Chapter 1
Traumatic Stress in Overview: Definition, Context, Scope, and Long-Term Outcomes

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Introduction

Traumatic events that threaten life, health, body integrity, and the lives of others are ubiquitous and have life-altering impacts for a substantial portion of individuals. This chapter introduces the topic of traumatic stress with special emphasis on long-term effects of trauma exposure and extreme adversity. Common traumatic events are reviewed, and the nature of traumatic stress, acute stress disorder (ASD), and post-traumatic stress disorder (PTSD) is discussed within the frameworks of conservation of resources (COR) theory (Hobfoll, 2004) and ecological and contextual psychology (Benight & Bandura, 2004; Bronfenbrenner, 1997; Hayes, Barnes-Holmes, Wilson, 2012; Smith & Thelen, 1996) with an emphasis on understanding how constellations of environmental stressors shape traumatic stress reactions over the course of development.

The *Diagnostic and Statistical Manual of Mental Disorders,* 5th edition (DSM-V) defines trauma as, "Exposure to actual or threatened death, serious injury, or sexual violence …" (American Psychiatric Association, 2013). Trauma may be directly experienced or witnessed, or it may be indirectly experienced via trauma to loved ones or as part of one's work with trauma survivors (American Psychiatric Association, 2013). In today's world, the horrors of war, terrorism, abuse, natural disasters, and other catastrophic events have the potential to elicit powerful emotions of

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terror, fear, and rage and set in motion cycles of loss that cascade across multiple domains of living (Hobfoll, 1989, 2004).

Although trauma is ubiquitous, the long-term response to trauma is complex and ideographic, with individuals showing unique reactions to the traumatic event based on the unique ecology in which they live. Equifinality is evident in the fact that individuals may develop similar symptoms in response to vastly different losses. Individuals have developed symptoms of PTSD in response to war and mass destruction (Cicchetti & Rogosch, 1996), agricultural crises (Olff, Koeter, Van Haaften, Kersten, & Gersons, 2005), and other non-life-threatening stressors (Bodkin, Pope, Detke, & Hudson, 2007; Scott & Stradling, 1994). Multifinality is evident in the fact that individuals exposed to the exact same event may differ drastically in their response and symptomatology (Cicchetti & Rogosch, 1996). Based on current DSM-V criteria, there are over 600,000 possible PTSD presentations (Galatzer-Levy & Bryant, 2013). Some individuals show considerable resilience in the face of trauma (Bonanno, 2004) and even report positive benefit in the face of adversity (Tedeschi & Calhoun, 1996). Yet for many others, trauma and loss may be overwhelming with long-term effects that persist throughout an individual's lifetime and impact later generations (Polusny & Follette, 1995). Given the vast heterogeneity in the etiology of traumatic stress and its outcomes, there is a need to analyze the individuals in their ecological context (see Chaps. 10 and 12, this volume).

COR theory is an ecological theory of stress (Hobfoll, 1989). It begins with the assumptions that humans continually strive to obtain and preserve valued resources, and that much of human behavior is organized around the collection and preservation of valued resources. Although what is valued is somewhat ideographic, evolutionary and cultural processes have led to common cross-cultural themes. Across individuals and groups, survival resources (e.g., food, water, shelter, safety), intrapersonal resources (e.g., hope, engagement, vigor), and interpersonal resources (e.g., attachments, relationships, social roles; Hobfoll & Lilly, 1993) tend to be highly valued.

Resource caravans refer the positive associations between resources or the tendency for resources to co-occur together and to "follow" the individual or system over time. For instance, access to stable work may also entail access to safer housing, beneficial relationships with peers, and a generally positive self-regard (Hobfoll, 2011). Wealth, social supports, and other resources are often accumulated within the family unit and transferred through inheritances, gifts, and favors and provide an example of *resource caravan passageways,* the psychosocial processes that favor the codevelopment of resources within individuals and groups (Hobfoll, 2011). The local community and neighborhood are other examples of *resource caravan passageways* to the extent that they can provide safe housing, clean environments, social capital, entertainment, effective policing, and access to adequate health care.

The origins of traumatic stress begin with loss or threatened loss of these objectively valued resources (Hobfoll, 1989, 2004), and in the case of traumatic stress, these loss cycles are typically rapid, momentous, and involve key personal, social, and material resources. Moreover, traumatic stress often places a heavy tax on energy resources, including stamina and finances. PTSD and related disorders

occur in response to the loss or threatened loss of valued resources that are central to survival, social life, and the sense of self, and they are often characterized by a rapid speed of loss. COR provides a broader perspective to organismic and cognitive theories of stress that have emphasized the mediating roles of subjective and private mental processes (e.g., Folkman & Lazarus, 1988). The primacy of resource loss also provides a parsimonious explanation for how non-life-threatening events such as the loss of cattle, housing, and divorce may evoke PTSD and related distress. This perspective is also consistent with other environmental approaches to psychopathology that posit distress emerges in aversive environmental contexts where reinforcement schedules are inadequate to maintain effective behavior (Ferster, 1973). Key corollaries of the COR theory are that loss is developmental and tends to occur in negative spirals, the impact of loss outweighs the positive impact of gain, and individuals with fewer reserves of resources are more sensitive to loss and gain (Hobfoll, 2004).

Risk factor caravans refer the positive correlations between trauma risk factors such that exposure to trauma increases the likelihood of reexposure and greater sensitivity to stress (Layne et al., 2014; McFarlane, 2010). For instance, exposure to childhood abuse is associated with reexposure to violence in adulthood, limited social support, difficulty regulating emotion, and negative health behaviors (Layne et al., 2014; Stevens et al., 2013; see also Chap. 9, this volume, for related discussion). The associations among resources and risk factors are explained by the presence of *resource and risk factor passageways* that emerge out of social and cultural structures (Hobfoll, 2011). These concepts highlight that the process of trauma involves multiple transactions across levels of trauma exposure.

This ecological and developmental perspective of COR theory highlights that psychological trauma is inherently multileveled: Biological and psychological reactions to trauma are nested within individuals over time and may shape development (see Chap. 10, this volume). Moreover, these trauma-exposed individuals are nested within families, communities, and cultures that reciprocally shape and are shaped by these life-threatening events (Hobfoll, 2004).

Traumatic Stress: A Historical Synopsis

Although the contemporary nosological models of traumatic stress in the form of ASD and PTSD are by definition relatively young, fear, anger, avoidance, and other reactions to traumatic events have likely served important survival functions prior to recorded human history (Hobfoll, 2004). Resource caravan passageways emerged as individuals, families, and tribes collaborated extensively to pool and preserve survival resources. However, threats ranging from volatile geological and meteorological catastrophes to infectious biological agents and intergroup conflict have repeatedly threatened our evolutionary ancestors and selected individuals populations, and cultural practices that were able to survive. Biologically, vigilance to threat, fear reactions, and related avoidance behavior enabled our ancestors to al-

locate physiological resources to escape from threatening predators and competitors and prevented additional loss of health, life, and other valued resources (McNally, 2003). Likewise, anger in the presence of trauma likely motivated individuals to persist in the face of extreme adversity and to eliminate threats posed by predators and conflicting tribes. To the extent that individuals exhibited these reactions in early human history, they were more likely to survive, reproduce, and foster the reproduction of related kin who might carry similar traits (Hobfoll, 2004).

The development of language-based learning played a significant role in the elaboration and coordination of resource caravan passageways. In particular, the sharing of information about trauma enabled individuals to avoid trauma without having directly encountered life-threatening events in the past (Hayes & Long, 2013; Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). With the development of language, stories of trauma were folded into and relayed in our most important tales, myths, and legends. Thus, evidence of PTSD symptoms can be found throughout the earliest works of documented human history. Ancient literary works such as Gilgamesh and ancient religious texts including the book of Genesis, the first book of the Holy Bible, provide numerous examples of individuals who have struggled to comprehend and move forward in the face of trauma (Kienzler, 2008; Luger, 2010). In the Epic of Gilgamesh, the ancient king is torn with profound grief and guilt at the death of his friend and spends the remainder of his life battling against fate in a search of immortality (Birmes, Hatton, Brunet, & Schmitt, 2003; Kienzler, 2008). These early examples highlight the profound and life-altering effects of trauma and loss that have repeatedly occurred throughout history in the aftermath of war and terror, epidemic disease, natural disasters, and other large-scale traumas.

The twentieth century brought additional refinements to theory as important advancements in the philosophy and science of human behavior were made, and th Wilson e world was witness to two major world wars (Wilson, 1995). Formal diagnostic criteria for traumatic stress reactions were first introduced by the American Psychiatric Association's DSM in 1952 as transient situation personality disorder—gross stress reactions and were reintroduced as adjustment reaction of adult life in DSM-II. Following the Vietnam War, there was increased pressure on the American Psychiatric Association to fully acknowledge and codify the extreme stress of war veterans following the onslaught of the Vietnam War. PTSD was first introduced in DSM-III in 1980 and has been retained with revisions until the current DSM-V (American Psychiatric Association, 2013; Wilson, 1995).

The Initial Impact: Acute Physiological and Psychological Response to Trauma

Exposure to life-threatening traumatic events is inherently distressing and has the ability or power to elicit instinctive psychophysiological "flight-or-fight" reactions (McNally, 2003). These initial behavioral responses to threat are mediated by the sympathetic nervous system and include instinctive freezing and hypervigilance

followed by attempts to flee the situation or attack and overcome the threat (Bracha, Ralston, Matsukawa, Williams, & Bracha, 2004). These responses are accompanied by a range of physiological alterations including release of catecholamines such as norepinephrine and epinephrine along with vasoconstriction, tachycardia, increased respiration, muscle tension, and suppression of digestive functions. As metabolic resources are diverted to enhance physical performance in the face of threat, additional physiological changes occur to prepare the body for potential physical trauma. Clotting is increased to prevent potential blood loss in the event of tissue damage. An upsurge of inflammatory processes occurs in preparation for exposure to infectious agents following bodily harm.

The initial freezing and hypervigilance may have helped our evolutionary ancestors avoid detection by potential predators, while flight reactions facilitated rapid escape from the situation and fight responding prepared the organism to overcome the threat through aggressive measures (Bracha et al., 2004; Cannon, 1929). In some cases, humans may respond to traumatic threats by fainting. The fainting response tends to occur following a rapid increase and then abrupt decrease in blood pressure. The potential evolutionary function of fainting is speculative, but in early human close quarters combat, an individual who had fainted would be more likely to be ignored by opposing groups and therefore survive the skirmish, reproduce, and support the survival of genetic relatives (Bracha et al., 2004).

Psychologically, at the time of exposure, individuals may experience intense fear, horror, or rage, and they may have a subjective sense of helplessness (American Psychiatric Association, 2013). Attention to threat is magnified as sense experience is altered such that hearing may become dulled, and vision becomes tunneled. In some cases, the individual may experience a sense of dissociation and feel as if the event is surreal or not actually happening.

The Dust Settles: The Individual Aftermath of Trauma

In the time following the onset of trauma, the individual transitions from a stage of alarm and anxiety and attempts to adapt or cope with the stressor and preserve resources. Eventually, coping resources are overwhelmed, the individual is exhausted, and the potential for physical and psychological impairment is increased (Selye, 1946). Following acute reactions to trauma just described individuals may relive trauma through unwanted thoughts, nightmares, and flashbacks; feel emotionally numbed or flat; avoid internal and external reminders of the trauma; experience intense physiological reactions; and have difficulty sleeping. The DSM-V organizes these reactions to trauma under the diagnostic criteria for the diagnoses of ASD and PTSD (American Psychiatric Association, 2013). The disorders are similar with regard to symptoms of psychological reexperiencing of trauma, avoidance, negative cognition and mood, and hyperarousal. Timing is the primary distinction between ASD and PTSD. Traumatic stress symptoms occurring within the first 3 days to month after trauma fall under the umbrella of ASD symptoms. Traumatic stress

symptoms occurring after 1 month fall under the umbrella of PTSD symptoms. The prevalence of both disorders varies across the nature of trauma and other risk factors. It is estimated that approximately 8 % of individuals will experience PTSD at some point in their lives (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995).

PTSD symptoms are aggregated into five symptoms clusters. Current PTSD criterion A pertains to exposure to trauma in the form of death, death threats, actual or threatened physical or sexual harm to oneself or another (American Psychiatric Association, 2013). Trauma may be directly witnessed or may occur when one learns that a close relative or friend was exposed to actual or threatened violent or accidental death. Individuals may also be traumatized by repeated exposure to trauma via professional duties. The current criteria rule out indirect media exposure as an indirect source of posttraumatic stress.

PTSD criterion B or reexperiencing symptoms pertains to the presence of reexperiencing symptoms or intrusion symptoms. Individuals exposed to trauma experience upsetting memories of the traumatic event and trauma-related nightmares. Individuals may also experience flashbacks in which they vividly relive the trauma as if it were occurring again. Related symptoms within this cluster include repeated intense distress and physiological reactivity that may mimic the initial reaction to trauma.

PTSD criterion C or avoidance symptoms pertains to attempts to avoid and escape trauma-related cognitions and stimuli. The sources of trauma-related stimuli may be internal to the individual in the form of memories, cognitions, and physical sensations. Trauma-related stimuli may also be found in the individuals' external environment and serve as reminders of the traumatic event.

PTSD criterion D symptoms pertain to negative alterations in mood and cognition related to the traumatic event. Individuals may report an impaired memory of the traumatic event. Individuals may also develop negative expectations of self and others and experience an increase in negative trauma-related emotions and mood states.

PTSD criterion E or hyperarousal symptoms pertains to alterations in arousal and reactivity including irritability, aggression, exaggerated startle responses, hypervigilance, and disturbed sleep. Symptoms must persist for 1 month and produce significant distress or impairment (American Psychiatric Association, 2013).

Spiraling Distress: Related Disorders and Expressions of Trauma

The risk factor caravans specified by COR theory are particularly salient among the highly comorbid and correlated conditions that occur in the aftermath of trauma (Bremner, 1999; Kessler et al., 1995). PTSD is also associated with other anxiety disorders (Bremner, 1999), substance abuse, and antisocial and borderline personality disorder (Keane & Kaloupek, 1997). More than 79 % of individuals with PTSD are expected to present with some comorbid psychiatric diagnosis (Keane &

Kaloupek, 1997). Further, 30–50% of patients with PTSD qualify for a comorbid diagnosis of major depressive disorder (Campbell et al., 2007). Conversely, in some settings, over one third of patients with major depressive disorder qualify for a comorbid diagnosis of PTSD (Campbell et al., 2007). Factor analytic work has suggested that trauma-related PTSD and depressive symptoms may fall along a single dimension of severity with depression symptoms and suicidal ideation constituting the most severe symptoms (Elhai et al., 2011).

Exposure to traumatic stress and PTSD is also associated with anger and hostility (Orth & Wieland, 2006). Intense anger and aggression may occur in relation to the elicitation of fight-or-flight responding as aggression may function to eliminate perceived threats in the environment (Novaco & Chemtob, 1998). Anger and aggression may also serve avoidant functions to the extent that these reactions provide distraction from anxiety and fear (Feeny, Zoellner, & Foa, 2000; Gardner & Moore, 2008). PTSD may also increase the frequency and severity of hostile cognitions so that individuals are attuned to the presence of annoyance and threat from other individuals. Although PTSD and anger often occur among individuals with military war experiences that could have shaped their fight reactions in the face of trauma, individuals exposed to health trauma, disasters, criminal victimization, and other traumas also demonstrate significant associations between PTSD and anger (Orth & Wieland, 2006).

Sleep disturbances are also common in the context of traumatic stress. Insomnia is a common comorbid condition among individuals with PTSD (Maher, Rego, & Asnis, 2006). Difficulty sleeping may contribute to the perpetuation of PTSD and related symptoms over time, because individuals have difficulty regulating their coping resources when tired and exhausted (Gerhart, Hall, Russ, Canetti, & Hobfoll, 2014).

Patterns of Posttraumatic Adjustment over Time

Across DSM-V trauma categories, the prevalence of PTSD diagnosis is approximately 29% (range: 3.1–87.5%) and decreases to 17% (range: 0.6–43.8%) at 1 year following the trauma (Santiago et al., 2013). This overall pattern is suggestive of both resilience and recovery in the face of trauma. Resilience is demonstrated in that the vast majority of individuals do not develop diagnosable PTSD in response to trauma exposure. Recovery is demonstrated by the overall reduction in diagnosable PTSD and presumed ongoing adjustment. Despite this overall pattern, there is considerable variability observed in the course of PTSD prevalence and symptom severity over time (Bonanno & Mancini, 2012; Santiago et al., 2013).

Although measures of central tendency are informative for characterizing general responses to stress, these measures may also mask the significant individual variability in PTSD symptoms over time (Bonanno & Mancini, 2012). Multilevel and latent growth modeling techniques have been especially helpful for characterizing overall slopes of PTSD symptom severity and indentifying factors that are

associated with change in PTSD over time (Murphy, Johnson, Chung, & Beaton, 2003). For example, PTSD symptoms among bereaved parents have been shown to decrease significantly over time, but individual characteristics such as gender and social support are associated with differences in rate of change. Latent growth class analysis and latent growth mixture modeling assume that reactions to traumatic events may be heterogeneous, and analysis reveals there are approximately four typical trajectories of posttrauma adjustment: resilience, recovery, chronic stress, and delayed onset reactions (Bonanno & Mancini, 2012; see Fig. 1.1).

Resilience tends to be the most frequent response to trauma exposure. Individuals in the resilient category may experience some transient stress reactions in the form of anxiety or sleep disturbance but experience little to no disruption in day-to-day function (Bonanno, 2004). Recovery pertains to moderate-to-severe symptoms of posttraumatic stress that gradually decrease over the course of time. This is evidenced by the finding that nearly half of all cases of PTSD resolve in approximately 3 months following diagnosis (American Psychiatric Association, 2013). Chronic stress is marked by severe levels of PTSD symptoms that remain high and cause significant disruption in function and quality of life. Delayed onset of PTSD is marked by moderate symptoms that increase over time. With regard to total prevalence, delayed onset PTSD is relatively uncommon with few meeting criteria beginning 6 months post trauma, and even fewer reporting an onset 1 year following the trauma.

Although resilience often emerges as a common response to trauma, evidence suggests that patterns of distress vary across context. Patterns of chronic distress are particularly common in the presence of risk factor caravan passageways. In the case of citizens of the Palestinian Authority where repeated exposure to political violence is high, and access to valued resources is more limited, the modal response to trauma is trajectory of moderate distress that recovers over time (Hobfoll, Man-

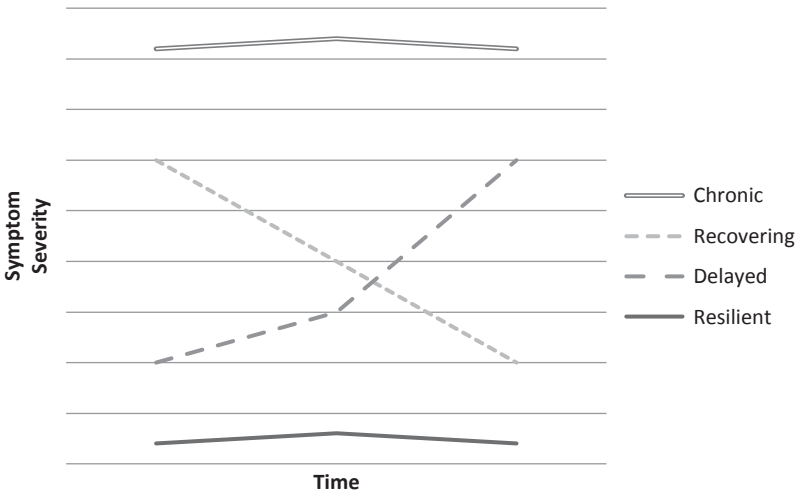

Fig. 1.1 Prototypical trajectories of distress

cini, Hall, Canetti, & Bonnano, 2011). In this context, individuals who fared better tended to have less exposure to political violence and loss.

Long-Term Correlates of Trauma

Although the general trajectory of trauma is that of recovery, evidence suggests that the impacts of varied traumas may persist throughout the lifetime (Layne et al., 2014; Polusny & Follette, 1995), particularly when losses are not recoupable as in the case of physical disability, geographical displacement, and the death of loved ones. Survivors of the Jewish Holocaust following exposure to torture, death of immediate family, isolation, and other traumatic loss experienced high rates of PTSD and had continued heightened sensitivity to loss and trauma 58 years following the end of World War II (Dekel & Hobfoll, 2007; see also Chap. 23, this volume). The long-term impacts of trauma have also been demonstrated in World War II and Korean War veterans. Approximately 50 years post war, over one third reported significant war-related stress (Hunt & Robbins, 2001). These symptoms are explained in part by the long-term impacts of war-related injury (i.e., a risk factor caravan of disability and daily trauma reminders) and illness along with ongoing intrusion and avoidance symptoms.

The long-term impacts of trauma are also evident among survivors of childhood sexual abuse who experience increased risk of anxiety, borderline personality disorder, and other negative psychological outcomes in adulthood (Hillberg, Hamilton-Giachritsis, & Dixon, 2011). Risk factor caravans are especially salient in the co-occurrence of childhood abuse, as sexual and physical abuses are frequently accompanied by psychological maltreatment that further impacts adjustment and well-being (Spinazzola et al., 2014). The detrimental effects of childhood abuse are multiplicative such that psychological maltreatment may amplify the effects of co-occurring abuse and trauma.

Less is known about the long-term impacts of isolated mass trauma. Consistent with the resilience literature, many acute psychological symptoms resolve for many individuals in the aftermath of mass trauma, but risk for substance abuse, physical distress, and greater medical utilization may remain elevated (Galea, 2007).

Impact on Physical Health and Morbidity

Whereas the presentation of traumatic stress in the form of PTSD and related symptoms is salient, research conducted in the field of health psychology continues to reveal the insidious impacts of trauma on long-term physical health and functional status (see Chap. 9, this volume). PTSD is significantly associated with an array of debilitating physical conditions such as pain and cardiovascular disease (Galea, 2007; McFarlane, 2010; Taylor-Clift et al. 2015). Moreover, PTSD is associated with cardiovascular-related mortality and all-cause mortality (Boscarino, 2006, 2008).

There are a number of biobehavioral mechanisms that may explain the associations between trauma, PTSD, and physical morbidity. Chronic inflammation and risky health behaviors are two particularly plausible passageways that may explain the associations between trauma and disease. Inflammatory markers including C-reactive protein (CRP) are elevated among individuals exposed to a host of traumatic stressors including interpersonal violence (Heath et al., 2013) and terrorism (Canetti, Russ, Luborsky, Gerhart, & Hobfoll, 2014). Trauma and PTSD may also indirectly impact health status through behavioral mechanisms such as smoking, overeating, sedentary behavior, and poor medical compliance (see Chap. 9, this volume, for related discussion). To some extent, these behaviors may function to assuage psychological distress at the cost of long-term health (Weiss, Tull, Viana, Anestis, & Gratz, 2012).

Untangling the Web: Trauma Types, Risk Factors, and Mechanisms

The heterogeneity in reactions to trauma begs the question of why some individuals decompensate in the face of traumatic stress, when many remain resilient. From the perspective of COR theory, these differences can be explained by the complete field of resource and risk factor caravan passageways (Hobfoll, 2004; Hobfoll et al., 2009; Layne et al., 2014). Figure 1.2 depicts the multilevel model of trauma and resource loss. As can be seen, trauma impacts intrapersonal, interpersonal, and community resources (one-way arrows), and the negative impacts of trauma may

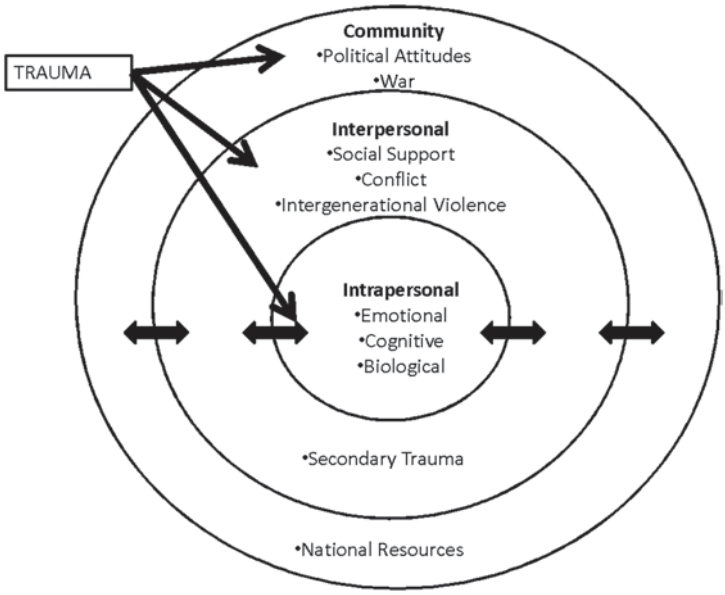

Fig. 1.2 Multilevel model of trauma and resource loss

spiral across levels (two-way arrows). Although individuals and social structures are highly motivated to preserve and enhance resources through resource caravan passageways of education, financial planning, and social engagement, traumatic stress may engender multiple cycles of resource loss. Thus, some of what is called resilience is actually a reflection of the fact that the degree of personal, social, and material loss is different for different people experiencing a trauma, and what is misconstrued as more "resilient" in many cases may rather be a reflection of experience less of the trauma burden. Further, the available of external resources is not uniform. Some have more family and availability of government and emergency aid. Some circumstances may limit access to that external aid, and some environments are themselves too resource poor to provide more than a minimum of aid.

The Nature of the Trauma

Adverse reactions to trauma are linked to the type, severity and chronicity of the initiating traumatic events (Brewin, Andrews, & Valentine, 2000). In the aftermath of trauma, individuals who reported higher levels of PTSD symptoms tend to have experienced more severe and chronic trauma exposure (Brewin et al., 2000; Hobfoll et al., 2009). Individuals directly exposed versus witness to trauma and individuals closer in proximity to the trauma may be at increased risk for PTSD and related symptoms, because the level of objective threat is higher. Individuals exposed to the repetitive nature of combat trauma tend to report more adverse outcomes compared to individuals exposed to more isolated incidents of civilian terrorism and work-related accidents (Amir, Kaplan, & Kotler, 1996). Ongoing warfare and natural disasters have the potential to initiate larger cycles of loss, because individuals and communities may be directly traumatized and also experience ongoing losses of key resources (Hobfoll, 2011; see Chap. 12, this volume).

The timing and frequency of trauma are also linked to the development of PTSD symptoms. Individuals exposed to interpersonal trauma early in life tend to experience greater difficulty with emotion regulation and PTSD symptoms compared to those with trauma that occurs less frequently and later in life (Ehring & Quack, 2010). In addition to adding to the total number of traumas likely to accumulate over the lifetime, trauma has been shown to have compounding effects with regard to sensitization and kindling (McFarlane, 2010). With repeated exposure, individuals may become primed to be increasingly psychologically and physiologically reactive to stressful and traumatic events in the environment so that each additional trauma magnifies the risk of adverse psychological and physical reactions (McFarlane, 2010).

The Intrapersonal Context of Trauma

Individuals' personal characteristics may afford important coping resources for facing adversity and trauma and remaining engaged in their environment (Hobfoll & Lilly, 1993). Engagement refers to the individual's personal affective-motivation-

al reserves of energy (vigor), commitment (dedication), and excitement (absorption) needed to maintain activities of living (Hobfoll, 2011; Schaufeli, Salanova, González-Romá, & Bakker, 2002). The physical, cognitive, and emotional energy underlying engagement is often inherently valued in its own right and facilitates the ongoing development of resources in occupation and social settings (Armon, Melamed, & Shirom, 2012; Hobfoll, 2011). Traumatic contexts tend to have punishing effects that drain engagement reserves, and other individual characteristics may potentiate this drain.

Neuroticism is a stable personality trait that refers to an individual's overall proclivity to experience negative mood and affect in the form of anxiety, worry, anger, and sadness and lends increased sensitivity to trauma (Costa & McCrae, 2008). To the extent that neurotic individuals are prone to the view the world as threatening, they may also experience greater draining of their vigor and engagement (Armon et al., 2012) and experience vulnerability for emotional disorders in general (Barlow, Sauer-Zavala, Carl, Bullis, & Ellard 2014). Individuals also differ with regard to the strategies that they utilize to regulate affective distress. Emotion regulation strategies pertain to the efforts to modify or maintain the form, frequency, and impact of emotion (Gross & Thompson, 2007). Difficulties in emotion regulation may arise when individuals are unable or unwilling to identify, accept, and acknowledge negative emotional states and when individuals behave in an impulsive manner to escape uncomfortable emotions (Bond et al., 2011; Gratz & Roemer, 2004). Experiential avoidance, the tendency to negatively evaluate, suppress, and avoid uncomfortable thought and emotion, has been shown to be a significant mediator in the relationship between neuroticism and PTSD (Goldsmith, Gerhart, Chesney, et al., 2014; Maack, Tull, & Gratz, 2012; Shenk, Putnam, Rausch, Peugh, & Noll, 2014) and may lead to generalized vulnerability to psychopathology and interpersonal problems (Gerhart, Baker, Hoerger, & Ronan, 2014; Goldsmith, Gerhart, Chesney, et al., 2014; Levin et al., 2014; Shenk, Putnam, & Noll, 2014). Avoidance of trauma reminders may trigger social withdrawal and reduce contact with rewarding events in the external environment which trigger ongoing loss spirals (Carvalho & Hopko, 2011) to the extent that individuals ruminate with peers, and permit smaller problems to escalate (Holahan, Moos, Holahan, Brennan, & Schutte, 2005).

Other personal characteristics including female gender, lower socioeconomic status, education, age, and intelligence have been linked to higher levels of PTSD following traumatization (Brewin et al., 2000). To a great extent, factors such as socioeconomic status, education, and intelligence provide pathways to greater access to resources (Hobfoll et al., 2011). As such, these individuals are less affected by stress and trauma, because they have greater reserves to fall back on. Gender differences may be explained in part by physiological differences, including hypothalamic–pituitary–adrenal (HPA) axis response to trauma (DeSantis et al., 2011), but these associations may also be mediated by gender norm differences in cognitive appraisal such that females may be more likely to adopt self-blame and develop world views that are more threatening (Tolin & Foa, 2006). From a life span perspective age and prior development are important for understanding reactions and recovery from trauma. Older adults may be more physically vulnerable to trauma and have fewer instrumental resources needed to recuperate from loss (Sharkey, 2007).

The Interpersonal Context

Although constructs such as neuroticism, emotion regulation, and trauma cognitions are situated within the individual, they occur in response to a much broader ecological context. Exposure to childhood trauma is significantly associated with neuroticism assessed in adulthood (Roy, 2002). Self-efficacy tends to be positively associated with social support (Hobfoll, 2011; Karademas, 2006), children's self-talk increasingly tracks family, and peer assessments of their competence over the course of development (Cole, Jacquez, & Maschman, 2001), and caregivers play important roles in shaping emotion regulation and social skills (Eisenberg, Fabes, & Murphy, 1996). These deficits in cognitive and emotion regulation are often part of a larger constellation of risk factors that include abuse and a lack of nurturing interactions (Fruzzetti, Shenk, & Hoffman, 2005; Stevens et al., 2013). As such, subjective psychological events within the individual are often reciprocally intertwined with their social ecology.

The social context of trauma plays a crucial role in adjustment in the aftermath of trauma as the family system or local community is often the primary vehicle for the consolidation and protection of resources through the provision of emotional support, love, and validation needed to process difficult emotion, along with instrumental and financial supports needed to navigate the world (Hobfoll, 2011; Hobfoll & Vaux, 1993). Inversely, problems and deficits in these areas can lead to significant distress and maladjustment (Brewin et al., 2000; Hobfoll, 1989; Layne et al., 2014; Stevens et al., 2013). These social resources are complex, dynamic, and impact posttrauma adjustment through multiple social-cognitive mechanisms (Benight & Bandura, 2004; see Chap. 11, this volume). As noted earlier, even subjective reactions to trauma and stress may have been directly and indirectly shaped within the family system (Hobfoll, 2011).

The ability to form secure and stable attachments affords a sense of stability and safety in the face of environmental adversity (Bowlby, 1969). The tendency to identify with and attach to others in early life has played a crucial role in survival throughout much of human history. Secure attachments enable the developing individual to acquire strategies for seeking and providing help, internalize adaptive coping strategies, and develop realistic expectations about supportive relationships (Mikulincer, Shaver, & Pereg, 2003). Whereas caregivers may share a proclivity to positive cognitions through their communication (Donnelly, Renk, Sims, & Mcquire, 2011), they may also pass on a proclivity to shame and negative self-evaluation through negativistic parenting styles (Alessandri & Lewis, 1993; Mills et al. 2007). When exposed to trauma, individuals with less secure attachment styles (i.e., anxiety and avoidance) tend to report higher levels of perceived stress, and in turn experience higher levels of PTSD symptoms (Besser, Neria, & Haynes, 2009). Attachment anxiety is also linked to poorer perceived social support in the aftermath of trauma (Besser & Neria, 2010).

The concept of social support is broadly defined as relationships and other interpersonal interchanges that provide a sense of connection to others and provide help and assistance to the individual (Hobfoll & Stokes, 1988). Thus, social support

includes close attachments and other helpful relationships. Poor positive social support is consistently linked with poor adjustment in the aftermath of trauma (Brewin et al., 2000). This may be so as the traumatized individual has less access to emotional support in the form of validation and encouragement, less instrumental support in the form of physical assistance, and less access to models of positive coping strategies (Benight & Bandura, 2004; Hobfoll, 2004). Although the previous examples are of positive social support, negative social support in the form of criticism, hostility, and judgment may provoke additional distress that outweighs the benefit of positive support (Hobfoll, 2004). Whereas social resources are sometimes mistakenly conceptualized as a static buffer against PTSD and related distress, social support interacts dynamically with symptoms and other resources, such that support may be eroded over time (Hobfoll & Stokes, 1988). In some instances, PTSD symptoms, depression, and poorly regulated anger may overwhelm supportive others and reduce the likelihood of helpful interactions (Gerhart, Sanchez Varela, Burns, Hobfoll, & Fung, 2014; Gerhart et al., 2014; Lane & Hobfoll, 1992). Risk factor caravans are exemplified among individuals who are exposed to ongoing trauma, have limited social and financial resources, lack the ability to permanently escape the threatening family, home, or neighborhood environment, and as a result remain at high risk for ongoing interpersonal violence (Fleury, Sullivan, & Bybee, 2000; Stevens et al., 2013). These escalating cycles of violence and re-traumatization may reinforce and lead to trajectories of chronic posttraumatic stress and contribute to health disparities (Layne et al., 2014; Taylor-Clift et al. 2015).

Aftershocks: Shared Trauma, Intergenerational Violence, and War

Given that trauma occurs within dynamic social systems, there is a potential for consequences of trauma to apply at the group level. These patterns highlight that resources, losses, and PTSD cluster within social systems, and that many traumas may impact the individual and the social system through direct and indirect effects. In these cases, trauma becomes a shared experience that may limit coping resources across the group level (Tosone et al., 2003). These events highlight the occurrence of trauma as inherently multileveled with the potential for transactions between the individual and group context (Kawachi, Subramanian, & Kim, 2008).

Shared and Secondary Trauma

Trauma experienced at the group level can produce emergent processes. Shared trauma is a concept from the psychotherapy literature that refers to situations in which the common experience of a trauma (e.g., terrorism, war, natural disaster) among patient and therapist who reside in the same community may alter the work

of therapy, as the provider may be more acutely vulnerable to stress and therefore more emotionally reactive to the content and process of psychotherapy (Baum, 2010; Saakvitne, 2002; Tosone, Nuttman-Shwartz, & Stephens, 2012). In order to provide effective services, the clinician must monitor and address their personal reactions to trauma (Tosone et al., 2012).

Individuals often turn first to emotional support from friends and family before larger community supports and psychotherapy (Elliott & Pais, 2006). Although professional training, role boundaries, and support may help offset potential resource losses in the context of therapy (Tosone et al., 2012), loss spirals may persist in less structured social roles and relationships. Coping and adjustment are highly nested within a couple such that an individual's traumatic stress is positively associated with the traumatic stress of the spouse, and patterns of reciprocal hostility, criticism, and withdrawal may emerge within couples (Dekel & Monson, 2010). Emotion-focused coping within the dyad may be especially detrimental for both members as it is associated with distress within the individual (Gilbar, Weinberg, & Gil, 2011). Trauma may also affect group-level processes more indirectly through secondary or vicarious traumatization. In these instances, the trauma is not necessarily shared among individuals, but one may develop posttraumatic reactions through hearing and empathizing with stories of trauma.

Intergenerational violence may also contribute to the spiraling effects of trauma throughout social systems. Growing up in abusive and traumatic environments does not entail a future trajectory of imitating abusive behavior, but there are some small-to-moderate links between witnessing and experiencing violence and abuse and later perpetration of abuse in the family system (Stith et al. 2000). From a social learning perspective, trauma-exposed individuals may learn abusive behaviors from caregivers and other role models in childhood, and mimic these learned behaviors as adults with their spouses and children (Bandura, 1977). In the case of borderline personality disorder, risk factor caravan passageways may occur through inconsistent parenting practices that vacillate widely between hostility and disengagement (Stepp, Whalen, Pilkonis, Hipwell, & Levine, 2012).

Impact on Political Attitudes and War

Spirals of resource loss may also occur at the national or cultural level, through cycles of retaliatory violence. In the face of trauma and particularly threat to one's life, individuals often attempt to manage terror and threat perceptions by strengthening attitudes of support for their own cultural or national group and also becoming more committed to attitudes against their cultural out-groups (Greenberg et al. 1990). In the areas of chronic conflict (e.g., Israel and the Palestinian Authority; Northern Ireland), direct and indirect exposure to war-related trauma is significantly associated with support for more military action and war (Hayes & McAllister, 2001). Just as the nature of the trauma has important impacts on traumatic stress reactions, the type of trauma also impacts political attitudes. Chronic war entails

repeated traumatization that may shape increasingly hostile political attitudes over time (Hobfoll, Canetti-Nisim, & Johnson, 2006).

The mechanisms of war and terror-related trauma's impact on political attitudes are complex, but evidence suggests that these relationships are explained in part by a desire for defensive political measures to escape existential insecurity (Canetti, Halperin, Hobfoll, Shapira, & Hirsch-Hoefler, 2009). In the face of war and trauma, core beliefs about safety and security may be drastically altered (Janoff-Bulman, 1992; Magwaza, 1999). As a result, individuals are primed to be vigilant for ongoing threats and increasing their support for violent military action (Bonanno & Jost, 2006). Conflict may escalate rapidly as opposing groups and nations participate in cycles of retaliation (Haushofer, Biletzki, & Kanwisher, 2010). Addressing the impact of chronic war and terror-related trauma on political process may be crucial for healing long-standing conflict (Canetti, Hall, Greene, Kane, & Hobfoll, 2014).

Summary

This chapter introduced the topic of traumatic stress and its long-term impacts within the context of COR theory (Hobfoll, 1989, 2004). This ecological and developmental perspective of trauma highlights that traumatic stress from the initial horror to its long-term fallouts is dynamic and multileveled. The concept of risk factor caravans is introduced to highlight the nesting and statistical covariation of risk factors and trauma sequelae within individuals and social groups. Although individuals demonstrate considerable resilience in the face of adversity, traumatic stress has the power to disrupt emotional and social lives through ongoing spirals of loss. Paradoxically, individuals in an effort to avoid and compensate for traumatic losses may inadvertently contribute to ongoing cycles of traumatization.

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