

Literature Review

Posttraumatic Stress Disorder

What Is Posttraumatic Stress Disorder?

Most people in their lifetimes will experience at least one traumatic event, such as violence, sexual or physical assault, a natural disaster, or accident resulting in injury or death (Kilpatrick et al., 2013; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995).

In the days and weeks following a traumatic event, it is perfectly normal – expected even – for people to experience a variety of reactions (SAMHSA, 2014). Emotional reactions such as anger, fear, guilt, and sadness are common. Some people who experience a traumatic event may have difficulty regulating these emotions or experience emotional numbness or detachment. It is also likely they will react physically. For example, they may have trouble sleeping. Behavioral reactions, such as avoiding stressful situations, and cognitive reactions, such as having intrusive and disturbing thoughts, are also common.

For some people, these reactions can linger long after what is considered typical and affect one's ability to cope. These reactions can even intensify, becoming debilitating, which may cause the afflicted individual to be diagnosed as having posttraumatic stress disorder (PTSD).

According to the American Psychiatric Association (2013), to be diagnosed by a mental health professional as having PTSD, an adult needs to exhibit a certain set of symptoms (see Table 1), which results in distress or functional impairment, for more than 1 month after having been exposed to a traumatic event either directly (this includes being a victim or witness), indirectly (such as crime scene investigation), or repeatedly.

Table 1. PTSD Diagnostic Criteria from the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)

Criterion	Details
Intrusion Symptoms	The traumatic event is persistently re-experienced in at least one of the following ways: 1) recurrent, involuntary, and intrusive memories; 2) traumatic nightmares; 3) dissociative reactions (e.g., flashbacks, which may occur on a continuum from brief episodes to complete loss of consciousness; 4) intense or prolonged distress after exposure to traumatic reminders; and 5) marked physiologic reactivity after exposure to trauma-related stimuli.
Avoidance	Persistent effortful avoidance of distressing trauma-related thoughts or feelings, trauma-related external reminders (e.g., people, places, conversations, activities, objects, or situations), or both.

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<p>Negative Alterations in Cognitions and Mood</p>	<p>At least two of the following negative alterations in cognitions and mood that began or worsened after the traumatic event: 1) inability to recall key features of the traumatic event (usually dissociative amnesia; not due to head injury, alcohol, or drugs); 2) persistent (and often distorted) negative beliefs and expectations about oneself or the world (e.g., “I am bad,” “The world is completely dangerous”); 3) persistent distorted blame of self or others for causing the traumatic event or for resulting consequences; 4) persistent negative trauma-related emotions (e.g., fear, horror, anger, guilt, or shame); 5) markedly diminished interest in (pretraumatic) significant activities; 6) feeling alienated from others (e.g., detachment or estrangement); and 7) constricted affect: persistent inability to experience positive emotions.</p>
<p>Alterations in Arousal and Reactivity</p>	<p>At least two of the following trauma-related alterations in arousal and reactivity that began or worsened after the traumatic event: 1) irritable or aggressive behavior; 2) self-destructive or reckless behavior; 3) hypervigilance; 4) exaggerated startle response; 5) problems in concentration; and 6) sleep disturbance.</p>

Prevalence

The great majority of people who experience a traumatic event do not develop PTSD, either because they possess protective factors that make them resilient in the face of adversity or follow a normal recovery trajectory (Agaibi & Wilson, 2005). People who exhibit resilience – the most common outcome in the wake of a traumatic event – may experience moderate to severe initial elevations in psychological symptoms, but they manage to keep functioning effectively, more or less maintaining psychological equilibrium. Bonanno (2005) defined a normal recovery trajectory as “moderate to severe initial elevations in psychological symptoms that significantly disrupt normal functioning and that decline only gradually over the course of many months before returning to pretrauma levels” (p. 135).

According to Haglund, Cooper, Southwick, and Charney (2007), the following six psychosocial factors protect against and aid recovery from posttraumatic stress; these factors may have a genetic, developmental, biological, or psychological base:

- 1) Having an active coping style that involves problem solving, managing emotions that accompany stress, and learning to face fears
- 2) Engaging in physical activity to improve mood and health
- 3) Maintaining a positive outlook through cognitive-behavioral strategies to enhance optimism, decrease pessimism, and embrace humor
- 4) Maintaining a moral compass through developing and living by meaningful principles and putting them into action through altruism
- 5) Having strong social supports through developing and nurturing friendships and seeking resilient role models and learning from them
- 6) Maintaining cognitive flexibility through finding good in adverse situations and remaining flexible in one’s approach to solving problems

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Still, PTSD affects many people. According to the latest estimates, as much as 6.4 percent to 7.3 percent of the U.S. adult population will have PTSD at some point in life (Roberts, Gilman, Breslau, Breslau, & Koenen, 2011; Pietrzak, Goldstein, Southwick, & Grant, 2011; Kessler et al., 2005). A prior estimate put the lifetime prevalence at as much as 7.8 percent (Kessler et al., 1995). Several studies have demonstrated that the trauma most likely to be associated with PTSD is rape (Kessler et al., 1995; Zlotnick et al., 2006).

Researchers have observed differences among the sexes and races/ethnicities. More women than men will experience PTSD in their lifetimes – 11.7 percent versus 4.0 percent, respectively (Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012). Non-Hispanic black people are also more likely than any other racial/ethnic group in the United States to experience PTSD in their lifetimes: 8.7 percent versus 7.4 percent among non-Hispanic white people, 7.0 percent among Hispanic people, and just 4.0 percent among Asian/Hawaiian/Pacific Islander people (Roberts et al., 2011).

These are only estimates; the true prevalence may be underreported, and PTSD may be underdiagnosed (Kessler et al., 1995). Underreporting can result when people avoid acknowledging psychological distress or seeking help for fear that others will react in a hostile or discriminatory manner (Blais, Renshaw, & Jakupcak, 2014). Misdiagnosis may also be common. According to Ahmed (2007), “substance misuse and eating disorders often mask underlying PTSD, and flashbacks may be erroneously labeled as psychotic symptoms” (p. 372).

What’s more, capturing the true prevalence of PTSD is challenging because the behavioral health community’s understanding of PTSD symptomatology and its diagnosis continues to evolve. For example, Galatzer-Levy and Bryant (2013) argued that the current *DSM* criteria for PTSD, which has undergone several changes since PTSD debuted as a diagnosis in the 1980s, may “leave out individuals because they lack the ‘correct’ combination of symptoms or include people for whom such a diagnosis is inappropriate” (p. 655). They found that people could present with 636,120 possible combinations of the *DSM-5* ‘s expanded list of PTSD symptoms.

Risk Factors

Some segments of the population are at greater risk for PTSD because they have a predisposition. For example, some people may be more vulnerable to PTSD due to differences in the parts of their brains involved in the expression or inhibition of fear (Admon, Milad, & Hendler, 2013; Patel, Spreng, Shin, & Girard, 2012; Dickie, Brunet, Akerib, & Armony, 2011). Other researchers have identified a genetic component to PTSD risk (Almli, Fani, Smith, & Ressler, 2014; Rothbaum et al., 2014). Also, a previous history of mental illness could make people more prone to PTSD.

Barton, Boals, and Knowles (2013) found that a strong predictor of PTSD symptoms is the degree to which people construe traumatic experiences as central to their identity and are likely to have maladaptive interpretations of traumatic experiences. That is, “if the [traumatic] event is construed as having low event centrality, the ability of this event to have a psychological impact will be limited” (p. 724).

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Life circumstances also have an effect. People who experienced childhood abuse and neglect, as well as those who lack family or social support, are more likely to develop PTSD (Haglund, Nestadt, Cooper, Southwick, & Charney, 2007; Gillespie, Phifer, Bradley, & Ressler, 2009).

Anderson, Geier, and Cahill (2015) found that people who have been imprisoned are at increased risk for developing PTSD. Specifically, they found that formerly incarcerated black Americans were twice as likely to report having or ever having had PTSD. What's more, people who have been incarcerated were more likely to have experienced traumatic events.

According to the National Cancer Institute (2015), PTSD ranges from just 3 to 4 percent in early-stage, recently diagnosed cancer patients to as much as 35 percent of cancer patients posttreatment. The rates are much higher among cancer patients who do not meet the full *DSM-5* PTSD diagnostic criteria, but have PTSD symptoms nevertheless: 20 percent of patients with early-stage cancer and 80 percent of those with recurrent cancer.

Also, certain injuries, especially head injuries, are associated with greater risk for developing PTSD (Roitman, Gilad, Ankri, & Shalev, 2013).

People in certain professions, including police officers, firefighters, and journalists in war zones, are at greater risk for PTSD because they are more likely to experience a trauma as a result of their profession. Sex workers are also at greater risk. In a study involving sex workers in nine countries (Canada, Colombia, Germany, Mexico, South Africa, Thailand, Turkey, the United States, and Zambia), 68 percent of those surveyed met the criteria for PTSD (Farley et al., 2003).

Active military personnel and veterans are also at increased risk and the focus of much of the contemporary research on PTSD. This stems from the dramatic increase in the prevalence of PTSD among service members and veterans since the commencement of the wars in Afghanistan and Iraq. In their review of 29 studies, Ramchand et al. (2010) found that as much as 20 percent of service members and veterans who served in Operation Enduring Freedom and Operation Iraqi Freedom may have PTSD.

Outcomes and Associations with Other Conditions

Most people with PTSD eventually recover, but estimates of the length of recovery can vary (Chapman et al., 2011; Kessler et al., 1995). For example, Chapman et al. (2011) found that

At least half are likely to have symptoms 14 years after onset, and more than a third will still experience symptoms 30 years later. Those who had experienced childhood trauma and those who experienced interpersonal violence were less likely to remit and were estimated to have a longer time to remission than those with other trauma experiences (p. 1699).

In their systematic review of literature on PTSD, Santiago et al. (2013) found that 34.8 percent of people with PTSD remitted after 3 months and 39.1 percent maintained a chronic condition.

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If left untreated, people with PTSD are more prone to attempt suicide (Kessler, 2000). However, in a meta-analysis of 50 articles, Krysinska and Lester (2010) found that people with PTSD are not at increased risk of completed suicide.

People with PTSD are also likely to experience difficulties in other areas of their lives. The Institute of Medicine (2014) reported that “Work performance and social relationships in the family, workplace, and community can also be adversely affected” (p. 34).

PTSD has also been found to co-occur with a number of other conditions, such as depression. In a meta-analysis of 57 studies, Rytwinski, Scur, Feeny, and Youngstrom (2013) found that more than half (52 percent) of participants in those studies met the criteria for both PTSD and major depressive disorder.

Talbot, Maguen, Epel, Metzler, and Neylan (2013) found that PTSD is associated with emotional eating. In addition, they found that an increase in PTSD symptom severity corresponded with increased emotional eating.

Evidence-Based Treatments for PTSD

People who have experienced a traumatic event and have either been diagnosed with PTSD or have symptoms of PTSD need not suffer; therapies exist to prevent its onset, relieve the symptoms, and lessen the disorder’s duration.

Screening

For the most part, clinicians screen for PTSD via the administration of a questionnaire or structured interview in which trauma survivors self-report their symptoms (Brewin, 2005). Many questionnaires and structured interviews exist to screen for PTSD and other trauma-related symptoms; however, most of the early PTSD risk-screening instruments were developed to predict acute, not chronic PTSD (Mouthaan et al., 2014). And, while they have all been proven valid measures in years past, they predate the publication of revised PTSD diagnostic criteria in the *DSM-5*. Hoge, Riviere, Wilk, Herrell, and Weathers (2014) found that more than 30 percent of soldiers they surveyed met the previous *DSM* PTSD criteria, but not the *DSM-5* criteria.

The most used among PTSD screening tools – and there are many – are the Clinician-Administered PTSD Scale, Trauma Symptom Inventory, PTSD Checklist, Posttraumatic Stress Diagnostic Scale, Keane PTSD Scale, Impact of Event Scale and Revised Version, and Symptom Checklist 90-R’s PTSD Subscales (Elhai, Gray, Kashdan, & Franklin, 2005).

Although questionnaires have been proven valid in identifying PTSD, clinicians should not rely on the results of a screening tool alone. According to Mouthaan et al. (2014), “A second, more comprehensive, diagnostic examination is needed to identify individuals in need of treatment” (p. 5).

In their study of how participants’ heart rates responded when shown pictures related to their trauma, Ehlers et al. (2010) concluded that physiological measures may help identify people

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with PTSD. In fact, they found that heart-rate responses better predicted PTSD than self-reporting. However, more research is needed on the efficacy of screening through physiological measures.

Prevention

No prophylactic against PTSD currently exists. However, certain early interventions in the hours and days following a traumatic event can reduce the likelihood of developing chronic PTSD. Rothbaum et al. (2012) found that early introduction of prolonged exposure therapy (discussed in further detail below) greatly reduced PTSD symptoms. Researchers who looked at veterans injured in combat found that the early administration of morphine was significantly associated with a lower risk of PTSD after injury (Holbrook, Galarneau, Dye, Quinn, & Dougherty, 2010; Melcer, Walker, Sechriest, Lebedda, Quinn, & Galarneau, 2014).

Treatment

A variety of therapies, including behavioral and pharmaceutical, exist that can reduce and even eliminate PTSD symptoms.

Behavioral Therapies

Cognitive behavioral therapies – including cognitive processing therapy (CPT) and prolonged exposure therapy – are the best practice in the treatment of PTSD (Gallagher, Thompson-Hollands, Bourgeois, & Bentley, 2015). However, they may not work for everyone. While Gallagher et al. (2015) stated that about two thirds of people who complete CPT and prolonged exposure therapy see success in reducing PTSD symptoms, Kar (2011) found that as much as 50 percent of people who undergo cognitive behavioral therapies do not respond to treatment. Nevertheless, the author said that “robust evidence” exists to show that they are safe and effective interventions (p. 167).

CPT. Proponents of CPT, which was originally developed to treat victims of rape with PTSD, assert that people with PTSD have overgeneralized beliefs and misappropriate the cause or meaning of the traumatic event. For example, people with PTSD resulting from a sexual assault might blame themselves for the assault.

People who undergo CPT attend 12 sessions, either individually or as a group with a trained therapist, in which they learn how to restructure trauma-related negative beliefs about themselves, others, and the world.

Research supports the efficacy of CPT (Lenz, Bruijn, Serman, & Bailey, 2014; Gallagher et al., 2015). It has even been shown to be effective among people with co-occurring psychiatric disorders and people who have PTSD symptoms, but do not meet the full criteria (Lenz et al., 2014; Dickstein, Walter, Schumm, & Chard, 2013).

Prolonged Exposure. The theoretical underpinning of prolonged exposure therapy is that people with PTSD learn, in the conditioned behavior sense, to associate certain thoughts, feelings, and situations with the traumatic event they experienced and attempt to avoid them. For example, people with PTSD resulting from combat might associate a child’s scream with

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impending danger. Therefore, when any child screams, regardless of whether the child is screaming out of joy or fear, the scream triggers a fear response in the person with PTSD.

Patients who undergo prolonged exposure therapy attend several sessions, with a trained therapist, in which patients repeatedly confront the thoughts, feelings, and situations they associate with the traumatic event, in a safe environment. When practical, prolonged exposure therapy may involve visiting the place where the traumatic event occurred. Over successive exposures, patients begin to habituate to the traumatic cues, create novel interpretations of the cues and of the signal event itself, and reduce the generalization of their fear response.

Like CPT, research evidence supports the use of prolonged exposure therapy (Goodson, Lefkowitz, Helstrom, & Gawrysiak, 2013; Gallagher et al., 2015). It is also generally comparable in effectiveness to CPT (Resick, Nishith, Weaver, Astin, & Feuer, 2002).

Other Behavioral Therapies

Aside from CPT and prolonged exposure therapy, eye movement desensitization and reprocessing (EMDR), stress inoculation therapy, trauma-focused cognitive-behavior therapy, and present-centered therapy also have evidence to support their use in the treatment of PTSD (Frost, Laska, & Wampold, 2014).

Complementary and Alternative Therapies

Therapies that promote mindfulness, such as equine-assisted therapy, which involves working with horses, have been shown to reduce PTSD symptoms (Earles, Vernon, & Yetz, 2015). So, too, have therapies that involve relaxation techniques. Rosenthal, Grosswald, Ross, and Rosenthal (2011) found transcendental meditation, a technique in which one sits comfortably with eyes closed and silently repeats a mantra for a length of time, helpful in alleviating PTSD symptoms among recent combat veterans; however, their study and previous studies on transcendental meditation among veterans were small in size. Kearney et al. (2013) found that loving-kindness meditation in a group setting reduced PTSD symptoms among veterans. Loving-kindness meditation exercises are designed to develop positive feelings of kindness and compassion for one's self and others.

Researchers continue to study how different combinations of therapies may have a synergistic effect on PTSD symptoms reduction. For example, Beidel, Fruehb, Uhdec, Wong, and Mentrikoski (2011) found that a combination of exposure therapy and trauma management therapy improved social functioning beyond that provided by exposure therapy alone. In addition to improved social functioning, exposure therapy has been demonstrated to have little effect on symptoms involving behavioral avoidance, anger management, and social skill deficits (Frueh, Turner, & Beidel, 1995).

Pharmaceutical Therapies

The use of medications, especially the class of antidepressants called selective serotonin reuptake inhibitors (such as Lexapro, Prozac, or Zoloft), in the treatment of PTSD has been shown to be effective in reducing its core symptoms (Ipser, Seedat, & Stein, 2006). In their meta-analysis of pharmacotherapy and psychotherapy in treatment of combat-related PTSD, Stewart

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and Wrobel (2009) found that treatment involving medication resulted in a significantly greater reduction in PTSD symptoms than treatment involving psychotherapy.

Conclusions

Although most people will experience a traumatic event, the majority are resilient enough to cope and adapt. Those who have difficulty coping and adapting may have PTSD. But, they need not suffer. Evidence-based treatments exist to lessen the symptoms of PTSD and help people recover.

Additional Resources

The National Center for PTSD, within the U.S. Department of Veterans Affairs, is a PTSD information clearinghouse. The center's stated mission is to advance research, education, and training in the science, diagnosis, and treatment of PTSD and stress-related disorders. Its website, www.ptsd.va.gov, contains helpful information for professionals and the public.

The International Society for Traumatic Stress Studies, a global membership organization for professionals who specialize in the study and treatment of traumatic stress, provides electronic pamphlets and fact sheets about trauma-related issues for the public, clients, research participants, and other professionals. The e-pamphlets are available for download in Arabic, Chinese, and Spanish at www.istss.org/public-resources/public-education-pamphlets.aspx.

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