Trauma-Informed Care in Behavioral Health Services

Treatment Improvement Protocol (TIP) Series

57

Part 3: A Review of the Literature

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Section 1—A Review of the Literature

Introduction to Trauma and Traumatic Stress Reactions

Providing a comprehensive literature review on trauma, traumatic stress, trauma-informed care (TIC), and trauma-related interventions is a daunting task when considering the quantity and prolific production of research in this area in the past 20 years. To manage the volume of information, this literature review mainly focuses on reviews and meta-analyses rather than seminal work to address many of the most relevant topics.

What Is Trauma?
In this text, “trauma” refers to experiences that cause intense physical and psychological stress reactions. “Trauma results from an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or threatening and that has lasting adverse effects on the individual’s functioning and physical, social, emotional, or spiritual well-being” (Substance Abuse and Mental Health Services Administration [SAMHSA], Trauma and Justice Strategic Initiative, 2012, p. 2). Although many individuals report a single specific traumatic event, others, especially those seeking mental health or substance abuse services, have been exposed to multiple or chronic traumatic events. According to the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5), trauma is defined as when an individual person is exposed “to actual or threatened death, serious injury, or sexual violence” (American Psychiatric Association [APA], 2013, p. 271).

The definition of psychological trauma is not limited to diagnostic criteria, however. In fact, some clinicians have moved away from considering trauma-related symptoms as indicators of a mental disorder and instead view them as part of the normal human survival instinct or as “adaptive mental processes involved in the assimilation and integration of new information with intense survival emphasis which exposure to the trauma has provided” (Turnbull, 1998, p. 88). These normal adaptive processes only become pathological if they are inhibited in some way (Turnbull, 1998), or if they are left unacknowledged and therefore untreated (Scott, 1990).

Trauma has been characterized more broadly by others. For example, Horowitz (1989) defined it as a sudden and forceful event that overwhelms a person’s ability to respond to it, recognizing that a trauma need not involve actual physical harm to oneself; an event can be traumatic if it contradicts one’s worldview and overpowers one’s ability to cope.

How Common Is Trauma?
Trauma exposure is common in the United States. However, trauma exposure varies considerably according to different demographic characteristics and is especially high among clients receiving behavioral health services (see the discussions under the headings “Extent and Effects of Trauma and Traumatic Stress Reactions in Specific Populations” and “Other Disorders That May Be Related to Trauma ” for more information on relevant rates). Although the large surveys discussed here provide data on trauma exposure for the general population,
literature often provides more specific data as well, which is one reason why differences in exposure according to gender and race/ethnicity are highlighted here.

At one time, trauma was considered an abnormal experience. Contrary to this myth, the first National Comorbidity Study (NCS), a large national survey designed to study the prevalence and effects of mental disorders in the United States, established how prevalent traumas are in the lives of the general U.S. population (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Presented with a list of 11 types of traumatic experiences and a 12th “other” category, 60.7 percent of men and 51.2 percent of women reported experiencing at least one trauma in their lifetime (Kessler, 2000; Kessler et al. 1995; 1999):

- The most common trauma was witnessing someone being badly injured or killed (cited by 35.6 percent of men and 14.5 percent of women).
- The second most common trauma was being involved in a fire, flood, or other natural disaster (cited by 18.9 percent of men and 15.2 percent of women).
- The third most common trauma was a life-threatening accident/assault, such as from an automobile accident, a gunshot, or a fall (cited by 25 percent of men and 13.8 percent of women).

The NCS also found that it was not uncommon for individuals to have experienced multiple traumatic events (Kessler, 2000). Among men in the total sample, 14.5 percent reported two traumatic events, 9.5 percent reported three, 10.2 percent reported four or more, and 26.5 percent reported only one such event. Among women, 13.5 percent of the total sample reported two traumatic events, 5 percent reported three, 6.4 percent reported four or more, and 26.3 percent reported only one.

The National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) is another large national survey of behavioral health, but it only assessed posttraumatic stress disorder (PTSD) and trauma exposure in its second wave of interviews, in which 34,653 of the original 43,093 respondents were reinterviewed (Pietrzak, Goldstein, Southwick, & Grant, 2011a). In the Wave 2 interview, respondents were asked about 27 different types of potentially traumatic events; the most commonly reported traumatic events were serious illness or injury to someone close (affecting 48.4 percent of those who did not have PTSD symptoms and 66.6 percent of those with PTSD), unexpected death of someone close (affecting 42.2 percent of those without PTSD and 65.9 percent of those with PTSD), and seeing someone badly injured or killed (affecting 24 percent of those without PTSD and 43.1 percent of those with PTSD; Pietrzak, Goldstein, Southwick, & Grant, 2011a). According to the same data, 71.6 percent of the sample witnessed trauma, 30.7 percent experienced a trauma that resulted in injury, and 17.3 percent experienced a trauma that was purely psychological in nature (e.g., being threatened with a weapon; El-Gabalawy, 2011).

NESARC also found that exposure to specific traumatic events varied considerably according to race, ethnicity, or cultural group. The survey found that 83.7 percent of non-Latino White Americans reported a traumatic event, compared with 76.4 percent of African Americans, 68.2 percent of Latinos, and 66.4 of percent of Asian Americans, Native Hawaiians, or Pacific Islanders (Roberts, Gilman, Breslau, Breslau, & Koenen, 2011). Exposure to specific traumas also varied considerably. White Americans were more likely to report an unexpected death of
someone they knew (44.7 percent did) than were African Americans (39.9 percent), Latinos (29.6 percent), and Asian Americans, Native Hawaiians, or Pacific Islanders (25.8 percent) as well as being more likely to report having a close friend/relative who experienced a life-threatening injury. On the other hand, African Americans were the most likely to report being the victim of assaultive violence (29.7 percent), followed by White Americans (26.1 percent), Latinos (25.6 percent), and Asian Americans, Native Hawaiians, or Pacific Islanders (16.3 percent). In terms of combat trauma, White Americans and African Americans were about as likely to have been combatants (10 percent of each group reported combat trauma), and more likely than Asian Americans, Native Hawaiians, or Pacific Islanders (5.4 percent) or Latinos (4.4 percent). However, Asian Americans, Native Hawaiians, or Pacific Islanders were the most likely to have been unarmed civilians in a war zone (7.5 percent), followed by Latinos (3.8 percent), White Americans (2 percent), and African Americans (1.9 percent).

Across the world, according to data from the World Health Organization (WHO) surveys, which includes the NCS and NCS replication (NCS-R) and surveys from 20 other countries, the most commonly reported traumas are the death of a loved one (30.5 percent), witnessing violence to others (21.8 percent), and experiencing interpersonal violence (18.8 percent; Stein et al., 2010). As Kessler (2000) noted, trauma from assaultive violence in the United States is likely to be more common than in most other developed countries in general. However, trauma related to other traumatic events (e.g., automobile accidents, natural disasters) appear to be quite similar throughout developed countries.

A longitudinal survey from New Zealand also provides useful data on trauma exposure. In this survey, a cohort of subjects from a single town was interviewed at age 26 and again at age 32 in order to evaluate what constituted the worst trauma those individuals had experienced (Koenen, Moffitt et al., 2008). The types of worst experiences reported before age 26 were:

- Sudden unexpected death by trauma of a close family member or friend (38 percent).
- Personal assault or victimization (32 percent).
- Serious accidents (14 percent).
- Hearing about or witnessing a close friend or relative experiencing an assault, serious accident, or serious injury (12 percent).
- Personal illness (3 percent).
- Natural disaster (1 percent)

**How Common Are Traumatic Stress Reactions?**

As with trauma rates, PTSD rates vary considerably across different demographic groups. The reader should consult the section titled “Extent and Effects of Trauma and Traumatic Stress Reactions in Specific Populations” for more specific information on PTSD rates. More general information from major surveys is included in this section.

The DSM-5 (APA, 2013) estimates that the prevalence rate of PTSD in the U.S. adult population is about 8 percent, but studies of populations at high risk for PTSD (e.g., combat veterans, survivors of natural disasters) have found PTSD rates ranging from 3 to 58 percent. The NCS (which evaluated behavioral health disorders, including PTSD) found that, for Americans ages 15 to 54, the lifetime prevalence of PTSD (based on DSM Third Edition, text revision [DSM-III-
R; APA, 1987] criteria) was 7.8 percent, with women more than twice as likely as men to have the disorder during their lives (10.4 percent of women and 5 percent of men; Kessler et al., 1995). In the NCS-R, which interviewed 9,282 individuals ages 18 and older between February 2001 and April 2003, the lifetime prevalence of PTSD was 6.8 percent, again with a much higher rate for women (9.7 percent) than for men (3.6 percent; Kessler, Berglund et al., 2005; NCS, 2005). The past-year prevalence rate for PTSD was 3.5 percent, with 5.2 percent of women and 1.8 percent of men having PTSD in the 12 months prior to their interviews (Kessler, Chiu et al., 2005).

Kessler, Berglund et al. (2005) examined the issue of lifetime prevalence in the NCS-R to determine whether the prevalence statistics of the NCS were still valid in light of changes to the diagnostic criteria that occurred with the publication of the DSM Fourth Edition, text revision (DSM-IV-TR; APA, 2000). The study was divided into two parts. Part I included face-to-face diagnostic interviews of 9,282 participants who were 18 years of age or older. Part II included factors related to diagnosis (e.g., risk factors) and was completed only with participants from Part I who had a “lifetime disorder” and a probability sample from other Part I participants (n=5,692). Data analysis in this study estimated a lifetime PTSD prevalence of 6.8 percent, but the authors also analyzed the data to determine projected lifetime risk and found that at age 75, the lifetime risk for PTSD was 28 percent higher than the lifetime prevalence estimate. However, the authors suggested that because of certain study limitations (e.g., related to sample parameters, reluctance to participate or to disclose diagnoses), these results should be considered a conservative estimate.

As noted earlier, Wave 1 of NESARC did not evaluate PTSD, but Wave 2 found that 6.4 percent of the population (8.6 percent of women and 4.1 percent of men) had PTSD at some point during their lives (Pietrzak et al., 2011a). NESARC researchers also evaluated lifetime prevalence of partial PTSD (defined as including at least one symptom under Criteria B, C, and D, with symptom duration of at least 1 month) and found that 6.6 percent of the total population (8.6 percent of women and 4.5 percent of men) met criteria for partial but not full PTSD at some point during their lives. It should be noted, however, that most large behavioral health surveys, such as the NCS and NESARC, rely on retrospective evaluation of symptoms, and some research indicates that they underestimate behavioral health disorders compared with prospective longitudinal studies (Moffitt et al., 2009). Differences in prevalence estimates may also be related both to changes in PTSD diagnostic criteria and to a variety of methodological differences in the research (e.g., different diagnostic instruments, procedures) on which these estimates were based (Kessler, 2000; Kessler, Chiu et al., 2005; Kessler et al., 1995; Narrow, Rae, Robins, & Regier, 2002).

It is also worth noting that delayed PTSD may account for a considerable percentage of PTSD cases. A meta-analytic review that included studies in which individuals were assessed 1 to 6 months after trauma exposure and again at least 6 months later found that 24.8 percent of PTSD cases involved delayed trauma (Smid, Mooren, van der Mast, Gersons, & Kleber, 2009). Studies included in the review found between 3.8 and 83.3 percent of their samples had delayed PTSD. Factors that were associated with significantly greater odds of having delayed rather than nondelayed PTSD included a Western (as opposed to non-Western) cultural background and military combat exposure.
More recently, Smid, van der Velden, Gersons, and Kleber (2012) conducted a study of 1,083 individuals affected by a large fireworks disaster to evaluate delayed PTSD rates at both 18 months and 4 years after the disaster. In their review of prospective studies of disaster survivors, they found that between 2 and 19 percent of survivors developed delayed PTSD, whereas in their own study, 3.8 percent (n=24) of the total sample (n=636) who were available for all assessments had delayed PTSD and 13.5 percent had PTSD that was not delayed.

What Is Complex Trauma?

An individual has been exposed to complex trauma when he or she has either experienced repeated instances of the same type of trauma over a period of time or experienced multiple types of trauma (van der Kolk, McFarlane, & Weisaeth, 1996). Expert consensus is that people who have complex trauma will typically require more intensive and extensive treatment as well as possible adaptations to standard treatment (see the expert clinician survey in Cloitre et al., 2011).

This Treatment Improvement Protocol (TIP) uses a definition of complex trauma developed by the National Child Traumatic Stress Network (NCTSN; 2003), which defines complex trauma as a “dual problem” involving both “exposure to traumatic events and the impact of this exposure on immediate and long-term outcomes” (p. 5). NCTSN notes that complex trauma usually involves multiple instances of trauma (occurring either simultaneously or sequentially) and multiple forms of trauma (e.g., experiencing emotional abuse, sexual abuse, and physical abuse). Also, complex trauma, such as that experienced by children who sustain repeated abuse, typically results in emotional dysregulation and a lack of appropriate coping mechanisms, which in turn can increase the risk of further traumatic experiences. Although the NCTSN definition was developed for explaining childhood trauma, it can be adapted to fit an adult population.

Herman (1992) was among the first to highlight the inadequacy of existing diagnostic criteria for PTSD for people who have complex trauma by pointing out that these criteria were developed based on a clinical consideration of symptoms experienced by individuals who had survived relatively time-limited traumatic experiences (e.g., combat veterans, survivors of rape). Herman proposed that many individuals with a history of prolonged and repeated trauma (as opposed to trauma that is time-limited or related to a single traumatic event) present with clinical characteristics that “transcend simple PTSD” (p. 379); these characteristics include physical symptoms (including many of the symptoms listed in the diagnostic criteria for PTSD, although they may appear more “complex, diffuse, and tenacious” [p. 379]), personality changes in which the individual’s sense of identity is negatively affected and which may inhibit the individual’s ability to form relationships with others, and a propensity for vulnerability to further harm (by self or others).

In 1992, Herman published the seminal work *Trauma and Recovery* (revised in 1997), which discussed proposed changes to the next DSM that would include a new term for this trauma-related constellation of symptoms. Her suggestion was the term “complex post-traumatic stress disorder” (complex PTSD). However, none of the proposed changes she discussed were included in the DSM-IV (APA, 1994), DSM-IV-TR (APA, 2000), or DSM-5 (APA, 2013). Jackson, Nissenson, and Cloitre (2010) observed that the DSM-IV classification of “associated features and disorders” (APA, 2000) for PTSD is intended to cover symptoms of complex PTSD (e.g., problems with affect regulation, impaired relationships), but it does not take into account one key aspect of complex PTSD as it was originally defined, which is that such symptoms and disorders
(e.g., substance abuse) are not viewed as secondary to PTSD symptoms, but rather, as equally important and directly related to traumatic experiences.

Complex trauma is typically interpersonal and generally involves situations in which the person who is traumatized cannot escape from the traumatic experiences because he or she is constrained physically, socially, or psychologically (Herman, 1992). Because of this, people who have experienced complex trauma often have additional disturbances in their ability to self-regulate—beyond those seen in PTSD—that are not related to complex trauma. These include difficulties in emotional regulation, difficulties in one’s capacity for relationships, problems with attention or consciousness (e.g., dissociative experiences), a disturbed belief system, and/or somatic complaints or disorganization (Briere & Scott, 2012; Cloitre et al., 2011; van der Kolk, McFarlane, & Van der Hart, 1996).

**What Is Acute Stress Disorder?**

Acute stress disorder (ASD), according to the DSM-5, involves a traumatic stress reaction that occurs within 1 month of trauma exposure and includes at least nine symptoms from any of the five categories (intrusion, negative mood, dissociation, avoidance, and arousal; APA, 2013). To receive this diagnosis, the individual also has to display a reaction that causes significant distress or impairment in social, occupational, or other important areas of functioning. ASD can occur at the time of the trauma exposure or any time within 4 weeks of that event. As Roberts, Kitchiner, Kendardy, and Bisson (2010) observed, there is a large degree of overlap between ASD and PTSD symptoms, but what distinguishes them is the timing of those symptoms relative to trauma exposure. Cardeña and Carlson (2011) provided a history of the ASD diagnosis and discussed the validity of the diagnostic criteria. ASD can develop into PTSD if the symptoms extend beyond 1 month.

**What Is PTSD?**

PTSD is a traumatic stress reaction that develops in response to a significant trauma. It is a mental disorder, and for behavioral health providers in the United States, the currently accepted diagnostic criteria for the disorder are those provided by the DSM-5 (APA, 2013). For professionals in the field of behavioral health, the definition of psychological trauma is historically and clinically tied to the diagnostic criteria for PTSD, which made their first appearance in the DSM-III (APA, 1980). However, over the years, the diagnostic criteria have undergone some significant changes. These changes are important factors to consider when reading, evaluating, and especially comparing research.

Criterion A concerns the type of trauma involved; Criterion B describes symptoms of intrusion; Criterion C includes the presence of persistent avoidance of stimuli associated with the trauma; Criterion D highlights symptoms of negative alterations in cognitions and mood associated with the traumatic event(s); Criterion E includes marked alterations in arousal and reactivity as it relates to the trauma; Criterion F addresses the duration of the symptoms; and Criterion G includes clinical distress or impairment in important areas of functioning (e.g., occupational). The presenting symptoms cannot be attributable to the physiological effects of a substance, including alcohol or medications.
The first part of the evolving PTSD definition is Criterion A (Exhibit L-1), which describes changes in the definition of a traumatic event from that of “a recognizable stressor,” to “an event that is outside the range of usual human experience,” to an event that is defined by two specific descriptors, to “exposure to actual or threatened death, serious injury, or sexual violence.”

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<tr>
<td>“Existence of a recognizable stressor that would evoke significant symptoms of distress in almost everyone” (APA, 1980, p. 238).</td>
<td>“The person has experienced an event that is outside the range of usual human experience [emphasis added] and that would be markedly distressing to almost anyone” (APA, 1987, p. 250; examples given include serious threat or harm to self or others).</td>
<td>“The person has been exposed to a traumatic event in which both of the following were present [emphasis added]: (1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others. (2) the person’s response involved intense fear, helplessness or horror” (APA, 1994, pp. 427–428; APA, 2000, pp. 467–468).</td>
<td>“Exposure to actual or threatened death, serious injury, or sexual violence” (APA, 2013, p. 271). There are four ways that an individual can experience the traumatic event(s): directly, witnessing the event, learning about the event, or through repeated or extreme exposure to aversive details of the traumatic event(s).</td>
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Criterion B has also evolved. In the DSM-III (APA, 1980), it described reexperiencing a trauma through three symptoms: intrusive thoughts, recurrent dreams, or the feeling of reexperiencing the trauma as a result of some sort of stimulus. DSM-III-R (APA, 1987) expanded Criterion B by adding another symptom: “intense psychological distress at exposure to events that symbolize or resemble an aspect of the traumatic event, including anniversaries of the trauma” (p. 250). It also added information regarding symptom presentations that may occur in children (e.g., repetitive play expressing aspects of the trauma). DSM-IV (APA, 1994) added a fifth symptom of “physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event” (p. 428) and additional symptom presentations that may occur in children (e.g., nightmares that lack recognizable features, reenactments of the trauma). Likewise, DSM-5 (2013) became more developmentally focused in diagnostic criteria and added a separate criterion for children younger than 7 years of age. Additional changes in the DSM-5 include a more explicit definition of the stressor criterion, an additional and separate symptom cluster highlighting avoidance and persistent negative alterations in cognitions and mood, and the elimination of an individual’s subjective reaction to the traumatic event (intense fear, helplessness, or horror).

Criterion C addresses avoidance of stimuli associated with the traumatic event(s). Criterion C evolved between DSM-III and DSM-III-R (Exhibit L-2), with only minimal changes in language.

### Exhibit L-2
**Evolution of Criterion C for PTSD in the DSM**

<table>
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<td>“Numbing of responsiveness to or reduced involvement with the external world, beginning sometime after the trauma, as shown by at least one of the following: (1) markedly diminished interest in one or more significant activities (2) feeling of detachment or estrangement from others (3) constricted affect” (APA, 1980, p. 238).</td>
<td>“Persistent avoidance of stimuli associated with the trauma or numbing of general responsiveness (not present before the trauma), as indicated by at least three of the following: (1) efforts to avoid thoughts or feelings associated with the trauma (2) efforts to avoid activities or situations that arouse recollections of the trauma (3) inability to recall an important aspect of the trauma (psychogenic amnesia) (4) markedly diminished interest in significant activities (in young children, loss of recently acquired developmental skills such as toilet training or language skills) (5) feeling of detachment or estrangement from others (6) restricted range of affect, e.g., unable to have loving feelings (7) sense of a foreshortened future, e.g., does not expect to have a career, marriage, or children, or a long life” (APA, 1987, p. 250).</td>
<td>“Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following: (1) Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s). (2) Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s)” (APA, 2013, p. 272).</td>
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</table>

Criterion D addresses symptoms related to negative alterations in cognitions and mood associated with the traumatic event(s). This symptom cluster is a new addition to DSM-5 and includes “irritable behavior and angry outbursts (with little or no provocation), typically expressed as verbal or physical aggression toward people or objects; reckless or self-destructive behavior; hypervigilance; exaggerated startle response; problems with concentration; sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep)” (APA, 2013, p. 272). In prior DSM publications, criterion D related to increased arousal (e.g., difficulties with sleep and concentration). In DSM-5, this criterion has moved to Criterion E, with no other changes in symptoms. This criterion has also evolved from the description in the DSM-III to a more concise description in the DSM-III-R, and it has become even more concise in the DSM-IV, DSM-IV-TR, and DSM-5 (Exhibit L-3).
Exhibit L-3
Evolution of Criterion E for PTSD in the DSM

<table>
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<td>“At least two of the following symptoms that were not present before the trauma:</td>
<td>“Persistent symptoms of increased arousal (not present before the trauma), as shown by at least two of the following:</td>
<td>“Persistent symptoms of increased arousal (not present before the trauma), as shown by at least two of the following:</td>
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<tr>
<td>(1) hyperalertness or exaggerated startle response</td>
<td>(1) difficulty falling or staying asleep</td>
<td>(1) difficulty falling or staying asleep</td>
</tr>
<tr>
<td>(2) sleep disturbance</td>
<td>(2) irritability or outbursts of anger</td>
<td>(2) irritability or outbursts of anger</td>
</tr>
<tr>
<td>(3) guilt about surviving when other have not, or about behavior required for survival</td>
<td>(3) difficulty concentrating</td>
<td>(3) difficulty concentrating</td>
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<tr>
<td>(4) memory impairment or trouble concentrating</td>
<td>(4) hypervigilance</td>
<td>(4) hypervigilance</td>
</tr>
<tr>
<td>(5) avoidance of activities that arouse recollection of the traumatic event</td>
<td>(5) exaggerated startle response</td>
<td>(5) exaggerated startle response</td>
</tr>
<tr>
<td>(6) intensification of symptoms by exposure to events that symbolize or resemble the traumatic event</td>
<td>(6) physiologic reactivity upon exposure to events that symbolize or resemble an aspect of the traumatic event (e.g., a woman who was raped in an elevator breaks out in a sweat when entering any elevator)” (p. 250)</td>
<td>(5) exaggerated startle response</td>
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</table>

A time criterion was added in the DSM-III-R (APA, 1987) to specify a minimum timeframe of 1 month or more for experiencing symptoms in Criteria B, C, D, and E. In the DSM-IV (APA, 1994), DSM-IV-TR (APA, 2000), and DSM-5 (APA, 2013), this criterion was retained, with the slight change of requiring more than 1 month of symptoms (APA, 1994; 2000, 2013). The criterion that addresses the level of distress and functioning was not included until the publication of the DSM-IV (APA, 1994) and has remained the same in the DSM-5 (APA, 2013). This criterion added a new defining characteristic, which specifies that “the disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning” (APA, 2013, p. 272).

Turnbull (1998) describes the historical development of the idea of PTSD up to its inclusion in the International Statistical Classification of Diseases and Related Health Problems, 9th Revision (1979) and the DSM-III-R. The DSM-5 recognizes certain specifiers that may further characterize PTSD (APA, 2013). For example, a specific case of PTSD may be with delayed expression (full criteria are not met until at least 6 months have passed since the trauma exposure, although the onset of symptoms may immediately follow the trauma; APA, 2000; 2013).
What Is Partial PTSD?
Partial PTSD is a category developed by researchers to evaluate people who have some impairment related to elevated PTSD symptoms but do not meet full criteria for the disorder. The term is commonly defined as either having at least one PTSD symptom from Criteria B, C, and D that lasts at least 1 month after a traumatic event (Criterion A) or as meeting Criterion A plus two of the other three criteria (Mylle & Maes, 2004). These authors also reviewed studies about the prevalence of partial PTSD according to both criteria. Partial PTSD has been associated with several of the same negative consequences associated with full PTSD, but not to the same extent as a full PTSD diagnosis (e.g., Pietrzak et al., 2011a).

What Is TIC?
In the past 15 years, there have been many definitions of TIC and various models for incorporating it across organizations. This TIP uses SAMHSA’s definition of TIC, which describes this type of care involving “these key elements: (1) realizing the prevalence of trauma; (2) recognizing how trauma affects all individuals involved with the program, organization, or system, including its own workforce; and (3) responding by putting this knowledge into practice” (SAMHSA, Trauma and Justice Strategic Initiative, 2012, p. 4). In a seminal article on the development of a trauma-informed service system, Harris and Fallot (2001) proposed that such a system is one in which administrators and staff understand how traumatic experiences negatively affect behavioral health in multiple ways and are committed to responding to those needs through universal trauma screening, staff education and training regarding trauma and its effects, and willingness to review and change policies and procedures to prevent the (re)traumatization of clients.

As part of the overall review of policies, practices, and research involving trauma-informed services for individuals who are homeless, Hopper, Bassuk, and Olivet (2010) reviewed the literature and organizational principles on TIC and found several common themes. These included an awareness of how symptoms and behaviors are related to traumatic experiences, an emphasis on safety, an opportunity for individuals to develop or regain a sense of control over their lives, and an emphasis on strengths rather than on deficiencies. They used these themes to develop the following definition of TIC (Hopper, Bassuk, & Olivet, 2010, p. 82):

> Trauma-Informed Care is a strengths-based framework that is grounded in an understanding of and responsiveness to the impact of trauma, that emphasizes physical, psychological, and emotional safety for both providers and survivors, and that creates opportunities for survivors to rebuild a sense of control and empowerment.”

Other definitions of TIC exist, and Hopper and colleagues (2010) reviewed some of the better-known versions of these and presented them in a table (see Exhibit L-4) for easy comparison.
### Exhibit L-4
**Principles of TIC**

<table>
<thead>
<tr>
<th>Consensus-Based Principles</th>
<th>Theory-Based</th>
<th>Expert Trauma Panel</th>
<th>Experts</th>
<th>Theory-Based</th>
<th>Research-Based</th>
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<tbody>
<tr>
<td>1. <strong>Trauma Awareness</strong></td>
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<tr>
<td>a. Program philosophy and mission</td>
<td></td>
<td>Trauma function/ focus; trauma policy or position; financing for best practices; trauma-informed services; clinical practice guidelines for people with trauma histories; trauma-informed disaster planning; systems integration; research &amp; data on trauma &amp; evidence-based &amp; best-practice treatment models; access to evidence-based &amp; best-practice trauma treatment</td>
<td></td>
<td>Recognize the impact of trauma on development and coping</td>
<td></td>
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<tr>
<td>b. Staff education, training, and consultation</td>
<td></td>
<td>Workforce orientation, training, support, competencies and job standards related to trauma; promote education of professionals in trauma</td>
<td></td>
<td></td>
<td>Emphasize trauma recovery as a primary goal</td>
</tr>
<tr>
<td>c. Practices</td>
<td></td>
<td>Trauma screening and assessment; Trauma-specific services, including evidence-based and emerging best-practice treatment models</td>
<td></td>
<td>Integration (symptoms such as adaptive coping, integrating services, trauma-specific services)</td>
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<tr>
<td>d. Recognition of vicarious trauma and staff self-care</td>
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<tr>
<td>2. <strong>Safety</strong></td>
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<tr>
<td>a. Physical and emotional safety</td>
<td>Safety (physical and emotional)</td>
<td>Maintaining clear and consistent boundaries</td>
<td>Safety, basic needs, consistency, and predictability</td>
<td>Create an atmosphere of safety, respect, and acceptance</td>
<td></td>
</tr>
<tr>
<td>b. Relationships: authentic, respectful, clear boundaries</td>
<td>Trustworthiness (clear tasks, consistent practices, staff-consumer boundaries)</td>
<td>[see Delivering services below]</td>
<td>Engagement: respectful nonjudgmental relationships, clear boundaries</td>
<td>Use a relational collaboration model. Growth is fostered by mutual, respectful, authentic relationships</td>
<td></td>
</tr>
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### Part 3, Section 1—A Review of the Literature

<table>
<thead>
<tr>
<th>c. Avoid retraumatization</th>
<th>Procedures to avoid retraumatization and reduce impacts of trauma</th>
<th>Minimize retraumatization</th>
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<tr>
<td>d. Acceptance of and respect for diversity</td>
<td>Trauma policies and services that respect culture, race, ethnicity, gender, age, sexual orientation, disability, and socioeconomic status</td>
<td>Delivering services in a nonjudgmental and respectful manner</td>
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<tr>
<td></td>
<td>Cultural competence</td>
<td>Work towards cultural competence, understand contextual factors</td>
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#### 3. Choice & Empowerment

<table>
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<th>Consumer/trauma survivor/recovering person involvement and trauma-informed rights</th>
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<th>Underscore consumers' choice and control over recovery</th>
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<td>b. Empowerment model</td>
<td>Empowerment: prioritize consumer empowerment, skill-building, and growth</td>
<td>Avoiding provocation and power assertion</td>
<td>Open communication: provide information openly to consumers</td>
<td>Use an empowerment model</td>
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<tr>
<td>c. Consumers involved in service development and evaluation</td>
<td>Collaboration: maximize collaboration and sharing of power between staff and consumers</td>
<td>Sharing power in the running of shelter activities</td>
<td>Shared power and governance</td>
<td>Involve consumers in design and evaluation of services</td>
<td></td>
</tr>
</tbody>
</table>

#### 4. Strengths-based

| Focus on strengths, resiliency | [see Empowerment above] | Healing, instilling hope | Highlight consumers’ strengths, adaptations, and resiliencies |

**Source:** Hopper, Bassuk, & Olivet, 2010. Adapted with permission.

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*a* NASMHPD = National Association of State Mental Health Program Directors.

*b* NCTSN = National Child Traumatic Stress Network.

*c* NCFA = National Center on Family Homelessness.

*d* WCDVS = Women, Co-Occurring Disorders and Violence Study.

Elliott, Bjelajac, Fallot, Markoff, and Reed (2005) discussed TIC within the context of services for women and suggested some guiding principles for such services; they also briefly reviewed literature in support of those principles.

### What Is the Relationship of Culture to Traumatic Stress Reactions?

Although cultural responses to trauma may vary, high PTSD rates have been diagnosed in a wide range of cultures following exposure to a significant traumatic event, including Ju’hoansi (i.e., Kalahari Bushmen) exposed to domestic violence, Cambodians who lived through the Khmer Rouge regime, survivors of the Rwandan genocide, and Filipinos who experienced a large-scale natural disaster (Marques, Robinaugh, LeBlanc, & Hinton, 2011). Neurobiological research also indicates that affect dysregulation, changes in right hemisphere functioning, and a kindling phenomenon occurs across cultures in individuals who have PTSD or a prolonged stress reaction as the result of trauma exposure (Wilson, 2007).

Marsella and Christopher (2004) observed that intrusive PTSD symptoms appear to be more common cross-culturally than symptoms of avoidance or the reexperiencing of trauma and that the occurrence of the two latter categories of symptoms may vary considerably across cultures. Other international research indicates that the presentation and occurrence of specific PTSD
symptoms and the rates of other mental disorders and/or symptoms following trauma vary considerably among nations/cultural groups (Marques et al., 2011). For example, research conducted with Vietnamese survivors of a typhoon found that both depression and panic disorder appeared to be more common responses to the trauma than PTSD (Amstadter et al., 2009). Other studies conducted with Vietnamese (Hinton et al., 2001) and Cambodian (Hinton, Ba, Peou, & Um, 2000) refugees have also found high rates of panic disorder/panic attacks co-occurring with PTSD among trauma survivors.

Members of some cultural groups may also have increased risk for PTSD, or for certain PTSD symptoms, compared with members of other groups. Research from the United States suggests that Latinos have greater risk for PTSD when trauma exposure is controlled for than African Americans, White Americans, or Asian Americans (e.g., see Marshall, Schell, & Miles, 2009). A study conducted in the Netherlands with a diverse group of individuals affected by an airline disaster found that those who came from non-Western cultures ($n=379$) experienced significantly more health-related anxieties, more severe PTSD symptoms, more fatigue, and more impaired health-related quality of life than did those from Western cultures ($n=406$; Verschuur, Maric, & Spinhoven, 2010). Other research conducted with refugees in Finland who were survivors of torture ($N=78$) found that those from southeastern European cultures had significantly more PTSD symptoms than did those from Middle Eastern, Central African, or Southern Asian cultures (Schubert & Punamäki, 2011).

Marsella (2010), as part of a review of the ethnocultural aspects of PTSD, noted that culture may affect individuals’ responses to trauma by providing meaning to symptoms (e.g., nightmares), by shaping individuals’ beliefs about traumatic events (e.g., through different concepts of destiny or fate), by affecting individuals’ beliefs about their own responsibility for the trauma and their subsequent response, by indicating what disabilities or impairments may result from the trauma, and by shaping the threshold for normal versus pathological levels of arousal (e.g., through perceptions and interpretations of stressors). He also indicated that cultural beliefs may be used to help heal maladaptive responses to trauma. Hoshmand (2007) reviewed research that suggested the importance of understanding cultural sources of strength/resilience when interpreting trauma from a cultural perspective.

Because of these differences, members of certain cultural groups may not present symptoms in a manner that can be easily identified as PTSD or another behavioral health disorder. For instance, clinicians working with Cambodian refugees have observed that traumatic memories in the form of flashbacks or nightmares may be interpreted as attacks by dead spirits, whereas hyperarousal symptoms may indicate a physical or spiritual weakness (Hinton, Hinton, Pich, Loeum, & Pollack, 2009; Hinton, Park, Hsia, Hofmann, & Pollack, 2009). Hoshmand (2007) recommended taking an ecological approach to interpreting trauma, which means that traumatic experiences and trauma responses are interpreted within the context of the individual’s culture and with respect to other factors (e.g., gender, age) that might shape those responses.

**Role of acculturation**

Another relevant concern is the degree to which acculturation affects responses to trauma. Research in this area is limited, but the preponderance of evidence seems to indicate that greater acculturation is associated with lower levels of PTSD symptoms (Dunlavy, 2010). This is contrary to the evidence relating acculturation, for some immigrant groups, to certain other
behavioral health problems, notably substance abuse and depressive symptoms (e.g., Alegría et al., 2008; Gonzalez & Gonzalez, 2008; Grant et al., 2004; Xie & Greenman, 2005). In her own data analysis concerning African immigrants to Sweden, however, Dunlavy found no significant associations between acculturation and PTSD symptoms.

A large study in this area was conducted in the Netherlands with a group of 221 immigrants affected by a large fireworks explosion and a matched group of 127 immigrants unaffected by the disaster (Drogendijk, van der Velden, & Kleber, 2012). The study found that lower acculturation (assessed with the Lowlands Acculturation Scale [LAS]) was associated with increased behavioral health problems for individuals who had experienced this trauma but not for those in the control group. Specifically, a greater need to keep the norms and values of one’s original culture (measured with a subscale of the LAS) was significantly associated with more intrusion and avoidance symptoms (indicative of PTSD), anxiety, depression, hostility, and somatic complaints for those affected by this trauma. For those unaffected, acculturation had no significant association with behavioral health measures, nor were other domains of acculturation significantly associated with PTSD symptoms, although having skills to cope with a new culture/society and feeling socially integrated into that society were associated with better outcomes in the other areas of behavioral health measures. The authors observed that their findings may indicate that, in the context of a disaster affecting large numbers of people, a lack of flexibility in terms of cultural norms and values may be a source of additional stress.

The role of acculturation vis-à-vis PTSD, however, may vary according to cultural group and the predominant culture’s relationship to that group (e.g., it may be different for immigrant and indigenous populations). For example, a study conducted in Taiwan with members of an aboriginal group affected by an earthquake (N=196) found that lower levels of acculturation to mainstream Taiwanese culture were associated with significantly higher levels of PTSD symptoms following the disaster (Lee et al., 2009). Other studies indicate that a domain from the Demographic and Post-Migration Living Difficulty Questionnaire labeled “difficulties adjusting to cultural life” in a new society was also associated with greater PTSD symptom severity among refugees in studies in Australia (Schweitzer, Melville, Steel & Lacherez, 2006) and the United Kingdom (Carswell, Blackburn, & Barker, 2011). This domain, which evaluates feelings of isolation, loneliness, boredom, and a lack of access to preferred foods, may also represent difficulties in acculturation, as the sense of isolation may be greater among less acculturated refugees who are not able to establish social connections in their new culture.

For immigrants/refugees, better acquisition of the language of their new country, which may also represent greater acculturation, has also been associated with significantly lower levels of PTSD symptoms among Iraqi refugees living in Sweden (N=48) but not with significant differences in rates of PTSD diagnosis (Söndergaard & Theorell, 2004). Similarly, a study of Burmese refugees living in Australia (N=70) found a significant association between postmigration living difficulties, of which concern about communication problems was the most often-cited example, and PTSD symptoms (Schweitzer, Brough, Vromans, & Asic-Kobe, 2011).

Schweitzer and colleagues (2006), in their study of 63 Sudanese refugees in Australia, also found that support from family and others within a Sudanese community was a significant resilience factor with regard to behavioral health, whereas social support from the larger Australian society
was not. The planned TIP, *Improving Cultural Competence* (SAMHSA, planned c), includes more information on the role of acculturation in behavioral health disorders and their treatment.

**Types of Trauma**

There are numerous forms and types of trauma. In this section, the research reviewed explores a wide variety of traumas; however, the sheer volume of research available precludes a thorough review of each trauma type. In addition, the order of appearance in this document does not denote a specific trauma’s importance or prevalence, nor is a lack of relevance implied if a given trauma is not specifically addressed in this TIP. The intent of this section is to give the reader a broad science-based perspective on the types of trauma.

**Adverse Childhood Experiences**

Adverse childhood experiences (ACEs), often referred to as early childhood or interpersonal trauma, are childhood experiences that can have a negative effect on an individual’s well-being that often lasts into adulthood. These experiences include child abuse and neglect as well as substance abuse and mental illness in the family, having a family member incarcerated, and violence directed toward a parent (usually the mother; Dube et al., 2005). ACEs are associated with significant increases in a number of negative social, behavioral health, and physical health outcomes, including alcohol and drug use disorders, depression, suicidality, risky sexual behavior, sexual victimization in adulthood, domestic violence, self-harm behaviors, physical inactivity, obesity, heart disease, cancer, liver disease, sexually transmitted diseases, teen pregnancy, homelessness, unemployment, and being both a perpetrator and/or a victim of interpersonal violence (Dietz et al., 1999; Felitti et al., 1998; Herman, Susser, Struening, & Link, 1997; Hillis, Anda, Felitti, Nordenberg, & Marchbanks, 2000; Lalor & McElvaney, 2010; Noll, Horowitz, Bonanno, Trickett, & Putnam, 2003; Roberts, McLaughlin, Conron, & Koenen, 2011; Tam, Zlotnick, & Robertson, 2003).

Childhood trauma also appears to be more likely to result in PTSD than trauma experienced in adulthood. Wrenn and colleagues (2011), using a largely African American, inner-city sample of people who had experienced trauma (*N*=767), found that childhood trauma was associated with significantly greater PTSD risk than trauma experienced in adulthood alone. Childhood abuse was associated with even greater risk than other trauma experienced in childhood.

A major study evaluating the effects of ACEs was conducted with 17,421 members of a large health maintenance organization (HMO) in California in collaboration with the Centers for Disease Control and Prevention (Dube et al., 2005). Two rounds of questionnaires were given, with 7,641 respondents completing both assessments (Edwards, Anda, Felitti, & Dube, 2004). In the initial assessment, 29.9 percent of men and 27 percent of women reported experiencing physical abuse as children; 24.7 percent of women and 16 percent of men, sexual abuse; and 13.1 percent of women and 7.6 percent of men, emotional abuse (Dube et al., 2005). Also, 29.5 percent of women and 23.8 percent of men reported parental substance abuse, 23.3 percent of women and 14.8 percent of men reported parental mental illness, and 13.7 percent of women and 11.5 percent of men reported violence directed toward their mothers.

The NCS and NCS-R evaluated a similar group of 12 experiences, labeled childhood adversities (CAs), which included parental death, parental divorce/separation, life-threatening illness, and
extreme economic hardship in addition to the experiences included in the ACE study (Green et al., 2010). In this sample, 8.4 percent reported childhood physical abuse; 6 percent, sexual abuse; 5.6 percent, neglect; 14 percent, family violence; 10.3 percent, parental mental illness; 8.5 percent, parental substance abuse; and 5.8 percent, life-threatening illness (Green et al., 2010).

In a multivariate model, almost all of the CAs evaluated in the NCS were associated with increased odds of having a mental disorder; the strongest associations were with parental mental illness, parental substance abuse, family violence, childhood physical abuse, childhood sexual abuse, and life-threatening illness (Green et al., 2010). These data also show a significant association between certain CAs (i.e., parental mental illness, substance abuse in the family, family violence, childhood physical/sexual abuse, childhood neglect, economic hardship) and the persistence of mental disorders (McLaughlin, Green, Gruber et al., 2010a). The associations of single trauma to mental disorders were modest, but multiple traumas had a cumulative effect, so that exposure to multiple CAs further increased the strength of the association with both onset and persistence of mental disorders. These same CAs were also significantly associated with functional impairment related to behavioral health disorders (McLaughlin et al., 2010b).

Another large study, the Developmental Victimization Survey, investigated forms of childhood abuse and maltreatment in 2,030 children and adolescents ages 2 to 17. The study found that 13.8 percent had sustained some form of maltreatment in the year of the survey; 10.3 percent, psychological/emotional abuse; 3.6 percent, physical abuse; 1.4 percent, neglect; and 0.6 percent, sexual abuse (Finkelhor, Ormord, Turner, & Hamby, 2005). However, some literature indicates that all these data underrepresent the extent of childhood abuse and neglect, as both research and expert opinion indicate that these traumas are generally underreported (see review by Gilbert et al., 2009).

Gilbert and colleagues (2009) specifically reviewed data on psychological abuse, which is not often evaluated in the literature. They found that approximately 10 percent of children in the United States and the United Kingdom experience psychological abuse in any given year, and between 4 and 9 percent sustain severe emotional abuse. Children who have sustained one type of abuse or neglect are likely to have experienced other types as well, according to research conducted with a variety of samples (see reviews by Edwards et al., 2003; Gilbert et al., 2009).

Research indicates that women are much more likely to sustain sexual abuse than men. Some studies have found that men are more likely than women to sustain physical abuse in childhood (e.g., Dube et al., 2005), whereas others did not find significant differences (e.g., Finkelhor et al., 2005). Although childhood sexual abuse is more common for women than for men, research evaluating outcomes for both genders has, for the most part, found similar long-term consequences for men and women (Banyard, Williams, & Siegel, 2004; Dube et al., 2005).

Research also indicates that children living in households with yearly incomes of $20,000 or less (in 2003–2004) are significantly more likely than children from other households to experience psychological/emotional abuse, but not physical or sexual abuse (Finkelhor et al., 2005). According to the same study, children from low-income families are also significantly more likely to witness domestic violence and violence in their communities, and they are significantly more likely to sustain violent assault or rape not perpetrated by a family member. Other research has also found that children who are maltreated, especially those who sustain physical abuse, are
more likely to be exposed to violence in their communities and to witness domestic violence; these latter traumatic experiences have specific negative effects on children’s functioning beyond those associated with abuse/neglect (Lynch & Cicchetti, 1998).

Different types of childhood abuse may have different behavioral health effects. In a study of 196 clients in treatment for alcohol dependence, a history of emotional abuse in childhood was associated with a significant increase in risk for mood disorders (especially major depression) and PTSD, physical abuse in childhood was associated with a significant increase in suicide attempts, and sexual abuse in childhood was associated with significant increases in risk for anxiety disorders, including PTSD (Huang, Schwandt, Ramchandani, George, & Heilig, 2012). A study of 140 women found that those who experienced sexual abuse in childhood were significantly more likely to engage in self-harm behaviors, those who sustained emotional abuse were significantly more likely to be victims of sexual assault/rape in adulthood, and those who were neglected in childhood were significantly more likely to be victims of physical abuse in adulthood (Noll et al., 2003).

More so than other ACEs, physical and sexual abuse in childhood are associated with even greater and more lasting problems, including significantly higher rates of depression, substance use disorders, and PTSD in later life (see review by Gilbert et al., 2009). In addition, Gilbert and colleagues (2009) found strong evidence linking childhood abuse with suicide attempts, high-risk sexual behavior, criminal behavior, and obesity. As one seminal article on the effects of childhood trauma observes, “deficits in virtually all of the major tasks of development” can result from such abuse in childhood (Lynch & Cicchetti, 1998, p. 238). A more recent analysis of NCS-R data that controlled for other anxiety disorders, depression, and demographic factors also found that childhood sexual abuse was associated with significantly greater risk for social anxiety disorder (SAD), panic disorder, and generalized anxiety disorder (GAD), in addition to PTSD, in adulthood (Cougle, Timpano, Sachs-Ericsson, Keough, & Riccardi, 2010). Physical abuse in childhood, however, was only associated with significantly higher risk for specific phobias and PTSD.

Abuse during childhood also appears to predispose individuals to further abuse and trauma as they grow older. Sexual abuse in childhood and the severity of such abuse have been shown in a number of studies to be significantly associated with a greater risk for sexual abuse in adulthood (see review by Classen, Palesh, & Aggarwal, 2005). Physical abuse in childhood, to a lesser degree, is also associated with an increased risk for sexual abuse in adulthood (Classen et al., 2005). Women who were physically abused as children are at greater risk for being victims of domestic violence, whereas men who were physically abused are at greater risk for being perpetrators of domestic violence (Whitfield, Anda, Dube, & Felitti, 2003). This study, which used data from the ACE study described previously, did not assess the relationship of child abuse to violence perpetrated by women or sustained by men.

In addition to likely contributing to behavioral health disorders, childhood abuse may also affect behavioral health treatment outcomes. Research conducted with 146 women who were homeless and had substance use disorders found that those who had histories of childhood abuse (physical, sexual, and/or emotional) had significantly worse outcomes in terms psychological functioning (assessed with multiple instruments) and substance abuse (assessed with an instrument derived from the Addiction Severity Index [ASI]; Sacks, McKendrick, & Banks, 2008). More
information on the relationship between childhood abuse/neglect and substance abuse in adulthood can be found in TIP 36, *Substance Abuse Treatment for Persons With Child Abuse and Neglect Issues* (Center for Substance Abuse Treatment [CSAT], 2000).

Ford (2009) reviewed the neurobiological and development research that helps explain how trauma experienced in childhood can affect the brain and how those effects may continue throughout a person’s lifetime (see also earlier work, Anda et al., 2006). More recent studies confirm this research. As one example, Dannlowski and colleagues (2012) found strong associations between childhood maltreatment (assessed retrospectively using the Childhood Trauma Questionnaire) and both decreased gray-matter volume in a number of areas of the brain and increased response in the amygdala upon seeing pictures of threatening facial expressions.

Schumm, Briggs-Phillips, and Hobfoll (2006) reviewed three theories on why sexual abuse in childhood has extensive and lasting negative effects: these individuals develop a generalized fear response as a result of their inability to control or predict abuse, and this leaves them unable to emotionally engage in interpersonal relationships; they feel worthless and perceive others as disapproving of them; and/or they become easy targets for exploitative social networks, which further harm their ability to trust. The authors noted that these patterns together may contribute to problems with interpersonal relationships, which in turn affect behavioral health.

**Disasters/Mass Trauma**

Large-scale traumatic events like natural disasters (e.g., earthquakes, hurricanes), human disasters (e.g., chemical spills, nuclear accidents), and terrorist attacks have unique effects because of the number of people affected and the fact that whole communities/populations may experience consequences (Norris, Friedman, & Watson, 2002). In addition to affecting behavioral health, such traumatic events often involve multiple losses, including the loss of lives (of friends and family), home, occupation/employment, health/physical well-being, and even one’s worldview (such events may affect one’s sense of security or beliefs about the justice of the world; Walsh, 2007).

Not all disasters/mass trauma incidents appear to have the same effect on people’s behavioral health. In their review of 160 studies of mass trauma events, Norris and colleagues (2002) found that rates of serious psychological impairment (measured with a number of different instruments) were significantly higher for individuals who endured trauma from mass violence (e.g., terrorist attacks) than for those who experienced a technological or natural disaster. Severe impairment was also more common if the event occurred in a developing (rather than developed) country, and, in most studies, if the individual who experienced the event was female rather than male.

DiGrande, Neria, Brackbill, Pulliam, and Galea (2010) assessed PTSD symptoms for 3,271 individuals evacuated from the World Trade Center on 9/11 by phone interview (and by face-to-face interview for 5 percent of the sample) 2 to 3 years after the event. They found that 95.6 percent had at least one PTSD symptom and 15 percent had probable PTSD according to their scores on the PTSD Checklist (PCL), Stressor-Specific Version. Specific experiences associated with significantly higher odds for PTSD included witnessing a horrific incident (e.g., the airplane hitting the towers, people falling from the building, people who were injured or killed), being injured in the attack, being exposed to the dust cloud that resulted from the building collapse, being above the impact zone when the attack occurred, and evacuating later rather than earlier.
Another study of people affected by the 9/11 attacks that used a national sample (n=933 respondents to the 2-month follow-up assessment; n=787 respondents to the 6-month assessment) and a Web-based survey also found that 17 percent reported at least one ASD/PTSD symptom 2 months after the 9/11 attack; 5.8 percent reported at least one symptom 6 months after the attack (Silver, Holman, McIntosh et al., 2002). Individuals were significantly more likely to report symptoms if they were female, were separated/divorced/widowed, had a diagnosed depressive or anxiety disorder, had a physical illness, had disengaged from coping efforts, and/or had greater exposure to the actual attacks. The authors concluded that individuals need not be directly exposed to mass trauma events for those events to have a negative effect on their behavioral health.

Norris and colleagues (2002) reviewed information on risk and protective factors associated with behavioral health disorders and symptoms for survivors of natural disasters and those caused by people drawn from 160 studies published between 1981 and 2001. For the most part, these are the same as found with other populations of trauma survivors, with possible exceptions being the presence of children, which is a risk factor for anxiety in mothers involved in disasters (fathers were not studied in the four articles reviewed), and the loss of material resources, which has been found to be a risk factor for behavioral health disorder symptoms in survivors of disasters but is rarely evaluated in studies involving other types of trauma. Such losses also appear to have a greater effect on older adults involved in disasters (see the “People in Specific Age Groups” section).

**Domestic Violence/Intimate Partner Violence**

Domestic violence or intimate partner violence, also referred as interpersonal trauma, is a major source of trauma for women (and can affect men as well) and carries with it a high risk for PTSD (Coker, Weston, Creson, Justice, & Blakeney, 2005). Between 2001 and 2005, intimate partner violence accounted for 21.5 percent of nonfatal violence against women and 3.6 percent of violence against men (Catalano, 2012). Rates of domestic violence are high for people with behavioral health disorders, especially people with substance use disorders.

Coker and colleagues (2005) evaluated data regarding links between intimate partner violence and PTSD taken from the National Violence Against Women Survey, a large national household survey of 8,000 women and 8,000 men conducted in the mid-1990s (see Tjaden & Thoennes [2000] for more information on the study). Among a subsample of men and women who were survivors of intimate partner violence (368 women, 185 men), PTSD rates were high, with 24 percent of the women and 20 percent of the men having moderate to severe levels of PTSD symptoms, indicating possible current PTSD (although rates of possible PTSD were higher for women, the difference between genders was not significant). The authors also found that higher socioeconomic status (SES), current marriage, and the cessation of intimate partner violence were all associated with significantly lower odds of having elevated PTSD symptoms.

Research from Spain suggests a dose–response relationship between intimate partner violence and PTSD (Pico-Alfonso, 2005); although physical, sexual, and psychological abuse from partners were all significantly related to PTSD, the latter had the strongest relationship.
Political Violence/Torture

Trauma from political violence and torture varies considerably across the globe and is common among some refugee groups (Johnson & Thompson, 2008). Histories of torture are also common among smaller populations, such as former prisoners of war (Engdahl, Dikel, Eberly, & Blank, 1997). Accurate data on the prevalence of such trauma in the United States is difficult to obtain, because most major surveys do not inquire specifically about it.

Because of the high degree of interpersonal violence involved, political violence and torture often result in traumatic stress reactions that pose particular problems for providers in terms of treatment and assessment. In Steel and colleagues’ (2009) meta-analysis of research on trauma and traumatic stress among refugees and others exposed to mass conflict and political violence, of all the experiences evaluated, torture was associated with the greatest increase in PTSD risk (more than doubling the odds of having PTSD).

Johnson and Thompson (2008) reviewed literature on the prevalence of PTSD among survivors of political and civilian war trauma. They cited studies involving torture survivors that found PTSD rates ranging from 18 to 90 percent of study participants. They observed evidence of a dose–response relationship between torture and both initiation and maintenance of PTSD. This review suggests that protective factors for PTSD that results from torture and civilian war trauma include being prepared for torture, having strong social and family support, and having stronger religious beliefs.

Some theories hold that having redress for torture and other political violence may help survivors process their traumatic experiences and thus aid in behavioral health treatment (e.g., Roht-Arriaza, 1995). However, Başoğlu and colleagues (2005) found only a relatively weak association between the lack of redress for war-related trauma and PTSD symptoms among a group of 1,358 civilian war survivors in the former Yugoslavia. Fears about threats to one’s safety and beliefs about losing control over one’s life had much stronger associations with PTSD symptoms.

The role of forgiveness in the behavioral health of survivors of torture and other political violence may depend on the context of the violence and the object of forgiveness. Kira and colleagues (2009) found, among a group of 501 Iraqi refugees, that those who forgave perpetrators of violence in general as well as those who collaborated with the regime (as measured with a modified version of the Forgiveness Versus Refusal To Forgive Scale) had significantly better physical and behavioral health than did those who did not forgive those people. On the other hand, forgiveness of dictators and specific individuals who were the principal perpetrators of the violence was associated with significantly worse physical and behavioral health outcomes.

Sexual Assault/Rape

In 2010, 1.3 percent of women age 12 and older were victims of sexual assault/rape, and it was estimated that, in the general population, about 0.1 percent of men were victims—although there were not sufficient data to be certain of the accuracy of that estimate (Truman, 2011). These data are based on a general population survey that excluded the institutionalized population, which sustains even higher rates of sexual assault/rape. For example, from 2008 to 2009, 4.4 percent of
prison inmates were victims of sexual assault (Beck & Harrison, 2010). Although women are more likely than men to be sexually assaulted even in prison, there are about 13 times as many men as women in such facilities, so a large number of incarcerated men are affected. Among prison inmates in 2008–2009, 1.9 percent of men and 4.7 percent of women reported being sexually victimized by other inmates in the prior year, whereas 2.9 percent of men and 2.1 percent of women reported being sexually victimized by staff members during that period.

Histories of sexual abuse among clinical populations are also likely to be considerably more common than in the general population (e.g., see TIP 51, Substance Abuse Treatment: Addressing the Specific Needs of Women [CSAT, 2009b], for a review of data on sexual assault among female clients in substance abuse treatment settings). Certain other populations, including survivors of childhood physical and/or sexual abuse, people with disabilities, and people who are homeless, also have a higher risk for sexual assault (Luce, Schrager, & Gilchrist, 2010).

Accurate data on sexual assault among patients institutionalized for mental disorders are difficult to locate, but rates of sexual assault should be expected to be high in this group as well. According to a study by Teplin, McClelland, Abram, and Weiner (2005) of 936 patients with serious mental illness (SMI) attending outpatient residential day treatment at a Chicago program, participants were 17.2 times more likely to have been victims of sexual assault or rape in the prior year and 22.5 times more likely to have been victims of rape than a comparable general population sample from the National Crime Victimization Survey during the same period.

Studies have also found very high PTSD rates among survivors of sexual assault, especially survivors of rape, and data suggest that sexual assault is more likely than most other types of trauma to result in PTSD (see reviews in Ullman & Filipas, 2001). In addition, sexual abuse in adulthood or childhood is also associated with high levels of other behavioral health disorders. In a meta-analytic review of 37 studies providing data on 3,162,318 individuals, Chen and colleagues (2010) found that a history of sexual abuse in childhood or adulthood was associated with more than three times the risk for an anxiety disorder compared with individuals who had no such history; more than twice the risk for depression, an eating disorder, or PTSD; and more than four times the risk for suicide attempts.

Ullman and Filipas (2001) reviewed research identifying factors associated with increased risk for PTSD among victims of sexual assault/rape. These include being attacked by a stranger, being subjected to physical force or threatened with a weapon, being physically injured, having a prior history of childhood sexual abuse, being raped in a location typically considered safe, using wishful thinking as a coping strategy in response to the attack, and receiving fewer community services and/or experiencing a high degree of secondary victimization following the attack. On the other hand, the use of positive distancing (e.g., acceptance coping, optimism, cognitive distancing) was associated with lower PTSD risk.

In their own research on 332 women who had been sexually assaulted, Ullman and Filipas (2001) determined that, although positive social reactions following the assault were not significantly associated with severe PTSD symptoms, more negative responses from others were associated with more severe PTSD symptoms. In particular, being treated differently or being discriminated against showed the strongest association with more severe PTSD, and responses in which people tried to distract the victim (e.g., telling her to move on with her life) showed less
severity but were still significantly linked with more severe PTSD. Positive social support was not significantly related to PTSD symptom severity, but some factors were identified as significantly associated with more positive social support—namely, lower severity of victimization and disclosing more about the assault (discussing it at greater length and/or in more detail). Greater injury severity and a greater perceived threat at the time of the assault were also associated with significantly more severe PTSD symptoms.

**Combat Trauma**

Because of the resources available to the military (including the ability to compile accurate data about a relatively large population), combat trauma is one of the most widely studied types of trauma in terms of behavioral health. For more information on the impact of trauma and deployment, see the planned TIP, *Reintegration-Related Behavioral Health Issues in Veterans and Military Families* (SAMHSA, planned f). This section summarizes information available in more detail in that TIP.

According to the largest study of PTSD among Vietnam War veterans, the National Vietnam Veterans Readjustment Study (NVVRS), 15.2 percent of male veterans had current PTSD, and 30.6 percent met criteria for PTSD at some point during their lives (Kulka et al., 1990b). In addition, 8.5 percent of women who were in the Vietnam theater as civilian nurses had current PTSD, and 26.9 percent had PTSD at some point during their lives. These rates were considerably higher than rates in veterans from that era who did not serve in Vietnam (of whom 2.5 percent of men and 1.1 percent of women had current PTSD) or a civilian comparison group that was also included in the study.

A later reanalysis of NVVRS data, which took into account criticisms of the initial study, provided a more conservative estimate of 9.1 percent of men having current PTSD and 18.7 percent meeting criteria for the disorder at some point during their lives (Dohrenwend et al., 2006, 2007). These authors found that, even for individuals who had substantial impairment relating to PTSD symptoms, PTSD diagnoses decreased over a 10- to 11-year period following the war; for the majority, this occurred without receiving mental health services. The NVVRS also found that war zone stress, which included combat trauma and exposure to other traumatic events, was also significantly related to major depression, dysthymia, obsessive–compulsive disorder (OCD), GAD, alcohol use disorders, and antisocial personality disorder (ASPD) for men (Jordan et al. 1991). The majority (63 percent) of male veterans who had high levels of exposure to war zone stress met criteria for at least one mental disorder during their lives, and 41 percent had at least one current disorder at the time of assessment.

Studies of military personnel who served in Operation Desert Shield/Desert Storm, Operation Enduring Freedom (OEF), and/or Operation Iraqi Freedom (OIF) also found high rates of PTSD and other behavioral health disorders among those exposed to combat. For instance, the National Health Survey of Gulf War Era Veterans and Their Families, conducted 5 years after Operation Desert Storm ended, found that the PTSD rate was three times higher for deployed troops than for nondeployed troops during the same period, with 12.1 percent of deployed troops having probable current PTSD according to the PCL (Kang, Natelson, Mahan, Lee, & Murphy, 2003). This study found a correlation between a greater intensity of combat exposure and greater likelihood of having PTSD.
Several major studies have evaluated behavioral health disorders among individuals deployed to OEF/OIF. For example, a review included in a RAND Center for Military Health Policy Research report found that between 5 and 15 percent of returning service members had current PTSD, and between 2 and 10 percent had current depression (Karney, Ramchand, Osilla, Caldarone, & Burns, 2008). Combat duty and being wounded both significantly increased the chances that an individual would have PTSD. Although greater numbers of women were exposed to combat trauma in OEF/OIF than in prior conflicts, studies also continued to find higher PTSD rates in men than in women who had been deployed, with rates of 9.3 percent and 8.4 percent, respectively, in one large ($N=163,812$) study (Haskell et al., 2011).

**Historical Trauma**

Historical trauma refers to trauma inflicted in the past on members of a certain cultural group that may continue to have effects on the current generation. The concept was originally developed to help explain how generations descended from Holocaust survivors continued to be psychologically affected by the trauma their parents and/or grandparents had experienced (Duran et al., 1998; Sotero, 2006). Clinicians working with other populations, such as Native Americans, observed a similar pattern with regard to how the behavioral health of more recent generations continued to be affected by violence committed against their ancestors (Brave Heart, 2003, 2004; Duran, Duran, Brave Heart, & Yellow Horse-Davis, 1998). Other groups who experienced large-scale and well-remembered violence, such as attempted genocide or slavery, also have to deal with historical trauma.

The phenomenon has been studied most often in the United States with Native American populations, and for many Native Americans receiving behavioral health services, historical trauma may be an important clinical issue (Brave Heart, 2004; Evans-Campbell, 2008). Some research indicates that thinking about historical loss is associated with certain behavioral health problems, such as increased risk for alcohol use disorders (Whitbeck et al., 2004). Although the exact mechanism through which historical trauma works is not known, the process may be one in which subsequent generations experience secondary trauma as the result of their parents’ PTSD. Another explanation is that traumatic experiences harm an individual’s ability to parent effectively and thus increase the abuse of children, causing those children to have traumatic stress reactions themselves (Brave Heart, 1999). Some research also points to substance abuse connected to trauma as central in the perpetuation of historical trauma (Libby, Orton, Beals, Buchwald, & Manson, 2008).

Sotero (2006), who reviewed research on historical trauma across diverse populations, proposed that large-scale interpersonal trauma continues to affect communities/cultural groups through material (e.g., displacement), psychological (e.g., PTSD), economic (e.g., loss of sources of income/sustenance), and cultural (e.g., lost knowledge of traditions and beliefs) effects. These powerful effects of trauma cause the next generation to experience similar consequences, resulting in worse coping skills or attempts to self-medicate distress through substance abuse.

**Cumulative Trauma**

Kessler (2000) observed that large epidemiological surveys typically ask about the worst or most severe trauma an individual has endured, with the assumption that if the individual has had PTSD, it would appear after such a trauma. This approach may undercount lifetime prevalence,
however, because further trauma following the worst episode of trauma exposure may have a kindling effect that results in PTSD a considerable length of time after the worst episode occurred.

Thus, repeated trauma further increases risk for PTSD, and prior trauma is recognized as a PTSD risk factor following a traumatic event (see the “Risk and Protective Factors” section). For example, research conducted with inner-city women ($N=777$) found that women who had experienced multiple traumas significantly increased their risk for PTSD (Schumm, Briggs-Phillips, & Hobfoll, 2006). Therefore, women who had experienced child abuse and also had been raped as adults were over 17 times more likely than others to be screened as probably having PTSD, whereas women who had experienced only one of those two types of trauma were about six times more likely than others to meet screening criteria for probable PTSD.

Studies conducted with other populations have also found that greater exposure to traumatic events increases risk for a number of behavioral health disorders. For example, a seminal study conducted with Cambodian refugees ($N=993$) found a significant dose–response relationship between the number of traumatic events an individual had experienced and depression, PTSD symptoms (including arousal, reexperiencing, and emotional numbing, but not avoidance), and symptoms of culturally specific behavioral health disorders (Mollica, McInnes, Poole, & Tor, 1998).

### Extent and Effects of Trauma and Traumatic Stress Reactions in Specific Populations

The incidence and prevalence of trauma and of behavioral health problems related to trauma vary across demographic groups. Some of the major demographic differences that may affect trauma exposure and behavioral health are discussed in this section.

#### Members of Specific Cultural/Ethnic/Racial Groups

Rates of trauma exposure among some samples of members of certain cultural, ethnic, and racial groups are higher than the U.S. average. To what extent this reflects socioeconomic and geographic factors is not clear, as other data indicate that people in urban areas and those with lower SES are also at greater risk for certain types of trauma (see “People With Lower SES”). Researchers have found that PTSD rates vary considerably among diverse cultures and that rates are high among people exposed to significant trauma, regardless of their culture of origin (Marques et al., 2011).

According to data from Wave 2 of NESARC ($N=34,653$), which oversampled to achieve a racially/ethnically diverse sample, non-Latino White Americans were significantly more likely to have some trauma experience during their lives compared with members of other ethnic/racial groups, with 83.7 percent of White Americans, 76.4 percent of African Americans, 66.4 percent of Asian Americans, and 68.2 percent of Latinos reporting some type of trauma exposure during their lives (Roberts et al., 2011). However, this did not hold true for every type of trauma exposure. African Americans and Latinos were significantly more likely than White Americans to have been exposed to childhood maltreatment, with the largest difference being the increased likelihood of witnessing domestic violence. African Americans were significantly more likely
than White Americans to have been violently assaulted. Asian Americans, who had significantly lower levels of exposure than White Americans to many kinds of trauma, were significantly more likely to have been exposed to war-related trauma (mostly as the result of being unarmed civilians in a combat zone) and to be refugees from a region where combat was occurring.

Among certain subpopulations of major ethnic/racial groups, trauma exposure may be even more common. For example, Goldmann and colleagues (2011) assessed trauma histories of 1,306 African American residents of Detroit, the majority of whom had annual incomes below $35,000 (34.6 percent below $15,000, and 27 percent between $15,000 and $35,000). They found that 87.2 percent reported at least one type of trauma during their lives; 51 percent reported experiencing assaultive violence, 64.5 percent reported another type of injury or shocking experience (e.g., witnessing someone being seriously injured or killed), and 64 percent reported learning about trauma from a loved one. Of those who reported at least one trauma, 17 percent likely had PTSD at some point during their lives, with a higher rate of likely PTSD for individuals experiencing certain types of trauma (e.g., 32.8 percent of those who had been raped and 31.2 percent of those who had been badly beaten had a lifetime PTSD diagnosis).

In Wave 2 of NESARC, African American men were significantly more likely than White American men to have PTSD at some point during their lives, but this was not the case for African American women (Roberts et al., 2010). According to the same research, Asian American men and women were significantly less likely than White American men and women to meet criteria for a lifetime diagnosis of PTSD. Asnaani, Richey, Dimaite, Hinton, and Hofmann (2010) combined data from the NCS-R and two other surveys that use the same methodology (the National Study of American Life and the National Latino and Asian American Study of Mental Health) to evaluate the lifetime prevalence of PTSD. Their data indicated that, after controlling for age, gender, and SES, both White Americans and African Americans were significantly more likely than Asian Americans or Latino Americans to have PTSD at some point during their lives, whereas White Americans and African Americans did not differ from one another significantly in this regard. Latino Americans were also significantly more likely than Asian Americans to have the disorder.

As Norris and Slone (2007) observed in their chapter on the epidemiology of PTSD, data are inconclusive about whether there are significant differences in the likelihood that members of diverse racial/ethnic/cultural groups within the United States will develop PTSD, especially given differences in trauma exposure relating to both culture and SES. Marques and colleagues (2011), in a review of cross-cultural differences in anxiety disorders, observed that the evidence is mixed regarding differences in PTSD prevalence between African Americans and White Americans. They concluded that the evidence is stronger regarding elevated levels of PTSD among Latinos compared with members of other ethnic racial groups. Another review by Pole, Gone, and Kulkarni (2008) similarly concluded that evidence fairly consistently suggests that Latinos are more likely than members of other ethnic/cultural groups to develop PTSD but that significant differences in PTSD rates observed among other ethnic/racial/cultural groups in the United States tend to disappear when other factors, such as trauma exposure, are taken into account.

Research indicating significantly higher PTSD rates among Latino populations in the United States is worth a closer look. Research conducted with Vietnam veterans, a group for whom
trauma exposure can be fairly accurately determined, identified Latinos as having greater risk for PTSD, and this finding was confirmed in later analyses of the data. Ruef, Litz, and Schlenger (2000) analyzed data from the NVVRS, a large, publicly mandated study that oversampled for Latinos and African Americans. Although the NVVRS found that PTSD rates were higher among both Latino veterans (27.9 percent of whom had PTSD at the time of the study) and African American veterans (20.6 percent) than among White American or other veterans (13.7 percent), after controlling for combat exposure and significant predeployment variables that affected PTSD (e.g., childhood behavioral problems, substance use disorder symptoms prior to entering the military), only Latino veterans still had significantly higher PTSD rates.

Ruef, Litz, and Schlenger’s analysis (2000) of the extensive NVVRS data took into account issues such as linguistic competence in English, cultural differences in reporting style, experiences of racism during deployment, postdeployment adjustment problems, participation in behavioral health treatment, and co-occurring disorders. Most of these factors could not explain differences in PTSD rates between Latinos and African Americans, the latter of whom faced many of the same stressors. Latinos in the study reported experiencing less racism than did African Americans, but they may have also experienced less unit cohesion because of their smaller relative numbers (unit cohesion is also believed to be a protective factor in regard to PTSD; see the “Risk and Protective Factors” section). The authors did find that Latinos reported significantly fewer people in their units who they believed were concerned about their welfare than did African Americans or White Americans.

Using both NVVRS data and data from the Hawaii Vietnam Veterans Project, Schnurr, Lunney, Sengupta, and Waelde (2003) concluded that Latino male veterans had significantly higher PTSD rates compared with White men, whereas Asian American male veterans had significantly lower rates. This finding suggests that the higher PTSD rates observed in Latinos in Vietnam were not simply the result of greater identification with the Vietnamese. Also, in another analysis of NVVRS data, Ortega and Rosenheck (2001) found that acculturation did not significantly affect PTSD rates among Latinos, discounting the possible explanation that differences in acculturation were responsible for higher PTSD rates in this population. They did, however, find that in an adjusted model, Puerto Rican veterans were more likely than Mexican American veterans to have PTSD, suggesting that cultural differences among Latinos may affect PTSD. Wilcox, Briones, and Suess (1991) also found that Puerto Rican Vietnam veterans had more severe PTSD symptoms than did Mexican American veterans.

Research conducted with veterans of OIF and OEF also indicates that Latinos are at greater risk of developing PTSD than members of other ethnic-cultural groups. Researchers at the RAND Center found that, for OEF/OIF veterans, Latino ethnicity and female gender were both associated with increased risk for depression and PTSD, even after controlling for trauma exposure (Tanielian et al., 2008).

Latinos have been found to have higher PTSD rates relative to members of other ethnic/racial groups in research conducted with other populations, including New York city residents who witnessed the 9/11 attack (Galea et al., 2004), police officers in three major cities (Pole et al., 2001; 2005), and hurricane survivors in Florida (Perilla, Norris, & Lavizzo, 2002). However, among a group of people who were exposed to hurricanes in Florida in 2004, Latino ethnicity
was only a significant PTSD risk factor for those under age 60, suggesting that age may also interact with culture in affecting PTSD (Acierno, Ruggiero, Kilpatrick, Resnick, & Galea, 2006).

Pole and colleagues (2008) reviewed possible explanations for why Latinos have elevated PTSD rates. Two explanations appear to have the greatest support: culturally defined differences in coping styles (Latinos appear to engage more in self-blame coping and wishful thinking coping, generally related to religious beliefs) and increased likelihood of experiencing peritraumatic dissociation, a possible PTSD risk factor that appears to be a more common reaction to trauma for individuals with greater adherence to Latino cultural norms.

Marshall and colleagues (2009) evaluated differences in PTSD symptoms among a mostly male (77.6 percent male across the study) group of Latinos \( (n=330) \), African Americans \( (n=171) \), and non-Latino White Americans \( (n=135) \) who had sustained a sudden physical injury and were treated at a trauma center in the Los Angeles area. As with other studies, these authors found that Latinos reported significantly more severe PTSD symptoms (with a difference equivalent to about a 3-point increase in PCL scores) than African Americans and non-Latino White Americans. However, they also observed that certain PTSD symptoms were responsible for this difference. Of the 17 symptoms included on the PCL, Latinos were significantly more likely than non-Latino White Americans to report 11 of the symptoms, with considerable variation in the magnitude of the differences. As Triffleman and Pole (2010) observed in a review of this study, these findings suggest that “elevated rates of PTSD diagnosis among [Latinos] may be due to differing symptoms, differing levels of symptom severity, and potentially differing relationships between symptoms” compared with non-Latino White Americans (p. 492).

Particular types of trauma may have a greater or lesser impact on members of a particular cultural group. For instance, Palinkas, Downs, Patterson, & Russell (1993) found that in the wake of the Exxon Valdez disaster, Alaska Natives exposed to the event had significantly higher PTSD and GAD rates than did White Americans who were also exposed. Lilly and Graham-Bermann (2009) evaluated PTSD in 120 mothers with low incomes who were victims of intimate partner violence, of whom 42 were African American and 78 were White American. The women in the study had experienced multiple traumas in the prior year (an average of 36 acts of sexual abuse, 10 acts of severe physical violence, and 17 acts of mild physical violence). The authors found that the African American women in the study had significantly fewer PTSD symptoms (as assessed with the Posttraumatic Stress Scale for Family Violence) than did the White American women, even though African American women had experienced more severe violence (although not significantly more so) than the White American women.

Research has also found that the relationship of different types of childhood abuse to PTSD symptoms varies by cultural group. Among a group of 669 lesbian, gay, or bisexual individuals, emotional abuse in childhood had a significantly stronger relationship to PTSD and other anxiety symptoms for African Americans compared with White Americans, whereas physical abuse in childhood had a significantly stronger relationship to PTSD and other anxiety symptoms for Latinos than for White Americans (Balsam, Lehavot, Beadnell, & Circo, 2010). International research also indicates that, in Turkey and India, childhood emotional abuse and neglect have a greater effect on dissociation than physical or sexual abuse, which is contrary to what is found in the United States (Lewis-Fernández, Martínez-Taboas, Sar, Patel, & Boatin, 2007).
Trauma rates vary by subpopulations within these broad cultural, racial, and ethnic classifications and may be affected more strongly by noncultural factors (e.g., amount of trauma exposure). For instance, data suggest that PTSD rates are relatively low for Asian Americans (e.g., Pietrzak et al., 2011a), but among Cambodian refugees, PTSD rates are considerably higher. Marshall, Schell, Elliott, Berthold, and Chun (2005), in a telephone survey of 586 Cambodian adults living in Long Beach, CA, found that 100 percent had experienced trauma, and 62 percent met criteria for a past-year diagnosis of PTSD.

As another example, the American Indian Service Utilization, Psychiatric Epidemiology, Risk and Protective Factors Project (AI-SUPERPFP), which collected data from 3,084 American Indians ages 15 to 54 who were members of either a Northern Plains Tribe or a Southwest Tribe, found significant differences in some types of trauma exposure between American Indians from the two different regions (Manson, Beals, Klein, & Croy, 2005). PTSD rates also varied, although the differences were not significant; the largest difference found was between men from the Southwestern Tribes (11.7 percent of whom met criteria for PTSD during their lifetime) and men from the Northern Plains Tribes (8.9 percent of whom had lifetime PTSD; Beals, Manson, Whitesell, Spicer, Mitchell et al., 2005). Larger, but still not significant, differences were found in lifetime PTSD rates between male American Indian Vietnam veterans from the Northern Plains Tribes (n=305) and those from the Southwestern Tribes (n=316), who had lifetime rates of 57 percent and 45 percent respectively (Beals et al., 2002). These rates, however, were considerably higher than found in the general population sample of Beals, Manson, Whitesell, Spicer, Novins, and colleagues (2005), indicating that factors other than cultural background (in this case, combat exposure) likely play a greater role in trauma exposure and traumatic stress reactions.

As suggested by the example of Cambodian American immigrants, rates of trauma are high among immigrants from countries where military action and political violence are occurring, regardless of their specific cultural background. Steel and colleagues (2009) conducted a meta-analysis of trauma and traumatic stress reactions among groups exposed to mass conflict and displacement. Although reported rates of PTSD and depression varied widely among the studies included in the review, the authors found that, across surveys, 30.6 percent of participants had PTSD, and 30.8 percent had depression.

**Women and Men**

Research generally indicates that men are more likely than women to experience a traumatic event during their lives (Olff, Langeland, Draijer, & Gersons, 2007). However, data from multiple sources show that women are significantly more likely than men to experience intimate partner violence and sexual assault (both in childhood and adulthood; Pratchett, Pelcovitz, & Yehuda, 2010). This same review found that various research suggests that between 20 and 22 percent of women experience intimate partner violence, and approximately a quarter of all women are victims of sexual assault. Women are significantly less likely than men, however, to experience many other types of trauma, including nonsexual assault, combat, traumatic accidents, and witnessing the death or injury of another person. 

Research has consistently found that women are more likely than men to have PTSD, and this holds true, albeit to a lesser extent, when controlling for trauma exposure (Kimerling, Ouimette, & Weitlauf, 2007; Olff et al., 2007). For example, data from Wave 2 of NESARC showed that
women were significantly more likely than men to have PTSD or partial PTSD at some point during their lives (Pietrzak et al., 2011a). Women were nearly twice as likely as men to have a lifetime PTSD diagnosis, with 8.6 percent of women and 4.1 percent of men meeting those criteria. Women were also more likely to meet criteria for a partial but not full diagnosis of PTSD during their lives (8.6 percent for women compared with 4.5 percent for men). The NCS also found that women ages 15 to 54 were about twice as likely as men in that age range to have PTSD at some point during their lives (the rates were 10.4 percent and 5 percent, respectively; Kessler et al., 1995). Although specific percentages differ, these relative PTSD rates among men and women are in line with findings from other large studies in the United States and some studies from other Western countries (see review by Olff et al., 2007).

In another analysis of NCS data, Kessler (2000) noted that a larger percentage of women exposed to trauma (20.4 percent) than men exposed to trauma (8.1 percent) had PTSD, but he did not find the difference to be significant. However, women were significantly more likely to have PTSD than men exposed to the same trauma if they had experienced a sexual assault other than rape, a physical attack, a trauma to a loved one, or threat with a weapon. Men, however, had significantly higher PTSD rates connected to combat trauma. Additionally, McLean, Asnaani, Litz, and Hofmann (2011) found a significant difference in both prior-year and lifetime PTSD rates among men and women when they combined data from the NCS-R and two other large national surveys that used the same methodology (National Study of American Life and National Latino and Asian American Study of Mental Health). According to these data, 4.3 percent of women and 1.7 percent of men met criteria for PTSD in the year prior to assessment, and 8.5 percent of women and 3.4 percent of men had the disorder at some point during their lives.

A large trauma study conducted in the Detroit metropolitan area (N=2,181) found that although men were significantly more likely to experience trauma and to have experienced multiple traumas, women were about twice as likely to develop PTSD following a traumatic experience (13 percent of women compared with 6.2 percent of men; Breslau, 2002). However, this study, which evaluated the relative risk for PTSD related to particular types of trauma, also found that this difference could largely be attributed to differences in response to assaultive violence. Although PTSD rates did not differ significantly between men and women exposed to other types of trauma, women were almost six times more likely to develop PTSD in response to assaultive violence than were men (35.7 percent of women and 6 percent of men exposed to such violence developed PTSD).

In addition to research indicating that women are more likely than men to develop PTSD as a result of assaultive violence, a study conducted with 6,697 male and 554 female veterans from OIF and OEF found that women who sustained physical injury as a result of a traumatic experience were significantly more likely than men who sustained such injuries to develop PTSD (Maguen, Luxton, Skopp, & Madden, 2011). In many studies that evaluate PTSD rates by gender for men and women exposed to the same specific trauma or type of trauma, women are more likely than men to develop PTSD. For example, female 9/11 survivors were significantly more likely than male survivors to have probable PTSD (DiGrande et al., 2010). In a study that compared three different international samples (American, Mexican, and Polish) of individuals who experienced a natural disaster, women in all three samples had significantly more PTSD symptoms (North, Kaniasty, Conrad, Inman, & Murphy, 2002). Also, in a group of 454 college students, women who experienced the death or illness of a loved one had significantly more
PTSD symptoms than did men who experienced the same (Gold, Marx, Soler-Baillo, & Sloan, 2005).

According to data from the Trauma Recovery Project ($n=627$), women were also found to be significantly more likely than men to develop prolonged PTSD (lasting for at least 18 months) and had significantly worse ratings of quality of life as a result of prolonged PTSD (Holbrook, Hoyt, Stein, & Sieber, 2002). In addition, studies indicate that women with PTSD, compared with men with the disorder, are more likely to have co-occurring mood disorders but less likely to have co-occurring substance use disorders (McLean & Anderson, 2009; McLean et al., 2011; Olff et al., 2007). Even in the absence of PTSD, trauma exposure is associated with significantly higher levels of depressive symptoms and lower levels of substance abuse among women than among men (Maguen et al., 2011). Using NCS-R data, Dunn, Gilman, Willett, Slopenn, and Molnar (2012) found that higher rates of rape and sexual assault among women compared with men were in part responsible for higher depression rates among women.

Research generally indicates that women are more likely than men to seek treatment for behavioral health disorders (McLean & Anderson, 2009). Therefore, women are also significantly more likely to receive treatment for PTSD. According to NESARC data, women are approximately 34 percent more likely to be treated for PTSD than men (Roberts et al., 2011). Women often respond differently to trauma than do men, which may contribute to higher PTSD rates among women. For example, women are more likely to report dissociation immediately after or in the few weeks following trauma exposure (Cardeña & Carlson, 2011). Women also tend to report more intense emotional responses and more dissociation following trauma exposure (see review by Olff et al., 2007). Research conducted with survivors of serious vehicular accidents indicates that women are significantly more likely than men are to experience certain PTSD symptoms 1 month after the accident (e.g., distress in similar situations, physical reactions to memories, hypervigilance, trouble sleeping, avoidance of thoughts/feelings/activities/places, exaggerated startle response; Fullerton et al., 2001).

Pratchett and colleagues (2010) reviewed some of the possible explanations for why women have higher PTSD rates compared with men, even after accounting for trauma exposure. One possibility was that women are more likely to experience types of trauma (e.g., sexual assault) that have a greater propensity to lead to PTSD. Other possibilities are that, in aggregate terms, women’s cognitive appraisals of trauma may differ from those of men and that interpersonal violence, in particular, may be perceived as a greater threat to women’s core identity. In addition, following from research showing significant gender differences in emotional reactivity and/or emotional regulation, women may have more intense emotional responses than men to trauma, which in turn may increase PTSD risk. However, increased emotional reactivity does not necessarily mean that women are more affected by trauma, just that they are affected differently. Research conducted with children who have histories of sexual trauma indicates that boys are more likely to present externalizing symptoms, whereas girls more often present internalizing symptoms. Another possible explanation is that women tend to use different coping strategies following trauma exposure, which may make them more prone to developing PTSD (Olff et al., 2007).

Research reviewed by Olff and colleagues (2007) also indicates that women who have peritraumatic dissociation at the time of trauma are much more likely than men who have it to
develop PTSD; women are also more likely to respond to acute trauma with dissociation and less likely to respond with hyperarousal than are men (Fullerton et al., 2001). Research evaluating physiological differences in male and female responses to trauma tends to confirm that such differences exist. McLean and Anderson (2009) also reviewed possible explanations for higher PTSD rates among women.

Women may also be affected differently than men by some risk and resilience factors, such as social support. Research conducted with victims (118 male and 39 female) of violent crime found that a negative response from others and a lower level of satisfaction with support from others, had a significantly greater effect on women than on men, although these factors were associated with greater PTSD symptom severity for both men and women (Andrews, Brewin, & Rose, 2003). Similarly, research conducted with military personnel deployed in the Gulf War found that a lack of social support had a greater relationship to depressive symptoms for women than for men, and greater concerns about disruptions in family and personal relationships had a more pronounced connection to anxiety symptoms for women than for men (Vogt, Pless, King, & King, 2005). For military personnel deployed to OIF, negative changes in intimate relationships (according to self-report) following deployment were significantly related to PTSD for women but not men, but only when there was a high level of combat exposure (Skopp et al., 2011).

Another PTSD risk factor that has been found to have a stronger relationship to PTSD for women than for men includes childhood abuse history (Brewin, Andrews, & Valentine, 2000). Conversely, both antisocial behavior in childhood and younger age at the time of the traumatic event appear to have stronger relationships to PTSD for men than for women (King, King, Foy, & Gudanowski, 1996). In addition, culture appears to play a role in the higher PTSD rates observed in women, and culture can also moderate these differences (Kimerling et al., 2007). Research by Norris, Perilla, Ibanez, and Murphy (2001) that compared PTSD rates for men and women from either the United States or Mexico who were exposed to a natural disaster found that the magnitude of gender differences in PTSD rates were significantly greater for Mexicans than for Americans.

**People With Lower SES**

Although it is not possible to say whether lower SES is associated with increased risk for all types of trauma, studies have found that lower SES is linked to significantly greater risk for accidents (Cubbin & Smith, 2002), criminal victimization (Rand & Robinson, 2012; Truman, 2011), combat trauma (Prigerson, Maciejewski, & Rosenheck, 2002), and domestic violence (Mouton et al., 2004; Vest, Catlin, Chen, & Brownson, 2002). Research from around the world, similarly, has found that lower SES is associated with increased risk for accidents (including motor vehicle accidents, burns, and poisoning) and interpersonal violence, including domestic violence (see review by Laflamme, Burrows, & Hasselberg, 2009).

In a predominately African American sample of 1,256 primary care patients with low SES who were living in an urban center, 46.2 percent met criteria for a PTSD diagnosis at some point during their lives (Gillespie et al., 2009). The most common traumas for men in the study were serious accident or injury (experienced by 56.1 percent), being attacked with a weapon by someone other than an intimate partner (55.1 percent), being attacked without a weapon by someone other than an intimate partner (40.3 percent), and sudden life-threatening illness (30.7
percent). For women, the most common traumas were serious accident or injury (experienced by 42.2 percent), being attacked by an intimate partner without a weapon (33 percent), sexual abuse before age 14 (23.9 percent), and being attacked with a weapon by someone other than an intimate partner (21.8 percent).

Lower income has also been associated with significantly greater PTSD likelihood in other studies with different populations, including Cambodian refugees (Marshall et al., 2005), African Americans in a large urban area (Alim et al., 2006), and others. For some populations, however, lower SES may not be associated with increased trauma exposure and/or traumatic stress reactions. For example, in the AI-SUPERPFP study of two American Indian populations, both lower SES and less education were associated with significantly lower levels of trauma exposure (Manson et al., 2005).

Data clearly show that lower SES is linked to greater risk for PTSD in one’s lifetime than is found in general population samples. For example, Wave 2 of NESARC found a significant association between lower income and a higher likelihood of having PTSD at some point during one’s life, with individuals in the $0 to $19,999 a year bracket having 2.3 times the risk and those in the $20,000 to $34,999 bracket having 1.8 times the risk compared with others in the survey (Pietrzak et al., 2011a). People with lower SES, again according to NESARC data, are also significantly more likely to report lower levels of perceived social support, a significant risk factor for both trauma exposure and PTSD (Moak & Agrawal, 2010).

The association between lower income and higher rates of trauma/traumatic stress may partly reflect the fact that people with lower incomes can only afford to live in neighborhoods where community violence is high (Gapen et al., 2011; Truman, 2011). Gapen and colleagues (2011) evaluated the relationship of perceived neighborhood disorder (measured with the Neighborhood Disorder Scale) and PTSD symptoms (assessed with the Modified PTSD Symptom Scale) among a group of largely (95 percent) African American users of an inner-city health clinic. They found a significant relationship between perceived neighborhood disorder and PTSD symptoms that was partially mediated by perceived community cohesion (assessed with the Community Cohesion Scale). The authors suggested that, in communities where high crime and other problems exist, residents develop a lack of trust that, in turn, can exacerbate PTSD symptoms.

Less education is also associated with significantly greater risk of having PTSD (DiGrande et al., 2011; Galea et al., 2008; Pietrzak et al., 2011a). People with lower incomes have fewer resources with which to address trauma, face more additional stressors that may increase the likelihood of developing PTSD, and may have learned fewer coping skills (Kelly, Merrill, Shumway, Alvidrez, & Boccellari, 2010). The fact that losing economic resources as a result of a traumatic event can significantly increase PTSD risk (e.g., Hobfoll et al., 2008) may also support this explanation.

Lesbian, Gay, Bisexual, and Transgender People

Studies have documented greater exposure to trauma and higher PTSD rates among lesbian, gay, bisexual, and transgender people compared with people who are heterosexual (Roberts, Austin, Corliss, Vandermorris, & Koenen, 2010). Elevated PTSD rates and trauma exposure in this population are perhaps best documented by Roberts and colleagues’ (2010) analysis of NESARC data, which included 145 individuals who self-identified as gay/lesbian, 161 who self-identified...
as bisexual, 314 who self-identified as heterosexual who reported same-sex partners, 953 who self-identified as heterosexual who reported attraction to members of the same gender but no partners, and 18,144 who self-identified as heterosexual who reported neither. According to these data, women who were lesbian, bisexual, or heterosexual with same-sex partners were significantly more likely, compared with heterosexual women (including those who had same-sex attraction but no same-sex partners), to have experienced childhood maltreatment, to have experienced most types of interpersonal violence, to have witnessed someone being injured/killed, and to have learned of trauma experienced by a close friend or relative. For men, being gay or self-identified as heterosexual with same-sex partners, but not being bisexual, was associated with significantly more likelihood of experiencing interpersonal violence and of having learned of trauma experienced by a close friend or relative.

For women who were exposed to traumatic events, being bisexual or heterosexual with same-sex partners was associated with a significantly higher likelihood of having PTSD, compared with being heterosexual with no same-sex partners. For men who were exposed to traumatic events, being gay or heterosexual with same-sex partners was associated with a significantly higher likelihood of having PTSD compared with being heterosexual with no same-sex partners. In a model that adjusted for gender, race/ethnicity, education, and age at the time of interview, being self-identified as gay/lesbian, bisexual, or heterosexual with same-sex partners was associated with more than twice the likelihood of developing PTSD when exposed to trauma. When the worst type of trauma experienced and the age of its occurrence were factored into the analysis, the odds ratios fell but remained high compared with heterosexual individuals with no same-sex partners. The greatest increase in the odds of having PTSD, 1.59 times, was found for self-identified heterosexuals who had same-sex partners.

Roberts and colleagues (2010) found elevated rates of childhood maltreatment only among women who were “sexual minorities,” but other studies have found high rates of childhood abuse among both men and women who are gay/lesbian or bisexual compared with those who are heterosexual. For example, Balsam, Rothblum, and Beauchaine (2005) found that lesbian, gay, or bisexual individuals were significantly more likely than were heterosexual siblings to report psychological and physical abuse by parents/caretakers during childhood and to report more childhood sexual abuse (not necessarily from caretakers). They also were significantly more likely to report abuse from partners in adulthood and sexual assaults in adulthood. The authors found larger differences in sexual victimization among men in the study than among women.

Little information is available about trauma and PTSD among transgender individuals. A German study involving 41 transgender individuals and 115 individuals receiving inpatient treatment for mental disorders found that the transgender individuals were significantly more likely to have experienced childhood emotional abuse/neglect but significantly less likely to have experienced childhood sexual abuse than were the inpatients (Kersting et al., 2003). Balsam and colleagues (2010) evaluated the relationship of culture and childhood abuse for a group of lesbian, gay, or bisexual individuals (N=669). They found that rates of childhood physical abuse were significantly higher for Latinos and Asian Americans than White Americans and that rates of childhood sexual abuse were significantly higher for Latinos and African Americans than White Americans.
Other research conducted with 528 lesbian, gay, or bisexual youth (ages 15 to 19) found that 80 percent had experienced verbal victimization, 11 percent physical victimization, and 8 percent sexual victimization outside the home because of their sexual orientation or atypical gender behavior. Physical victimization was significantly associated with PTSD (D’Augelli, Grossman, & Starks, 2006). In an Internet survey of 662 gay, lesbian, or bisexual adults, approximately 20 percent reported being the victim of hate crimes involving physical violence or damage to property (Herek, 2009).

**People With Physical and/or Cognitive Disabilities**

People with disabilities, compared with people without disabilities, are 4 to 10 times more likely to be victims of violence, abuse, and/or neglect (Petersilia, 2001). For example, an analysis of school, foster care, and police records found that children with disabilities were 3.4 times more likely than other children to be abused/neglected and were over three times more likely to experience each specific type of abuse/neglect than children without disabilities (Sullivan & Knutson, 2000). Govindshenoy and Spencer (2007) reviewed four studies that provide data on childhood abuse among people with disabilities. Three of the studies found a significant association between psychological/emotional disabilities and abuse, two between learning disabilities and abuse, and one between physical disabilities and abuse (see also Fisher, Hodapp, & Dykens, 2008).

Petersilia (2001) observed that studies from a number of Western countries have found that, compared with the general population, people with developmental disabilities have a significantly greater risk for being victims of violence and abuse (although data are limited). Other research indicates that women with significant physical disabilities are about four times more likely than other women to be sexually assaulted in adulthood (Casteel, Martin, Smith, Gurka, & Kupper, 2008; Martin et al., 2006). Plummer and Findley (2012) reviewed these and other studies discussing the heightened risk for physical and sexual abuse of women with disabilities.

Research on resilience and traumatic stress reactions indicates that greater intelligence protects against PTSD (e.g., see Macklin, Litz, McNally, Lasko, Orr, & Pitman, 1998); therefore, cognitive disabilities may increase risk for developing PTSD following trauma exposure. Mevissen and de Jongh (2010) reviewed four studies that report PTSD rates in people with cognitive disabilities as ranging from 2.5 to 60 percent. Razza, Tomasulo, and Sobsey (2011) also reviewed research that supports the view that people with cognitive disabilities have an increased risk for developing PTSD following trauma exposure. They cited research indicating that developmental level affects how an individual processes traumatic experiences and that cognitive impairments may lead to increases in PTSD. Furthermore, they presented research indicating that trauma itself negatively affects intellectual abilities.

**People Who Are Homeless**

In the NCS-R, individuals who had been homeless for more than 1 week in their adult lives were significantly more likely than those who had remained domiciled to report being in a traumatic environment (e.g., a combat zone, a natural disaster), having a traumatic experience (e.g., being kidnapped, being in an automobile accident), experiencing personal violence directed toward themselves, and/or witnessing the trauma of others (Greenberg & Rosenheck, 2010). In addition,
those who reported at least 1 week of homelessness were significantly more likely to have had PTSD at some point during their lives, with 17.2 percent meeting those criteria compared with 6.3 percent of those who had not been homeless for 1 week or more.

Other research indicates that people who are homeless, compared with those who are domiciled, are significantly more likely to have experienced physical/sexual abuse in childhood (Herman, Susser, Struening, & Link, 1997; Tam et al., 2003), to be victims of interpersonal violence as adults (Wenzel et al. 2004), and to sustain unintentional injury (Frencher et al., 2010). People who are homeless and have behavioral health disorders are significantly more likely than other people who are homeless to be victims of violence (Lee & Schreck, 2005) and/or to have an unintentional injury (Wan, Morabito, Khaw, Knudson, & Dicker, 2006).

Among people who are homeless, histories of childhood abuse are associated with significant increases in the likelihood of having mental health impairment (Kim, Ford, Howard, & Bradford, 2010), and among individuals with mental disorders, histories of childhood abuse are associated with significant increases in the likelihood of being homeless (Lu, Mueser, Rosenberg, & Jankowski, 2008; Rosenberg, Lu, Mueser, Jankowski, & Cournos, 2007). In their review of the research on trauma and homelessness, Hopper and colleagues (2010) concluded that “early developmental trauma—including child abuse, neglect, and disrupted attachment—provides a subtext for the narrative of many people’s pathways to homelessness” (p. 80). For more information on homelessness and traumatic stress reactions, refer to TIP 55, Behavioral Health Services for People Who Are Homeless (SAMHSA, 2013b).

Veterans

People who have served in the armed forces, in addition to their exposure to combat-related trauma, also have high rates of exposure to other types of trauma before, during, and after their service. Veterans have high rates of motor vehicle accidents, especially while driving military vehicles (Bell, Amoroso, Yore, Smith, & Jones, 2000; Rossen, Pollack, Canham-Chervak, Canada, & Baker, 2011) and of unintentional injuries related to activities such as exercising and training (Jones & Knapik, 1999; Wilkinson et al., 2011).

Female veterans report high rates of sexual assault and rape, often occurring during their military service. Surveys of large groups of female veterans receiving U.S. Department of Veterans Affairs (VA) services include the following results:

- Hankin and colleagues (1999) found that 23 percent of female veterans reported military-related sexual assault (defined as unwanted sexual relations in which force or the threat of force was used).
- Skinner and colleagues (2000) found that 23 percent of their respondents reported being sexually assaulted (defined as being forced to have “sexual relations”).
- Sadler, Booth, Cook, and Doebbeling (2003) found that 28 percent of respondents reported being raped while in the military.
- Suris, Lind, Kashner, and Borman (2007) found that 33 percent of their sample reported a sexual assault while in the military.
- Kimerling and colleagues (2010) found that 15.1 percent of women and 0.7 percent of men reported experiencing sexual trauma while in the military.
Booth, Mengeling, Torner, & Sadler (2011) found that 24.6 percent of their sample reported being raped while in the military. Among women who had served in a combat or war zone \(n=576\), rape was most often cited (by 36 percent) as the worst trauma they had ever experienced.

Kang, Dalager, Mahan, and Ishii (2005) interviewed 1,381 Gulf War veterans with current PTSD and 10,060 without PTSD and found that sexual trauma (defined as sexual harassment and/or assault) was significantly more common among both male and female veterans who had PTSD than among male and female veterans who did not. Sexual assault during deployment was reported by 9.5 percent of women with PTSD and 2.2 percent of other women, and it was reported by 0.9 percent of men with PTSD and 0.1 percent of other men. The authors determined that, for women, sexual trauma (either harassment or assault) was associated with greater risk for PTSD than was combat exposure. Sexual trauma that occurs during a woman’s military service may also be more likely to result in PTSD than does such trauma experienced before entering or after leaving the military (Himmelfarb, Yaeger, & Mintz, 2006). For more detailed information on the impact of trauma and deployment, see the planned TIP, Reintegration-Related Behavioral Health Issues in Veterans and Military Families (SAMHSA, planned f).

**People in Specific Age Groups**

Among adults, trauma exposure and traumatic stress reactions vary somewhat according to age. Norris and Slone (2007) reviewed research regarding differences in trauma exposure according to age group. They observed that overall trauma exposure is greatest among older adolescents and young adults (roughly ages 16 to 20), but that exposure to particular types of trauma varies more across age groups (e.g., sudden, unexpected death of a loved one is most common among individuals in their 40s). In the NCS, the lifetime risk of having PTSD among people who had been exposed to trauma peaked in those ages 25 to 35, whereas the lifetime risk of having been exposed to trauma peaked in those ages 35 to 44 (Kessler et al., 1995).

Research regarding the incidence and prevalence of trauma exposure and current PTSD among older adults (typically defined as either ages 55 and older or ages 65 and older) in the United States is limited, but some studies are available. For example, national crime data indicate that older adults (age 50 and older) are much less likely than those who are younger to be the victims of violent crime (Truman, 2011). Older adult women are also significantly less likely than other adult women to experience recent sexual or physical assault, according to a telephone survey of 3,209 women (Acierno et al., 2002). This same study also found that older women who have sustained physical and/or sexual assault are less likely to develop PTSD and less likely to have certain types of PTSD symptoms than younger women who have been assaulted.

Overall, most research does indicate that current PTSD rates decline with age even for individuals in groups with high PTSD rates, such as former prisoners of war or Holocaust survivors. NCS-R data also indicate that PTSD is less common among older adults than in the general population (Byers, Yaffe, Covinsky, Friedman, & Bruce, 2010). According to these data, 4.7 percent of older adults ages 55 to 64 had PTSD in the prior year, but only 0.6 percent of those ages 65 to 74, 0.1 percent of those ages 74 to 84, and 0.7 percent of persons ages 85 and older had PTSD in the prior year.
However, some studies from outside the United States have associated older age with increased PTSD risk. For example, among a group of survivors of the 2004 tsunami in Southern Asia, being age 40 or older was associated with being significantly more likely to develop PTSD (Pyari, Kutty, & Sarma, 2012). In largely international research conducted with survivors of torture and civilian war trauma, older age was also associated with increased PTSD risk (Johnson & Thompson, 2008). Böttche, Kuwert, & Knaevelsrud (2012) reviewed research on the course and severity of PTSD among older adults, much of it from European sources, observing that American and Swedish studies found lower lifetime PTSD prevalence for older adults compared with middle-aged and younger adults; however, they noted that two German studies found higher rates for older adults (this may reflect cultural differences, differences in exposure to war-related trauma, and/or differences in assessment methods). In addition, older adults in specific populations/groups may have even higher rates of trauma and traumatic stress reactions. One such group is older adults who are incarcerated (for review, see Maschi et al., 2011).

Older adults may also have somewhat different responses to traumatic stress than adults who are younger. Traumatic experiences (whether experienced in childhood or adulthood) may affect both depression and anxiety symptoms in older adults, according to a large (N=1,216) study of older adults in New Zealand (Dulin & Passmore, 2010). This study found that avoidance of prior traumatic memories and situations played a large role in late-life anxiety and depression, accounting for 49 percent of the variance between past trauma and depression and 46 percent of the variance between trauma and anxiety.

Cook and Niederehe (2007) reviewed research that generally indicates that PTSD for older adults is typically less severe and that their PTSD symptoms are less intense compared with other adults. Older adults also appear to experience more arousal symptoms and fewer intrusive symptoms, and they are less likely to experience depression and GAD in the wake of natural disasters than are other adults (Cook & Niederhe, 2007). Grammer and Moran (2011), in another review, observed that biological changes associated with PTSD differ between older adults and people who are younger (e.g., less variance in cortisol levels, higher levels of serum lipids).

Cultural factors appear to play a role in how age affects PTSD risk and traumatic stress reactions. Woodward and colleagues (2011) assessed a culturally diverse sample of adults age 55 and older (N=3,046) using the DSM-IV Composite International Diagnostic Interview. Because they oversampled for members of certain cultural groups, they were able to report cultural, racial, and ethnic differences, but they only reported lifetime rates of disorders. These authors found that 4.6 percent of non-Hispanic White Americans, 4.5 percent of African Americans, 3.0 percent of Black Caribbean Americans, 2.1 percent of Latino Americans, and 2.0 percent of Asian Americans in this age group met criteria for PTSD at some point during their lives; differences between the groups did not reach the level of significance.

Norris and colleagues (2002) compared PTSD symptoms following exposure to natural disasters for individuals from different age groups and three different cultural groups (American, Mexican, and Polish). They found that among a mixed-race/ethnicity group of Americans who experienced Hurricane Andrew, middle-aged individuals had significantly more severe PTSD symptoms (assessed with the Revised Civilian Mississippi Scale [RCMS]) than older adults or younger adults; among Mexicans who experienced Hurricane Paulina, younger adults had significantly more severe PTSD symptoms, according to the RCMS, than older or middle-aged
adults; and among Poles who experienced a flood, older adults had more severe PTSD symptoms than younger or middle-aged adults.

Among military service personnel and veterans, Brewin, Andrews, and Valentine (2000) observed that younger age was a PTSD risk factor in military (usually combat-exposed) but not civilian samples, which may mean that the role of age differed according to the different types of trauma commonly experienced by these groups. Other studies of either active-duty personnel or veterans also found that younger age (typically being age 25 and under) was associated with significantly higher risk of having PTSD (Greiger et al., 2006; Seal et al., 2009; Tanielian et al., 2008). However, data from the NVVRS indicated that during the Vietnam War era, younger age was associated with significantly greater risk for PTSD for men but not women in the military (King et al., 1996).

Data on OEF/OIF veterans indicate that older age (being 30 or older) is a PTSD risk factor for women but not for men (Maguen, Ren, Bosch, Marmar, & Seal, 2010). Cook and Niederehe (2007) reviewed earlier research that found relatively low PTSD rates among World War II and Korean War veterans who were exposed to combat, suggesting that if PTSD had been present at levels similar to those seen in more recent conflicts, it likely resolved during older adulthood. Among older adult veterans in long-term care facilities, past PTSD symptoms were associated with a significantly greater likelihood of engaging in aggressive behavior, and observer-reported PTSD symptoms strongly correlated with patient anger (Carlson, Lauderdale, Hawkins, & Sheikh, 2008).

Risk and protective factors for PTSD may also vary between age groups. Acierno, Kilpatrick, Resnick, Saunders, & Best (2006) compared risk factors for adults ages 60 and older (n=1,130) and adults younger than 60 (n=413) affected by the 2004 Florida hurricanes. They found that low income and a greater number of days displaced from one’s home significantly increased PTSD risk for older adults but not younger ones. Also, for older adults only, more days displaced also increased risk for depression and GAD, whereas greater out-of-pocket posthurricane expenses increased risk for GAD alone. Younger adults, however, did have significantly higher levels of PTSD symptoms than older adults. Another concern for older adults with trauma histories is the emergence of PTSD in older adulthood resulting from trauma experienced many years earlier. Little research is available on this subject, but Hiskey, Luckie, Davies, and Brewin (2008) reviewed 4 studies involving older adult male war veterans and 12 case studies that document this phenomenon.

**Responses to Trauma: Trauma and Behavioral Health**

Not all traumas are equally likely to result in a traumatic stress reaction. Notably, PTSD risk is significantly higher for trauma involving interpersonal violence (Breslau, 2002; Fetzner, McMillan, Sareen, & Asmundson, 2011; Kessler, 2000). Kessler (2000) observed that “the conditional risk of PTSD among trauma victims in U.S. samples varies enormously depending on the type of trauma to which they were exposed” (p. 6). As an example, he gave data from the NCS. For men in that survey, 65 percent of those who had experienced rape had PTSD, compared with 38.8 percent of those who had combat exposure, 12.2 percent of those who experienced another type of sexual assault, 6.4 percent of those who witnessed a traumatic event, 6.3 percent of those who had a life-threatening accident, 4.4 percent of those who had a loved
one who sustained trauma, 3.7 percent of those who were in a natural disaster, and 1.9 percent of those who were threatened with a weapon. For women, the highest rate of PTSD (45.9 percent) was associated with rape. PTSD rates among women for other traumas were 32.6 percent for women who had been threatened with a weapon, 26.5 percent for sexual assault other than rape, 21.3 percent for physical attack, 10.4 percent for trauma occurring to a loved one, 8.8 percent for a life-threatening accident, 7.5 percent for witnessing a traumatic event, and 5.4 percent for experiencing a natural disaster.

Data from Wave 2 of NESARC indicate that people who have current PTSD, compared with people with histories of trauma exposure but no PTSD or partial PTSD, are more likely to have experienced certain types of trauma, including being mugged/held up (4.5 times more likely), childhood neglect (4.4 times), childhood physical abuse (4.4 times), military combat (4.3 times), witnessing family violence in childhood (4.2 times), sexual assault (4.1 times), being stalked (4.1 times), being kidnapped/hostage (4.0 times), being assaulted by someone other than an intimate partner (4.0 times), and being assaulted by an intimate partner (3.2 times; Pietrzak et al., 2011a). Trauma in which the individual fears for his or her life is also associated with increased PTSD risk. According to data from the Trauma Recovery Project, a large (N=1,048) prospective study of trauma and its effects, perceived threat to life significantly predicted both early symptoms of acute stress and PTSD (Holbrook, Hoyt, Stein, & Sieber, 2001). The odds of developing PTSD when there was a perceived threat to life were 1.6 times higher. Other significant factors associated with PTSD risk included perceiving a greater chance of the traumatic event occurring again, which increased the odds of developing PTSD 1.5 times; assaultive violence, which increased the odds 1.6 times; and sustaining a penetrative wound, which increased the odds 2.4 times. Research with military samples has also consistently found that greater perceived threat is associated with greater PTSD risk (Maguen, Suvakm, & Litz, 2006).

Abuse in childhood often results in lasting and severe PTSD because it has physical and behavioral effects on the developing mind (Cougle, Timpano et al., 2010). Wrenn and colleagues (2011), using a largely African American, inner-city sample of people who had experienced trauma (N=767), found that trauma in childhood was associated with significantly greater PTSD risk than trauma experienced in adulthood alone. Childhood abuse was associated with even greater risk than other childhood trauma. Sexual abuse, in adulthood or childhood, is also associated with high PTSD levels as well as other behavioral health disorders. In a meta-analytic review of 37 studies providing data on 3,162,318 individuals, Chen and colleagues (2010) found that a history of sexual abuse in childhood or adulthood was associated with more than three times the risk for an anxiety disorder compared with individuals who had no such history; more than twice the risk for depression, an eating disorder, or PTSD; and more than four times the risk for suicide attempts.

**Brain Responses to Traumatic Stress**

Neuroimaging studies demonstrate specific changes in the brains of people with PTSD, such as increased activity in the amygdala, decreased activity in the medial prefrontal cortex, and reduced hippocampal and anterior cingulate cortex volumes (Garfinkel & Liverzon, 2009; Hughes & Shin, 2011). Neurochemical changes have also been found in people with PTSD, including increased dopamine levels, increased norepinephrine levels and/or activity, decreased
concentrations of serotonin in parts of the brain, decreased gamma-aminobutyric acid activity, increased glutamate levels, decreased plasma levels of neuropeptide Y (NPY), and increased levels of beta-endorphin in the cerebrospinal fluid (Sherin & Nemeroff, 2011). Brenner (2011), Garfinkel and Liverzon (2009), Hughes and Shin (2011), and Sherin and Nemeroff (2011) reviewed research on changes in brain activity, chemistry, and volume related to PTSD. Brenner (2011) also attempted to distinguish these changes from those associated with traumatic brain injury (TBI).

Risk and Protective Factors

A number of risk and protective factors for trauma and for traumatic stress reactions (particularly PTSD) have been identified in the literature. Some of these factors are likely true risk/protective factors in that they increase or decrease risk in and of themselves, whereas others (e.g., elevated heart rate following trauma exposure) are likely indicative of other underlying risk factors, but both types of factors are discussed together in this literature review. As Layne, Warren, Watson, and Shalev (2007) observed in their review on PTSD-related risk and resilience, there is a lack of general agreement in the literature as to what defines protective or resilience factors, making it difficult to evaluate the relative importance of such factors. They noted that factors that promote resilience to traumatic stress reactions can range from genetic biological factors (e.g., greater levels of dehydroepiandrosterone, lower production of corticotrophin-releasing hormone), to personal attributes (e.g., greater intelligence, a stronger internal locus of control), to processes of adaptation to stressors/adversities, to social relationships.

Risk factors

Research has found a number of factors associated with increased risk for trauma exposure and traumatic stress reactions. Some of these factors are demographic in nature (e.g., SES, race/ethnicity, gender), whereas others involve individual and social characteristics (e.g., lower intelligence, less social support). Breslau, Lucia, and Alvarado (2006) found that youth with lower intelligence (as measured by intelligence quotient [IQ]) were significantly more likely to have been exposed in the 10 years following their assessment to traumatic events—specifically, nonassaultive trauma—and to have developed PTSD (conditioned upon not having anxiety disorders or high rates of externalizing problems at their initial assessment). In terms of social support, Moak and Agrawal (2010), using data from Waves 1 and 2 of NESARC, found a modest but significant correlation between lower perceived social support and exposure to traumatic events.

A number of reviews and meta-analyses provide an overview of PTSD risk factors. Brewin and colleagues (2000) included 77 articles in their meta-analysis, which focused largely on demographic factors. They concluded that PTSD risk following trauma exposure increased with the following factors: female gender, lower SES, racial/ethnic minority status, less education, prior behavioral health disorders, a history of childhood abuse, a history of other prior trauma, other ACEs, a history of behavioral health disorders in one’s family, and a lack of social support. They cautioned, however, that only a prior history of behavioral health disorders, childhood abuse, and a family history of behavioral health disorders were uniformly found to increase risk in the studies that included them as variables. The authors also observed that risk factors differed somewhat between military and civilian samples, with female gender having no significant effect in military samples but younger age being associated with increased PTSD risk in military
samples. Trauma severity also had a significantly greater effect on PTSD in military than in
civilian samples (which may reflect differences in the nature of trauma typically experienced by
these two groups). Brewin and colleagues (2000) found that risk factors vary somewhat by
gender as well, so that, for example, childhood abuse has a significantly greater effect on women
than on men, and younger age has an effect for men but not women (which may explain why it
has an effect for largely male military samples but not civilian samples). These authors
concluded that there was a great deal of heterogeneity across the studies and thus cautioned
against trying to create a model in which pretrauma risk factors are considered universal rather
than mediated by particular responses to trauma or factors associated with the trauma itself.

A meta-analysis by Ozer, Best, Lipsey, and Weiss (2003) included a larger group of studies
(476) and focused on a different set of risk factors than did Brewin and colleagues’ (2000)
review, namely factors associated with “psychological processing and functioning” and “aspects
of the traumatic event or its sequelae” (p. 55). As such, they presented their review as
complementary to that of Brewin and colleagues (2000). Ozer and colleagues (2003) found seven
significant risk factors for PTSD:

1. A history of prior trauma
2. Problems with behavioral health prior to the trauma (including preexisting mental disorders)
3. A family history of behavioral health disorders
4. A perceived threat to one’s life during the traumatic event
5. Perceived social support following the trauma
6. Intensely negative emotional responses immediately following the trauma (e.g., extreme fear,
   helplessness, horror, shame)
7. Peritraumatic dissociation (i.e., dissociative experiences during or immediately following the
   trauma)

These authors found that stronger PTSD “predictors” were factors that were more proximal to
the traumatic event, namely perceived threat to life, perceived social support, heightened
peritraumatic emotional responses, and peritraumatic dissociation. In addition to differences in
focus, Ozer and colleagues’ (2003) review differed from that of Brewin and colleagues (2000) in
that it found social support to be a weaker predictor. The authors noted that this may reflect the
fact that social support (or the lack thereof) had a larger effect in studies in which 3 or more
years had elapsed since the trauma than in those that assessed individuals sooner after the
traumatic event; their review included more of the latter. They noted that this may indicate that
social support has a cumulative effect or is more important when individuals have more chronic
PTSD (and less important in cases of ASD). Data from NESARC also indicate that lower
perceived social support is associated with a number of other mental disorders (e.g., major
depression, GAD) and behaviors such as suicidality (Moak & Agrawal, 2009).

Vogt, King, and King’s (2007) reviewed the literature on PTSD risk factors, paying special
attention to the mechanisms through which such factors may affect PTSD. Their findings did not
differ substantially from earlier reviews, but they observed some other factors associated with
increased risk that were not included in the meta-analytic reviews cited previously, which had
more strict inclusion criteria. They cited studies that found a dose–response relationship between
severity of trauma and PTSD, as well as studies that found an increase in PTSD associated with
trauma resulting in physical injury, trauma perceived as more malicious or horrifying, trauma in
which one is actively involved (rather than a participant), and trauma that resulted in peritraumatic dissociation. The authors also observed that demographic factors (i.e., female gender, younger age, lower SES, lower education, lower intelligence, and certain racial/ethnic backgrounds) appeared to have a significant, but modest, relationship to PTSD risk. Prior trauma exposure, preexisting mental disorders, a history of childhood abuse, other exposure to ACEs, a family history of mental disorders, and lack of social support all appeared to have a somewhat large effect on increasing PTSD risk. They also noted that research, mostly conducted with veterans, indicated that the risk factors for onset and maintenance of PTSD appear to be different. Risk factors that existed prior to the traumatic experience did not have as strong an effect on the latter. However, other factors that came into play after the trauma may have affected the course of and recovery from PTSD. Examples of these include social supports available after the trauma (including community reactions), use of coping strategies, and cognitive appraisals of the nature of the trauma.

Recent studies (not included in the previously discussed reviews) that evaluate risk factors associated with PTSD symptoms not only generally confirm the prior findings; they also shed light on how different factors affect PTSD risk following different types of trauma exposure. For example, in a study that evaluated risk factors associated with PTSD symptoms (not PTSD diagnosis) for 2,001 New York residents following the 9/11 attack, risk factors included seeing the actual attack, living closer to the attack, experiencing a fear of injury/death at the time of the attack, being involved in the rescue effort, losing a job following the attack, having a friend or family member killed in the attack, experiencing greater media exposure to the attack, having more stressors in the year prior to the attack, and having less social support (Lawyer et al., 2006). However, in a multivariate model that controlled for other historical, exposure, and demographic factors, the only risk factors that remained significant were heightened peritraumatic emotional responses and dissociation, peritraumatic panic/physiological arousal, greater life stressors in the year prior to the attacks, and being involved in the rescue effort.

In another study involving 527 adults admitted to a Level 1 trauma center with traumatic injuries, greater PTSD symptom severity was associated with younger age, being unmarried, being unemployed, having lower SES, being African American or Latino, and experiencing assaultive rather than nonassaultive trauma (Chiu, deRoon-Cassini, & Brasel, 2011). A study of 1,386 patients at a trauma clinic found that patients were significantly more likely to screen positive for probably developing PTSD (in a screen that occurred a mean of 24 days after the traumatic event) if they were under 55 years old, were female, had sustained a blunt or penetrating wound (excluding self-inflicted or accidental wounds), and/or had been in a motor vehicle crash or had been the target of assaultive trauma (compared with all other traumas; Alarcon et al., 2012). Developmental risk factors (e.g., childhood abuse, preexisting mental disorders, mental disorders in one’s family), according to Koenen (2006), affect an individual’s ability to self-regulate thoughts and feelings. The author noted that, although more research is needed, such risk factors may play a significant role in determining whether an individual is at risk for PTSD following trauma exposure.

Risk factors associated with material needs and losses are often ignored in research, but a number of studies have found that such factors do affect PTSD rates. For example, research from Israel indicates that the loss of economic resources following trauma exposure is associated with a significantly greater likelihood of PTSD (Hobfoll et al., 2008). Loss of home and/or economic
resources seems to affect PTSD onset and to affect specific populations differently. Research conducted with survivors of a large fireworks explosion in the Netherlands found that individuals whose homes were destroyed were significantly more likely than others affected by the disaster to have late-onset PTSD (Smid et al., 2012) and were more sensitized to stressful events occurring after the disaster (Smid et al., 2011). Material losses and lack of income appear to have a significantly greater effect on increasing PTSD risk for adults ages 60 and older compared with younger adults (Acierno et al., 2006).

In addition, a diagnosis of ASD following the traumatic event is a PTSD risk factor. Bryant (2011) reviewed 22 studies that evaluated the relationship of ASD to later PTSD development, concluding that an ASD diagnosis had a reasonable level of predictability (with at least half of individuals who had ASD later developing PTSD), but that it had poor sensitivity as a predictive measure (because the majority of individuals who developed PTSD did not have ASD). Cardeña and Carlson (2011) postulated that ASD is not a robust predictor of PTSD because ASD may be only one possible response to trauma and because protective factors that come into play after trauma exposure may help keep some individuals who have ASD from developing PTSD.

The importance of peritraumatic dissociation as a PTSD risk factor has been debated. Meta-analytic reviews by Breh and Seidler (2007), Lensvelt-Mulders and colleagues (2008), and Ozer, Best, and Lipsey, & Weiss (2003) all found evidence that peritraumatic dissociation represented a PTSD risk factor. Also, Cardeña and Carlson (2011), following Lensvelt-Mulders and colleagues (2008), concluded that peritraumatic dissociation has a stronger association with PTSD in studies with a prospective rather than a retrospective design, suggesting that the relationship between the two was not just a result of long-term recall being clouded by later PTSD.

However, another review by van der Velden and Wittmann (2008), which included only prospective studies and controlled for persisting symptoms of dissociation, found that peritraumatic dissociation was a relatively weak PTSD predictor, whereas dissociation that persisted after the trauma was a much better predictor. Cardeña and Carlson (2011) also noted that other research confirms that dissociative symptoms that persist after trauma exposure are a relatively strong PTSD predictor, whereas peritraumatic dissociation is a relatively weak predictor. One reason that some studies have found a stronger relationship between peritraumatic dissociation and PTSD than have others is that the relationship appears to be significantly stronger among women than among men. Research conducted with 122 survivors of serious motor vehicle crashes found that the PTSD risk associated with peritraumatic dissociation was 7.55 times greater for women than for men (Fullerton et al., 2001).

Some authors (e.g., Lawyer et al., 2006) have suggested that peritraumatic panic attacks are another possible PTSD predictor. However, Adams and Boscarino (2011) examined data on 1,681 survivors of 9/11 and found that, in a model that controlled for potentially confounding factors, a panic attack at the time of the incident predicted PTSD in the year after the event but not 2 years after the event. Insomnia and other sleep disturbances that begin following a traumatic event have also been associated with increased risk for developing PTSD (Babson & Feldner, 2010). Some small studies have also found that individuals who develop PTSD following trauma exposure have elevated heart rates (e.g., 96 beats a minute and higher) soon after and up to a week after that exposure—significantly higher rates than for those who
experience trauma but do not develop PTSD (e.g., Bryant, Creamer, O’Donnell, Silove, & McFarlane, 2011; Shalev et al., 1998). Research from France suggests that heart rate variability is a better predictor of PTSD than elevated heart rate alone. In this study, 35 survivors of automobile accidents had a positive predictive value of 75 percent and a negative predictive value of 90 percent in relation to the later development of PTSD (Shaikh Al Arab et al., 2012).

Genetic factors appear to contribute to both trauma exposure and PTSD development in a number of ways. For example, research conducted with twins (which enables researchers to evaluate the relative contribution of common genetics) has found that a genetic predisposition is involved in assaultive trauma but not other kinds of trauma, which is likely related to behaviors that might make an individual more prone to becoming involved in situations where this type of trauma may occur (Afifi, Asmundson, Taylor, & Jang, 2010). Other research included in this review indicated that genetics affect, to a moderate degree, whether an individual will develop PTSD symptoms as a result of trauma exposure; the degree to which genetic factors contribute may differ depending on the type of symptoms under consideration. Genetic factors may also differ according to the type of trauma and how many incidents of trauma are experienced (e.g., genetic factors may play a lesser role when a person experiences three or more types of trauma).

Other reviews reached similar conclusions regarding the contribution of genetic factors to the development of PTSD. For example, Cornelius, Nugent, Amstadter, and Koenen (2010) reviewed a wider range of research (not just twin studies), including information concerning the specific genes associated with PTSD. They also focused on some of the limitations of existing research (e.g., use of samples with relatively low PTSD rates, use of widely different methodologies). Sartor and colleagues (2011) looked specifically at genetic and environmental factors that play a role in both PTSD and substance use disorders for women, as fewer data are available on the role of genetics for women than for men. They found good evidence for a genetic link for both types of disorder among women.

Research conducted with veterans has found a common genetic influence on increased exposure to combat, increased alcohol use, and greater likelihood of having PTSD symptoms (McLeod et al., 2001). Research reviewed by Afifi and colleagues (2010) confirmed that genetics may contribute to the co-occurrence of substance use disorders and PTSD as well as to exposure to assaultive trauma. Genetic factors may also play a role in maintaining PTSD and in an individual’s response to PTSD treatment. Bryant and colleagues (2011) found that, after controlling for pretreatment PTSD severity and number of treatment sessions attended, people with PTSD who had a given genotype had significantly more severe PTSD 6 months after receiving an 8-week exposure therapy (ET) intervention than others in the study.

Little information is available about specific risk and protective factors for ASD, although many of the factors relevant to PTSD would also likely apply (Cardeña & Carlson, 2011). However, these authors did review literature indicating that the ability to be hypnotized (which has a genetic component), childhood abuse, disturbed attachment in childhood, and a tendency to view events as catastrophic have all been associated with increased risk for ASD.

**Protective factors**

Protective factors for trauma almost entirely reflect the risk factors discussed in the preceding “Risk Factors” section. For trauma, protective factors are typically contextual, including
characteristics that make it less likely that a person will be in a situation where trauma might occur. A review by Ahmed (2007) listed internal characteristics that promote resilience to PTSD:

- Self-esteem
- Trust
- Resourcefulness
- Self-efficacy
- Internal locus of control
- Secure attachments
- Sense of humor
- Self-sufficiency
- Sense of mastery
- Optimism
- Interpersonal abilities (e.g., social skills, problem-solving skills, impulse control)

Ahmed’s review (2007) also listed the following external resilience factors:

- Sense of safety
- Religious affiliation
- Strong role models
- Emotional sustenance (i.e., receiving from others understanding, companionship, a sense of belonging, positive regard)

A review by Agaibi and Wilson (2005) classified protective factors into five categories: personality factors (e.g., hardiness, internal locus of control, autonomy), affect regulation, coping skills (e.g., active problem-solving skills), ego defenses, and ability to mobilize and use resources (e.g., social support). These authors also presented a model for how these different factors relate to one another in affecting an individual’s response to traumatic stress and promoting adaptation and resilience. Guay, Billette, and Marchand (2006) reviewed research and theory on the protective aspects of social support, one of the protective factors most consistently found to have a significant role with regard to PTSD. Guay and colleagues (2006) reviewed research and theory regarding the protective aspects of social support as well as PTSD’s potential negative effects on social interactions. They observed that the most widely held belief is that social support positively affects PTSD symptoms because it influences individuals’ interpretations of traumatic events and their ability to process traumatic experiences.

In some studies, social support is the most significant factor, with such populations as survivors of childhood abuse (Collishaw et al., 2007), women who were victims of sexual assault (Kimerling & Calhoun, 1994), survivors of natural disasters (Cook & Bickman, 1990), veterans exposed to combat trauma (Pietrzak et al., 2010), law enforcement officers (Martin, Marchand, Boyer, & Martin, 2009), women who experienced war trauma in Bosnia and Herzegovina (Klarić et al., 2008), and survivors of torture (Johnson & Thompson, 2008). However, the most important type of social support may vary according to the specific situation and the type of trauma; for example, for men exposed to combat trauma, military unit support and cohesion may be most important during deployment (Office of the Surgeon Multinational Force-Iraq & Office of the Surgeon General, U.S. Army Medical Command, 2006), whereas for survivors of
childhood abuse, support from caregivers and relationships with peers in childhood and with intimate partners in adulthood seem to be most significant (Aspelmeier, Elliot, & Smith, 2007; Collishaw et al., 2007).

A good deal of research on protective factors has been conducted with military personnel and veterans. Some of the protective factors for this population are the same as for others, such as social support, positive/active coping skill use, greater self-esteem, greater mastery/self-sufficiency, more education, higher SES, and male gender (Subcommittee on Posttraumatic Stress Disorder of the Committee on Gulf War and Health, 2006). In addition, better training and preparation for combat trauma (or at least, feeling more prepared), stronger unit cohesion, and responses from the civilian population upon returning from combat all have a protective function. In a study involving 207 combat veterans deployed to the Middle East, individuals’ sense of preparedness, as assessed prior to deployment, affected the relationship between perceived threat (greater perceived threat has been associated with increased risk for PTSD) and combat experiences. That is, those who had a better sense of preparedness perceived less threat from their combat experiences, which translated into lower levels of PTSD (Renshaw, 2011).

Positive attitudes toward military service are related to significantly lower PTSD rates among military personnel deployed to Iraq ($N=2,583$; Skopp et al., 2011). The same risk and resilience factors have also been found for veterans from other conflicts (Vogt & Tanner, 2007), and for the National Guard as well as active-duty personnel (Polusny et al., 2011). Protective factors assessed for other specific groups generally do not deviate much from those already mentioned. For example, Yuan and colleagues (2011) evaluated 233 police officers during their academy training and again after serving 2 years, finding that a stronger sense of self-worth, stronger beliefs in the benevolence of the world (assessed with the World Assumptions Scale), greater social support, and better social adjustment (assessed with the Social Adjustment Scale–Self Report) were all significant protective factors against later PTSD development. In another analysis of 132 Canadian police officers, the only significant protective factors identified were one dimension of the Short Hardiness Scale relating to an officer’s ability to perceive difficulties as challenges and social support from coworkers (but not from significant others; Martin et al., 2009).

In an evaluation of PTSD risk and protective factors for 600 women who were sexual assault victims, the only significant protective factor for PTSD symptoms identified was the victims’ perceptions that they had greater control over their recovery process (Ullman, Filipas, Townesend, & Starzynski, 2007). For both risk and protective factors, the victims’ perceptions at the time of the assault and their postassault characteristics (e.g., negative social reactions, coping skills) had a stronger relationship to PTSD symptom severity than did preassault characteristics and the characteristics of the assault itself.

Religious belief/affiliation has been found to have a protective function in groups as diverse as Buddhist Cambodian refugees (Cheung, 1994) and African American women who have been victims of intimate partner violence (Bradley, Schwartz, & Kaslow, 2005). However, stronger religious beliefs may not always have a protective function, and much will depend on context. For example, in a study of Israeli settlers who were forced to move from their homes in the Gaza Strip ($N=104$), a stronger secular identity (i.e., one that was not traditionally religious or orthodox) assessed prior to relocation was associated with significantly lower levels of PTSD.
symptoms assessed 9 months after relocation (Ben-Zur, 2008). Other protective factors included greater perceived social support (from family, friends, community, and the government), higher levels of mastery/optimism, more education, and certain demographic factors (e.g., gender).

Many protective/resilience factors for PTSD (including social support) are essentially the same as protective factors for behavioral health disorders in general. Much of the research in this area has been conducted with youth and adolescents, but the protective factors thus identified do not vary much from those for adults. For example, Van Breda (2001) provided an indepth review of factors associated with resilience in general (i.e., better behavioral health and better resistance to stressors), which include hardiness, a sense of coherence, learned resourcefulness, self-efficacy, and a stronger internal locus of control, all of which may also be considered resilience/protective factors in relation to PTSD.

Certain coping styles and cognitive appraisals of traumatic events can reduce the occurrence and/or severity of PTSD. For example, Ginzburg, Solomon, and Bleich (2002) found that the use of repressive coping styles was linked to significantly lower levels of PTSD symptoms following trauma exposure. Earlier research conducted with 215 female victims of assault (either sexual or nonsexual) found that greater use of positive distancing (e.g., optimism, acceptance, cognitive distancing) was associated with significantly less severe PTSD, whereas reliance on wishful thinking was associated with worse PTSD (Valentiner, Foa, Riggs, & Gershuny, 1996).

Research conducted with 102 women who reported histories of childhood sexual abuse found that those women who found their traumatic experience more central to their identity, who believed the trauma was a turning point in their lives, and/or who believed past trauma influenced their expectations for the future (all factors assessed using the Centrality of Events Scale) had significantly more severe PTSD (assessed with the PCL-Civilian Version) compared with other women in the study (Robinaugh & McNally, 2011). Other research indicates that women with PTSD who have protective self-cognitions are less likely to lose resources (material, social, family, and work-related) than women with PTSD who do not have such protective cognitions. (Walter, Horsey, Palmieri, & Hobfoll, 2010). Personality traits may also play a role in protecting individuals from PTSD. For instance, a British study involving a community sample of 364 individuals who were assessed in adolescence and again some 30 years later found that, among those with histories of childhood abuse, a more stable personality (assessed with the neuroticism scale of the Eysenck Personality Questionnaire) was associated with being significantly more likely not to have an anxiety disorder (including PTSD) or depressive disorder in adulthood (Collishaw et al., 2007).

**Effects of Trauma and Traumatic Stress Reactions on Quality of Life, Health, and Functioning**

Trauma, in and of itself, appears to have negative effects on quality of life and health, although trauma is not as well researched as the effects of PTSD on these outcomes. NCS-R data indicate that trauma itself often has a greater role in physical health problems than does PTSD, and it has often been ignored in the research evaluating the health consequences of PTSD (see Sledjeski, Speisman, & Dierker, 2008). Although trauma itself is associated with functional impairment and/or decrease in quality of life, a number of studies comparing individuals with PTSD and individuals who had trauma exposure without PTSD have found that those with PSTD have
significantly lower quality of life and more impairments (Breslau, Lucia, & Davis, 2004; Gellis, Mavandadi, & Oslin, 2010; Stein, Walker, Hazen, & Forde, 1997).

There is no doubt that traumatic experiences that result in physical injury negatively affect quality of life, health, and functioning (Polinder et al., 2010; Polinder et al., 2012). Although it is difficult in many cases to tease out the relative effects of physical and psychological trauma (e.g., see discussion of burn victims by Corry, Pruzinsky, & Rumsey, 2009), research indicates that both quality of life and functioning are significantly more impaired among disaster survivors who sustain physical injury compared with those who do not (e.g., Sudaryo et al., 2012). In a study of Indonesian survivors of a large earthquake, physical injury and impairment had a more significant effect on quality of life (Sudaryo et al., 2012).

In general, numerous studies conducted with a variety of different populations have found that people with PTSD have worse quality of life than do those who never had the disorder, even if they were exposed to trauma (Olatunji, Cisler & Tolin, 2007; Schnurr, Lunney, Bovin & Marx, 2009). Partial PTSD has also been associated with significantly worse quality of life, although not to the extent of PTSD, compared with individuals who have had trauma exposure but not PTSD or partial PTSD (Gellis et al., 2010). Although quality of life appears to be better for people who are in remission from PTSD, it remains worse compared with those who never had PTSD (Westphal et al., 2011).

In a study conducted with 184 people with chronic PTSD (largely White American women), the strongest predictors of worse quality of life were arousal symptoms, depressive symptoms, and other anxiety symptoms (Doctor, Zoellner, & Feeny, 2011). In another group of 156 Turkish men with alcohol dependence, dissociation symptoms and a lifetime diagnosis of PTSD were predictive of worse quality of life (Evren et al., 2011). PTSD is also associated with significantly worse health (Sala, Cox, & Sareen, 2008) and adjusted health status (a measure of quality of life and functional impairment as it relates to physical health; Mancino et al., 2006). Specifically, people with PTSD have an increased risk for myocardial infarction, coronary heart disease, psychogenic nonepileptic seizure, rheumatoid arthritis, thyroid disease, diabetes, psoriasis, and different types of cancer (Sala, Cox, & Sareen, 2008). A review by Qureshi, Pyne, Magruder, Schulz, and Kunik (2009) found strong evidence for a link between PTSD and arthritis, but it also found conflicting evidence for links between PTSD and stroke, heart disease, and diabetes.

Using NCS-R data, Sledjeski and colleagues (2008) concluded that most types of physical ailments commonly associated with PTSD could be attributed to repeated trauma exposure. The exception was headache, which was significantly associated with PTSD even after controlling for trauma exposure. Most of the other chronic physical complaints included in the study were significantly associated with the number of traumas, except for high blood pressure and epilepsy. On the other hand, Del Gaizo, Elhai, and Weaver (2011), using NCS-R data, found that PTSD mediated the relationship between a number of different traumatic experiences and gastrointestinal, musculoskeletal, and/or cardiovascular health problems, suggesting that trauma affected health indirectly through the effects of PTSD. This finding is in line with some earlier research (e.g., Taft, Vogt, Mechanic, & Resick, 2007). Interestingly, Del Gaizo and colleagues found that substance use/abuse did not mediate the relationship between PTSD and physical health problems, thus discounting another possible explanation for how trauma affects health.
It is unclear to what extent increased health problems linked with trauma reflect physiological differences (e.g., related to increased arousal) versus worse self-care (Sala et al., 2008). Some research has found that people with PTSD are less likely to follow medication regimens, which can also contribute to worse health outcomes (Shemesh et al., 2004). Services that address trauma have been found effective in improving physical health and promoting better health-related behaviors (Weissbecker & Clark, 2007). Individuals with PTSD also frequently have chronic pain (Asmundson, Abrams, & Collimore, 2008; Asmundson & Katz, 2009). According to NCS-R data, people with episodic migraines or chronic daily headaches are significantly more likely than others to have PTSD (according to both lifetime and past-year data; Peterlin et al., 2011). McWilliams, Cox, and Enns (2003), using NCS data, found that PTSD was associated with 3.7 times the likelihood of also having a chronic pain complaint. Asmundson and Katz (2009) reviewed research and theory concerning the relationship of PTSD to chronic pain and suggested two theories to explain the relationship: a mutual maintenance model in which PTSD exacerbates pain and vice versa and a model in which individuals have a shared vulnerability (perhaps genetic) that predisposes them to develop PTSD and chronic pain conditions.

Both trauma and PTSD also affect family relationships and the behavioral health of family members who did not experience the trauma or do not have the disorder, and these effects can be lasting. For example, children of mothers who endured physical and/or emotional abuse in childhood have more pronounced physiological responses indicative of anxiety than children of mothers who were not abused as children (Jovanovic et al., 2011), and increased maternal PTSD symptoms are associated with a number of other markers indicating worse behavioral health in children (Bosquet et al., 2011). So too, adults whose parents had PTSD have a strong and significantly greater risk of having PTSD themselves, but the association between parental trauma exposure and PTSD in the absence of parental PTSD is rather weak (Yehuda, Halligan, & Bierer, 2001). However, according to the same research, greater parental trauma exposure was associated with significantly higher rates of depressive disorder among offspring. In addition, children of adults with PTSD were more likely to report childhood trauma, which in turn was associated with increased risk for PTSD in adulthood (Yehuda, Halligan, & Grossman, 2001).

A number of reviews have found evidence that, in families where one or more parents are veterans with PTSD, there are higher rates of marital problems, more parenting problems, a greater likelihood of family violence, worse perceived parenting behavior, more behavioral health problems among children and partners, and worse academic performance by children, even when controlling for such potentially confounding factors as substance abuse and the strength of the relationship prior to PTSD (e.g., Erbes, 2011; Galovski & Lyons, 2004; Karney et al., 2008; Monson, Taft, & Fredman, 2009). The relationship between PTSD symptoms and poor family functioning has been found to persist for as many as 14 years for some individuals (Koenen, Stellman, Sommer, & Stellman, 2008). Avoidance/numbing PTSD symptoms have the strongest association with family dissatisfaction and problems with intimate relations (Renshaw, Blais, & Caska, 2011), whereas hyperarousal PTSD symptoms have been associated with increased aggression and violent behavior for veterans (Elbogen, Fuller et al., 2010).

Other research conducted with veterans indicates that the relationship between PTSD and family functioning is complex; a partner’s perceptions of the veteran’s PTSD symptom severity, what the partner attributes the PTSD to, and how great the partner perceives his or her own burden to be as a result of the PTSD all affect the degree to which the partner’s own behavioral health is
influenced (Renshaw, Blais, & Caska, 2011). For example, in research conducted with 49 male National Guard members returning from deployment, symptoms of PTSD and depression among their wives were not correlated with veterans’ actual PTSD symptom scores, but instead with the wives’ own ratings of perceived symptoms among their husbands (Renshaw, Rodrigues, & Jones, 2008). The wives’ symptom severity was greatest when they perceived high symptom severity in their husbands, even when their husbands perceived their own symptom levels low.

PTSD also appears to impair the ability to use resources that could help individuals overcome that disorder and other negative trauma effects, thus perpetuating PTSD symptoms. Johnson, Palmieri, Jackson, and Hobfoll (2007) evaluated resource loss (using the Conservation of Resource–Evaluation) for 225 inner-city women who reported being victims of interpersonal violence during childhood or adulthood. PTSD assessed at an initial interview was significantly related to resources lost 6 months later, even after controlling for resources lost at the initial assessment and for depressive symptoms. In particular, the authors found that emotional numbing symptoms of PTSD accounted for the majority of the women’s resource loss.

In research conducted with veterans, PTSD is associated with a significantly higher likelihood of being unemployed (Savoca & Rosenheck, 2000; Zivin et al., 2011), as is greater PTSD symptom severity (Smith, Schnurr, & Rosenheck, 2005). Among veterans, PTSD is associated with decreased productivity (Savoca & Rosenheck, 2000) and greater occupational impairment (Schnurr & Lunney, 2011). Kessler (2000) observed that, according to NCS data, individuals with PTSD had significantly more lost work time compared with those who did not have the disorder and experienced an amount of work-related impairment comparable to that experienced by people with major depression. Research conducted with nonveterans seeking treatment for PTSD and/or alcohol use disorders also found that individuals who had both were significantly more likely than those who had only one of the two disorders to be unemployed, have low income, and not have a spouse or intimate partner (Riggs, Rukstalis, Volpicelli, Kalmanson, & Foa, 2003).

Malta, Levitt, Martin, David, and Cloitre (2009) evaluated work-related functional impairment among a group of 95 individuals who had PTSD symptoms related to the 9/11 attack. They found that PTSD symptoms, particularly numbing symptoms, were significantly related to work-related impairment, as were having low expectancies about one’s ability to manage negative feelings, greater feelings of social discomfort, greater expectations of being disliked by others, and certain demographic factors (e.g., income level, relationship status). Thorp and Stein (2005) reviewed a number of studies indicating that people with PTSD, compared with people with trauma exposure but no PTSD and people in primary care settings with no current mental disorders, had significantly greater impairment in several areas, including employment. The authors also noted that many of the studies reviewed found a level of impairment comparable to major depression.

Other Disorders That May Be Related to Trauma

Other behavioral health disorders besides PTSD have been linked to both trauma exposure and traumatic stress reactions—at times, it is difficult to tease out which is the contributing factor, so both are discussed together in the following sections. The various disorders comprising SMI, which include psychotic disorders and bipolar disorder, are often grouped together in the literature and hence are discussed together. There is also evidence linking trauma exposure to
other types of anxiety disorders, depression, certain personality disorders, eating disorders, substance use disorders, and psychotic disorders.

In addition, PTSD frequently co-occurs with other behavioral health disorders and has been associated in a number of studies with significantly higher rates of a number of different disorders. For example, in the NCS-R, Kessler and colleagues (2005) found the following co-occurring disorders:

- Mood disorders (e.g., major depression, dysthymia)
- Other anxiety disorders (e.g., GAD, OCD)
- Impulse control disorders including oppositional–defiant disorder and intermittent explosive disorder, but not conduct disorder
- Alcohol use/dependence (with no significant association with drug use/dependence disorders)

NCS data show that the norm for people with PTSD is to have at least one co-occurring behavioral health disorder; 88 percent of men and 79 percent of women with PTSD have at least one other diagnosis, and 59 percent of men with PTSD and 44 percent of women have three or more diagnoses (Kessler et al., 1995). Kessler (2000) also presented NCS data indicating that a prior PTSD diagnosis significantly increased the risk of subsequently developing a substance use disorder, major depression, dysthymia, mania, GAD, panic disorder, social phobia, simple phobias, and/or agoraphobia.

**Substance use disorders**

Numerous studies have found that the use of alcohol and/or illicit drugs increases risk for a number of different types of trauma. For example, in a meta-analysis of studies evaluating the relationship between alcohol use and injury, Taylor and colleagues (2010) found a dose–response relationship between the amount of alcohol consumed and the odds of having vehicular crashes and nonvehicular accidents. Other research conducted with emergency room patients indicated a significant association between blood alcohol level and an increased likelihood of sustaining a violence-related injury (Cherpitel, 1997). As expected, people with substance use disorders are at increased risk for a number of different types of trauma besides accidents, including violent victimization (Farley, Golding, Young, Mulligan, & Minkoff, 2004). According to NESARC data, people with a past-year diagnosis of alcohol use disorder, cocaine use disorder, and/or opioid use disorder all had significantly elevated risk for having been victims of crime in the prior year, although not necessarily violent crime (Vaughn et al., 2010).

A history of trauma exposure, whether or not the individual has a traumatic stress reaction, is associated with increased risk for substance use disorders (Farley et al., 2004). In a sample of 959 clients receiving outpatient substance abuse treatment services, Farley and colleagues (2004) found that 88.6 percent reported at least one traumatic event. Among men, the most commonly reported traumas were serious accidents (reported by 39.9 percent), being robbed (38.2 percent), and seeing someone killed or injured (37.7 percent). Among women, the most common traumas were rape (47.4 percent), other sexual assault (44 percent), and serious accidents (40.4 percent). Histories of multiple traumas are also common among people in treatment for substance use disorders, with 82.7 percent of one inpatient sample from Great Britain reporting two or more trauma events (Reynolds et al., 2005).
Certain types of trauma appear to be associated with increased substance use, regardless of whether that use results in a substance use disorder. Survey data from New York, NY, indicate that in the 6 months after the 9/11 attack, there was a 30.8 percent increase in the use of cigarettes, marijuana, and/or alcohol among the general population (Vlahov, Galea, Ahern, Resnick, and Kilpatrick, 2004). Other studies similarly indicate a rise in alcohol consumption, binge drinking, illicit drug use, and/or smoking in communities after natural disasters (Adams & Adams, 1984; Lutz, Kramer, Gonnerman, & Downs, 1995; Office of Applied Studies, 2008).

Data from the Multisite Adult Drug Court Evaluation study of 958 adult offenders who were not incarcerated and who used illicit drugs indicate that experiencing a physical or sexual assault is associated with a significant increase in illicit drug use in the year following the assault, even after controlling for other factors related to drug use (Zweig, Yahner, & Rossman, 2012). These authors also found that the relationship between assaultive trauma and PTSD was mediated by depressive symptoms (assessed with a 10-item Likert scale). Similarly, in a large longitudinal study of violence and women (N=3,006), experiences of physical and/or sexual assault were associated with a significant increase in the likelihood of using illicit drugs and of alcohol abuse in the following year (Kilpatrick, Acierno, Resnick, Saunders, & Best, 1997). The use of illicit drugs, but not the abuse of alcohol alone, was also associated with a significant increase in the likelihood of being assaulted in the following year.

Although there is evidence that PTSD is associated with a high rate of substance use disorders, not all studies have found a significant association. Some have found associations only between certain substance use disorders and PTSD or between substance use disorders and PTSD only for certain populations. For example, research from the Epidemiologic Catchment Area Study (ECA) regarding 2,985 participants in North Carolina found a significant association between drug use disorders and PTSD, but not between alcohol use disorders and PTSD (Davidson, Hughes, Blazer, & George, 1991). More recently, in the NCS, men with a lifetime PTSD diagnosis were 2.06 times more likely to also have an alcohol use disorder at some point during their lives and 2.97 times more likely to have a drug use disorder, compared with men who never had PTSD (Kessler et al., 1995). For women, PTSD increased the odds of having a substance use disorder to an even greater degree, with the odds of having an alcohol use disorder being 2.48 times higher compared with women who never had PTSD and the odds of having a drug use disorder 4.46 times higher.

Interestingly, according to these same data, men with alcohol abuse disorder were actually less likely (about half as likely) than men without the disorder to have PTSD at some point during their lives, but men with alcohol dependence disorder were significantly more likely than those without that disorder to also have PTSD at some point (3.2 times more likely; Kessler et al., 1997). Women with alcohol abuse disorder were about as likely as other women to have PTSD, whereas those with alcohol dependence were 3.6 times more likely to have PTSD.

Both trauma exposure and PTSD are related to smoking. Feldner, Babson, and Zvolensky (2007) reviewed epidemiological data on the relationship of smoking to both trauma exposure and PTSD. Research has consistently shown that trauma exposure, even without PTSD, is associated with increased smoking and nicotine dependence. Rates are much higher for individuals who have experienced rape or other sexual trauma, and for women, but not men, who have experienced a nonsexual physical assault. For example, in one study, women who had been...
physically assaulted during their lives were 1.82 times more likely to be smoking at the time of the assessment than were women who had never been assaulted (Acierno, Kilpatrick, Resnick, Saunders, & Best, 1996). Feldner and colleagues (2007) also found that studies of smoking among people with PTSD report even higher rates than those found in people with trauma exposure alone. They concluded that, according to data drawn from multiple studies, approximately 45 percent of people with PTSD smoke—a rate more than twice as high as that in the general population.

However, other research indicates that certain types of trauma may increase an individual’s risk for substance abuse, even in the absence of PTSD. Different types of trauma may differently affect alcohol consumption and alcohol use disorder risk for individuals who do not develop PTSD. Using data from Wave 2 of NESARC, Fetzner and colleagues (2011) evaluated the relative risk of different types of trauma on the development of alcohol use disorders, with or without co-occurring PTSD. Using a model that adjusted for demographic factors and other co-occurring behavioral health disorders, they found that, for individuals who did not meet criteria for PTSD, experiences of childhood trauma (particularly sexual abuse), military combat, and assaultive violence were all associated with significantly higher rates of alcohol use disorders, as were having a serious/life-threatening accident, witnessing serious injury/death, having someone close to you die unexpectedly, and learning of trauma experienced by someone close to you. Being an unarmed civilian in a war zone and being a refugee were associated with significantly lower odds of having an alcohol use disorder for individuals without PTSD. For individuals with PTSD, experiences of childhood trauma (particularly sexual abuse), military combat, and assaultive violence were all associated with a significantly greater likelihood of having an alcohol use disorder.

Numerous smaller studies show that prevalence estimates for PTSD among people seeking treatment for substance use disorders are significantly higher than prevalence estimates obtained from general population studies. Prevalence estimates differ widely among these studies, however, depending on the study population and research methodology. Exhibit L-5 summarizes these figures.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Population</th>
<th>N</th>
<th>Measure(s) Used To Diagnose PTSD</th>
<th>Lifetime Prevalence</th>
<th>Current Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back et al. (2000)</td>
<td>Cocaine-dependent individuals in an outpatient treatment program</td>
<td>91</td>
<td>Structured Clinical Interview for DSM-III-R (SCID-III-R); National Women’s Study PTSD Module (NWS-PTSD); Diagnostic Interview Schedule</td>
<td>42.9%</td>
<td>25%</td>
</tr>
<tr>
<td>Author(s) and Year</td>
<td>Sample Description</td>
<td>Sample Size</td>
<td>Assessment Tool</td>
<td>Prevalence</td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------</td>
<td>-------------</td>
<td>----------------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>Brown, Read, &amp; Kahler (2003)</td>
<td>Individuals in an inpatient substance abuse treatment program</td>
<td>133</td>
<td>Clinician-Administered PTSD Scale (CAPS)</td>
<td>41%</td>
<td></td>
</tr>
<tr>
<td>Chen and colleagues, 2011</td>
<td>Clients attending an inpatient substance abuse treatment program</td>
<td>465</td>
<td>Structured Clinical Interview for DSM-IV (SCID-IV)</td>
<td>14% (12.2% of men; 18.3% of women)</td>
<td></td>
</tr>
<tr>
<td>Dansky, Saladin, Brady, Kilpatrick, &amp; Resnick (1995)</td>
<td>National sample of women who received substance abuse treatment</td>
<td>143</td>
<td>NWS-PTSD Module</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>29%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dore, Mills, Murray, Teesson, &amp; Farrugia, 2011</td>
<td>Clients attending an Australian inpatient detox program</td>
<td>253</td>
<td>10-item Trauma Screening Questionnaire (screening for probable PTSD)</td>
<td>44.9% (40.9% of men; 53% of women)</td>
<td></td>
</tr>
<tr>
<td>Driessen and colleagues (2008)</td>
<td>Clients seeking treatment for substance use disorders (Germany)</td>
<td>459</td>
<td>International Diagnostic Checklists for DSM-IV; Posttraumatic Diagnostic Scale</td>
<td>25.3%</td>
<td></td>
</tr>
<tr>
<td>Evren, Dalbudak, Cetin, Durkaya, &amp; Evren (2010)</td>
<td>Men in inpatient treatment for alcohol dependence (Turkey)</td>
<td>156</td>
<td>CAPS</td>
<td>32.1%</td>
<td></td>
</tr>
<tr>
<td>Huang and colleagues (2012)</td>
<td>Individuals with alcohol dependence attending inpatient treatment</td>
<td>196</td>
<td>SCID-IV</td>
<td>21.9% (15.7% of men, 35.5% of women)</td>
<td></td>
</tr>
<tr>
<td>Najavits and colleagues (1998)</td>
<td>Individuals with cocaine dependence in an outpatient treatment program</td>
<td>122</td>
<td>Trauma History Questionnaire (THQ); PCL</td>
<td>20.5%</td>
<td></td>
</tr>
<tr>
<td>Peirce, Kindbom, Waesche, Yuscavage, &amp; Brooner (2008)</td>
<td>Individuals in an outpatient substance abuse treatment program</td>
<td>1440</td>
<td>SCID-IV</td>
<td>3.5%</td>
<td></td>
</tr>
</tbody>
</table>
Although less common, prospective studies of PTSD and substance use disorders support the idea that PTSD, but not necessarily trauma exposure, increases the likelihood that someone might develop a substance use disorder. For example, a 10-year study of 1,200 members of a Michigan HMO who were ages 21 to 30 at the initial assessment found that a PTSD diagnosis at an earlier assessment was associated with a significantly greater risk for subsequently developing an alcohol use disorder, drug use disorder, and/or nicotine dependence (Breslau, Davis, & Schulz, 2003). Trauma exposure alone, without PTSD, was not associated with increased risk for developing these disorders—with one exception, which was that women, but not men, who were exposed to trauma but did not meet criteria for a PTSD diagnosis subsequently had a significantly greater risk than did other women for developing alcohol use disorders but not drug use disorders.

Individuals with PTSD who have a co-occurring substance use disorder, particularly a co-occurring alcohol use disorder (the most often studied type of disorder) have more severe PTSD symptoms, a greater chance that PTSD symptoms will return after remission, a greater chance of

<table>
<thead>
<tr>
<th>Source</th>
<th>Sample Description</th>
<th>Sample Size</th>
<th>Methods</th>
<th>PTSD Prevalence</th>
<th>Substance Use Disorder Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peller, Najavits, Nelson, LaBrie, &amp; Shaffer, 2010</td>
<td>DUI offenders (not necessarily with substance use disorders) attending a 2-week inpatient program</td>
<td>729</td>
<td>Composite International Diagnostic Interview</td>
<td>13%</td>
<td>12%</td>
</tr>
<tr>
<td>Reynolds and colleagues (2005)</td>
<td>Clients in treatment for substance use disorders (United Kingdom)</td>
<td>52</td>
<td>THQ (Green, 1993); Posttraumatic Stress Symptom Scale (Foa, 1993)</td>
<td>51.9%</td>
<td>38.5%</td>
</tr>
<tr>
<td>Thompson &amp; Kingree (1998)</td>
<td>Pregnant women in a residential substance abuse treatment program</td>
<td>96</td>
<td>Civilian Mississippi Scale for Combat-Related PTSD (Keane, Caddell, &amp; Taylor, 1988; diagnosis based on DSM-IV criteria)</td>
<td></td>
<td>62%</td>
</tr>
<tr>
<td>Triffleman, Marmar, Dellucchi, &amp; Ronfeldt (1995)</td>
<td>Male veterans in an inpatient substance abuse treatment program</td>
<td>46</td>
<td>SCID for DSM-III-R, Version NP-V, PTSD Module (Spitzer, Williams, &amp; Gibbon, 1987); Mississippi Scale for Combat-Related PTSD (Keane, Caddell, &amp; Taylor, 1988)</td>
<td>58%</td>
<td>38%</td>
</tr>
<tr>
<td>Villagonzalo and colleagues (2011)</td>
<td>Clients in a methadone maintenance program</td>
<td>80</td>
<td>PCL—Civilian Version</td>
<td>52.7%</td>
<td></td>
</tr>
</tbody>
</table>
relapse to substance abuse, more severe symptoms of substance abuse, and more co-occurring health problems (McCarthy & Petrakis, 2010). For example, a German study of 459 clients in substance abuse treatment programs found that those with co-occurring PTSD had significantly more severe substance abuse problems (as measured by ASI scores) than did those with partial PTSD, trauma exposure without PTSD, or no trauma exposure (Driessen et al., 2008). Differences in ASI scores were largely accounted for by ASI subscores indicating more severe psychiatric, family, employment, and drug-related problems among individuals with PTSD. Individuals with PTSD were also significantly more likely to report frequent substance cravings and reported a significantly shorter longest period of abstinence from drug use. A study of 1,098 out-of-treatment African Americans who used illicit drugs also found that PTSD was associated with significantly earlier age of onset for many substance use disorders (Johnson, Striley, & Cottler, 2006).

PTSD may also affect individuals’ choices regarding substances of abuse. For example, PTSD-related hyperarousal symptoms have been significantly associated with heroin use among individuals in substance abuse treatment (Tull, Gratz, Aklin, & Lejuez, 2010) and (along with reexperiencing symptoms) with marijuana use among individuals in a methadone maintenance program (Villagonzalo et al., 2011). However, an Australian study of individuals attending an inpatient detoxification program found no significant differences in the primary substance of concern between those who did and did not have current PTSD (Dore et al., 2011).

Exposure to certain types of trauma may also affect treatment seeking. Among a group of 40 women with substance use disorders who were incarcerated, severity of childhood sexual abuse was negatively correlated with the number of prior episodes of substance abuse treatment (Peltan & Cellucci, 2011). Simpson (2002) had a similar finding with a group of 72 women in public substance abuse treatment programs, although, unlike Peltan and Cellucci (2011), she also found that greater use of mental health services correlated with severity of childhood sexual abuse.

Among individuals in treatment for PTSD, co-occurring substance use disorders are associated with clients being significantly more likely to drop out of treatment (Difede et al., 2007) and having worse treatment outcomes in a number of areas (Ouimette, Brown, & Najavits, 1998). A study of 428 clients who were being treated for cocaine dependence found that those who had co-occurring PTSD, compared with those without current PTSD, entered treatment with significantly greater impairments in a number of areas, so that even when they improved at a similar rate, their outcome measures were still worse at the end of treatment (Najavits et al., 2007). Individuals with PTSD were also less likely to show significant improvements in a number of areas, including alcohol use, legal problems, family/social problems, and psychiatric problems (as measured by ASI subscales).

**Reasons for co-occurrence of trauma-related disorders and substance use disorders**

Chilcoat and Breslau (1998) suggested three major causal pathways to explain the relationship between PTSD and substance use disorders: people with PTSD use substances of abuse in an attempt to counteract or cope with PTSD symptoms (a “self-medicate” process); people who abuse substances have high trauma rates because of the effects of their substance abuse (i.e., they are at high risk for trauma and hence PTSD); and substance abuse, directly or indirectly, increases risk for developing PTSD in the wake of trauma exposure (i.e., these individuals have a high degree of susceptibility to PTSD).
The self-medication hypothesis (Khantzian, 1997) holds that individuals with PTSD use substances as a way to manage or avoid distressing PTSD symptoms (e.g., intrusive memories and physical arousal). Substances such as alcohol, cocaine, barbiturates, opioids, amphetamines, or other drugs are frequently abused in attempts to relieve or numb emotional pain or forget the traumatic event. Whether or not substance abuse develops because the individual is using substances to self-medicate, PTSD does appear to increase risk for developing substance use disorders. For example, in the NCS, having PTSD increased the risk of subsequently meeting criteria for alcohol abuse disorder by 2 times for men and 2.1 times for women, of alcohol dependence disorder by 3 times for men and 3.2 times for women, of drug abuse disorder by 2.2 times for men and 3.7 times for women, and of drug dependence by 3.7 times for men and 4.2 times for women (Kessler, 2000).

The high-risk hypothesis, proposed by Cottler, Compton, Mager, Spitznagel, & Janca (1992), states that drug and alcohol use places people who use substances in high-risk situations increase their chances for being exposed to events that lead to PTSD. In a review of research on the co-occurrence of substance use disorders and PTSD, Johnson (2008) observed that a greater likelihood of engaging in violence (as either victim or perpetrator) among people with substance use disorders is likely involved in the high PTSD rates among that population. Among other research, she observed that some studies have found that the type and intensity of substances abused affect trauma exposure and hence PTSD.

The susceptibility hypothesis holds that people who use substances are more susceptible to developing PTSD after exposure to trauma than people who do not use substances. This increased vulnerability may be a result of the failure to develop effective stress management strategies. Changes in brain chemistry or damage to neurophysiological systems because of extensive substance use could also contribute to increased susceptibility (Chilcoat and Breslau, 1998).

Kilpatrick and colleagues (1997) suggested a fourth possible explanation regarding the relationship between PTSD and substance use. They proposed a bidirectional relationship in which use is associated with a higher risk of victimization, and victimization tends to escalate substance use. Clients who have co-occurring PTSD and substance use disorders tend to perceive the two as linked, and many observe that when one disorder improves or worsens, so does the other (Brown, Read, & Kahler, 1998).

It is possible that there is no direct causal pathway between PTSD and substance use disorders. Both disorders may be caused by a third factor, or both disorders may share common genetic causes (Meyer, 1986). Twin studies have indicated that a genetic component common to both is likely, although environmental factors also play a role (Xian et al., 2000).

**Mood disorders**
Laugharne, Lilee, & Janca (2010) found good evidence that a significant number of people will develop major depression in the wake of trauma exposure. In addition, trauma exposure may contribute to the development or return of depressive symptoms. The research they reviewed also indicated that preexisting symptoms of depression may increase risk for developing PTSD and have also been linked to having more severe PTSD. However, other researchers (e.g., Breslau, Davis, Peterson, & Schultz, 2000) have found that trauma exposure, in the absence of PTSD,
does not increase risk for depression; thus, they suggest that PTSD is responsible for elevated rates of depression among those who have been exposed to trauma.

The effects of trauma on depression may also depend on the type of trauma experienced. Using data from an Australian twin study, McCutcheon and colleagues (2010) found that, among individuals who had experienced trauma, those who were the victims of assaultive violence had the greatest risk for major depression. In the context of trauma, it is important to note that symptoms of PTSD and depression often overlap (i.e., sleep problems, difficulty concentrating, avoidance/withdrawal, lack of interest/pleasure, and feelings of isolation may all be symptoms of either disorder; Brady, Killeen, Brewerton, & Lucerini, 2000). These reviewers also noted that there are physiological changes common to the two disorders involving the hypothalamic–pituitary–adrenal axis and the production of corticotrophin-releasing factor.

Larger studies, such as the NCS (Kessler et al., 1995) and the NCS-R (Kessler, Berglund et al., 2005), have found that PTSD is associated with significantly higher rates of all depressive disorders. In the NCS, lifetime rates of all affective disorders were significantly higher for individuals who had PTSD at some point during their lives compared with those who did not, with larger increases in the odds ratios found for affective disorders in men than in women (Kessler et al., 1995). For example, PTSD was associated with 4.1 times greater odds of having major depression for women and 6.9 times greater odds for men. In the NCS-R, individuals who met criteria for PTSD in the prior year were significantly more likely than all others to also have major depression, dysthymia, or bipolar disorder (Kessler, Berglund et al., 2005).

In Wave 2 of NESARC, people who had been diagnosed with PTSD at some point during their lives were also 2.6 times as likely to have had a mood disorder, 1.9 times as likely to have had major depression, 1.3 times as likely to have had dysthymic disorder, 2.1 times as likely to have had bipolar I disorder, and 1.4 times as likely to have had bipolar II disorder. Other studies have also found high rates of co-occurring PTSD among people with depression and vice versa. For example, data from the Sequenced Treatment Alternatives to Relieve Depression study for 1,376 adults being treated for major depression indicated that 18.8 percent had current co-occurring PTSD (Rush et al., 2005).

Using both prospective and retrospective data from a large study of young adults (N=1,007), Breslau and colleagues (2000) found that having had PTSD at some time prior to the initial assessment was associated with 2.8 times greater risk for developing major depression, whereas having a prior diagnosis of major depression was associated with 3.7 times greater risk for developing PTSD and 2.1 times greater risk for being exposed to trauma. However, prior trauma exposure was not associated with a significant increase in risk for major depression. They also found that trauma exposure occurring during the study further increased risk for developing depression among those who had prior PTSD, but not among those who did not have PTSD.

A number of explanations have been proposed to explain the relationships among trauma, PTSD, and depression. Breslau and colleagues (2000) reviewed literature proposing five different possibilities: preexisting depression increases risk for PTSD; PTSD increases risk for depression; depression increases risk for trauma (which then increases PTSD risk); there is a shared vulnerability to both PTSD and depression (e.g., a shared genetic factor that increases risk for both); or traumatic experiences increase risk for depression and potentially cause PTSD. Breslau
and colleagues concluded, based on their own research, that trauma alone does not seem to contribute to the development of major depression, but PTSD does. Other researchers have argued that symptoms of both PTSD and depression represent the same, underlying construct (e.g., Elhai et al., 2011).

A study of 267 women with low incomes who were receiving treatment for depression found that those with co-occurring PTSD had more severe depression, more anxiety, and greater functional impairment (Green et al., 2006). Another study that evaluated depression and trauma histories for 792 adults also found that prior trauma, especially childhood abuse, was associated with significantly greater severity of depression (measured with the Beck Depression Inventory), even after controlling for demographic factors and family mental disorder history (Wingo et al., 2010). Earlier studies (e.g., Blanchard, Buckley, Hickling, & Taylor, 1998) also found that among individuals with PTSD, those who have co-occurring depression have greater role impairment, more subjective distress, and lower rates of remission from PTSD.

A study of 178 veterans in treatment for co-occurring depression and substance use disorders found that clients with PTSD had more severe depressive symptoms (assessed with the Hamilton Depression Rating Scale), but they experienced a decrease in depressive symptoms following treatment similar to that seen in clients without PTSD (Norman, Tate, Wilkins, Cummins, & Brown, 2010). More information on the relationship of traumatic stress reactions to bipolar disorder can be found in the “Serious Mental Illness” section. The planned TIP, Managing Anxiety Symptoms in Behavioral Health Services (SAMHSA, planned d), discusses the relationship of mood and anxiety disorders (including PTSD) in more detail.

**Anxiety disorders**

A review by Laugharne and colleagues (2010) found some evidence that trauma exposure can contribute to the development of anxiety disorders, particularly GAD. They also found that preexisting anxiety symptoms and/or anxiety sensitivity may increase an individual’s risk for developing PTSD. Brady and colleagues (2000) reviewed research that indicates that PTSD frequently co-occurs with anxiety disorders, particularly panic disorder and SAD.

A number of studies confirm that PTSD frequently co-occurs with panic disorder. This co-occurrence may be even more common among individuals with certain cultural backgrounds, such as people from Southeast Asia (Hinton et al., 2000; Hinton et al., 2001). Cougle, Feldner, Keough, Hawkins, and Fitch (2010) reviewed earlier studies that indicate that between 7.3 and 18.6 percent of men with PTSD and 12.6 and 17.5 percent of women with PTSD have co-occurring panic disorder. They noted that other research indicates that people with PTSD are about twice as likely as others to have had a panic attack (whether or not they have had panic disorder). Individuals who have been the victims of assaultive violence have greater risk for panic disorder than do those who have only experienced other kinds of trauma (McCutcheon et al., 2010).

A study of 884 veterans found high rates of co-occurrence between PTSD and panic disorder, with more individuals (n=40) having both PTSD and panic disorder than panic disorder alone (n=33; Gros, Frueh, & Magruder, 2011). This study also found that individuals with PTSD who had co-occurring panic disorder had more severe PTSD, according to PCL scores, than did those who had PTSD alone. According to NCS-R data, 35 percent (n=72) of individuals with a past-
year diagnosis of PTSD reported having had one or more panic attacks (Cougle et al., 2010). Individuals with PTSD who reported panic attacks also had greater PTSD-related disability, more traumatic experiences during their lives, and more time unemployed or absent from work, and they were more likely to have co-occurring depression and/or substance use disorders.

Some research indicates that individuals who have panic attacks have a greater risk than others for developing PTSD following trauma exposure (Adams & Boscarino, 2011). Marshall-Berenz, Vujanovic, and Zvolensky (2011) also found, in a sample of 91 individuals who had experienced trauma, that a history of panic attacks in the absence of panic disorder was significantly related to PTSD-related reexperiencing and hyperarousal symptoms. Hinton, Hofmann, Pitman, Pollack, and Barlow (2008) proposed that panic attacks may be triggered by sensations associated with traumatic experiences, and in turn, panic attacks may worsen PTSD by increasing arousal and reactivating traumatic memories. This phenomenon may be affected by cultural beliefs. Hinton, Nickerson, and Bryant (2011) observed that, among Cambodian refugees, worry often precipitated panic attacks and increased trauma recall (including flashbacks) and hyperarousal, which in turn were associated with more severe PTSD.

SAD also frequently co-occurs with PTSD. Collimore, Carleton, Hofmann, and Asmundson (2010) reviewed research on this co-occurrence. Studies included in their review found that rates of past-year SAD among individuals with PTSD ranged from 4.3 percent to 72 percent in both clinical and nonclinical studies with different samples (e.g., veterans, disaster survivors). The authors considered a number of different factors that may contribute to this co-occurrence, including common genetic causes, heightened anxiety sensitivity, fears of negative evaluation, intolerance of uncertainty, increased guilt and/or shame, and co-occurring depression. For individuals with high levels of social anxiety, episodes of social embarrassment may be perceived as more traumatic than other events that are typically considered traumatic (Carleton, Peluso, Collimore, & Asmundson, 2011). Other researchers have observed that there is an element of experiential avoidance that may be involved in the maintenance of both SAD and PTSD, which may also explain why the disorders frequently co-occur (e.g., Kashdan, Morina, & Priebe, 2009).

**Personality disorders**

Personality disorders frequently co-occur with other behavioral health disorders, and PTSD is not uncommon among individuals with many of these disorders. Because of its size and methodology, NESARC provides the most accurate epidemiological data on personality disorders in the United States. According to NESARC Wave 2 data regarding individuals who had been exposed to trauma, those who developed PTSD were significantly more likely to have borderline, narcissistic, and/or schizotypal personality disorders than were those who did not develop PTSD (Pietrzak et al., 2011a). For women, but not men, PTSD was also associated with significantly higher odds of having OCD. According to the initial NESARC data, 19.5 percent of respondents with a past-year diagnosis of narcissistic personality disorder had co-occurring PTSD, and 25.7 percent of those with a lifetime diagnosis of narcissistic personality disorder had co-occurring PTSD (Stinson et al., 2008).

Rates of co-occurring PTSD are also high among people with borderline personality disorder (BPD). In NESARC, 31.2 percent of people with BPD in the past year also had PTSD in that year, whereas 39.2 percent of those with a lifetime diagnosis of BPD also had PTSD at some
point (Grant et al., 2008). However, because of the overlap in symptoms between the two disorders and the high rates of early trauma among those with BPD, there is also an ongoing debate as to whether BPD may in fact be a traumatic stress reaction (Lewis & Grenyer, 2009).

In NESARC, individuals with schizotypal personality disorder had increased risk for co-occurring PTSD; 38.1 percent of women and 21.6 percent of men with schizotypal personality disorder also had co-occurring PTSD (Pulay et al., 2009). Studies have also found high rates of co-occurring PTSD among individuals with ASPD. In reviewing prior research, Goldstein, Compton, and Grant (2010) observed that studies have found that between 8 and 21 percent of people with ASPD have PTSD. They also noted that, in NESARC, individuals with PTSD who had a co-occurring diagnosis of ASPD were significantly more likely to have a number of other co-occurring disorders, including substance use disorders, bipolar I disorder, and a number of other personality disorders.

In a large study of personality disorders, the majority \((n=102)\) of individuals with PTSD at the start of the 7-year study \((n=142)\) achieved remission during the study; 34 percent of those who did achieve remission had at least one relapse to PTSD (Ansell et al., 2010). Schizotypal personality disorder was the only disorder of the four included in the study that was associated with significantly lower remission (compared with individuals with no personality disorder, avoidant personality disorder, BPD, or OCD). Research has found that individuals who experience significant trauma (e.g., sexual abuse) as children are at increased risk for developing personality disorders (Pratchett et al., 2010). There are gender differences in this pattern—women are more likely to develop BPD and men are more likely to develop ASPD—but individuals with both of those personality disorders are significantly more likely than those without either disorder to have experienced childhood abuse.

**Eating disorders**

Brewerton (2007) reviewed a number of studies that found high rates of trauma and PTSD among both men and women with eating disorders. Most eating disorder research does not include men. Brewerton (2007) found that although child sexual abuse is a particularly strong risk factor for later developing an eating disorder, other forms of trauma appear to increase the likelihood of developing eating disorders as well. He cited studies indicating that trauma is more common among women who have eating disorders with bulimic symptoms than among those who have eating disorders without such symptoms, and he noted that women with bulimic disorders are more likely than women without eating disorders or those with nonbulimic disorders to have had multiple episodes of trauma. Although trauma histories are not associated with any significant differences in severity of eating disorder symptoms, women with eating disorders who have trauma histories are more likely than other women with eating disorders to have major depression, substance use disorders, BPD, and anxiety disorders (including PTSD).

Swinbourne and Touyz (2007) reviewed research that provides epidemiological data on the co-occurrence of anxiety and eating disorders. They found PTSD rates ranging from 11 to 52 percent in samples of people (typically women) with eating disorders but also noted that studies that included individuals with both anorexia nervosa and bulimia nervosa found PTSD to be significantly more common among those with the latter disorder. Among women with histories of childhood sexual abuse \((N=50)\), eating disorders were associated with significantly lower self-
esteem and significantly more symptoms of depression at the conclusion of treatment and at a 6-month follow-up assessment (Harper, Richter, & Gorey, 2009).

**Serious mental illness**

SMI typically includes schizophrenia, schizoaffective disorder, and bipolar disorder. Individuals with these disorders have increased risk for a number of different types of trauma and for PTSD. According to NESARC data, people with psychotic disorders had a 78 percent greater chance of having been the victim of violence in the year prior to assessment, but the difference was not significant, given the relatively small numbers of people with such disorders included in the study (Vaughn et al., 2009). However, mood disorders, which include bipolar disorder, were found to be associated with a significantly greater likelihood of being a victim of violent crime (people with bipolar disorder had an increased risk of 32 percent in the adjusted model).

People with SMI also appear to have increased risk for trauma from accidents. In a study involving 1,709 admissions to a public hospital trauma unit, individuals with mental disorders (not limited to SMI, but involving psychosis/schizophrenia in 29 percent of cases) were more than twice as likely to have an unintentional injury (Wan et al., 2006). Other research indicates that people with psychosis (Kilcommons, Morrison, Knight, & Lobban, 2008; Read, van Os, Morrison, & Ross, 2005) and those with bipolar disorder (Garno, Goldberg, Ramirez, & Ritzler, 2005; Goldberg & Garno, 2005) have high rates of childhood physical and/or sexual abuse. A large British study (N=8,580) found significant associations between a number of traumatic childhood experiences and increased likelihood of psychosis, with an especially strong association between childhood sexual abuse and psychosis (Bebbington et al., 2004).

Goldberg and Garno (2005) evaluated trauma histories for 100 consecutive admissions to a bipolar disorders research clinic; 24 percent of participants had current PTSD. However, current PTSD was significantly more common (affecting 35 percent) for individuals with childhood traumatic experiences compared with those who did not report such experiences (13 percent of whom had PTSD). A greater number of childhood traumatic experiences correlated with a greater likelihood of PTSD in adulthood.

Whether trauma, particularly childhood trauma, contributes to the development of SMI is still a subject for debate; some evidence supports the fact that it does, and some does not. An Australian study of 1,612 individuals (1,327 female) who had been sexually abused in childhood (according to police records) and who had histories of receiving behavioral health services found no significant increase in psychotic disorders compared with a general population control group, but risk for psychotic disorders was elevated in both men and women who had histories of childhood sexual abuse (e.g., women who were sexually abused as children had 1.5 times greater risk for psychotic disorders as adults; Spataro, Mullen, Burgess, Wells, & Moss, 2004). Critics of the study, though, have pointed to methodological problems, including the fact that the study was limited to those whose abuse was recognized while they were children and who received services at the time; it excluded individuals whose abuse went unrecognized and who thus had more chronic and severe trauma histories (Read & Hammersley, 2005).

A German study, which assessed 2,524 adolescents and young adults (ages 14 to 24) and then reassessed them an average of 42 months later, found that trauma reported at the initial assessment was significantly associated, in a dose–responsive manner, with the onset of
psychotic symptoms at the follow-up assessment (Spauwen, Krabbendam, Lieb, Wittchen, & van Os, 2006). All of the types of trauma evaluated were associated with significant increases in risk for psychotic symptoms, but the largest increase in relative risk for psychosis was associated with sexual trauma. Another German study conducted with 4,045 adults ages 18 to 64 also found that childhood abuse reported during an initial assessment was associated with 11.5 times greater risk for reporting psychotic symptoms at a follow-up 2 years later (Janssen et al., 2004).

PTSD also appears to cause, for some individuals, some psychotic symptoms (see Braakman et al., 2009), and studies that examine the relationship between trauma and psychotic symptoms have found a significant association. Read and colleagues (2005) found evidence for a “strong relationship” between childhood abuse and both hallucinations and delusional ideations. Read, Agar, Argyle, and Aderhold (2003) found that sexual assault in adulthood was significantly associated with hallucinations, delusions, and thought disorder, whereas childhood physical and/or sexual abuse was significantly associated with hallucinations but not delusions or thought disorder.

Kilcommons and colleagues (2008) evaluated psychotic experiences among 40 survivors of sexual assault and 40 individuals who did not have sexual assault histories and interviewed a subset of 26 from the first group. They found that study participants who had been sexually assaulted were significantly more likely than those in the control group to have experienced psychotic symptoms (both delusional ideations and hallucinations). Sixty-six percent of survivors of sexual abuse met criteria for PTSD, but an even larger percentage reported psychotic symptoms (with 75 percent reporting the most common symptoms in the study). A study with a smaller sample ($n=32$, 53 percent with current PTSD) of individuals with psychotic disorders (Kilcommons & Morrison, 2005) also found that the severity of traumatic experiences was significantly associated with severity of PTSD and severity of psychotic symptoms.

Some evidence suggests that the experience of psychosis itself, and attendant issues such as forced hospitalization, may be traumatic and contribute to PTSD symptoms (Beattie, Shannon, Kavanagh, & Mulholland, 2009). Sherrer (2011), in an article discussing reasons for high PTSD rates among people with SMI, reviewed studies that found that between 24 and 43 percent of people with SMI have co-occurring PTSD. Some literature also indicates that PTSD rates are higher for individuals with bipolar disorder than for those with schizophrenia spectrum disorders (O’Hare, Sherrer, & Shen, 2006).

Achim and colleagues (2011) conducted a meta-analytic review of studies giving prevalence data on co-occurring anxiety disorders among individuals diagnosed with schizophrenia. According to pooled prevalence data from 52 studies ($N=4,032$), 12.4 percent had current PTSD. However, the authors noted a wide variation in rates among the studies they included.

In the NCS-R, 30.9 percent of respondents who had a lifetime diagnosis of bipolar I disorder and 34.3 percent of those with bipolar II also had PTSD at some point during their lives (Merikangas et al., 2007). Some studies have found lower rates of co-occurring PTSD, however. One study of 500 participants in the Systematic Treatment Enhancement Program for Bipolar Disorder found that 17.2 percent met criteria for a PTSD diagnosis at some point during their lives, and 5.1 percent had current PTSD at the time of assessment, with somewhat higher rates for participants with bipolar I disorder and somewhat lower rates for those with bipolar II (Simon et al., 2004).
Provencher, Hawke, and Thienot (2011) reviewed research on the co-occurrence of bipolar and anxiety disorders (including PTSD). Some research has found that people with bipolar disorder who have co-occurring PTSD, compared with others with bipolar disorder, have longer affective episodes, are more likely to have a recurrence of affective episodes, are more likely to have rapid cycling, take longer to achieve remission, have greater risk for co-occurring substance use disorders, have worse health-related quality of life, and are more likely to attempt suicide (Garno et al., 2005; Goldberg & Garno, 2005).

Other research indicates that individuals with schizophrenia or schizoaffective disorder who have PTSD also have more severe anxiety and dysphoria symptoms (according to the Positive and Negative Syndrome Scale [PANSS] and the Endler Multidimensional Anxiety Scale) compared with those who do not have co-occurring PTSD (Newman, Turnbull, Berman, Rodrigues, & Serper, 2010). This study also found that a greater number of past traumatic experiences was associated with more severe psychosis, and a higher number of past experiences of victimization was associated with more severe cognitive/autistic symptoms (on the PANSS).

Several researchers have argued that PTSD with secondary psychotic features should be considered as a separate diagnostic category. Braakman, Kortmann, and van den Brink (2009) defined this diagnostic category as a syndrome in which an individual experiences PTSD symptoms followed in time by psychotic symptoms and found that certain facets of the syndrome distinguish it from PTSD and schizophrenia (e.g., elevated plasma dopamine β-hydroxylase and cerebrospinal concentrations of corticotrophin-releasing factor).

Possible explanations for high PTSD rates among people with SMI are that SMI predisposes people to trauma, that SMI directly or indirectly causes or contributes to developing PTSD (e.g., because psychotic episodes are themselves traumatic), and/or that traumatic experiences (e.g., childhood trauma) contribute to the development of SMI as well as PTSD. However, the most commonly held theory is that SMI affects how individuals interpret traumatic experiences and thus increases the likelihood of having PTSD as well as PTSD severity (Sherrer, 2011).

Still, rates of crime victimization are high for people with SMI. Teplin and colleagues (2005) used data from a survey of 936 patients with SMI who attended mental health programs in the Chicago area from 1997 to 1999 and data from the National Crime Victimization Survey for residents of large cities during the same period and determined that, compared with others residing in large cities, people with SMI were over 10 times more likely to have been victims of violent crime in the prior year.

Sherrer (2011) theorized that high rates of co-occurring PTSD among people with SMI are attributable to problems in cognitive appraisal related to potentially traumatic events that may make people less objective in evaluating the nature of those events. She suggested that cognitive restructuring may be particularly useful for this population as a way to modify problematic cognitions related to trauma.
Screening and Assessing Trauma and Trauma-Specific Disorders

Briere (2002) and others recommended that any behavioral health assessment inquire about trauma histories and assess traumatic stress reactions. Briere observed that assessments should elicit information about the client’s psychological functioning prior to the trauma; the exact nature of the traumatic event(s), including type, duration, frequency, and severity; social and family support available after the trauma; co-occurring behavioral health problems; and posttraumatic response, including PTSD symptoms.

Assessing Trauma Histories

Assessment of trauma histories is necessary not only as a first step in assessing traumatic stress reactions, but also for other forms of assessment and treatment planning. Such assessments need to take into account factors such as the client’s current level of safety (e.g., whether the client is at risk for further trauma), current psychological stability (e.g., whether the client is currently experiencing a level of acute psychological distress that might preclude indepth inquiries about traumatic experiences), and the client’s readiness for further assessment and treatment (Briere & Scott, 2006). Briere and Scott (2006) gave some guidelines for assessing trauma exposure, such as establishing trust and a level of comfort before inquiring about traumatic experiences and being prepared for intense responses from clients. They also provided a detailed list of symptom responses to trauma that go beyond typical symptoms of traumatic stress reactions, including cognitive disturbances (e.g., low self-esteem, helplessness, shame), dysfunctional behaviors aimed at reducing trauma-related stress (e.g., self-mutilation, compulsive stealing), sexual disturbances, somatic complaints, symptoms of other behavioral health disorders, and culturally specific trauma responses. Hanson and Self-Brown (2010) provided some guidelines for assessing trauma resulting from criminal victimization.

Assessing traumatic experiences to see if a client meets Criterion A for a PTSD diagnosis is a first step in diagnosing PTSD (Weathers, Keane, & Foa, 2009). O’Donnell, Creamer, and Cooper (2010) discussed some of the debate around Criterion A for PTSD and potential problems with using that criterion to guide trauma assessment. They observed that Criterion A may, for example, cause clinicians to ignore traumatic events that do not involve a clear memory of the incident. A number of assessment instruments are available to aid in assessing trauma histories or histories related to a particular type of trauma. These have almost always been developed for research purposes but may be useful in real-life settings as well. For example, researchers conducting the Women, Co-Occurring Disorders and Violence study selected the Life Stressor Checklist-Revised to assess exposure to lifetime and current traumatic experiences for women with co-occurring disorders and found it effective, reliable, and well tolerated in that context (McHugo et al., 2005). Bailey, DeOliveira, Wolfe, Evans, and Hartwick (2012) used the Childhood Trauma Questionnaire to evaluate childhood traumatic experiences for mothers of preschool children and judged it a valid measure that helped them relate childhood traumatic experiences to parenting concerns and behaviors.

Corcoran, Green, Goodman, and Krinsley (2000) observed that trauma assessment instruments are not comprehensive and also reviewed potential complications in accurately assessing a client’s prior traumatic experiences. They focused on two trauma assessment instruments, the
Stressful Life Events Screening Questionnaire (SLESQ) and the Evaluation of Lifetime Stressors instrument, with attention to how well these instruments capture experiences that meet Criterion A of a PTSD diagnosis. They noted that the SLESQ is a brief measure that does not collect as much information about objective and subjective aspects of trauma, and thus the two instruments may be useful in different contexts. Both instruments have good test–retest reliability and construct validity, and the SLESQ has good convergent validity as well.

The Traumatic Life Events Questionnaire (TLEQ) is a widely used self-report measure that evaluates 22 types of traumatic events and certain characteristics of those events (e.g., whether the event resulted in injury, how often it occurred; Kubany, Leisen, Kaplan, & Kelly, 2000). The instrument has good reliability and validity (Orsillo, 2001). Compared with a single-item trauma assessment question from the SCID, the TLEQ elicited 900 percent more traumatic events in a group receiving treatment for opioid dependence (Peirce, Burke, Stoller, Neufeld, & Brooner, 2009).

Cusack, Frueh, and Brady (2004) described a 13-item self-report version of the Trauma Assessment of Adults instrument (shortened to make it useful in clinical settings), which, unlike the aforementioned instruments, was developed for use in clinical settings. In their evaluation of the instrument with clients from a community mental health center, they found that a higher number of traumatic events reported on the instrument correlated with worse physical and behavioral health assessments using other measures. The authors concluded that the instrument is useful in behavioral health treatment settings and can help improve recognition of PTSD as well as guide other aspects of treatment. Some concern exists that trauma screening instruments may prime some respondents to report PTSD symptoms, but Reddy, Polusny, and Murdoch (2009) found this not to be the case in an evaluation of National Guard members. Fallot and Harris (2001) also suggested that behavioral health treatment programs check a client’s medical, social, and criminal histories for evidence of past trauma.

**Screening and Assessing ASD**

ASD may occur any time from the trauma exposure to 4 weeks after the exposure. The earliest time an assessment can be made is 2 days following trauma exposure, because symptoms must last at least 2 days for an ASD diagnosis (APA, 2000). Bryant and Litz (2006) noted that assessments that occur too soon after trauma exposure are less likely to predict PTSD and that ASD assessed 4 weeks after trauma exposure is more than twice as accurate as a PTSD marker. Thus, they recommended that ASD assessment occur later in the window for ASD diagnosis to make the best use of resources. In Bryant and Litz’s review (2006), they recommended three instruments for assessing ASD that are also useful for predicting PTSD: Stanford Acute Stress Reaction Questionnaire (Cardeña, Koopman, Classen, Waelde, & Spiegel, 2000), Acute Stress Disorder Interview (Brooks et al., 2008), and Acute Stress Disorder Scale (Bryant, Moulds, & Guthrie, 2000).

**Screening and Assessing PTSD**

Clients who report trauma histories should generally be further assessed for traumatic stress symptoms and PTSD (Australian Centre for Posttraumatic Mental Health [ACPMH], 2007). Screening instruments are available that can help clinicians decide which clients are more likely to have PTSD and thus require further assessment. For example, Boscarino and colleagues
(2011) reported on a brief screening tool designed for use in clinical practice, the New York PTSD Risk Score, which inquires about PTSD symptoms including sleep problems, trauma exposure, suicidal thoughts, depression symptoms, and demographic factors that may mean an individual is at greater risk for PTSD. The instrument has been found effective for predicting PTSD up to 1 year after the initial assessment (Boscarino et al., 2012b) and has specific versions intended to assess men and women separately (Boscarino et al., 2012a). The National Center for PTSD (NCPTSD) Web site (http://www.ptsd.va.gov) provides descriptions and basic information on other commonly used PTSD screening instruments, including a table comparing them, reproduced below as Exhibit L-6.

<table>
<thead>
<tr>
<th>Screens for PTSD</th>
<th># Items</th>
<th>Time to Administer (min.)</th>
<th>Allows Multiple Trauma</th>
<th>Corresponds to DSM Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beck Anxiety Inventory - Primary Care</td>
<td>7</td>
<td>3</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>Primary Care PTSD Screen</td>
<td>4</td>
<td>2</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>Short Form of the PCL</td>
<td>6</td>
<td>2</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>Short Screening Scale for PTSD</td>
<td>7</td>
<td>3</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>SPAN</td>
<td>4</td>
<td>2</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>Short Post-Traumatic Stress Disorder Rating Interview</td>
<td>8</td>
<td>3</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>Trauma Screening Questionnaire</td>
<td>10</td>
<td>4</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>PCL</td>
<td>17</td>
<td>5-10</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>


The ACPMH (2007), as part of its review on the assessment and treatment of PTSD, recommended that individuals presenting in healthcare settings be asked about whether they have experienced trauma; when indicated, they should be given a comprehensive PTSD assessment. Such PTSD assessments should investigate not only PTSD symptoms, but also symptoms of other mental disorders, substance use/abuse behavior, marital and family functioning, vocational functioning, quality of life, psychological functioning, and physical health. Assessments should also establish strengths and sources of resilience. Symptoms should be assessed within the context of the time elapsed since trauma exposure, recognizing that symptoms experienced in the few weeks following trauma are likely to remit and also that, for some individuals, symptoms may not appear until a considerable amount of time after the trauma. Regular reassessment should also occur and needs to be culturally competent and to take into consideration the effects an individual’s trauma exposure may have on those close to him or her.
Steel, Dunlavey, Stillman, and Pape (2011) reviewed assessment of PTSD and depression for individuals who have experienced significant trauma. They addressed differential diagnosis with respect to TBI, the importance of cultural and sociodemographic factors, and potentially confounding effects of medications. They summarized reliability and validity data for a number of PTSD assessment instruments, including the PTSD interview, the CAPS, the Structured Interview for PTSD, the Posttraumatic Diagnostic Scale, the Impact of Events Scale-Revised, the Primary Care PTSD Screen, the PCL, the Harvard Trauma Questionnaire, the PENN Inventory, and the PTSD modules of the Composite International Diagnostic Interview and the Diagnostic Interview Schedule.

Orsillo (2001) also provided information on reliability and validity for these instruments as well as a number of others. Briere (2002) discussed specific screening and assessment instruments for both trauma and traumatic stress reactions and addressed how certain general measures of behavioral health may be used for assessing these. The NCPTSD Web site (http://www.ptsd.va.gov) also provides descriptions and basic information on clinician-delivered interview instruments and self-report measures for assessing PTSD. See Exhibits L-7 and L-8, respectively.

<table>
<thead>
<tr>
<th>Exhibit L-7</th>
<th>Clinician-Delivered Interview Instruments for Assessing PTSD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adult PTSD Interviews</strong></td>
<td><strong># Items</strong></td>
</tr>
<tr>
<td>CAPS</td>
<td>30</td>
</tr>
<tr>
<td>PTSD Symptom Scale-Interview Version</td>
<td>17</td>
</tr>
<tr>
<td>SCID-IV PTSD Module</td>
<td>21</td>
</tr>
<tr>
<td>Structured Interview for PTSD</td>
<td>27</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exhibit L-8</th>
<th>Self-Report Measures Instruments for Assessing PTSD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adult PTSD Self-Report Measures</strong></td>
<td><strong># of items</strong></td>
</tr>
<tr>
<td>Davidson Trauma Scale</td>
<td>17</td>
</tr>
<tr>
<td>Distressing Event Questionnaire</td>
<td>35</td>
</tr>
<tr>
<td>Impact of Event Scale-Revised</td>
<td>22</td>
</tr>
<tr>
<td>Los Angeles Symptom Checklist</td>
<td>43</td>
</tr>
</tbody>
</table>
Mississippi Scale for Combat-Related PTSD | 17 | 10-15 | Yes | No
---|---|---|---|---
Modified PTSD Symptom Scale | 17 | 10-15 | Yes | Yes
Penn Inventory for Posttraumatic Stress Disorder | 26 | 15-20 | Yes | No
Posttraumatic Diagnostic Scale | 49 | 10-15 | No | Yes
PCL - Civilian, Military, Specific Trauma | 17 | 5-10 | Yes | Yes
Screen for Posttraumatic Stress Symptoms | 17 | 10-15 | Yes | Yes
Trauma Symptom Checklist-40 | 40 | 10-15 | Yes | No
Trauma Symptom Inventory | 100 | 15-20 | Yes | No


**Screening and Assessing Complex PTSD**
The assessment of complex PTSD is likely to follow from a more general assessment of trauma and traumatic stress reactions, but it is a more complex process (Briere & Spinazzola, 2009). Brown (2009) discussed assessment issues related to attachment styles for adults who have complex PTSD. Briere and Spinazzola (2009) discussed appropriate instruments for assessing trauma-related responses that may result from complex trauma (e.g., cognitive disturbance, dissociation, dysfunctional behaviors).

**Cultural, Ethnic, and Gender Factors in Assessment**
All behavioral health screening and assessment should be culturally competent and sensitive to gender, functional impairment, age, and religion/spiritual beliefs. Screening and assessment for trauma and traumatic stress reactions are no exception, particularly given that research suggests that culturally defined ways of interpreting traumatic experiences affect an individual’s reaction to trauma, including the type and degree of behavioral health problems that may result from the trauma exposure (Wilson, 2007). The planned TIP, *Improving Cultural Competence* (SAMHSA, planned c), contains more detailed information on conducting culturally competent assessments in behavioral health settings.

In assessing the impact of trauma on clients with diverse cultural backgrounds, one must understand how their culture interprets the traumatic event, the historical and intergenerational context of the trauma, the types of responses to trauma that the culture considers appropriate, and what sources of strength/resilience people from that culture rely on in the wake of trauma (Danieli, 2007; Hoshmand, 2007). Another important issue is how a client’s culture may shape his or her attitudes toward behavioral health services and behavioral health disorder diagnoses. For example, people from developing countries who have mood and/or anxiety disorders are
about twice as likely as those from developed countries to perceive “stigma” associated with those disorders, which can affect their willingness to report symptoms (Alonso et al., 2008).

Clients’ understanding and presentation of dissociative symptoms may also vary according to their cultural backgrounds. For example, a number of researchers and clinicians have observed that Asians and Asian Americans are more likely than members of many other cultural groups to present anxiety symptoms, including PTSD symptoms, as somatic complaints (Hinton, Hofmann, Pollack & Otto, 2009). Others have observed that Asian Americans may be more reticent about discussing psychological complaints, because their cultures teach that stoic acceptance is the appropriate response to adversity (Lee & Mock, 2005a,b). Research from the Netherlands has found that people from non-Western cultures have more physical health-related anxieties following trauma exposure than do those from Western cultures exposed to the same traumatic event (Verschuur et al., 2010).

Pole and colleagues (2008) observed that African American clients may be hesitant to discuss certain traumatic experiences with White American clinicians because they are concerned about being judged. Instead, they too may present themselves in a reserved or stoic manner that can be mistaken for the PTSD symptoms of avoidance or numbing. The authors noted that some Latinos may also somaticize PTSD symptoms or present complaints using terminology that may not fit easily into PTSD symptom categories (e.g., an attack of nerves).

Members of some cultural groups may also present dissociative symptoms in a manner that may not readily be assessed as dissociation (e.g., as possession by a spirit; Lewi-Fernández et al., 2007). Hinton, Pich, Marques, Nickerson, and Pollack (2010) found that severity of khyál attacks, a panic-like symptom experienced by Cambodian people and attributed to disruption in personal energy, was strongly correlated with severity of PTSD symptoms. Certain traumas, given their importance to members of a culture, may also be more likely to cause traumatic stress reactions in members of a particular cultural group.

Some, but not all, assessment instruments have been evaluated with different cultural groups. Pole and colleagues’ (2008) review noted that the Mississippi Combat-Related PTSD Scale, the Keane PTSD Scale, the CAPS, and the PCL have been found to be effective with African American populations. It is worth noting that an assessment instrument may have been translated into another language, but this does not mean it is valid with every cultural group that speaks that language. For instance, Bourque and Shen (2005) found that the Spanish translation of the Civilian Mississippi Scale had significantly poorer correlations for Latinos than it did for White Americans compared with other PTSD measures. Fortuna, Porche, and Alegría (2009) recommended that clinicians use the Cultural Formulation from the DSM-5 (a model that takes into consideration cultural identity, the client’s cultural environment, the role of culture in the clinical relationship, and cultural factors related to behavioral health) when assessing PTSD. They explained its application but also observed that, in their own research involving community healthcare settings, the model is not widely used.

**Special Issues in Assessment**

Clinicians may have concerns that clients will not want to answer questions about certain types of trauma, such as childhood abuse. Research indicates that a considerable percentage of people who experience childhood sexual abuse do not report it when asked open-ended questions about
childhood experiences. In earlier studies reviewed by Goodman and colleagues (2003), 37 percent of women (Williams, 1994) and 38 percent of women and men (Widom & Morris, 1997) with child sexual abuse histories did not report it. Goodman and colleagues (2003) also reviewed research indicating that men are less likely than women to disclose childhood sexual abuse and that individuals are less likely to disclose instances of childhood sexual abuse when the perpetrator is a family member.

Goodman and colleagues’ (2003) own research involved 175 adults who had participated as children in a study regarding their sexual abuse and were reinterviewed by phone 13 years later, ostensibly for a study of their legal experiences and attitudes. They found that only 15.5 percent (n=26) reported the abuse. They observed that their study, in contrast to the earlier studies they reviewed, had comprehensive records of the participants’ childhood sexual abuse, which enabled them to more accurately assess whether participants were disclosing information about the reported events. Factors associated with significantly lower likelihood of disclosing about childhood sexual abuse included abuse occurring at an early age (age 5 or earlier), less severe abuse, and less maternal support following the abuse. The authors did not find significant differences in disclosure between men and women. On the other hand, Edwards and colleagues (2003) found in the ACE study, as well as in some other research they reviewed, that most individuals who sustained childhood abuse are willing to discuss it and also believe that clinicians can help them cope with the effects of such abuse. The authors observed that differences in findings may reflect differences in how inquiries about childhood sexual abuse are made and how nonreporting of such abuse was evaluated, but also noted that the wrong assessment methods will fail to elicit reports about such trauma.

Clinicians may also have difficulties eliciting information about other types of interpersonal trauma, such as torture. Westermeyer, Hollifield, Spring, Johnson, and Jaranson (2011) assessed experiences of torture for 1,134 refugees from Eastern Africa, using a single direct question as to whether the individual had been tortured and a checklist of the 75 most common experiences of torture. They found a fair amount of disagreement between the two assessment methods; 14 percent of the sample reported 1 or more item of torture on the checklist but answered the single question negatively, and 9 percent of the sample answered that they had been tortured but indicated no experience that would be considered torture.

The authors suggested that those who reported an experience that qualifies as torture but did not indicate they had been tortured may have done so because they may have been so inundated with trauma in their environment that they did not perceive their experience as torture, they may have been afraid of being discriminated against because of their experiences, and/or they may have perceived their experiences to be punishment for political actions and not as victimization by torture. Those who indicated being tortured in answer to the general question but did not indicate any specific experiences differed from others in the study in that they were significantly more likely to be women; to be separated, divorced, or widowed; and to be significantly older (factors that may have played a role in shaping their response). The authors noted that this latter group was, like others in the study, highly traumatized and may have perceived their trauma as a form of torture, even if their specific experiences would not generally be categorized as torture. The results of this study suggest that multiple methods of screening/assessment may be needed to elicit information about certain types of trauma, such as torture.
Although childhood sexual abuse often goes unreported, another potential concern in assessment is whether recovered or discontinuous memories of childhood abuse (particularly childhood sexual abuse) are valid or accurate portrayals of an individual’s past trauma. Courtois (2000) discussed the reasons for the controversy surrounding recovered memories and the arguments given, both pro and con, concerning the validity of such memories. She also reviewed the conclusions of four expert panels that weighed in on the controversy. An APA panel cautioned that clinicians should not automatically disbelieve any reports of abuse, nor should they pressure clients to believe that abuse may have occurred. The APA similarly noted that all clinicians should take a neutral attitude toward reports of child abuse, and observed that despite it being possible to construct pseudomemories that may be mistaken for real events, there are no hard and fast rules as to when reports are inaccurate. She concluded that research has established that memories can be recovered, but also that false memories are possible.

Geraerts and colleagues (2007) reviewed, in greater detail, evidence that it is possible for individuals to regain previously forgotten memories of childhood abuse, but they observed that the cases where this has been established have not involved aggressive memory-recovery techniques (e.g., hypnosis). They also provided evidence from their own study of a self-selected sample of individuals with either continuous ($n=71$) or discontinuous ($n=57$) memories of childhood sexual abuse. They substantiated, using other sources, significantly more cases of discontinuous memory when the memory was recalled outside of therapy and, in fact, they could not substantiate any of the cases involving discontinuous memories that were recalled within the context of therapy. Similar percentages of continuous memories and discontinuous memories recalled outside of therapy were corroborated. Although this does not discount discontinuous memories first recalled within the context of therapy, it does suggest that it is more likely that some of them are not authentic.

In another study, Geraerts and colleagues (2009) evaluated the propensity to recall falsely and the tendency to forget prior instances of remembering among a Dutch sample of individuals who had memories of childhood sexual abuse recovered in therapy ($n=30$) or recovered spontaneously ($n=30$) or who had continuous memories of childhood sexual abuse ($n=30$) or no such memories ($n=30$). They found that individuals who recovered memories while in treatment appeared to be more susceptible to false memories; those who recovered memories outside treatment appeared more prone to forgetting past acts of remembering. Again, the tests used were not conclusive but do suggest underlying differences between those who may have false recall of childhood sexual abuse and those who may have forgotten and then recalled acts of childhood sexual abuse.

Certain aspects of traumatic stress reactions may also hinder effective assessment. Briere (2002) noted that avoidant PTSD symptoms, by their very nature, decrease clients’ responses to assessment questions and inhibit discussion of trauma. Such symptoms may even manifest as dissociative amnesia, which may make traumatic memories completely unavailable to clients.

**Prevention and Early Interventions for Traumatic Stress Reactions**

This section covers a number of reviews and meta-analyses that evaluate different interventions for traumatic stress reactions (e.g., ACPMH, 2007; Bisson et al., 2007; Bisson & Andrew, 2009; Bradley, Greene, Russ, Dutra, & Western, 2005; Cloitre, 2009; Ehlers et al., 2010; Ponniah &
Prevention and Early Intervention

A number of interventions meant to reduce the effects of trauma and prevent the development of PTSD have been evaluated in the literature (Resnick, Acierno, Kilpatrick, & Holmes, 2005; Zatzick et al., 2004). Such prevention activities may be presented as a form of psychological first aid delivered to everyone who has experienced a given type of trauma (Everly, Phillips, Kane, & Feldman, 2006). Alternatively, indicated prevention may be provided for individuals who are considered at high risk for developing PTSD (e.g., people who have ASD) following trauma exposure.

Zohar, Sonnino, Juven-Wetzler, & Cohen (2009) explored whether PTSD can be prevented. They reviewed research indicating that individuals who have amnesia related to traumatic experiences are significantly less likely to develop PTSD. Animal research confirms this and also shows that stress related to trauma can be reduced/eliminated by chemically inducing amnesia. They noted that research with people who have had a myocardial infarction ($n=116$) found that those who use a repressive coping style had significantly fewer symptoms of ASD and PTSD (the latter, up to 7 months after the event), suggesting that particular coping skills might aid in reducing traumatic stress reactions among those exposed to trauma (see Ginzburg et al., 2002).

Zohar and colleagues (2009) also reviewed research indicating that interventions that enhance a traumatic memory, such as some forms of psychological debriefing, are unlikely to be effective and may be harmful. Instead, the authors concluded that pharmacological interventions are likely to be the most effective means of preventing PTSD, although more research is needed to evaluate such interventions. Another review, conducted by Roberts, Kitchiner, Kenardy, and Bisson (2009a), looked at 25 randomized controlled trials for multisession prevention interventions and concluded that trauma-focused cognitive–behavioral therapy (CBT) provided within 3 months of trauma exposure was effective at reducing PTSD symptoms, especially for those whose symptom levels met criteria for a PTSD diagnosis.

A review by Agorastos, Marmar, and Otte (2011) did not find sufficient evidence of any benefit from preventive interventions delivered within hours of trauma exposure, but they found some evidence that brief CBT delivered days or weeks after trauma reduced PTSD risk. These authors concluded that brief CBT interventions should be considered the best option for prevention. Prevention interventions that use CBT are difficult to distinguish from early treatment, but several other studies have also found them effective for reducing PTSD symptoms. For example, Israeli researchers compared four different early treatment options (prolonged ET, cognitive therapy, treatment with a selective serotonin reuptake inhibitor [SSRI], or placebo) with a waitlist control group (Shalev et al., 2012). The researchers provided follow-up data for 182 participants. At the 5-month follow-up assessment, the PTSD prevalence rates were similar for the prolonged ET and cognitive therapy groups (21.4 percent and 18.2 percent of whom, respectively, had PTSD) and were significantly lower for participants who received those...
interventions compared with all others. Treatment compliance and completion rates were also similar across intervention groups.

A number of other reviews evaluating interventions to prevent traumatic stress reactions have been conducted. One that used stringent selection criteria was conducted for the Cochrane Collaboration (DeSilva et al., 2009). This review evaluated prevention of physical and mental problems as well as impairments to social functioning that might result from trauma exposure. It did not, however, find convincing evidence for the effectiveness of interventions aimed at preventing behavioral health problems and, in fact, found three studies that provided good evidence that such interventions had a harmful effect on behavioral health.

Although less often recognized as prevention, material and social services provided to trauma victims appear to reduce PTSD risk. For example, among survivors of a tsunami in India, both satisfaction with services received and receiving three or more sessions of counseling were associated with significantly lower PTSD rates (Pyari et al., 2012). Also, Ullman & Filipas (2001) found that having more services available was associated with a significant decrease in PTSD risk for women who had been raped or sexually abused. Kantor and Beckett (2011) reviewed more research that indicates that connecting trauma survivors with family, social support networks, and needed resources appears to be the most effective strategy for preventing traumatic stress reactions.

A number of models/interventions for providing social services to trauma victims have been developed, but most have not had high-quality evaluations. Walsh (2007) reviewed information on multisystemic, resilience-oriented interventions that have been used to help communities respond to large-scale traumatic events, drawing on examples from around the world. Agani, Landau, and Agani (2010) discussed the Linking Human Systems Community Resilience Model, which attempts to mobilize social resources to improve an entire community’s resilience in response to traumatic events. They also gave an example of the program’s use in Kosovo.

**Principles of Effective PTSD Prevention**

It is unclear whether a specific effective intervention is available for preventing PTSD, but some basic principles have been evaluated that many authors believe are helpful in the wake of trauma exposure. Hobfoll and colleagues (2007) delineated and reviewed research supporting the use of five basic principles to use when counseling someone who has recently been exposed to trauma:

1. *Promote a sense of safety.* Research indicates that reestablishing a feeling of safety following trauma exposure can decrease PTSD risk, whereas individuals who exaggerate future risk following trauma have a higher rate of PTSD.
2. *Promote calmness.* An initial reaction of anxiety and heightened emotional response is normal in the wake of trauma, yet studies indicate that when this type of response is prolonged, it is associated with a variety of behavioral health problems. Two interventions that work to calm individuals exposed to trauma or to teach skills for self-calming prior to trauma exposure have been evaluated and found effective at reducing PTSD: stress inoculation training (Hembree & Foa, 2000) and ET (Bryant, Harvey, Guthrie, & Moulds, 2003). Hobfoll and colleagues (2007) also recommend teaching problem-solving skills to improve clients’ abilities to appraise the nature of their problems realistically and provide psychoeducation about typical reactions to trauma to help them put feelings into context.
Both techniques have strong theoretical support but lack research evaluating their effectiveness. Fostering positive emotions may also be helpful in this context, as such emotions have been found to have a protective relationship to behavioral health problems.

3. **Promote a sense of personal and collective efficacy.** A belief in one’s own ability to recover from trauma (self-efficacy) and the ability of one’s community or group to do so (collective efficacy) has been shown to have a positive effect on one’s behavioral health. Skills can also be taught, for example, with CBT to improve self-efficacy. In the case of collective efficacy, providing social and economic resources is also important (as those individuals who lose more economically and socially have a harder time recovering from trauma).

4. **Promote connectedness.** A number of studies have found that greater social support reduces the likelihood of developing PTSD following trauma exposure and improves recovery from it, and on the other hand, poor social support or a negative community response increases the odds that an individual will develop PTSD and hinders recovery. However, the quality of social support is important, not just the quantity. Studies have also demonstrated that negative social support, such as minimizing problems, invalidating feelings, or creating unrealistic expectations, is strongly associated with long-term distress following trauma (e.g., Andrews et al., 2003).

5. **Instilling hope.** A greater sense of hope after trauma is associated with better outcomes in a number of areas. Research indicates that CBT can be used to address such factors as an exaggerated sense of personal responsibility or a tendency to classify experiences as catastrophic (e.g., turning every setback into a catastrophe), which can impede hope.

In a review that specifically addressed pharmacological interventions to prevent PTSD, Zohar and colleagues (2011) offered a different set of basic guidelines for preventing PTSD that should be followed when treating someone who has been recently exposed to trauma. These are: don’t pathologize (instead, explain that the individual’s response is normal given the abnormality of the situation), don’t psychologize (e.g., increase emotional reactions to the trauma or enhance traumatic memory through debriefing), and don’t pharmacologize (e.g., administer a benzodiazepine or sleeping pill in the first few hours). This last item has a caveat that medications are being researched (e.g., inderal, hydrocortisone) that may reduce PTSD if administered soon after trauma exposure.

Although most prevention activities for people who have been traumatized are aimed at preventing PTSD, it is possible to work to prevent other behavioral health problems in the wake of trauma. For example, Resnick, Acierno, Amstadter, Self-Brown, and Kilpatrick (2007) evaluated an intervention aimed at preventing substance abuse in the wake of sexual assault. According to data for 268 female adolescents and adults who received either a two-part psychoeducational intervention delivered via video or standard care alone and who were available for at least one of three follow-up assessments, viewing the video intervention was associated with significantly lower frequency of marijuana use at each of the follow-up times (less than 3 months, 3 to 6 months, or 6 months or longer post assault). However, women who did not have a prior rape history displayed higher PTSD and anxiety symptoms at 6 weeks. The results underscore the need to further explore other aspects of the findings.
Psychological First Aid

Some authors have adapted the basic principles suggested by Hobfoll and colleagues (2007; see “Principles of Effective PTSD Prevention”) as part of a program of psychological first aid (e.g., Kantor & Beckett, 2011; Ng & Kantor, 2010). Kantor and Beckett (2011) described the key features of psychological first aid as “contact and engagement, safety and comfort, stabilization, information gathering, practical assistance, connection with social supports, information on coping, and linkage with collaborative services” (p. 203). They also observed that psychological first aid is flexible and responsive to “the specific human needs and emotional style of an individual and his or her expressed needs at the moment of intervention” (p. 204).

Young (2006) observed that psychological first aid is indicated when an individual has an acute stress reaction in response to trauma (e.g., dissociative symptoms, extreme anxiety, a high level of cognitive impairment) or is at high risk for a traumatic stress reaction. The NCTSN and the NCPTSD (2006) created a manual, now in its second edition, that provides further guidelines for providing psychological first aid (available at http://www.nctsn.org/content/psychological-first-aid). These guidelines have been widely accepted and adopted by organizations such as the American Red Cross (Kantor & Beckett, 2011).

Military Prevention Programs

Prevention interventions have been developed specifically for members of the military who have been exposed to trauma (e.g., the Battlemind and the Master Resiliency Training Programs; see Reivich, Seligman, & McBride, 2011). Some of these programs are more immediate preventive measures delivered prior to deployment and/or after trauma exposure, and others are intended for the transition period when military personnel are returning from deployment. In a large study intended to evaluate these programs, Adler, Bliese, McGurk, Hoge, and Castro (2009) compared 4-month outcomes for 1,060 individuals who had returned from combat deployments in Iraq and had been randomly assigned to receive stress education delivered in large groups, a Battlemind debriefing session delivered in small groups, Battlemind training in small groups, or Battlemind training in large groups. At follow-up, participants in the Battlemind debriefing group with high levels of combat exposure had significantly fewer PTSD symptoms (according to PCL scores), fewer depression symptoms (according to scores on the Patient Health Questionnaire-Depression scale), and fewer sleep problems than did participants with high combat exposure who received stress education, but there were no significant differences for individuals with less combat exposure (and presumably less exposure to combat trauma). Individuals who participated in the large-group Battlemind training also had significantly fewer depression symptoms and fewer sleep problems than participants in the stress education group.

The VA and the U.S. Department of Defense (VA/DoD; 2010) publication, Clinical Practice Guideline for Management of Post-Traumatic Stress, reviewed research on these programs and recommended four to five sessions of brief CBT as having the most benefit, although social support and psychoeducation/normalization also had some benefit. However, the guidelines did not address substance abuse or other comorbid conditions, and thus, their implementation requires careful evaluation depending on the complexity of the clientele.
Psychoeducation and Related Interventions for Prevention

Many interventions aimed at preventing traumatic stress reactions use psychoeducation to help people exposed to trauma understand psychological symptoms that may result from trauma, alter their perception of the traumatic event in a positive way, and be aware of behavioral health treatments available to alleviate posttraumatic psychological distress (Wessely et al., 2008). There is evidence that psychoeducation can alleviate anxiety for some anxiety disorders (see discussion in the planned TIP, Managing Anxiety Symptoms in Behavioral Health Services [SAMHSA, planned d]). However, evidence concerning the use of psychoeducation for preventing PTSD is more complicated.

Wessely and colleagues (2008) reviewed research on psychoeducation interventions that have been evaluated for their ability to reduce posttraumatic psychological distress, some of which (e.g., stress inoculation approaches) have evidence supporting their use and others of which (e.g., single-session psychological debriefing) have been found ineffective or potentially harmful. The authors concluded that there is not yet sufficient evidence for psychoeducation in this context and that the quality of interventions for this purpose varies considerably. They noted that some evidence suggests that psychoeducation that “proactively encourages an expectation of resilience and, if necessary, help-seeking” may be beneficial (p. 296). The authors also warned that simply disseminating information about psychological symptoms and mental disorders that may result from trauma exposure is likely not to be useful and may be harmful. Other reviews (e.g., van Emmerik, Kamphuis, Hulsbosch, & Emmelkamp, 2002) and studies (e.g., Marchand et al., 2006) have found that a single session of incident stress debriefing is no better than no intervention for people exposed to various types of trauma. Educational debriefing and emotional ventilation debriefing were also found ineffective and actually associated with higher PTSD rates for individuals who had a high level of hyperarousal at the time of the intervention (Sijbrandij, Olff, Reitsma, Carlier, & Gersons, 2006).

Medications To Prevent PTSD

Another possible way to prevent PTSD following trauma exposure is to administer a medication before or immediately following exposure. Fletcher, Creamer, and Forbes (2010) reviewed 15 studies that evaluated the use of medication for this purpose and concluded that, despite limited evidence, there are indications that hydrocortisone (which reduces the production of cortisol) and propranolol (which blocks norepinephrine reuptake) administered after trauma exposure may reduce PTSD rates. They noted that more extensive research is needed before medications such as these are used for trauma prevention (see also, Zohar et al., 2011).

Animal research appears to indicate that early administration of an SSRI following traumatic experiences may also significantly reduce PTSD-like behaviors, but more research is needed to confirm a positive effect for people (Zohar, Sonnino et al., 2009). Notably, some medications that are used following trauma may actually make PTSD symptoms worse or increase the likelihood of developing PTSD. Zohar and colleagues (2011) reviewed two small human studies and one animal study that indicate that benzodiazepines administered following trauma exposure increase the likelihood of developing PTSD later on. Similarly, research from Germany indicates that ketamine administered to accident victims aggravates ASD symptoms and is associated with increased levels of PTSD symptoms 3 to 24 months after trauma exposure (Schönenberg, Reichwald, Domes, Badke, & Hautzinger, 2005, 2008).
Longer-Term Prevention Measures

Interventions 1 to 4 weeks after trauma exposure require different methods and are typically aimed at achieving different outcomes than are measures provided in the immediate aftermath of trauma (Bryant & Litz, 2006). Interventions delivered 1 to 4 weeks after trauma exposure (such as interventions for people with ASD, discussed in the following section) more closely resemble treatment interventions and may even be labeled as assessment and early intervention rather than as prevention. Bryant and Litz (2006) reviewed some of the prevention tasks that might be used at this stage, including assessment of ASD and PTSD symptoms, trauma-focused CBT, ET, and eye movement desensitization and reprocessing (EMDR). They also observed that prevention activities at this stage will likely be targeted to individuals with ASD or those believed to be at high risk for PTSD.

Prevention for People With ASD

ASD following trauma exposure is associated with increased risk for developing PTSD later, so individuals with ASD are an appropriate target audience for indicated PTSD prevention. Ponniah and Hollon (2009) reviewed randomized clinical trials for both PTSD and ASD. Even though the research on ASD was limited to two studies, they concluded that, for preventing PTSD among people with ASD, trauma-focused CBT by itself or with an additional hypnosis component is more effective than supportive counseling and that imaginal and in vivo ET are more effective than either no treatment or cognitive restructuring.

Kornør and colleagues (2008) reviewed research on the delivery of trauma-focused CBT to people with ASD to prevent PTSD. All the studies included in their review compared trauma-focused CBT with supportive counseling. The authors concluded that trauma-focused CBT is superior to supportive therapy in terms of some PTSD outcomes (i.e., significantly lower PTSD rates at some, but not all, follow-up points; significantly lower levels of intrusion and avoidance symptoms up to 6 months later). However, the review included a limited number of studies (five trials, four of which were conducted by the same researchers), and further research is needed.

A review (Roberts, Kitchiner, Kenardy, & Bisson, 2010b) of interventions that treat ASD symptoms with the goal of preventing PTSD examined 15 studies that compared trauma-focused CBT, supportive counseling, cognitive restructuring (without exposure), behavioral activation, or stepped collaborative care with waitlist or treatment-as-usual controls; trauma-focused CBT was also compared with other active treatments (supportive counseling, structured writing therapy, or cognitive restructuring without exposure). Roberts and colleagues concluded that trauma-focused CBT is effective at reducing PTSD symptoms among those who meet criteria for ASD; weaker evidence suggests that it is effective with individuals who have symptoms of ASD without meeting all criteria for the diagnosis. Trauma-focused CBT compares favorably with waitlist and treatment-as-usual controls as well as supportive counseling, and some evidence indicates superior effectiveness 6 months after treatment compared with cognitive restructuring without exposure. They also found limited evidence that cognitive restructuring had a greater effect than waitlist controls. They found no evidence to support the use of other interventions.

It can be difficult to distinguish between interventions aimed at treating ASD and those intended to prevent the development of PTSD among people with ASD, as they largely focus on the same outcomes. For example, Bryant and colleagues (2008) evaluated imaginal/in vivo ET ($n=30$),
cognitive restructuring \((n=30)\), or assessment and a waitlist \((n=30)\) as treatment for ASD following either a vehicle crash or a nonsexual assault. Using an intent-to-treat analysis, they found that individuals who received ET were significantly less likely to have PTSD 6 months after treatment, had significantly fewer ASD/PTSD symptoms following treatment and at the 6-month posttreatment assessment, and had significantly better outcomes in terms of general distress, non-PTSD anxiety symptoms, and depressive symptoms. Individuals receiving cognitive restructuring also had significantly better outcomes than those in the waitlist control group, but effect sizes were about half as large as those found with the ET intervention.

**Trauma-Specific Treatments**

Many different interventions and modalities are available for the treatment of trauma-related behavioral health problems. Although the focus of this TIP is on adults who have experienced trauma during their lifetimes, interventions have been designed and evaluated to address traumas across development—that is, ET and EMDR are designed more for adult populations, whereas some CBTs have been tailored to reach a broader age range. Treatments need to be developmentally appropriate and specific. This section focuses on meta-analyses and reviews rather than seminal works to cover the prolific field of trauma research. For more detailed information on particular trauma-specific treatments, refer to Part 1 of this TIP, “A Practical Guide for the Provision of Behavioral Health Services.”

Most reviews and meta-analyses have found that the most effective trauma-related behavioral health treatments are trauma-focused CBTs, which are broadly defined to include ET and EMDR. These two approaches are usually found to be about equally effective. Some reviews (e.g., Bisson et al., 2007) have found that stress management and group CBT are effective, albeit somewhat less so than CBT and EMDR. Cloitre’s (2009) review provided mean effect sizes for different treatments across multiple studies and found that trauma-focused CBT with cognitive restructuring had the largest mean effect size \((8.83)\), followed by CBT with ET \((8.04)\), ET alone \((7.94)\), EMDR \((5.89)\), and problem-centered therapy \((5.67)\).

Mendes, Mello, Ventura, Passarela, and Mari (2008) reached somewhat different conclusions in their review of 23 clinical trials comparing CBT with other PTSD treatments. They found that CBT is associated with better remission rates than EMDR and with efficacy and compliance outcomes comparable to cognitive therapy and ET, suggesting that CBT is somewhat preferable to EMDR.

Clinical practice guidelines such as those from the ACMPH (2007), the United Kingdom’s National Institute for Clinical Excellence (NICE; 2005), and DoD and VA (2010) also generally endorse trauma-focused CBT and, in some cases, EMDR as the best initial approaches for treating PTSD. However, the National Institute of Medicine (IOM, 2008), in its review and recommendations on PTSD treatment, found insufficient evidence supporting the use of EMDR, cognitive restructuring, coping skills therapy, and group therapy for PTSD, and endorsed only the use of ET, which they noted was a component of most CBT interventions. Benish, Imel, and Wampold (2008)—using a statistical approach that was conservative in design and analysis—concluded in their review that all interventions aimed at treating PTSD were basically equally effective. This review included trauma desensitization, EMDR, CBT, various forms of ET, stress inoculation, hypnotherapy, trauma-focused group therapy, psychodynamic therapy, and present-
centered therapy. The authors also observed that about 25 percent of participants in the studies reviewed left treatment early, and thus concluded, “keeping patients in treatment would appear to be more important in achieving desired outcomes than would prescribing a particular type of psychotherapy” (p. 755).

Ehlers and colleagues (2010) raised two major objections in response to Benish and colleagues’ (2008) review. The review excluded some widely used treatments (notably, supportive therapy) because they did not meet their criteria of being a bona fide treatment but included others (e.g., present-centered therapy) that used many of the same components but were not as widely studied, and the review did not account for the need for treatments to show greater efficacy than natural recovery to establish their effectiveness. Ehlers and colleagues (2010) concluded that Benish and colleagues’ (2008) review findings are not sufficient to establish that all PTSD treatments (not just trauma-focused CBT and EMDR) are equally effective.

Large-scale reviews such as these present certain problems. As noted by IOM (2008), interventions vary from one another in a number of different ways, such as “in their emphasis on re-exposure to trauma-related memories and stimuli, cognitive restructuring of the trauma experience, expression and management of emotion, training in stress management (including relaxation training), and general social and vocational support,” and few studies attempt to separate these components to evaluate their efficacy/effectiveness independently (p. 93). Thus, it is difficult to ascertain which parts of a given intervention produce positive change.

IOM (2008) also identified problems with PTSD research, such as study attrition, inadequate methods for addressing missing data, publication and investigator bias (e.g., pharmacological studies funded by drug companies), difficulties generalizing results found with one specific population or applying those results to another specific population, inadequate follow-up, and a dearth of high-quality randomized controlled studies. The report pointed out that even though a rigorous evidence base for a particular treatment or intervention may be lacking, this does not mean the particular treatment lacks clinical efficacy.

**Cognitive–Behavioral Therapy**

A number of specific PTSD interventions can be classified as CBT, and CBT for trauma and traumatic stress reactions typically includes multiple techniques/components. It is also usually trauma-focused (i.e., focused on helping clients address traumatic experiences). For example, in their review of CBT for trauma, Cahill, Rothbaum, Resick, and Follette (2009) evaluated seven different techniques/therapies, which they labeled as CBT: ET, stress inoculation training, cognitive processing therapy (CPT), cognitive therapy, relaxation training, dialectical behavior therapy (DBT), and acceptance and commitment therapy (ACT). CBT is a well-studied approach—Cahill and colleagues’ (2009) review included 64 randomized, controlled trials and many more nonrandomized trials. CBT is also generally recommended in the treatment of PTSD. Although much of the research has focused on CBT’s use in treating PTSD, a Cochrane review of treatments for ASD also found CBT to be more efficacious than waitlist controls or supportive counseling (Roberts et al., 2010).

Reviews of CBT for the treatment of trauma and/or PTSD include those by Cahill and colleagues (2009), Kar (2011), and Mendes and colleagues (2008). All concluded that evidence supports the effectiveness of CBT in the treatment of PTSD. Beck, Emery, and Greenberg’s (2005) book on a
cognitive approach to treating anxiety disorders also has some discussion of how cognitive therapy may be applied to the treatment of PTSD.

Other reviews of CBT for anxiety disorders also found it to be an effective approach for treating PTSD and, in some cases, ASD (Hofmann & Smits, 2008; Norton & Price, 2007; Otte, 2011; Stewart & Chambliss, 2009). For example, Stewart and Chambliss (2009) found that CBT performed significantly better in treating PTSD than nontreatment controls and had relatively large effect sizes in terms of reducing PTSD symptoms (with a combined standardized mean difference in effect size of 2.59, according to their meta-analysis). CBT has been successfully used for treating trauma and PTSD in a number of different populations, including child sexual abuse survivors with or without complex PTSD (McDonagh et al., 2005; Resick, Nishith, & Griffin, 2003); women who have experienced domestic violence (Johnson, Zlotnick, & Perez, 2011; Kubany et al., 2004); women who are victims of sexual assault (Foa, Zoellner, & Feeny, 2006; Resick, Nishith, Weaver, Astin, & Feuer, 2002); people who survived motor vehicle crashes (Beck, Coffey, Foy, Keane, & Blanchard, 2009; Maercker, Zöllner, Menning, Rabe, & Karl, 2006); victims of terrorism/civil conflict (Duffy, Gillespie, & Clark, 2007; Hamblen, Gibson, Mueser, & Norris, 2006; Levitt, Malta, Martin, Davis, & Cloitre, 2007); refugees/asylum seekers (Hinton et al., 2009; Paunovic & Öst, 2001); survivors of natural disasters (Başoglu, Salcioglu, & Livanou, 2007; Hamblen et al., 2009); veterans/military personnel with combat trauma (Kent, Davis, Stark, & Stewart, 2011; Khoo, Dent, & Oei, 2011; Schnurr, Friedman et al., 2003); and disaster aid workers (Difede et al., 2007). Ruzek and colleagues (2008) specifically reviewed the use of CBT to treat trauma and traumatic stress responses in individuals who survived disasters or terrorist attacks, and Jaycox, Zoellner, and Foa (2002) reviewed its use with rape survivors.

CBT has also been effectively used to treat PTSD in clients with various co-occurring disorders, including panic disorder (Falsetti, Resnick, & Davis, 2008; Hinton, Chhean, Pich et al., 2005), major depression (Nixon & Nearmy, 2011), SMI (i.e., major depression, bipolar disorder, schizoaffective disorder, and/or schizophrenia; Mueser et al., 2008), substance use disorders (see the “Integrated Approaches for Trauma and Substance Abuse” section), BPD (Dorrepaul et al., 2010), both depression and substance use disorders ( Norman et al., 2010), and chronic pain conditions ( Otis, Keane, Kerns, Monson, & Scioli, 2009). CBT has also been found to be an effective treatment for sleep problems associated with PTSD (Carney & Edinger, 2010; DeViva, Zayfert, Pigeon, & Mellman, 2005; Nishith et al., 2003; Ulmer, Edinger, & Calhoun, 2011).

Trauma-focused CBT interventions have been culturally adapted for various client populations, including Latinas (Hinton, Hofmann et al., 2011), African refugees from two different nations (Neuner, Schauer, Klaschik, Karunakara, & Elbert, 2004), Cambodians (Hinton, Hofmann et al., 2009), and Vietnamese (Hinton et al., 2004). Hinton, Kredlow, Bui, Pollack, & Hofmann (2012) discussed some of the ways in which CBT can be made more culturally relevant for refugees (and others) from non-Western cultures. For example, using emotional regulation techniques and imagery drawn from their cultural traditions, focusing on teaching psychological flexibility (an important skill for individuals trying to adapt to living in a multicultural environment), changing the focus of some CBT techniques (e.g., focusing on uncontrollable worry, a common expression of traumatic stress reactions in individuals from non-Western cultures), using culturally relevant rituals to mark transitions, and using CBT to address culturally specific syndromes (e.g., ataque de nervios among Latinos). CBT for trauma/traumatic stress reactions can be effectively
delivered in groups as well as one on one (e.g., Beck et al., 2009; Kent et al., 2011). It has also been adapted for delivery by computer or over the Internet (McLean, Steenkamp, Levy, & Litz, 2010).

Trauma-focused CBT can encompass a number of different techniques. Cahill and colleagues’ (2009) review listed various interventions/techniques that involve CBT principles and have been used for treating trauma/traumatic stress reactions. These include ET (discussed separately in this section); stress inoculation training, a method of managing anxiety/stress; CPT, which teaches clients to address problematic cognitions such as self-blaming; cognitive therapy, another approach for modifying problematic/dysfunctional thinking; relaxation training, a behavioral approach for relaxing the body and mind to reduce stress/anxiety; DBT, a form of CBT developed to treat BPD; and ACT, an approach that fosters acceptance and awareness of internal states/feelings. Cahill and colleagues’ (2009) review summarized research supporting the use of each of these CBT interventions/techniques, noting that the strongest and most extensive research is for various exposure therapies; there are also multiple studies supporting the use of CPT, cognitive therapy, and stress inoculation training in this context.

Although the research on ACT for people with PTSD and trauma-related problems is limited, Walser and Westrup (2007) drew on theory and clinical experience to discuss why the approach may be effective with this population. They also provided a “how-to” guide for using ACT in this context. Researchers have found mixed results in comparing the effectiveness of different components of trauma-focused CBT; typically, this research has involved comparing ET and cognitive restructuring. Most studies have found that neither ET nor cognitive restructuring alone is more effective than the other, and although some studies have found that the combination of the two is more effective than either alone, others have not found that to be the case (Resick et al., 2008).

Resick and colleagues (2008) took a somewhat different approach to evaluating the components of CPT, a CBT intervention that involves the use, separately and together, of cognitive therapy to address thinking patterns and narrative writing to enable clients to be exposed to traumatic memories in a relatively safe manner. Assessment 6 months after treatment showed no significant differences in symptoms of depression or PTSD between participants who received either component alone and those who received both components. However, when the participants who received cognitive therapy alone were compared with those who received the narrative therapy component alone, those in the former group had significantly lower levels of both PTSD and depression symptoms.

Not all CBT interventions used to treat PTSD are trauma-focused. For example, Monson, Rodriguez, and Warner (2005) compared CBT for PTSD that was trauma-focused (relying largely on ET to help clients reprocess traumatic experiences) with another CBT intervention that was skills-focused (helping clients learn and practice skills to manage PTSD symptoms). They did not find significant differences between the two in terms of outcomes for PTSD symptoms or alcohol abuse, but they did find that the perceived quality of clients’ intimate relationships prior to beginning treatment had a stronger negative relationship to violence perpetration (assessed using four questions from the NVRRS study) if the client received trauma-focused rather than skills-focused CBT, suggesting that clients with stronger intimate relationships may gain some added benefit from trauma-focused CBT.
Building strength and resilience can be the focus of a CBT intervention. In a pilot study, Kent and colleagues (2011) used a resilience-oriented CBT intervention with 39 veterans who had PTSD. The authors found large improvements in terms of affective symptoms and positive emotional health, a moderate improvement in memory, and a small-to-moderate improvement in executive functioning.

CBT has also been combined with other approaches/interventions to improve treatment of PTSD and other consequences of trauma. Positive outcomes have been found using CBT combined with behavioral activation, a more purely behaviorist approach to treatment (Nixon & Nearmy, 2011), as well as with CBT combined with pharmacotherapy (see studies reviewed by Stein, Ipser, & McAnda, 2009). Although many CBT interventions are manualized, Levitt and colleagues (2007), in a study that evaluated flexibility in the application of a manualized CBT treatment for 59 survivors of the 9/11 attack, found that effects sizes for the treatment using a more flexible approach were comparable to those observed in other studies that had more strict adherence to the manual.

Eye Movement Desensitization and Reprocessing

EMDR is a technique that helps desensitize clients to traumatic memories, replace distressing cognitions with positive ones, and learn to attend to bodily sensations, thoughts, and feelings in a manner similar to mindfulness meditation approaches (Foa, Keane, Friedman, & Cohen, 2009; Spates, Koch, Cusack, Pagoto, & Waller, 2009). A number of literature reviews/meta-analyses have found EMDR to be an effective treatment for PTSD, with the caveat that the eye movements themselves do not appear to be necessary in order for the intervention to be effective (Ehlers et al., 2010). Although IOM (2008) guidelines do not recommend EMDR, guidelines from Australia (ACPMH, 2007) and Great Britain (NICE, 2005) have included it as an effective approach. SAMHSA’s National Registry of Effective Evidence-Based Programs and Practices (NREPP; http://nrepp.samhsa.gov) also recognizes EMDR as effective in reducing PTSD, anxiety, and depression symptoms.

Spates and colleagues (2009) reviewed research specifically on EMDR as a treatment for PTSD. Among the studies they reviewed are ones that found EMDR more effective than relaxation training, habituation training, fluoxetine, placebo pill, and standard care. They reported on two studies that found better outcomes for EMDR than for prolonged ET and other studies that found that ET produced better outcomes than EMDR. They concluded that the two treatments are about equally effective. One study they reviewed also indicated that EMDR produced significantly better outcomes for clients with adult-onset rather than childhood-onset trauma.

Ehlers and colleagues’ (2010) review concluded that, although EMDR is effective for PTSD, the eye movement component of the treatment is not necessary. Davidson and Parker (2001) reached a similar conclusion in an earlier meta-analysis of EMDR, finding that no additional effect could be found when EMDR was practiced with the eye movements compared with when it was practiced without them. Spates and colleagues (2009) also reviewed studies that evaluated the benefit of the eye movement component of EMDR. They observed that early research did not find any additional benefit, but that one small study found that bilateral eye movements (the type used in EMDR) produced somewhat quicker results than other types of eye movements. Other studies of this aspect of EMDR either have not used clinical samples or have other significant methodological problems.
Exposure Therapy

ET may be considered as a component of trauma-focused CBT (e.g., Cahill et al., 2009) or evaluated as an intervention in and of itself (e.g., IOM, 2008). It has been recommended for the treatment of PTSD in a number of guidelines (e.g., ACPMH, 2007; DoD/VA, 2010; IOM, 2008) and reviews (e.g., Bisson & Andrew, 2007; Bradley, Greene et al., 2005; Cloitre, 2009; Ehlers et al., 2010). Prolonged exposure (PE; Foa & Rothbaum, 1998; Foa, Hembree, & Rothbaum, 2007; see also NREPP) is the specific model of ET for PTSD that has been the most widely researched and is recommended in a number of PTSD treatment guidelines and reviews (e.g., IOM, 2008).

In their review of PE, McLean and Foa (2011) described recommended practice, presented the theoretical underpinnings of the intervention, and briefly reviewed the research supporting its use. Reviewing 25 randomized, controlled trials, the authors concluded that studies have consistently found that PE is effective in reducing PTSD. A few studies also indicated that PE is effective for both acute and chronic PTSD, produces results that persist for 1 year or more, produces relatively quick results, and has relatively large effect sizes. PE is more effective than waitlist controls, relaxation training, supportive counseling, and treatment as usual; it is as effective as other recommended PTSD treatments.

Another meta-analysis of PE, which included 13 studies and a total sample of 657, reached similar conclusions (Powers, Helpern, Ferenschak, Gillihan, & Foa, 2010), finding it more effective than nontreatment control conditions and as effective as other active treatments (e.g., EMDR, CBT). According to Powers et al.’s analysis of combined data, the average client receiving PE had better posttreatment outcomes than 86 percent of participants in control groups. PE had high to medium effect sizes for primary and secondary outcomes at follow-up assessments. Rachamim, Nacasch, Shafran, Tzur, and Gilboa-Schechterman (2009) also reviewed research on the use of PE for PTSD, with particular attention to research conducted in Israel. Another meta-analytic review by Ougrin (2011) compared data on the effectiveness of cognitive therapy and ET and found no significant differences in effectiveness between the two.

A few studies of PE have been published since these reviews. One by Resick, Williams, Suvak, Monson, and Gradus (2012) followed up earlier research and provided long-term (i.e., 5 to 10 years after initial treatment) follow-up data for 126 women (out of an initial 171) who had been rape victims and had PTSD that was treated with either PE or CPT. Participants in both treatment groups had significant reductions in PTSD symptoms (according to both the PTSD Symptom Scale and the CAPS) that persisted over the long-term follow-up period, with no significant differences between the two treatment arms. At the long-term follow-up assessment, 93.4 percent of those who received CPT and 91.9 percent of those who received PE had 10-point reductions in CAPS scores from pretreatment levels, and 88.5 percent of those who received CPT and 88.7 percent of those who received PE had 20-point reductions. Also, at the long-term follow-up assessment, only 22.2 percent of those who received CPT and 17.5 percent of those who received PE met criteria for a current PTSD diagnosis (down from 100 percent at the start of treatment).

ET (typically PE) has been found to be effective with different populations, including female veterans (Schnurr et al., 2007), male combat veterans (Yoder et al., 2012), female victims of rape (Resick et al., 2012), women who were victims of childhood sexual assault (McDonagh et al., 2005), survivors of terrorist attacks (Schneier et al., 2012), and refugees exposed to political
violence/torture (Paunovic & Öst, 2001). ET has been found to be effective when delivered in groups (Ready et al., 2008) as well as individually.

Some research suggests that traditional ET models may not be suitable for members of all cultural groups and that individuals from non-Western cultures may find ET harder to tolerate or may have some degree of worsening of symptoms before they respond to treatment (Hinton, Rivera, Hofmann, Barlow, & Otto, 2012). However, there is a lack of research evaluating this, and no significant data are available.

Hinton, Rivera, and colleagues (2012) recommended that, when using ET with refugees from non-Western cultures, clinicians should take a phased approach (e.g., teach emotional regulation skills such as meditation or muscle relaxation before using exposure techniques), use a trauma protocol (described in the article) that includes emotional regulation techniques and discussion to make ET more acceptable, and use interoceptive exposure techniques with positive reassociations (as this population has a high level of somatic complaints associated with their trauma, and those somatic sensations often perpetuate PTSD). They also recommended ways these techniques can be made more culturally relevant (e.g., understanding and using imagery and techniques drawn from clients’ cultural traditions when teaching emotional regulation). Their advice is also applicable to nonrefugee populations from diverse cultural backgrounds.

ET has also been adapted, as multiple channel exposure therapy, to treat co-occurring PTSD and panic disorder (Falsetti et al., 2008), and it has been combined with DBT to treat co-occurring PTSD and BPD (Harned, Korslund, Foa, & Linehan, 2012). Najavits, Schmitz, Gotthardt, and Weiss (2005) also reported on a small study ($N=5$) combining ET and Seeking Safety for men with co-occurring PTSD and substance use disorders. Looking at whether ET may be made more effective and palatable if used in combination with other treatments, Foa, Rothbaum, and Furr (2003) reviewed five studies combining ET and other CBT interventions and found little significant improvement associated with the additional therapies (only one of the studies found some improvement in outcomes). A later study by Foa and colleagues (2005) also found no significant differences when cognitive restructuring was added to ET, but there was some evidence that individuals with severe trauma-related thoughts did better in ET alone than in the combined treatment.

More recent research suggests benefits to adding cognitive restructuring to ET. A study that randomly assigned 118 individuals with PTSD to receive imaginal exposure, in vivo exposure, both combined, or both with additional cognitive restructuring found that fewer participants in the combined group had PTSD at the 6-month follow-up; findings also showed significantly larger effect sizes for PTSD and depression outcomes in the combined treatment group compared with all others (Bryant, Moulds et al., 2008). A randomized trial of ET with and without additional cognitive restructuring found that men who received ET alone ($n=32$) had significantly higher levels of PTSD symptoms at a 6-month posttreatment follow-up assessment than did men who received ET plus cognitive therapy ($n=20$) or women in either group ($n=56$; Felmingham & Bryant, 2012). The authors concluded that these gendered differences in treatment responses suggest that the combined treatment is a better option for men with PTSD.

Beidel, Frueh, Uhde, Wong, and Mentrkoski (2011) compared ET alone with ET in combination with social–emotional rehabilitation for combat veterans ($N=35$). They found no significant
differences in PTSD outcomes, but they did find that people who received the additional treatment participated in social activities more frequently and spent a greater amount of time engaged in such activities. ET has also been effectively combined with pharmacotherapy. Schneier and colleagues (2012) found that PE combined with pharmacotherapy (Paroxetine) was associated with better outcomes than PE alone in a group of survivors of the 9/11 attack (N=37).

One recent modification of ET is the use of virtual reality (VR) software to deliver exposure experiences in a more controlled and perhaps more realistic manner (Alcañiz, Lozano, & Rey, 2004; Botella et al., 2004). Recent literature reviews by Gerardi, Cukor, Difede, Rizzo, and Rothbaum (2010) and Meyerbröker and Emmelkamp (2010) have found that VR shows promise as a way to enhance ET for people with PTSD. However, the studies included in these reviews are small, often do not use control groups or random assignment, and mostly involve veterans with combat-related PTSD. A study from Spain compared a VR intervention (n=19) with standard CBT (N=20) for individuals with a stress-related disorder (PTSD, pathological grief, or adjustment disorders) and found no significant differences in outcomes related to those disorders and significantly better outcomes in terms of depression, social interference, and relaxation for those who received the VR intervention (Baños et al., 2011).

Another promising innovation in the delivery of ET is narrative ET, which was originally developed for use in countries with less economic development but has since been used in more developed nations (Robjant & Fazel, 2010). This approach was designed to be delivered by individuals who are not mental health professionals and to require a relatively short treatment time; it was also intended to document atrocities as well as treat PTSD. It is a manualized approach and involves emotional exposure to memories of trauma that takes place in the context of creating a narrative about the traumatic event. Robjant and Fazel (2010) reviewed findings from six trials involving the treatment of both children and adults that were conducted in countries with low to medium economic development and four conducted in countries with high economic development (although typically with refugee populations). These studies found that participation in the intervention was associated with reductions in PTSD symptoms and, in some cases, with reductions in other mental disorder symptoms and improvements in overall psychological well-being. Studies found greater improvements in outcomes among those receiving the intervention compared with no treatment, treatment as usual, psychoeducation, interpersonal therapy, or supportive counseling.

Some authors have raised concerns that ET may worsen symptoms for some clients and that dropout rates are high because the treatment is unpalatable to some. Cahill, Foa, Hembree, Marshall, and Nacash (2006) reviewed research regarding dropout and worsening of symptoms in the context of a larger review on the dissemination of ET for PTSD. They observed that studies have found dropout rates for ET to be comparable to those of other active treatments but significantly higher than nontreatment controls; the amount of worsening of symptoms was no different from that found in other active treatments but significantly lower than found in nontreatment controls.

**Psychodynamic Approaches**

Most research reviews and meta-analyses have found psychodynamic therapies to be relatively ineffectual in the treatment of PTSD. However, in a review of research on psychodynamic treatments for PTSD, Schottenbauer, Glass, Arnkoff, & Gray (2008) argued that this is because
such reviews consider only limited outcomes and claimed that psychodynamic approaches are helpful in ways that are typically not evaluated in the research, such as by improving self-esteem, relationships, problem-solving, and social functioning. They also noted that research indicates that such improvements often continue after treatment concludes. In addition, their review discussed how research and clinical observation indicate best uses for psychodynamic therapy with clients who have PTSD, particularly those with complex PTSD.

Kudler, Krupnick, Blank, Herman, & Horowitz (2009) reviewed research on psychodynamic therapy in the treatment of PTSD and derived similar conclusions. They observed that psychodynamic approaches place a priority on individualizing treatment but that such approaches are not indicated for every client. They also provided guidelines for which clients are best suited to this treatment modality.

**Pharmacotherapy**

A number of treatment guidelines also recommend pharmacotherapy as a possible treatment for PTSD, although typically not as the first line of treatment (e.g., ACPMH, 2007; Benedek, Friedman, Zatzick, & Ursano, 2009; DoD/VA, 2010; NICE, 2005). A variety of medications have been evaluated as PTSD treatments, but the most often recommended or suggested medications are, in order of preference, SSRIs, serotonin norepinephrine reuptake inhibitors (SNRIs), tricyclic antidepressants, monoamine oxidase inhibitors (MAOs), and atypical antipsychotics (see reviews by Friedman & Davidson, 2007; Ravindran & Stein, 2009; Stein, Ipser, & Seledat, 2006). Paroxetine and sertraline (both SSRIs) have been approved by the Food and Drug Administration for the treatment of PTSD, the latter for long-term as well as short-term treatment (Ipser & Stein, 2011).

Various reviews and guidelines recommend SSRIs as the first medication to try when treating PTSD (see review by Stein et al., 2009). Ravindran and Stein (2009) agreed with other reviews in noting that SSRIs have the most research supporting their use in this context, and, of the SSRIs, fluoxetine is the most researched and has generally been found to be effective in alleviating PTSD symptoms, reducing the likelihood of relapse to PTSD once remission is achieved, and alleviating other mental disorder symptoms that might complicate treatment. Acute-phase trials of sertraline have had somewhat mixed results; at least one trial involving veterans with relatively severe PTSD found that symptom improvements associated with sertraline were not significantly better than those associated with placebo use. Stein et al. observed that current guidelines recommend that SSRIs be used for 6 to 12 months for acute PTSD and 12 to 24 months for chronic PTSD; in some cases, an even longer period of treatment may be required. Studies of longer-term use of sertraline have shown better results and have consistently found significantly better improvements than placebo use.

A Cochrane review by Stein and colleagues (2006) found that, in the 35 randomized controlled trials they evaluated, a significantly larger percentage of clients with PTSD responded to medications than to placebo; most of these studies indicate that SSRIs are effective for treating PTSD. Ravindran and Stein (2009) noted that paroxetine also has a number of studies supporting its use, albeit fewer than the other SSRIs; a few other SSRIs (i.e., citalopram, escitalopram, fluvoxamine) have also been found effective in more limited research. Research comparing different SSRIs/SNRIs has not generally found significant differences in PTSD outcomes (Benedek et al., 2009).
A review by Ipser and Stein (2011) added to the knowledge base but also drew the same basic conclusions that SSRIs, the SNRI venlafaxine, and the atypical antipsychotic risperidone all are effective at reducing PTSD severity/symptoms. These authors also observed that sample characteristics do not appear to have a significant relationship to treatment response for these medications. Ravindran and Stein (2009) noted that the SNRI venlafaxine has been evaluated in a couple of research trials that found its use to be associated with significantly better outcomes than use of a placebo, although one trial did not find significant differences between venlafaxine and the SSRI sertraline. Other research has found no significant ethnic/racial or gender differences associated with response to venlafaxine, whereas differences in type of trauma were associated with significant differences in some outcomes (i.e., symptom-related disability, resilience) but not others (e.g., PTSD symptoms; Rothbaum et al., 2009).

Berger and colleagues (2009) specifically reviewed the use of medications other than SSRIs, which may be needed because many clients with PTSD do not respond to SSRIs. The authors found the strongest evidence for the use of atypical antipsychotics, especially risperidone, which has been found to be superior to placebo in reducing PTSD symptoms in three trials. Olazapine has also been found effective in this regard in some, but not all, studies. The authors observed, however, that these medications do not appear to have an effect on avoidance behavior or emotional numbness. In a meta-analytic review of atypical antipsychotics for PTSD, Pae and colleagues (2008) noted that, although these medications have been shown in a number of studies to reduce PTSD symptoms to a greater degree than placebos, most of the difference is a result of reduced intrusion symptoms. Ravindran and Stein (2009) noted that, as expected, these medications are particularly helpful for clients who have PTSD with psychotic symptoms, but the authors also cautioned about negative side effects, such as excessive weight gain.

Other medications evaluated for PTSD show less promise but may be indicated in cases where individuals do not respond to SSRIs. Ravindran and Stein (2009) noted that the tricyclic antidepressants amitriptyline and desipramine perform better than placebos in reducing some PTSD symptoms. Also, some, but not all, studies have found MAOs more effective than placebo in addressing PTSD symptoms. Both Berger and colleagues (2009) and Ravindran and Stein (2009) pointed to research indicating that the antiadrenergic agent prazosin is an effective medication for improving sleep quality and reducing nightmares among people with PTSD. More research on these medications is needed.

Not all reviews/guidelines recommend pharmacotherapy for PTSD, however. Notably, IOM (2008) found that for all the medications included in the review (including SSRIs and atypical antipsychotics), there was inadequate evidence to determine their efficacy in treating PTSD. One IOM panel member contributed a dissenting opinion in Appendix H of the report, stating that he believed this conclusion was incorrect and disagreed with the panel decision to group research conducted with civilian and veteran populations. He noted that if studies showing a lack of efficacy with veterans who had chronic PTSD were removed from the pool, remaining evidence would indicate that SSRIs and atypical antipsychotics could be effective treatments for PTSD.

Ravindran and Stein (2009) also observed, in response to the IOM report, that SSRI efficacy varies considerably among individuals, and hence, the modest effect sizes do not mean that these medications should be discounted. A review by Choi, Rothbaum, Gerardi, and Ressler (2010) of the use of pharmacological agents to improve the results of other therapies concluded that most
studies have not found any additional improvement in outcomes associated with the addition of SSRIs. However, their review did not consider evidence for the use of SSRIs with individuals who have not been responsive to other therapies. They also suggested that there are new medications being evaluated (notably D-cycloserine) that may improve clients’ responses to PTSD therapy.

A Cochrane review by Hetrick, Purcell, Garner, and Parslow (2010) on combined pharmacotherapy and psychological therapies for PTSD looked at four that met more stringent inclusion criteria and concluded that there was insufficient data to determine whether combination therapy produced better results than pharmacotherapy or a psychological therapy alone. Little research evaluates the effects of culture on outcomes in pharmacotherapy for PTSD, but one study by Hinton, Kredlow, and colleagues (2012) found that CBT combined with paroxetine was effective in reducing not only PTSD symptoms, but also culturally salient somatic complaints and culturally specific disorders in a group of 56 Cambodian refugees with PTSD.

**Group Therapy**

Several of the therapies previously mentioned, and some discussed in the “Other Interventions” section, may be delivered in a group format. However, many of these interventions have not been evaluated as group treatments for clients who have PTSD and/or trauma histories. Group interventions may be particularly useful for clients with PTSD, because PTSD often causes isolation and disengagement from others (Ford, Fallot, & Harris, 2009).

Therapeutic groups may consist of people who share a common type of trauma, such as combat trauma (Schnurr et al., 2003) or torture/political violence (Kira et al., 2012). Homogeneity in clients’ backgrounds may be advisable for reasons connected to trauma. For example, in an article on group therapy for refugees and torture survivors, Kira and colleagues (2012) recommended single-gender groups (to facilitate expression of taboo topics) and groups of a single ethnicity (to build self-esteem/group pride and avoid intergroup conflicts). Survivors of childhood sexual abuse (Classen, Koopman, Nevill-Manning, & Spiegel, 2001) or other sexual trauma (Lynch, 2011) are other populations for whom trauma-specific and/or gender-specific groups may be preferred.

Shea, McDevitt-Murphy, Ready, and Schnurr (2009) reviewed research on group therapy for PTSD. They noted that cognitive–behavioral group therapy, which has been evaluated with combat veterans and adult survivors of sexual abuse, is more effective than nontreatment controls and about as effective as present-centered group therapy at reducing PTSD symptoms. Another review of PTSD treatments by Bisson and Andrew (2009) similarly concluded that trauma-focused CBT groups are more effective than waitlist controls and not significantly different from group CBT not focused on trauma.

The major study evaluated by both these reviews found that both trauma-focused CBT and present-centered group interventions were associated with significant improvements in a number of PTSD symptom measures and significant reductions in the use of VA services during the year after the interventions (Schnurr, Friedman et al., 2003). Although dropout rates were somewhat higher for clients who received the trauma-focused CBT group intervention, for those clients who completed 24 or more sessions (out of 35), participation in the trauma-focused CBT group
was associated with more improvement in avoidance/numbing and hyperarousal PTSD symptoms than was participation in the other group. Shea and colleagues (2009) also noted that survivors of childhood sexual abuse who participated in interpersonal/process groups had better outcomes than nontreatment controls and outcomes that were not significantly different from those of survivors who participated in trauma-focused groups. However, this type of group intervention has been found to be ineffective in groups where one or more participants have BPD. Insight-oriented/supportive groups may be more effective than no-treatment controls.

Another study conducted with survivors of childhood sexual abuse ($N=166$) found significantly greater reductions in PTSD symptoms among those who participated in either trauma-focused group or present-centered group therapy (both based on CBT principles) than among those assigned to a waitlist control group, but it found no significant differences in PTSD outcomes between the two treatment groups (Classen et al., 2011). The only significant difference in outcomes between the two treatment groups was that participants in the trauma-focused group had a significantly greater reduction in anger. Additionally, Shea and colleagues (2009) observed that, although trauma-focused groups appeared to be as effective as other types of group therapy for treating PTSD, there was little evidence suggesting that they were any more effective. Likewise, there was no evidence that group therapy for PTSD was any more or less effective than one-on-one interventions (although they were only able to locate one study that made such a comparison).

**Family and Couples Therapy**

Although it is not recommended for everyone with PTSD, a number of reviews and guidelines indicate that family or couples therapy is a useful second-line approach to treating otherwise resistant PTSD and is a useful primary approach for clients who have significant family issues that need to be addressed as part of their treatment (e.g., Cukor, Spitalnick, Difede, Rizzo, & Rothbaum, 2009; DoD/VA, 2010; Sherman, Zanotti, & Jones, 2005). There is good reason to believe that family and couples interventions may be helpful for people with PTSD, and a family member’s PTSD will likely negatively affect family interactions and the entire family’s behavioral health (Erbes, 2011; Guay et al., 2006). In their review of couples and family therapy for clients with PTSD, Riggs, Monson, Glynn, and Canterino (2009) observed that such interventions typically either focus on healing the disruptions to the family and/or relationship that results when one member has PTSD or involving the family/partner in treating one family member/partner’s PTSD, although some more recent interventions (e.g., Monson, Stevens, & Schnurr, 2005) attempt both. In some cases, for example in the wake of natural disasters, more than one family member may be exhibiting the effects of posttraumatic stress, and a somewhat different focus may be required.

Riggs and colleagues (2009) reviewed limited research regarding behavioral family therapy, behavioral marital therapy, cognitive–behavioral couples treatment, lifestyle management courses, emotionally focused couple therapy, spousal education and support programs, family systems-based therapy, and critical interaction therapy. They found relatively strong evidence supporting the use of behavioral family and behavioral marital therapies, somewhat weaker evidence supporting the use of cognitive–behavioral couples treatment and lifestyle management courses, and weak to no support for the other types of family interventions included in the review. Structured approach therapy (SAT) is yet another couples-based therapy for PTSD that
has been evaluated with veterans and their spouses for reducing PTSD avoidance symptoms (Sautter, Armelie, Glynn, & Wielt, 2011). Preliminary research indicates that participants (six Vietnam veterans and their partners) experienced significant reductions in avoidance symptoms (according to self-reports, clinician ratings, and partner ratings), emotional numbing, and overall PTSD severity according to both the CAPS and the PCL following participation in SAT (Sautter, Glynn, Thompson, Franklin, & Han, 2009).

Fredman, Monson, and Adair (2011) recommended cognitive–behavioral conjoint therapy for PTSD specifically with veterans and their families and provided a case study in its use. Weine and colleagues (2008) recommended multiple-family groups for refugees with PTSD and their families to increase participation in behavioral health services. Some clients may express a preference for family/couples therapy, especially if it is offered as an option for treatment. For instance, a survey of 97 National Guard members with spouses and children (47 with PTSD) expressed a preference for family therapy (Khaylis, Polusny, Erbes, Gewirtz, & Rath, 2011).

Other Interventions
Promising new approaches for treating PTSD are also being tried or evaluated but require further research before they can be recommended. Cukor and colleagues (2009) reviewed research on many of these, including couples/family therapy, behavioral activation, trauma management therapy, interoceptive exposure, mindfulness, imagery rescripting, imagery rehearsal therapy, DBT, ACT, thought-field therapy, trauma incident reduction, visual kinesthetic disassociation, and virtual reality ET. Their major conclusions in regard to these new approaches were:

- There is strong evidence supporting the use of new technology, including virtual reality, in the treatment of PTSD.
- D-cycloserine for use in enhancing ET is the most promising new medication being evaluated, and its use is likely to reduce the time needed for ET.
- There is good theoretical support and some evidence suggesting that family and couples therapy will be useful for some clients, but conclusive evidence is still lacking.
- ACT and DBT may be useful for increasing distress tolerance, and the latter has been found effective for women with histories of childhood abuse but not with other populations (whereas the former lacks research demonstrating its effectiveness for people with PTSD).
- Behavioral or cognitive–behavioral approaches (e.g., behavioral activation, mindfulness meditation therapy) have good evidence demonstrating their usefulness in ameliorating some PTSD symptoms.
- Trauma management therapy, used together with ET, shows promise as a treatment for negative PTSD symptoms.
- Imagery-based treatments (i.e., imagery rescripting and imagery rehearsal therapy) appear to be useful in some contexts, the former as a treatment for PTSD-related nightmares and the latter as a potential enhancement to imaginal ET.

For all of these interventions, further research is needed. The authors observed that some of the other approaches they considered (e.g., complementary approaches such as yoga and acupuncture) may also prove to be useful adjuncts to treatment. Hollifield (2011) also discussed the use of acupuncture to treat PTSD, noting that no research studies are available concerning its effectiveness, but some research and theory suggest that acupuncture may be effective given its
action in other areas. People who are susceptible to hypnosis have an elevated risk for developing PTSD following trauma exposure, and for this and other reasons related to the nature of PTSD symptoms, several authors have recommended hypnosis as an adjunctive treatment for PTSD (Cardeña, Maldonado, van der Hart, & Spiegel, 2009). This review also discussed methods for using hypnosis to help clients with PTSD. Creative therapies, such as art and music therapy, have been used with this population. Clinical reports indicate that they can be effective, but there is little research supporting their use with adults who have PTSD (more is available regarding children and adolescents; see review by Johnson, Lahad, & Gray, 2009).

**Dropout and Treatment Response**

Rates of dropout and nonresponse to treatment are high for most of the interventions discussed thus far, even those most often recommended for this population. Schottenbauer, Glass, Arnkoff, Tendick, and Gray (2008) reviewed data on dropout and nonresponse rates for the most commonly used PTSD treatments. They found dropout rates ranging from 0 to 50 percent for ET/PE, 5 to 32 percent for CBT, and 0 to 36 percent for EMDR. Nonresponse rates were 20 to 67 percent for ET/PE, 16 to 71 percent for CBT, and 7.3 to 92 percent for EMDR. Although the authors observed that these rates are high, they also cautioned against making comparisons of dropout/nonresponse between different types of interventions because of substantial differences in methodology. A meta-analysis that included 25 studies evaluating ET, CBT, or EMDR found that dropout rates for the three types of interventions did not differ significantly; control conditions had significantly lower dropout rates than either ET or CBT, but not EMDR (Hembree et al., 2003).

Schottenbauer, Glass, Arnkoff, Tendick, and Gray (2008) also reviewed research associated with dropout and nonresponse to treatment. They found that dropout rates for a number of recommended treatments (ET, cognitive therapy, stress inoculation therapy, and EMDR) were higher than those found in control conditions, such as waitlists and relaxation training. Surveys of clients who had dropped out of treatment suggested that logistical issues (e.g., lack of transportation, inability to find child care) were often a problem, as were problems with social adjustment (the latter according to a study of ET conducted with clients who had PTSD and co-occurring alcohol dependence). Another study included in the review found that the credibility of the treatment for the client was a significant factor in dropout.

Zayfert and DeViva (2010) cited studies that found that the risk of treatment dropout is greater for clients with more severe PTSD symptoms (especially more severe avoidance symptoms), with greater anxiety, with more severe symptoms of depression, and with greater use of alcohol. Male clients are also more likely to drop out of treatment than female clients. These authors also observed that worsening of symptoms during treatment, which many clinicians believe is a cause of treatment dropout, has not been associated with increased dropout rates.

Zayfert and DeViva (2010) analyzed factors associated with treatment response, observing that studies have found that childhood trauma and/or complex trauma is associated with worse response, as is use of prescription sedatives, male gender, higher suicidality ratings, being single (rather than married or living with a partner), having more severe PTSD symptoms, having GAD, having greater anger, and having more physical pain. On the other hand, Schottenbauer, Glass, Arnkoff, Tendick, and Gray (2008) observed, based on their review, that demographic factors appear to have very little relationship to treatment response. Also, trauma severity
(particularly severity of childhood abuse) may have a negative effect on outcomes, but not every study has found this to be the case. They also found mixed evidence on the effects of co-occurring depression, co-occurring personality disorders, anger related to trauma, and guilt/shame on PTSD treatment outcomes. They discussed some of the methods suggested in the literature to improve treatment response, including being flexible about the number of sessions and offering or using more than one treatment technique/intervention.

**Integrated Approaches for Trauma and Substance Abuse**

Traumatic stress and PTSD frequently co-occur with substance use disorders. As a result, many clients seeking treatment for PTSD will require substance abuse treatment services and vice versa. Ouimette, Moos, and Brown (2003) reviewed early research on the treatment of co-occurring PTSD and substance use disorders and concluded, as did later reviews, that concurrent PTSD and substance abuse treatment is preferred.

Dass-Brailsford and Myrick (2010) reviewed research and clinical opinions on the importance of integrated treatment for clients with co-occurring PTSD and substance use disorders, discussing factors such as the potential benefits of integrated approaches, potential implementation barriers, and specific models of integrated substance abuse and trauma/PTSD treatment. Limited research suggests that some of the integrated treatment models they discussed are effective at reducing substance abuse, PTSD symptoms, and other mental disorder symptoms. They also observed that, because of the lack of research recommending one specific model over another, providers should consider other factors, such as training requirements, philosophical/theoretical orientations, and appropriate settings in selecting a specific intervention.

The specific interventions included in Dass-Brailsford and Myrick’s (2010) review were:

- **Addictions and Trauma Recovery Integration**, a 12-week program that uses psychoeducation, expressive therapy, mindfulness, and guided relaxation that can be provided in a group or individual format and is delivered by either peers or professionals (Miller & Guidry, 2001).
- **TRANSCEND**, a 12-week CBT intervention intended for veterans in partial hospitalization settings (Donovan, Padin-Rivera, & Kowaliw, 2001).
- **Assisted Recovery Trauma and Substances**, a 20-week, individual CBT intervention that addresses both PTSD and substance use disorders; it has been evaluated with clients in methadone maintenance and cocaine treatment programs (Triffleman, 2002).
- **Helping Women Recover**, a 17-week, gender-responsive intervention that uses CBT, expressive arts, and relational theory (Covington, 2008).
- **Substance-Dependence Posttraumatic Stress Disorder Therapy (SDPT)**, a 20-week intervention intended for outpatients that uses ET, psychoeducation, and coping skills training (Triffleman, 2000).
- **Concurrent Treatment of PTSD and Cocaine Dependence**, which the developers believe can be used with any substance use disorders, and which uses coping skills training, cognitive restructuring, relapse prevention, and ET (Coffey, Schumacher, Brimo, & Brady, 2005).
• **Seeking Safety**, a 25-session, present-focused therapy for co-occurring disorders, which is one of the more extensively evaluated of the integrated interventions included in the review (Najavits, 2002).

• **Trauma Affect Regulation: Guide for Education and Therapy (TARGET)**, a nine-session, gender-specific intervention adapted from a trauma treatment intervention for clients with other mental disorders, which uses psychoeducation and present-centered therapy to help clients learn effective emotional regulation techniques (Ford & Russo, 2006; Frisman, Ford, Lin, Mallon, & Chang, 2008).

• **Trauma Recovery and Empowerment Model (TREM)**, a 24- to 29-session group intervention originally developed for women who were survivors of physical/sexual abuse that since has been adapted for men (M-TREM); it has been implemented in a wide variety of treatment settings (Fallot & Harris, 2002).

• **The Triad Women’s Project**, a 16-week group intervention for women that uses integrated case management services, a curriculum-based treatment group, and a peer support group (Clark & Fearday, 2003).

Torchalla, Nosen, Rostam, and Allen (2012) conducted a meta-analysis of 17 trials of integrated treatments for PTSD/trauma and substance use disorders. Their review included six of the interventions listed previously (i.e., Seeking Safety, TARGET, TREM, TRANSCEND, SDPT, and CTPCD) and an additional three, which were:

• **Integrated CBT for PTSD in Addictions Treatment**, an 8- to 12-session intervention that uses psychoeducation, skills training, and cognitive processing and restructuring (McGovern et al., 2009; McGovern, Lambert–Harris, Alterman, Xie, & Meier, 2011).

• **Dual Assessment and Recovery Track**, a treatment for co-occurring substance use and other mental disorders (including PTSD) that involves 9 hours of treatment per week for a 12-week period and is designed to be implemented in a therapeutic community-oriented outpatient program (Sacks, McKendrick, Sacks, Banks, & Harle, 2008).

• **Integrated Tobacco Cessation Treatment**, a six-session intervention involving behavioral counseling, stress management, and pharmacotherapy for smoking cessation (McFall et al., 2006).

Torchalla and colleagues (2012) found that integrated treatments can reduce both PTSD symptoms and substance abuse, and across the reviewed studies, the data suggest that such treatments are associated with relatively large reductions in symptoms. However, most of the studies that compare integrated and nonintegrated treatments (the latter typically being substance abuse treatment interventions) did not report significant differences between the two in terms of either substance abuse or PTSD outcomes, nor did the authors’ meta-analysis find significant differences between these various integrated treatments (taken as an aggregate) and active controls. The authors explored reasons for their failure to find significant differences in outcomes between integrated and nonintegrated treatments, including low participation in many of the studies. They also pointed out that, even though some research suggests that integrated treatments do not have as great an effect on clients with low levels of PTSD symptoms, the majority of the studies did not limit participation to clients with diagnosable PTSD; integrated treatments may be effective in reducing PTSD symptoms because they either reduce substance...
abuse or affect general mental health. Comparison treatments in many of these studies accomplish the same ends.

One study included in Torchalla and colleagues’ (2012) review appears to contradict the idea that addressing substance abuse alone is usually sufficient to reduce PTSD symptoms’ severity. Hien, Campbell, Ruglass, Hu, and Killeen (2010) analyzed data from a National Institute on Drug Abuse clinical trial (N=353). They found that participants who responded to treatment with improvements in PTSD symptoms (as measured with the CAPS) but not with reductions in the amount of substances used were significantly more likely to later be classified as “globally responsive” (indicating improvements in both PTSD and substance use) compared with those who showed improvements in substance abuse use outcomes but not PTSD. This suggests that if a sequential approach to treatment is used, it is probably more beneficial to address PTSD first.

In a recent study not included in the reviews previously discussed, the Integrated CBT for PTSD in Addictions Treatment intervention was found to be more effective than individual substance abuse treatment counseling for reducing PTSD reexperiencing symptoms and increasing remission from PTSD, whereas both options were comparable in terms of reducing substance abuse (McGovern et al., 2011). In addition, participants in the study who received the integrated CBT intervention were more likely to initiate and engage in treatment than those who received individual substance abuse treatment counseling.

**Other Integrated Approaches**

Although most of the integrated treatment interventions that address traumatic stress and PTSD are intended for people with substance use disorders, a few interventions have been developed for clients with PTSD and other mental disorders. A large percentage of people with BPD have significant trauma histories, and many have co-occurring PTSD. Harned and colleagues (2012) conducted a preliminary evaluation of a year-long integrated treatment that uses DBT for BPD and exposure therapy for PTSD. Of the 13 participants who completed at least one treatment session, 60 percent no longer met criteria for PTSD at the end of treatment (for treatment completers, 71.4 percent no longer had PTSD). Participants also showed significant improvements in terms of suicidal ideation, anxiety, shame, guilt, depression, and social adjustment, and they demonstrated no increase in self-injurious thoughts and behaviors.

A pilot study by Nixon and Nearmy (2011) of an integrated intervention for clients with PTSD and major depression that uses behavioral activation for depression and ET and cognitive restructuring for PTSD found the intervention to be promising. Twenty clients with those co-occurring disorders were included in the trial (14 of whom completed the intervention); 3 months after the intervention, participants had significant reductions in both PTSD and depression symptoms, with 60 percent no longer meeting criteria for a PTSD diagnosis and 70 percent no longer meeting criteria for major depression.

Integrated interventions have also been developed to treat co-occurring PTSD and panic disorder/attacks. Falsetti and colleagues (2008) evaluated one such integrated treatment, Multiple Channel Exposure Therapy, with 62 women who had PTSD and a history of panic attacks (89 percent of whom met criteria for a panic disorder diagnosis). They found that participants in the intervention had significantly greater improvements in terms of PTSD, panic attacks, and
symptoms of depression than did participants assigned to a waitlist control group. Improvements in PTSD and panic symptoms had not diminished significantly at a 6-month follow-up. Another culturally relevant model of integrated CBT for PTSD and panic disorder was found to be effective in small trials with Cambodian (Hinton et al., 2005) and Vietnamese (Hinton et al., 2004) refugees.

**Treating Complex Trauma/PTSD**

Although many existing guidelines for the treatment of PTSD may provide some guidance in treating the effects of complex trauma, there are no widely disseminated practice guidelines focused specifically on its treatment (Courtois, Ford, & Cloitre, 2009). However, Cloitre and colleagues (2011) have provided guidance from an expert clinician survey of 50 clinical experts (25 of whom specialize in treatment for complex trauma). The survey respondents largely agreed that treatment for complex trauma should have a phased approach in which multiple interventions are available; if the client does not respond to the first option, others should be used. They also generally agreed that interventions should be tailored to the client’s specific needs, taking the client’s specific symptoms into account. There was almost universal agreement that treatment should be provided in an individual format, but that as a second-line approach, additional sessions of group treatment could be added. They generally agreed that treatment should be provided at least on a weekly basis in the initial phase.

Regarding specific treatment elements or interventions recommended by the expert panel, the only first-line approaches in terms of effectiveness, safety, and acceptability were ones that were emotion-focused or addressed emotion regulation (Cloitre et al., 2011). Other approaches that were considered first-line in terms of effectiveness and with reasonably high ratings in safety and acceptability were anxiety/stress management, cognitive restructuring, and psychoeducation about the effects of trauma. Meditation and mindfulness approaches were frequently cited as appropriate second-line treatments useful for addressing emotional, attention-related, and behavioral problems. The survey respondents also recommended first- and second-line interventions for specific sets of symptoms. For example, psychoeducation, anxiety/stress management, and emotion regulation were recommended as the first approaches to use for hyperarousal, whereas narration of trauma memory and cognitive restructuring were recommended as second-line approaches for those symptoms.

In an earlier review, Courtois and colleagues (2009) provided specific recommendations for conducting therapy with clients who have complex PTSD. These recommendations included suggestions for assessment, defining treatment goals, specific tasks for treatment to meet those goals, and principles and tasks to guide clinicians through three phases of treatment (i.e., promoting safety and stabilization, processing traumatic memories, reintegration). Many of the approaches recommended for treating PTSD in other populations are also effective for clients with complex PTSD, including CBT (Jackson et al., 2009) and pharmacotherapy (Opler, Grennan & Ford, 2009). Both family/couples interventions (Ford & Saltzman, 2009; Johnson & Courtois, 2009; Schwartz, Schwartz, & Galperin, 2009) and group interventions (Dorrepaal et al., 2010; Ford et al., 2009) may also be beneficial, and they may even be more important in cases of complex trauma, because complex trauma histories typically have a negative effect on an individual’s ability to form positive relationships with partners and friends (Schwartz et al., 2009). Other clinicians have recommended the use of experiential and emotion-focused therapies...
(Fosha, Paivio, Gleiser, & Ford, 2009) and sensorimotor techniques, such as mindfulness and sensorimotor memory processing (Fisher & Ogden, 2009), with this population. Jackson and colleagues (2010) discussed basic steps involved in treating PTSD as well as commonly encountered problems, such as resistance to experiencing feelings, to change, and to improving interpersonal functioning.

Some of the studies discussed elsewhere in this TIP do include individuals who have experienced complex trauma. In particular, survivors of severe childhood abuse often have complex PTSD. The “Survivors of Childhood Abuse” section includes studies relevant in this context. Other populations with histories of repeated interpersonal violence, such as torture survivors (Johnson & Thompson, 2008) and prisoners of war (Solomon, Dekel, & Mikulincer, 2008), also often have complex trauma. However, few controlled trials are available that specifically focus on clients with complex PTSD, and more research in this area is needed (Dorrepaal et al., 2010).

Some interventions have been developed specifically for clients with complex PTSD. Contextual behavior trauma therapy (CBTT) is another intervention designed specifically for clients with histories of complex trauma and the experiential avoidance and developmental deficits that result from such traumatic experiences (Follette, Iverson, & Ford, 2009). CBTT uses techniques drawn from ACT, behavioral activation, DBT, and functional analytic psychotherapy. Contextual therapy was developed to treat adults who have sustained prolonged childhood abuse (Gold, 2009). Contextual therapy looks at the context of a client’s trauma; it has an initial phase to help clients work on building a sense of safety/security prior to addressing trauma and a final phase to help clients integrate gains made in terms of interpersonal interactions, practical skills, and insight into experiences and behaviors.

A group intervention designed for people with complex trauma that was evaluated in the Netherlands is Stabilizing Group Treatment (Dorrepaal et al., 2010). This 20-week intervention used psychoeducation and CBT skills training. In a pilot study, participants (n=36) had significant reductions in PTSD and BPD symptoms from baseline to the end of the intervention. At a 6-month follow-up assessment, 78 percent no longer met criteria for complex PTSD. In a review concerning the use of psychodynamic approaches to treat trauma/PTSD, Schottenbauer, Glass, Arnkoff, & Gray (2008) suggested that psychodynamic approaches may be particularly relevant for clients with complex trauma/PTSD, because they may be well-suited for addressing problems with social/interpersonal relationships, general life functioning, and underlying personality problems that may have developed as the result of repeated trauma (particularly occurring in childhood).

**Treatment for Specific Populations**

Any treatment for traumatic stress reactions should be tailored to the specific needs of each client, but general information pertaining to population characteristics may help guide that treatment.

**People From Diverse Cultural Groups**

As with any behavioral health treatment, it is extremely important that providers be culturally competent when treating clients with traumatic stress reactions and/or trauma histories. Cultural background influences how individuals respond to trauma and how they present traumatic stress
reactions and other behavioral health problems related to traumatic experiences. The section entitled “Cultural, Ethnic, and Gender Factors in Assessment” provides more information on culture as a factor in assessing traumatic stress reactions.

Osterman and de Jong (2007) provided a good overview of some of the treatment issues involved in providing culturally responsive behavioral health services relating to trauma, including the adaptation of assessment instruments, theoretical ideas about how to respond to traumatic experiences and traumatic stress reactions with clients from culturally diverse backgrounds, and the somewhat limited research evaluating PTSD treatment with diverse cultural groups. The treatment sections refer to such literature when it is available (e.g., the CBT section includes references to studies evaluating trauma-focused CBT with members of diverse cultural groups). The section “Refugees” also discusses treatment options and adaptations that are useful with non-Western cultural groups.

Few studies are available that compare PTSD treatment outcomes for members of diverse cultural groups, and those that do often fail to account for potentially confounding factors, such as SES (Lester, Resick, Young-Xu, & Artz, 2010). These authors compared outcomes and treatment retention rates for African American women \(n=94\) and White American women \(n=214\) who had been victims of interpersonal violence and had PTSD. They found that African American women were significantly more likely to drop out of treatment than were White American women, even after controlling for education and income. However, the authors observed that there were no significant differences in treatment outcomes between African Americans and White Americans, and this may indicate that a higher dropout rate reflected greater symptom improvement among African Americans who left treatment.

A volume edited by Marsella, Johnson, Watson, and Gryczynski (2008) discussed in greater detail how to address traumatic experiences with members of diverse cultural groups found in the United States. For individuals belonging to cultural groups that have sustained trauma for multiple generations, treatment should address issues of historical trauma and the relationship of the client’s traumatic experiences with those of his parents and other generations (Danieli, 2007; Sotero, 2006). A few specific interventions have been developed for addressing historical trauma in Native Americans that might also guide similar interventions with other groups (e.g., Yellow Horse & Brave Heart, 2005). Culture can serve as a factor in building resilience and healing the effects of trauma; even so, individuals in certain trauma-related predicaments (e.g., internment during war) may have a strong desire to remove themselves from the persecuted culture, leading to accelerated deacculturation (Danieli, 2007). In such cases, it may be even more important to integrate elements of the individual’s cultural background into treatment (Danieli, 2007).

**Refugees**

Although it is not just a cultural issue, the treatment of refugees from outside the United States also typically involves cross-cultural exchanges and requires cultural competence. Nickerson, Bryan, Silove, and Steel (2011) reviewed research on PTSD treatment that specifically involved refugee populations. They found two approaches that have been studied with this population: trauma-focused therapies (typically trauma-focused CBT) and multimodal treatments that attempt to address extensive behavioral and other health problems experienced by this population. The studies they reviewed indicate that trauma-focused therapies are associated with significant long-term reductions in PTSD symptoms, but the research involving multimodal...
approaches has generally not found significant long-term reductions (although shorter-term reductions have been observed). Although research is lacking, published clinical opinion generally agrees that ET is inappropriate for refugees. Hinton, Rivera, and colleagues (2012) discussed adapting CBT interventions for refugee populations with non-Western cultural backgrounds. Many of the suggestions they provided can also be used with other treatment interventions for this population.

**Veterans**

The VA and DoD (2010) have published guidelines on treating PTSD for veterans and active-duty personnel entitled *Clinical Practice Guideline for Management of Post-Traumatic Stress* (described in the “Military Prevention Programs” section). Other guidance on appropriate treatments may be found in reviews on treating trauma/traumatic stress reactions in this population (e.g., Goodson et al., 2011; Hoge, 2011; Sharpless & Barber, 2011). However, these guidelines do not address co-occurring complexities, such as substance abuse, psychosis, individuals in danger of harming self or others, personality disorders, current homelessness or domestic violence, and other issues. Thus, for these populations, the clinician should use careful judgment in applying the guidelines.

Goodson and colleagues (2011) recommended treatments for veterans that are largely the same as those recommended for the general population. Their review found that treatments for PTSD in veterans, taken as a whole, have a medium effect size (i.e., $d=0.43$ across all the studies and $d=0.48$ for the controlled studies), with larger effect sizes for CPT and trauma-focused CBT. The review also observed that 66 percent of veterans included in the research reviewed had better outcomes than did those who were in control groups. More detailed information on PTSD treatment for veterans can be found in the planned TIP, *Reintegration-Related Behavioral Health Issues in Veterans and Military Families* (SAMHSA, planned f).

**Survivors of Sexual Assault**

Survivors of sexual assault have elevated risk for a number of behavioral health disorders and problems in addition to PTSD (e.g., eating disorders, depression, sleep disorders, other anxiety disorders, suicide attempts), and many will have complex trauma (Chen et al., 2010), so behavioral health services for this population will often need to address multiple issues. Vickerman and Margolin (2009) reviewed research on behavioral health treatment for survivors of rape, including treatment for PTSD, depression, and/or other anxiety disorders. They concluded that CPT and PE have the most data supporting their effectiveness; EMDR has also been found effective, albeit in fewer studies. In research comparing interventions, CBT interventions have been found to be more effective than supportive counseling. Across all interventions, however, there is a high rate of dropout from treatment, with more than a third of clients leaving before completing treatment. Foa and Rothbaum (1998) also discussed behavioral health treatment for survivors of rape, with particular attention to CBT techniques. Women with sexual trauma may prefer working with female clinicians and/or all-female treatment groups (Lee, Westrup, Ruzeck, Keller, & Weitlauf, 2007; Nelson-Zlupko, Dore, Kauffman, & Kaltenbach, 1996), but perhaps more important than the gender of clinicians or group members is that services be responsive to gender issues and centered on the needs of women who have experienced such trauma.
Survivors of Childhood Abuse
As with other populations of people with PTSD, CBT has been found to be effective at reducing PTSD symptoms for adults with PTSD related to childhood abuse, which in most studies involved sexual abuse (e.g., Classen et al., 2011; McDonagh et al., 2005; Resick et al., 2003). Cloitre and colleagues (2010) noted that not all trauma-focused CBT interventions are designed to address the interpersonal, social adjustment, and/or emotional regulation problems that are common among people with histories of repeated childhood abuse, and thus caution must be used in selecting appropriate interventions. They also indicated that their own CBT intervention, Skills Training in Affective and Interpersonal Regulation (STAIR), was developed for this population.

Particular CBT interventions may be useful for addressing specific behavioral health symptoms/concerns. For example, a small ($n=9$) pilot study found that two sessions of cognitive restructuring and imagery modification were effective at alleviating feelings of contamination experienced by survivors of childhood sexual abuse (Steil, Jung, & Stangier, 2011). Only a few studies have evaluated optimum duration and intensity of treatment for adults with histories of childhood sexual abuse, but given that members of this population frequently drop out of treatment and often require long-term treatment (Gilbert et al., 2009; Schumm et al., 2006), this issue may be even more important in their treatment. One study, which has some methodological problems, found that a 6-month group treatment for childhood sexual abuse was associated with somewhat better outcomes than a 12-month group treatment, leading the authors to conclude that a shorter, more intensive course of treatment may be preferred for this population (Kreidler & Einsporn, 2012).

Treatment sequencing is another important issue with this population, as multiple interventions are often required to address complex trauma. Researchers randomly assigned 104 women with PTSD related to childhood sexual abuse to receive the STAIR intervention followed by narrative ET, supportive counseling followed by narrative ET, or STAIR followed by supportive counseling (Cloitre et al., 2010). The authors found that participants in the first group were significantly more likely to achieve sustained remission from PTSD than were participants in the other two groups (whereas those in group 3 were more likely to do so than those in group 2). In terms of percentages, 27 percent of group 1 achieved sustained full remission, 13 percent of group 3 did, and none of the members in group 2 did. In a later analysis of study data, Cloitre, Petkova, Wang, and Lu (2012) found that the level of dissociative symptoms a client had at baseline did not significantly change these outcomes, except that participants with high levels of dissociative symptoms who were in group 1 continued to show improvements in PTSD symptoms during follow-up, but those assigned to the other two groups did not.

People With Lower SES
People with lower SES are likely to have multiple needs that should be addressed if treatment for PTSD is to succeed (Kelly et al., 2010). Kelly and colleagues (2010) discussed case examples of medical and psychosocial needs relating to PTSD, methods of outreach and engagement, and suggestions for providing appropriate services for this population. Dropout rates are high for PTSD treatment, but a study of CBT treatment ($N=31$) found significantly higher dropout rates for individuals with low income and lower levels of education (Difede et al., 2007).
People With SMI

Only a few studies have addressed PTSD treatments specifically for people with SMI; these studies, along with some authors’ clinical opinions, suggest that CBT is likely the best option for this population. Most of the research on using trauma-focused CBT to treat PTSD in people with SMI found it to be an effective approach. In one study, 108 clients with SMI (85 percent of whom had a major mood disorder, 15 percent of whom had schizophrenia or schizoaffective disorder, and 25 percent of whom had co-occurring BPD) were randomly assigned to receive trauma-focused CBT or standard treatment (Mueser et al., 2008). The authors found, using an intent-to-treat analysis to account for missing data, that CBT was associated at a 6-month follow-up with significantly better outcomes for PTSD symptoms, other mental disorder symptoms, and perceived health. CBT appeared to have the greatest effect on participants with more severe PTSD. The authors also found that homework completion was associated with greater reductions in PTSD symptoms, arguing for the importance of this CBT component. Sherrer (2011) argued that cognitive restructuring (another CBT intervention) is likely the most appropriate PTSD treatment for people with SMI, as this population has difficulties objectively evaluating traumatic experiences. Rakofsky and Dunlop (2010) also reviewed research on the treatment of PTSD and other anxiety disorders for clients with bipolar disorder. They covered little research specific to PTSD but presented some general considerations for treating anxiety and anxiety disorders in this population.

People Who Are Homeless

Hopper and colleagues (2010) reviewed literature regarding people who are homeless and gave recommendations for providing them with trauma-informed services. They concluded that providing trauma-informed services to this population can produce better behavioral health outcomes, improve housing stability, and decrease use of crisis-based services such as emergency room services. The authors also noted that these services are cost-effective for and well-received by this population.

People With Physical and Cognitive Disabilities

Few studies have looked at the treatment of trauma-related behavioral health problems in people with disabilities. Focht-New, Clements, Barol, Faulkner, and Service (2008), however, provided guidelines on treating and assessing trauma and traumatic stress reactions in this population and reviewed some relevant research. Mevissen and de Jongh (2010) also reviewed research on assessment and treatment of PTSD in people with intellectual disabilities, discussing several adaptations to treatment, such as training caregivers and making changes to assessments.

Studies have been conducted concerning the treatment of PTSD in veterans with trauma-related disabilities (particularly TBI). Veterans from recent conflicts have high rates of both TBI and PTSD, and it is often difficult to distinguish resulting impairments, especially in cases of mild TBI (Hill, Mobo, & Cullen, 2009). In their review of the literature on TBI and PTSD, Vasterling, Verfaellie, and Sullivan (2009) observed that there is good evidence that PTSD is even more common in cases of mild TBI than in more severe TBI, and mild TBI is even more common than PTSD among veterans of recent conflicts.

The VA and DoD have developed TBI screening tools that may aid in distinguishing TBI and PTSD (Hill et al., 2009; Terrio, Nelson, Betthauser, Harwood, & Brenner, 2011). The
combination of PTSD, mild TBI, and chronic pain complaints is common enough among veterans of OEF/OIF that it has been labeled “post-deployment multi-symptom disorder” (Walker, Clark, & Sanders, 2010). These authors suggested the use of an integrated treatment model to help improve coping and decrease functional disability, but more research is needed to evaluate the intervention.

Trauma-Informed Intervention Considerations

Special considerations in the treatment of clients with traumatic stress reactions and/or trauma histories are not covered in the previous treatment sections but deserve special attention.

Self-Harm and Suicidality

Traumatic experiences may contribute to suicidal behaviors regardless of whether those events result in a traumatic stress reaction, and, in fact, some research suggests that PTSD does not increase suicidality after controlling for trauma exposure. In the largest study to date to evaluate suicidality and trauma exposure, 102,245 respondents in 21 countries were interviewed as part of the World Mental Health Survey (Stein et al., 2010). A wide range of traumatic experiences were associated with increased odds of suicidal ideation and/or suicide attempts, but the greatest increase was associated with being the victim of sexual violence followed by interpersonal violence. Being exposed to war was associated with a significant increase in the odds of having a planned suicide attempt, whereas being the victim of sexual violence was associated with a significant increase in the odds of making an attempt without a plan (no other traumas were associated with significant increases in the rates of these two outcomes).

Trauma exposure also appears to have a cumulative effect on suicidality, with repeated experiences of trauma being associated with increased rates of suicidal ideation and attempts, but this effect appears to level off at a certain point (at seven traumatic events for ideation and six for attempts). When the authors evaluated trauma-related suicidality with respect to PTSD (according to DSM-IV diagnostic criteria), they did not find any further increase in suicidality associated with PTSD, suggesting that it was the traumatic experience and not the subsequent mental disorder that largely influenced suicidality. The association of trauma and suicidality was found to be valid for individuals from diverse cultural backgrounds and from both developing and developed nations.

Other research has found PTSD to be associated with increased suicidality, although not to the same degree as many other behavioral health disorders. For example, a study of veterans found that PTSD increased risk to a lesser degree than did substance use disorders, bipolar disorder, depression, schizophrenia, or other anxiety disorders, but this study did not control for trauma exposure (Ilgen et al., 2010). Other research evaluating veterans with depression found that co-occurring PTSD did not increase suicide rates, although certain other co-occurring mental disorders did (Pfeiffer, Ganoczy, Ilgen, Zivin, & Valenstein, 2009).

Other reviews on the subject have also concluded that PTSD does affect suicidality, independent of the effects of trauma exposure. Panagioti, Gooding, and Tarrier (2009) reviewed a wide range of research on PTSD and suicidality, including studies relating specifically to the effects of different types of trauma, the role of other co-occurring behavioral health disorders, and the relationship of the two in specific populations (i.e., people with HIV, refugees, and police
They concluded that PTSD does have an independent effect on increasing suicidality, and this is often further increased by the presence of co-occurring depression, which may mediate the relationship between PTSD and suicidality. This relationship exists regardless of the type of trauma involved. Research also indicates that the PTSD symptom of reexperiencing has the strongest relationship with suicidality.

Krysinska and Lester (2010) conducted a meta-analytic review of 50 studies that evaluated the relationship between PTSD and suicidality (defined as suicide attempts and/or suicidal ideation). They concluded that PTSD did have a significant relationship to suicidality, but that, when controlling for other behavioral health disorders, that relationship was substantially weaker. However, they did not find a significant relationship between PTSD and completed suicide. The evidence is somewhat stronger that PTSD is associated with increased self-harming behavior (self-harm is any type of intentionally self-inflicted harm, regardless of the severity of injury or whether suicide is intended). In research conducted with 2,854 soldiers returning from OIF, individuals with PTSD diagnoses were significantly more likely to report thoughts about self-harm than were those without PTSD, but they were not significantly more likely to report suicidal ideation (Maguen et al., 2011).

Other research indicates that complex PTSD is associated with greater self-harming behavior than simple PTSD (Dyer et al., 2009). Also, a study of deliberate self-harming behavior in substance abuse treatment clients found a significant association between symptoms of emotional dysregulation and self-harm behavior, suggesting that such symptoms may play a key role in promoting such behaviors among individuals with PTSD (Gratz & Tull, 2010). Complex PTSD is also associated with more self-harming behavior than noncomplex PTSD (Dyer et al., 2009). It is worth noting that the relative impact of PTSD on suicidality may vary by culture, as Joe, Baser, Breeden, Neighbors, and Jackson (2006) found that anxiety disorders appeared to have a significantly greater effect on suicide risk for African Americans than for members of other major racial/ethnic groups. More information on treating clients with suicidal thoughts and behaviors can be found in TIP 50, Addressing Suicidal Thoughts and Behaviors in Substance Abuse Treatment (CSAT, 2009a).

**Sleep Disturbances**

Although difficulties falling or staying asleep may be a symptom of PTSD and may respond to standard PTSD treatment, they often require specific interventions to be effectively treated (Nappi, Drummond, & Hall, 2012). Carney and Edinger (2010) reviewed research indicating that the majority of people with PTSD will have some sleep disturbances and that sleep complaints following a traumatic event are associated with an increased risk for developing PTSD. Among returning OEF/OIF veterans with PTSD, sleep disturbances are the most commonly reported symptom and often predate the advent of other PTSD symptoms (McLay, Klam, & Volkert, 2010). Other recent research also confirms that disordered/disrupted sleep is a core feature of PTSD (Nappi et al., 2012). Sleep disturbances among people with PTSD are also associated with increased risk for suicidal ideation, neurocognitive deficits, impaired social functioning, and a variety of physical health complaints (Nappi et al., 2012).

In another review, Babson and Feldner (2010) observed that traumatic events, whether or not the individual develops PTSD, can cause or exacerbate difficulties falling asleep, falling back to sleep after waking, and staying asleep through the night. Certain aspects of traumatic events also
appear to affect sleep patterns, such that traumatic events of longer duration have a greater effect, and people experience more severe sleep disturbance when the event has occurred more recently. However, such problems, at least for those individuals who develop PTSD, also may persist for many years (as many as 45 years in one study). The authors also referenced literature indicating that sleep problems can interfere with recovery from PTSD.

Carney and Edinger (2010) and Nappi and colleagues (2012) also reviewed research on the treatment of sleep disturbances in people with PTSD. Nappi and colleagues (2012) concluded that some, but not all, research regarding the effects of standard PTSD treatments (e.g., trauma-focused CBT, EMDR) indicates that they can be effective at eliminating nightmares but not PTSD-related insomnia, which often continues after such treatment. Therefore, they recommended either psychological or pharmacological treatments specifically aimed at insomnia and reviewed available options.

**Spirituality and Religious Beliefs**

Religious beliefs have been found in a number of contexts to have a protective function relative to PTSD (e.g., Bradley, Schwartz, & Kaslow, 2005; Cheung, 1994), but not in every context (Ben-Zur, 2008). It is also not clear whether changes in religiosity positively affect traumatic stress reactions among those who have been traumatized, as both posttrauma weakening and strengthening of religious beliefs have been associated with significant increases in PTSD symptoms compared with those individuals whose beliefs did not change (Falsetti, Resick, & Davis, 2003; Hussain, Weisaeth, & Heir, 2011). Other research, however, indicates that certain types of trauma (e.g., combat trauma) may cause a spiritual crisis; for some clients, addressing that crisis may improve their behavioral health (Baroody, 2011). Research conducted with veterans also indicates that loss of religious faith is a major factor in motivating individuals to seek treatment for PTSD (Fontana & Rosenheck, 2004).

Religious belief/spirituality may also affect other factors, such as finding meaning in life or self-esteem. For example, according to NCS data, among survivors of childhood abuse, greater religiosity is associated with significantly higher self-esteem (Reiland & Lauterbach, 2008). Owens, Steger, Whitesell, and Herrera (2009) conducted an Internet survey of 174 veterans and found that higher levels of PTSD symptom severity were significantly related to finding less meaning in life according to self-report. However, when depression was factored into the equation, a somewhat different picture emerged, so that for veterans with low to moderate levels of depression (measured with the Depression Anxiety Stress Scales-21), perceiving greater meaning in one’s life was associated with significantly less severe PTSD; the same was not true for veterans with severe depression. The authors concluded that improving an individual’s perception of meaning in his or her life may reduce PTSD symptom severity, except when the individual also has severe depression.

Although interventions targeting spirituality or religious beliefs are difficult to evaluate, small studies conducted with veterans have found that spiritual practices, such as mantra repetition (Bormann, Lui, Thorp, and & Lang, 2011) and transcendental meditation (Rosenthal, Grosswald, Ross, & Rosenthal, 2011), typically presented in a nondenominational manner, are effective at reducing PTSD symptom severity. Lang and colleagues (2012) reviewed research and theoretical support for the use of meditation as an aid in PTSD treatment. Harris and colleagues (2011) evaluated an eight-session group treatment designed to help veterans who experienced combat
trauma find religious/spiritual meaning in their experiences and found that participants who received the intervention had significantly less PTSD symptom severity than did those who were in a waitlist control group.

**Building a Trauma-Informed Workforce**

There is general agreement that behavioral health programs where staff members need to address issues related to trauma and/or need to work with clients who have traumatic stress disorders should prepare their workforce to serve such clients and to be able to deal with the stress and problems they may experience as a result of that work. Failure to address these problems and related problems involving institutional practices may further traumatize clients and harm the staff members who work with them (Bloom & Farragher, 2011).

**Staff Development and Training**

Weine and colleagues (2002) summarized findings from an international expert consensus panel on training behavioral health staff members to treat clients with trauma histories. Core components of trauma-informed training, according to this panel, involve teaching:

- Competence in listening.
- Ability to recognize psychosocial and mental problems to promote appropriate assessment.
- Familiarity with established interventions in the client population.
- The importance of understanding the local context, including help-seeking expectations, duration of treatment, attitudes toward intervention, cost-effectiveness of intervention, and family attitudes and involvement.
- Use of problem-solving strategies that can be used on individual, family, and community levels.
- Appropriate treatment approaches for medically unexplained somatic pain.
- Ability to collaborate with existing local resources and change agents (e.g., clergy, traditional healers, informal leaders).
- Counselor self-care skills.

**Secondary Traumatization and Burnout**

Both burnout and secondary traumatization (also known as vicarious trauma) can affect clinicians working with clients who have trauma issues. In a review concerning secondary traumatization and ways to prevent it, Trippany, Kress, and Wilcoxon (2004) distinguished vicarious trauma from burnout (the former is a reaction to specific information presented by clients and involves problems with trust, control, intrusive imagery, safety, and intimacy) and from general countertransference reactions (observing that even though vicarious trauma may involve countertransference, it is not inherent in or equated with countertransference). These authors also discuss the needs commonly experienced by clinicians with vicarious trauma (needs related to safety, trust, esteem, intimacy, and control) and some of the ways those needs may be met by programs. A similar review was conducted by Collins and Long (2003).

Secondary trauma can lead to difficulty responding appropriately to clients’ feelings and/or cause clinical mistakes in judgment resulting from a failure to understand what the client is trying to express (Figley, 2002). Figley (2002) presented a model for conceptualizing secondary
trauma/compassion fatigue. Mathieu and colleagues (2007) provided self-care tips for behavioral health providers to help them reduce/overcome compassion fatigue. Elwood, Mott, Lohr, and Galovski (2011) also reviewed this issue, but focused more on the empirical literature that provides data on the prevalence of the problem. Research has found that the extent and severity of secondary traumatization varies widely across studies, which the authors accounted for both by differences in research methodology and difference in the client population involved (e.g., it does appear that clinicians working with clients who were sexually assaulted have a greater risk for secondary traumatization than do those who work with clients who experienced a variety of other types of trauma).

Elwood and colleagues (2011) also observed that a few studies have found a significant association between the percentage of clients with trauma issues whom a clinician serves and secondary trauma symptoms for that clinician, but that a greater number of studies have found no significant association. Some, but not all, studies have also found a significant association between weekly hours spent working with trauma clients and clinician burnout. Also, a few studies have found that having spent more time working with trauma clients is associated with greater secondary traumatization symptom severity, but again, other studies have found no such association. Additionally, some studies have found significantly higher risk for secondary traumatization among clinicians who have personal trauma histories, whereas other studies have not. The authors also observed that if prior trauma histories do play a significant role in what is labeled secondary traumatization, this may mean that what is really being evaluated is retraumatization brought on by discussions of similar traumatic experiences.

Whether factors such as counselors’ own trauma histories or hours spent with trauma clients affect secondary traumatization may also depend on the nature of the trauma involved. For example, a study of 114 women who specialized in treating sexual trauma did find a significant association between their own traumatic experiences and secondary traumatization (Trippany, Wilcoxon, & Satcher, 2003). Similarly, a study by Schauben and Frazier (1995) found that having more clients who were victims of sexual violence was associated with increased PTSD symptoms among a group of female counselors.

Elwood and colleagues (2011) observed that, in one study, the clinicians described secondary traumatization symptoms that occurred after exposure to clients’ trauma stories, yet none of those clinicians mentioned symptoms occurring 6 weeks or more after the exposure, suggesting that long-term effects of secondary traumatization may be limited. Also, findings about the effects of secondary traumatization on employment or performance were not clear. One group of researchers found a significant association between secondary trauma symptoms and less expressed intent to remain in the behavioral health field, but clinicians interviewed in other research deny that secondary trauma symptoms affect their work performance. They concluded that research findings concerning secondary traumatization of providers “are neither clear nor consistent and warrant additional research” (p. 34).

Beck (2011) reviewed literature on secondary traumatization as it applies specifically to nurses, but some of the information provided, such as how to assess secondary traumatization, is applicable to other providers. Elwood and colleagues (2011) reviewed the instruments that have been used in research to assess secondary traumatization. Counselor burnout is not specific to providers working with trauma survivors, but it may affect them just as it does other counselors.
In a review of research regarding burnout among behavioral health counselors (with a focus on substance abuse treatment providers), Lacoursiere (2001) discussed instruments for assessing counselor burnout and noted some factors associated with an increased likelihood of burnout:

- Increased job stress/workplace pressure
- A lack of clarity about rules and policies
- A lack of organizational commitment to counselor goals
- Worse counselor coping skills
- Greater client/patient distress
- Worse management/supervision
- Lower professional status
- A lack of intellectual stimulation
- Unsatisfactory relationships with clients, client families, and other staff members

**Preventing Burnout/Secondary Traumatization**

Although burnout and secondary traumatization may increase counselor turnover, it is possible to implement program policies that ameliorate the problem—for example, by providing effective clinical supervision, because perceived quality of supervision has been associated with lower self-ratings of emotional exhaustion and desire to leave a counseling position (Knudsen, Ducharme, & Roman, 2006). Trippany and colleagues (2004) also concluded that good peer supervision can help reduce the effects of secondary traumatization. Support from coworkers is also important for reducing burnout/emotional exhaustion; generally, a cohesive and supportive workplace will help reduce burnout (Ducharme, Knudsen, & Roman, 2008; Lent, 2010).

Research with a group of behavioral health service providers who identified themselves as trauma specialists (N=532) determined that the use of evidence-based practices in the workplace was associated with significantly less burnout and compassion fatigue and significantly greater satisfaction with doing an effective job (Craig & Sprang, 2010). In addition, proper education regarding the provision of trauma services and how treating trauma clients may affect the clinician also appears to reduce symptoms of secondary traumatization, according to research reviewed by Trippany, Kress, and Wilcoxon (2004). Counselors who have a stronger sense of personal efficacy, more job autonomy, more recognition of their ideas, a stronger sense that their programs are open to change, and a greater sense that work and rewards were fairly distributed across the organization (i.e., greater distributive justice) also have lower burnout rates (Ducharme, Knudsen, & Roman, 2008; Garner, Knight, & Simpson, 2007; Knudsen et al., 2006; Shoptaw, Stein, & Rawson, 2000).

Adequate resources, including access to computers and sufficient staffing, have been associated with lower rates of burnout/emotional exhaustion in a group of 151 substance abuse counselors working with clients in the criminal justice system (Garner et al., 2007). Awa, Plaumann, and Walter (2010) reviewed 25 program practices intended to reduce/prevent burnout that have been used in a variety of workplace settings. They grouped these as person-directed (i.e., focused on helping employees cope with workplace stress and burnout), organization-directed (i.e., focused on changing workplace organization/practices that may affect all staff), or combined (having features of both person-directed and organization-directed practices). They concluded that person-directed interventions have a greater effect in the short term (a period of 6 months or less...
after the practice is instituted) and that combined interventions have the longest-lasting effects (with positive effects lasting a year or more). In all cases, the positive effects of the interventions appear to diminish over time. In addition, practices that reduce stress may also help reduce burnout. Teaching counselors time management skills (Hawkins & Klas, 1997), cognitive therapy techniques to address dysfunctional thought patterns (Gardner, Rose, Mason, Tyler, & Cushway, 2005), and how to meditate (Oman, Hedberg, & Thoresen, 2006) may all reduce stress.

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Appendix—Methodology

Some of the sources cited in the Treatment Improvement Protocol (TIP) *Trauma-Informed Care in Behavioral Health Services* were suggested early on in the TIP’s development by consensus panel members, reviewers, and consultants working together with staff members of the Substance Abuse and Mental Health Services Administration’s (SAMHSA’s) Knowledge Application Program (KAP) staff. More recently, broad searches were conducted to find research from the past 10 years involving trauma and behavioral health (including both mental health and substance abuse) as well as posttraumatic stress disorder (PTSD) and acute stress disorder.

At various times during the development of the TIP, searches on specific topics were conducted per the requests of SAMHSA staff and/or reviewers of the TIP. Early searches focused on trauma/PTSD and September 11, 2001, trauma/PTSD and Hurricane Katrina, trauma/PTSD and motivational interviewing, and historical trauma. Later in the TIP’s development, additional searches were conducted using the American Psychological Association’s PsychNet databases, the National Library of Medicine’s PubMed database, and, occasionally, Elsevier’s Scopus database as needed on topics such as:

- Trauma-informed care.
- Trauma teams.
- Stockholm syndrome/traumatic bonding.
- Vicarious trauma.
- Compassion fatigue and trauma.
- Environmental safety and trauma/PTSD.
- Sleep disorders and trauma.
- Ecological models and trauma.
- Psychological trauma/PTSD and quality of life.
- Psychological trauma/PTSD and culture.
- Trauma and health disparities.
- Trauma and rural health.
- Psychological trauma and torture.
- Recovered memories.
- Adverse childhood experiences/child abuse.
- Assessment and psychological trauma/PTSD.
- Trauma and mood disorders.
- Trauma and anxiety disorders (excluding PTSD).
- Trauma and personality disorders.
- Trauma and eating disorders.
- Trauma and substance use disorders.
- Trauma and schizophrenia.
- Self-harm/suicidality and trauma.
- Trauma and psychological first aid.
- Acute stress disorder/PTSD and prevention.
- Family therapy and trauma.
- Group therapy and trauma.
- Cognitive–behavioral therapy and PTSD.
- Eye movement desensitization and PTSD.
- Exposure therapy and PTSD.
- Pharmacotherapy/medication and PTSD.

Searches were generally conducted by the author of the literature review; abstracts were typically reviewed online by the TIP’s Expert Content Director, who then requested copies of promising citations. Relevant articles were reviewed by the writer in consultation with the KAP Senior Researcher and Applied Psychologist.

When available, review articles were acquired first and used to summarize older literature. Review articles as well as other articles that were retrieved suggested further promising or seminal literature, which was also obtained. In addition, Internet searches were conducted for relevant literature available from government and nongovernmental sources.
Section 2—Links to Select Abstracts


Section 3—General Bibliography


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