level of heroism approximates that of their patients. PTSD has become a marker diagnosis for our species. It denotes the limits of our capacity for functioning in the stress of this modern world.

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