A Review of the Long-Term Impact of Child Maltreatment on Posttraumatic Stress Disorder and Its Comorbidities: An Emotion Dysregulation Perspective

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This review examines posttraumatic stress disorder (PTSD) related to child maltreatment in adults, PTSD comorbidities, and complex PTSD, with a focus on emotion dysregulation. Adults maltreated as children report high rates of PTSD. Although all forms of child maltreatment are associated with increased PTSD risk, effects are stronger for child sexual and emotional abuse, abuse in the context of other adverse childhood experiences, and cumulative abuse. PTSD comorbidities that involve emotion dysregulation are examined, including substance use disorders, eating disorders, and borderline personality disorder. Emotion dysregulation appears to be a coalescent factor in the nexus of child maltreatment, PTSD, and other comorbidities. Treatment recommendations are made for adults with child maltreatment–related PTSD and comorbidities.

Key words: adults, borderline personality disorder, child abuse, eating disorders, emotion dysregulation, neglect, posttraumatic stress disorder, substance use disorders. [Clin Psychol Sci Prac, 2017]

Child maltreatment is associated with numerous long-term pernicious effects in adulthood (Putnam, Harris, & Putnam, 2013), one of which is posttraumatic stress disorder (PTSD; e.g., Kisiel et al., 2014). Interpersonal events, particularly those that occur in childhood, are associated with higher rates of PTSD and more severe PTSD symptoms (Ehring & Quack, 2010; Kessler, Sonnega, Bronet, Hughes, & Nelson, 1995). Lifetime prevalence of PTSD is estimated to be 7.8% (Kessler et al., 1995), although prevalence rates among adult survivors of child maltreatment range from 30% to 38% (Widom, 1999). Child maltreatment is associated with a variety of negative outcomes in adults, often resulting in a more severe and complex pattern of psychopathology, including PTSD comorbidities such as substance use disorders, eating disorders, and borderline personality disorder (BPD).

This article will present a focused review of PTSD in relation to child maltreatment, within which we emphasize the role of emotion dysregulation. We will first present research on the prevalence of PTSD among adult survivors of various forms of childhood maltreatment (e.g., sexual, physical, and emotional abuse; neglect; witnessing interparental violence), including a discussion of different types of maltreatment and the cumulative impact of abuse on development of PTSD. Next, we will discuss the association of PTSD and emotion regulation difficulties, including exploration of emotion dysregulation as a mechanism related to elevated rates of PTSD among adult survivors of child maltreatment, and its role as a factor in PTSD comorbidities. Next, we review a few key disorders that are commonly associated with child maltreatment and are often comorbid with PTSD: substance use disorders, eating disorders, and BPD. These disorders are discussed given their frequent comorbidity with PTSD, and because emotion dysregulation in some studies
explains associations consistently found among PTSD comorbidities, PTSD, and child maltreatment in adults. We then focus on complex PTSD as a framework to conceptualize traumatic sequelae among adult survivors of child maltreatment, and end this review with a brief summary of available psychotherapeutic interventions for adult survivors of child maltreatment with PTSD.

CHILD MALTREATMENT AND POSTTRAUMATIC STRESS DISORDER IN ADULTS
Adults who experienced abuse or neglect in childhood are at increased risk for current and lifetime PTSD. In a 20-year prospective study of adults (Widom, 1999), individuals with substantiated child maltreatment (physical abuse, sexual abuse, or neglect) were more likely than matched controls without histories of child maltreatment to be diagnosed with lifetime PTSD (30.9% versus 20.4%), and almost twice as likely to be diagnosed with current PTSD. Exposure to several forms of child abuse and neglect (including witnessing interparental violence) has been associated with elevated risk for PTSD in adulthood. Most research on the link between PTSD and child maltreatment has focused on childhood sexual abuse (CSA) or childhood physical abuse (CPA). Experiences such as childhood emotional abuse (CEA) or neglect (emotional or physical) do not meet DSM-IV (or DSM-5) PTSD criteria for a traumatic event (American Psychiatric Association [APA], 2013), although such experiences are associated with PTSD among adults (Kennedy, Bybee, & Greeson, 2014; Schneider, Baumrind, & Kimerling, 2007; Spertus, Yehuda, Wong, Halligan, & Seremetis, 2003; Sullivan, Fehon, Andres-Hyman, Lipschitz, & Grilo, 2006). Given the extent of research available on PTSD and such experiences, they will be discussed.

SPECIFICITY OF CHILD MALTREATMENT EFFECTS ON PTSD
Various forms of child maltreatment are associated with elevated risk of PTSD in adults, although specific types of maltreatment incur relatively greater risk. For example, in a sample of 1,196 adults, PTSD was experienced by approximately one-third of adults with histories of child maltreatment (Widom, 1999). PTSD rates were highest for those experiencing CSA (37.5% lifetime, 22.5% current) and lowest for those reporting neglect (30.6% lifetime, 17.3% current). In a sample of 3,296 women, CSA, CPA, and CEA were related to probable PTSD controlling for comorbid abuse, with adjusted odds ratios for lifetime PTSD ranging from 2.4 for CPA to 3.6 for CEA (Schneider et al., 2007). In other studies, findings shift in multivariate models. Although bivariate correlations indicate several forms of child maltreatment (CSA, CPA, CEA, and witnessing interparental violence [WIV]) are associated with elevations in PTSD symptoms in adults (Clemmons, Walsh, DiLillo, & Messman-Moore, 2007; Higgins & McCabe, 2000), some studies highlight the significance of CEA (Higgins & McCabe, 2000; Spertus et al., 2003) as well as neglect (Spertus et al., 2003). Numerous studies document the pernicious effects of CSA in particular, noting CSA is associated with more severe PTSD symptoms compared to CPA (Higgins & McCabe, 2000; Wilson & Scarpa, 2013). CSA has the strongest prospective associations with PTSD (Widom, 1999) and is associated with severity of PTSD symptoms overall, as well as across all symptom clusters (Higgins & McCabe, 2000; Sullivan et al., 2006; Wilson & Scarpa, 2013). Similarly, several studies suggest that CEA (compared to CPA or neglect) is more strongly related to elevations in PTSD severity (Higgins & McCabe, 2000; Sullivan et al., 2006; Wilson & Scarpa, 2013). Although all types of child maltreatment are associated with greater risk for PTSD and greater PTSD symptom severity, there is evidence CSA and CEA may have a more significant impact compared to other forms of abuse.

CUMULATIVE TRAUMA EFFECTS ON PTSD
Research indicates a consistent pattern of cumulative traumatic effects, with individuals reporting multiple forms of child maltreatment, maltreatment in the context of other adverse life experiences, or adult revictimization having a greater risk for PTSD or exhibiting more severe PTSD symptoms. In a large sample of 3,936 women, Schneider et al. (2007) examined the cumulative impact of CSA, CPA, and CEA on PTSD. Although all three types of abuse were individually associated with greater risk for probable PTSD, experiencing any two types of abuse was associated with significantly greater odds of probable PTSD (approximately double the risk) compared to experiencing only one type, and experiencing all three types
of abuse was associated with a 23-fold increased risk for probable PTSD. Across numerous studies, findings indicate a cumulative effect of child maltreatment on PTSD (or PTSD symptoms) in a dose–response relation, with PTSD symptom severity increasing as the number of types of maltreatment increases (Clemmons et al., 2007; Green et al., 2010; McLaughlin et al., 2012; Schneider et al., 2007; Vranceanu, Hobfoll, & Johnson, 2007).

Child maltreatment often occurs in the context of other adverse childhood experiences such as poverty and parental problems (e.g., arrests, substance use disorder), factors which independently increase risk for PTSD in adulthood (Widom, 1999). Exposure to childhood adversity appears to work in tandem with multiple forms of child maltreatment to increase rates of PTSD for adolescents and young adults, with the strongest cumulative trauma effects for interpersonal and family-based events such as child maltreatment (Kennedy et al., 2014). Through a series of papers, research published on the Adverse Childhood Experiences (ACEs) study established an understanding of the cumulative effects of multiple adverse childhood experiences on adult mental health (Edwards, Holden, Anda, & Felitti, 2003), and broadened our definition of childhood adversity to include poverty, parental dysfunction or absence, and community factors (e.g., crime exposure) in addition to CSA, CPA, CEA, or WIV.

Cumulative trauma exposure increases risk for a complex presentation of symptomatology in addition to PTSD. Putnam et al. (2013) utilized data from the National Comorbidity Survey–Replication sample to examine the cumulative impact of childhood adversities on complex adult psychopathology, defined as the number of lifetime diagnoses, number of disorder categories, and coexistence of internalizing and externalizing disorders. Synergistic effects of child maltreatment (i.e., CSA, CPA, and WIV), as well as ACEs (including parental depression/anxiety, substance use, having only one or no parents, poverty, and being a crime victim), were found to increase complexity of adult psychopathology. However, additive synergistic effects were more common in women (involving CSA, CPA, and WIV), whereas for men, child maltreatment experiences did not show an additively synergistic effect, but were associated with negative outcomes. Another study with youth emphasizes the importance of CSA and its effects, suggesting that CSA in the context of cumulative trauma within the family is particularly damaging. Kisiel et al. (2014) utilized data from the National Child Traumatic Stress Network (NCTSN) Core Data Set to examine CSA in combination with other types of caregiver-related trauma (CPA, CEA, WIV, neglect, and impaired caregiving). They found that CSA had an additive and potent predictive effect on clinical outcomes in the context of other caregiver-related traumas, including higher levels of PTSD, depression, suicidality, and sexualized behaviors compared to youth who experienced multiple traumas (regardless of caregiver status) in the absence of CSA.

Cumulative traumatic effects are also related to additional interpersonal violence experiences during adulthood (i.e., revictimization). In prospective studies, child abuse (compared to other ACEs) is associated with the greatest likelihood of trauma exposure in adulthood, with 74% and 72% of those experiencing CSA and CPA, respectively, reporting an adult-onset traumatic event (Widom, 1999). Moreover, significant elevations in PTSD related to child maltreatment are associated with revictimization in the form of adult rape and intimate partner violence (Classen, Palesh, & Aggarwal, 2005; Lilly, London, & Bridgett, 2014; Spertus et al., 2003). Thus, multiple distinct patterns of cumulative trauma (e.g., multitype child maltreatment or revictimization) are associated with elevations in PTSD (Kennedy et al., 2014).

**Child Maltreatment, PTSD, and Emotion Dysregulation**

Emotion regulation involves the modulation or control of a complex interplay of affective experience and responses (Dvir, Ford, Hill, & Frazier, 2014), including the capacity to experience emotional states as well as to identify and utilize effective emotion regulation strategies. Emotion dysregulation involves excessive emotional reactivity, disregulated emotional intensity and expression (either excessive or attenuated), deficits in emotional awareness and clarity (Kim & Cicchetti, 2010), and difficulties in the ability to identify and label emotional states (i.e., alexithymia). Ineffective strategies
associated with emotion dysregulation include greater use of experiential avoidance, suppression, and rumination (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Lee, Witte, Weathers, & Davis, 2015). Behavioral manifestations of emotion dysregulation frequently involve various forms of impulsivity (including negative urgency), contextually inappropriate affective displays, and inappropriate externalizing behavior such as aggression (Kim & Cicchetti, 2010).

Emotion dysregulation is associated with PTSD (Lee et al., 2015), in part because PTSD symptoms involve maladaptive emotion regulation strategies such as suppression and experiential avoidance as reflected in avoidance of trauma-related stimuli (APA, 2013). In addition, difficulties in emotion regulation are also thought to play a prominent role in the development and maintenance of PTSD (Lee et al., 2015). Several emotion regulation strategies are consistently associated with PTSD symptom severity, including positive associations with thought suppression, expressive suppression, experiential avoidance, and rumination, with mixed evidence for negative associations with acceptance and positive reappraisal. There is an especially robust association between PTSD and thought suppression and experiential avoidance, which remains even after controlling for negative affect (Lee et al., 2015). Emotion dysregulation may also explain high rates of PTSD comorbidity (e.g., substance use, eating disorders, and BPD) in adults who experience child maltreatment, in part because numerous disorders involve disrupted emotional processes, including suppression, avoidance, and rumination (Aldao et al., 2010). Emotion dysregulation is significantly elevated among adult survivors of child maltreatment as well as among individuals with PTSD. Therefore, it is critical to examine it when investigating the association of child maltreatment and PTSD (Ehring & Quack, 2010; Gratz, Tull, Baruch, Bornovalova, & Lejuez, 2008; Moore, Zoellner, & Mollenholt, 2008; Weiss, Tull, Lavender, & Gratz, 2013).

Child maltreatment negatively impacts development of emotion regulation because such knowledge and skills evolve in the context of dynamic interactions between child and caregiver. Children learn emotion regulation in proximity to a safe attachment figure via parental responses such as acknowledging, labeling, and mirroring of emotions, and the soothing of agitation and distress. Thus, children depend on caregivers to organize their worlds in ways that help them experience manageable emotional experiences (Thompson, Flood, & Lundquist, 1995). Parents who engage in child maltreatment are ill-equipped to teach or model effective emotion regulation, often because they do not themselves possess such skills. Moreover, abusive (or neglectful) behavior by the parent damages the quality of the parent–child attachment bond, necessarily limiting the child’s likelihood of accessing his or her caregiver to soothe distress. Thus, a maltreated child must navigate an unpredictable and frightening environment (i.e., living with an abusive parent) without the benefit of a caregiver to provide external structure and regulation (Kim & Cicchetti, 2010). The child is left feeling terrorized by (or conversely, in the case of neglect, ignored by) the very attachment figure who is supposed to protect, support, and soothe the child. Longitudinal studies confirm that child maltreatment in various forms (i.e., neglect, physical abuse, or sexual abuse) appears to significantly interfere with the development of emotion regulation capacity during childhood (Kim & Cicchetti, 2010). The developmental context of child maltreatment is especially relevant to the generation of emotion dysregulation and the likelihood that such difficulties underlie risk for long-term sequelae (Dvir et al., 2014). The type and severity of child maltreatment may be especially salient to development of emotion dysregulation. Numerous studies suggest emotional maltreatment (CEA and/or emotional neglect) may be more strongly associated with deficits in emotion regulation compared to CPA (see Burns, Jackson, & Harding, 2010; Weiss et al., 2013; Zlotnick, Mattia, & Zimmerman, 2001; but not Kim & Cicchetti, 2010). Moreover, greater severity of childhood emotional and physical neglect, rather than abuse, is associated with greater alexithymia, difficulties identifying and labeling emotional states, and difficulties with emotional communication (Zlotnick et al., 2001).

Elevations in emotion dysregulation during adulthood are associated with numerous types of child maltreatment, including CSA, CPA, CEA, and physical and emotional neglect (Gratz et al., 2008), and emotion dysregulation may partially explain higher rates of PTSD associated with child maltreatment. For
example, emotion dysregulation mediated the relation between CEA, CPA, and PTSD (Burns et al., 2010). Among both male and female survivors of child abuse, PTSD symptom severity is associated with greater difficulty in emotion regulation, including difficulties implementing adaptive emotional regulation strategies; alexithymia; reduced levels of emotional clarity, emotional awareness, impulse control, and acceptance of negative emotions; higher levels of experiential avoidance and emotion suppression; and greater difficulty engaging in goal-directed behavior when distressed (Ehring & Quack, 2010; Messman-Moore, Walsh, & DiLillo, 2010; Moore et al., 2008; Weiss et al., 2013; Zlotnick et al., 2001).

PTSD related to child maltreatment is also associated with disturbances in social–emotional functioning and social cognition in adults. Women with maltreatment-related PTSD displayed greater inaccuracy and latency in identifying complex mental states in emotionally salient facial expressions compared to healthy controls, particularly during tasks involving interpretation of familial interactions (Nazarov et al., 2014). Increased severity of child maltreatment in women with PTSD, particularly for those who reported CEA, emotional neglect, and physical neglect, was associated with slower response latency for fear, anger, happiness, and sadness. Women with maltreatment-related PTSD may be overwhelmed or distracted by both positive and negative emotions, and such difficulties may impair social cognition. Consistent with these conclusions, Parlar et al. (2014) found that women with maltreatment-related PTSD show a reduced ability to perceive and respond to the perspectives of others, and reduced empathic concern in response to others’ emotional experience. However, Young and Widom (2014) conclude PTSD does not always explain emotion regulation difficulties among individuals with histories of child maltreatment who were less accurate in processing pictures depicting emotional states. Although CPA predicted less accuracy in neutral pictures and CSA (and neglect) predicted less accuracy in positive pictures, PTSD did not impact emotion-processing deficits. This suggests child maltreatment is uniquely related to some aspects of emotion processing regardless of PTSD.

Summary
Numerous studies demonstrate a significant association between a history of childhood maltreatment and various forms of emotion dysregulation in adults. Some studies suggest that emotion dysregulation may predict PTSD or PTSD severity and explain the relationship between child maltreatment and elevated rates of PTSD. Additional studies are needed to determine the relevance of maltreatment not currently recognized as a Criterion A event (e.g., neglect, emotional abuse) when examining PTSD and comorbidities, especially given such experiences are associated with greater emotion dysregulation than other forms of abuse and in light of potential indirect effects of emotion dysregulation on PTSD in adult survivors.

DIAGNOSTIC COMORBIDITIES OF PTSD: A FOCUS ON CHILD MALTREATMENT AND EMOTION DYSREGULATION
Among individuals with PTSD, 93% have at least one other comorbid psychiatric disorder, 54% have two or more types of comorbid disorders, and 11% have four types of comorbid disorders (Abram et al., 2013). Given these statistics, it is not surprising that PTSD is unlikely to exist in isolation among adults with a history of childhood maltreatment (Galatzer-Levy, Nickerson, Litz, & Marmar, 2013). Depression and dissociation are prevalent long-term outcomes associated with child maltreatment as well as comorbidity with PTSD, and are covered elsewhere in this volume (see Bailey & Brand, 2017; Liu, 2017). Emotion dysregulation is a common factor associated with PTSD and various comorbidities found among survivors of child maltreatment, including substance use disorders, eating disorders, and BPD. Next, we discuss these three disorders and examine how emotion dysregulation may be a mechanism that explains comorbidity with PTSD. Problems with emotion regulation are a focus given widespread acknowledgment that such difficulties comprise a transdiagnostic mechanism underlying numerous psychiatric disorders (Aldao et al., 2010). These disorders are reviewed given their frequent comorbidity with PTSD, and because emotion dysregulation may explain associations consistently found among these PTSD comorbidities in maltreated adults.
PTSD and Substance Use

The lifetime prevalence of a substance use disorder (i.e., abuse or dependence) is typically elevated among adults with PTSD compared to those without PTSD (29.1% versus 11.9%; Chilcoat & Breslau, 1998). Similarly, youth with PTSD are 2–4 times more likely to have an alcohol use disorder (AUD), any substance use disorder (SUD), or both alcohol and substance use disorders compared to those without PTSD (Abram et al., 2013). In a systematic review, Debell et al. (2014) found that 10–61% of individuals with PTSD engaged in alcohol misuse. All but one of the studies found a significant association between alcohol misuse and avoidance and/or numbing PTSD symptoms. The majority showed a relation with hyperarousal symptoms and indicate PTSD severity predicts severity of alcohol misuse.

There is evidence suggesting SUDs may develop in response to PTSD, potentially as an emotion regulation strategy. Studies assessing PTSD-SUD temporality indicate the onset of SUDs is more likely to occur following the onset of PTSD, rather than to develop concurrently or prior to PTSD (Abram et al., 2013; Blanco et al., 2013; Cross, Crow, Powers, & Bradley, 2015). In one study, 55.5% of individuals with alcohol abuse/dependence and 75% of individuals with drug abuse/dependence developed the SUD following PTSD (Perkonigg, Kessler, Storz, & Wittchen, 2000). Severity of PTSD symptoms may explain the temporality of this comorbidity when it does exist. Individuals with comorbid PTSD-SUD report more avoidance and arousal PTSD symptoms, including more significant sleep disturbance, compared to those with PTSD only (Müller et al., 2015a, 2015b; Saladin, Brady, Daniels, & Kilpatrick, 1995). A history of PTSD may explain elevated rates of SUDs in adult survivors of child maltreatment. Individuals with a history of CSA have twice as many alcohol abuse symptoms compared to those who did not experience CSA, and PTSD mediates the relation between CSA and alcohol abuse (Powers, Cross, Fani, & Bradley, 2015). Consistent with this finding, increases in CSA severity are associated with greater PTSD severity, which predicts greater use of substances to cope (Ullman, Relyea, Peter-Hagene, & Vasquez, 2013). Similarly, PTSD symptoms predict avoidance coping, which then predicts severity of substance use consequences, among incarcerated adult female survivors of CSA (Asberg & Renk, 2012). These studies suggest the significant PTSD-SUD comorbidity may be partly explained by emotion dysregulation and/or inadequate coping, which may increase the likelihood that a SUD develops in response to PTSD. Indeed, among adults seeking SUD residential treatment, emotion dysregulation
explained the association between a history of CPA or CEA and PTSD (Weiss et al., 2013). A meta-analysis noted that SUDs are associated with use of maladaptive emotion regulation strategies, including rumination and avoidance, but that other factors such as reward sensitivity likely moderate the impact of emotion dysregulation on SUDs (Aldao et al., 2010). Moreover, the impact of rumination on alcohol and substance abuse is moderated by gender, affecting women only and not men (or male adolescents). Finally, SUDs themselves may be one form of (or part of a cluster of) maladaptive emotion regulation strategies (Aldao et al., 2010). More research is needed to examine the role of emotion dysregulation in PTSD-SUD comorbidity, particularly for individuals who are seeking primary treatment for PTSD, as most studies have a primary focus on the SUD or focus on individuals seeking treatment for SUDs when examining PTSD-SUD.

PTSD and Eating Disorders
Child maltreatment, including sexual, physical, and emotional abuse, emotional and physical neglect, and peer victimization, has been linked to comorbid PTSD and eating disorders (ED) in adults (Johnson, Cohen, Kasen, & Brook, 2002; Léonard, Steiger, & Kao, 2003; Mitchell, Mazzeo, Schlesinger, Brewerton, & Smith, 2012). A significant proportion of women with anorexia nervosa (AN) also have PTSD, with comorbidity more common among those who purge (Reyes-Rodríguez et al., 2011). Brewerton (2007) argues that partial or subthreshold PTSD poses a risk for development of bulimia nervosa (BN) or bulimic symptoms. Consistent with this, research has shown that men with BN or binge eating disorder (BED) were more likely to be diagnosed with PTSD than men without BN or BED (Mitchell et al., 2012). Moreover, women with PTSD also showed higher rates of BN or BED than women without PTSD (Mitchell et al., 2012). In another study, women with PTSD-BN report a greater daily frequency of binge eating and purging behaviors than women with BN only (Karr et al., 2013). PTSD may precede some eating disorders or mediate the link between early childhood trauma and eating disorders. For example, CSA was the most common traumatic event among those with comorbid PTSD-AN, and typically preceded the onset of anorexia (Reyes-Rodríguez et al., 2011). In another study, PTSD mediated the relation between early traumatic events and disordered eating (Holzer, Uppala, Wolnerlich, Crosby, & Simonich, 2008). In contrast, in a study of female veterans, sexual trauma in childhood, but not PTSD, was associated with a diagnosis of eating disorder in multivariate models (Forman-Hoffman, Mengeling, Booth, Torner, & Sadler, 2012). Yet there is some evidence that PTSD, rather than trauma exposure per se, is relevant to eating disorders in women (Mitchell et al., 2012). Trauma-exposed women with PTSD reported significantly higher rates of BN and BED compared to trauma-exposed women without PTSD. The majority of individuals with AN, BN, or BED did not have PTSD. However, when comorbidities occurred, it was more common in BN and BED compared to AN. Related, bulimia was significantly elevated for those reporting CPA or CEA, suggesting specific traumatic experiences may increase risk for comorbid PTSD-BN.

Emotion dysregulation may impact PTSD-ED comorbidities or explain links between child maltreatment and eating disorders. In college women, emotion dysregulation partially mediated the association between CEA (but not CSA or CPA) and global eating disorder symptoms, number of purge episodes, and number of binge episodes. CEA also showed a significant (direct) relation with global eating disorder symptoms and number of binge episodes (Burns, Fischer, Jackson, & Harding, 2012). Prospective studies show emotion dysregulation related to childhood maltreatment precedes development of eating disorders in adolescents (Dvir et al., 2014). In a meta-analysis, different aspects of emotion dysregulation, including avoidance, rumination, and suppression, were associated with symptoms of eating disorders, particularly BN, but only among women (Aldao et al., 2010). Additional research is needed to determine whether emotion dysregulation may explain elevations in PTSD-ED comorbidity among adult survivors of child maltreatment. A significant body of literature supports this assumption, with anorexia, bulimia, and binge eating disorder all associated with elevations in emotion regulation difficulties, deficits in emotional awareness, or emotional suppression (Berking & Wupperman, 2012). Moreover, avoidance coping in response to a traumatic event may...
increase the odds of developing an eating disorder (Brewerton & Brady, 2014). Women with comorbid PTSD-BN report significantly higher levels of negative affect at the time of binge eating and at the time of purging, compared to women with BN only, and those with comorbid PTSD-BN report a faster acceleration in negative affect before purging and a faster deceleration in negative affect after purging (Karr et al., 2013). Thus, among individuals with PTSD, disordered eating may serve an emotion regulation function similar to substance use. Eating disorder symptoms are associated with drug use and addiction severity in a sample with comorbid PTSD-SUD (Killeen, Brewerton, Campbell, Cohen, & Hien, 2015). More research is needed to examine potential associations, especially with specific eating disorders, given a paucity of studies on comorbid PTSD-ED that examine child maltreatment and emotion dysregulation.

PTSD and Borderline Personality Disorder
Rates of BPD among individuals with PTSD range widely from 10 to 76% in community samples (Pagura et al., 2010). In a national epidemiological survey on alcohol and related conditions (NESARC, N = 34,653), Pagura et al. (2010) found that 24% of individuals with lifetime PTSD also met criteria for BPD, and 29% of individuals who currently met criteria for PTSD also met criteria for lifetime BPD (Grant et al., 2008). In clinical samples, approximately 37–68% of individuals with PTSD have BPD comorbidity (Hefferman & Cloitre, 2000; Zlotnick, Franklin, & Zimmerman, 2002). Comorbid PTSD-BPD is associated with significantly more deleterious outcomes, including poorer quality of life, greater comorbidity with other Axis I conditions (including SUDs), increased odds of a lifetime suicide attempt, and, among women, greater PTSD symptom severity (Pagura et al., 2010).

In the NESARC study, individuals with comorbid PTSD-BPD experienced significant cumulative maltreatment; were more likely to experience CSA, CPA, neglect, and WIV; experienced a significantly higher prevalence of repeated episodes of CSA; and had a greater likelihood of multiple early abuse experiences (Pagura et al., 2010). Earlier research yielded inconsistent results regarding the prevalence of child maltreatment in PTSD-BPD comorbidity. Several studies report comorbid PTSD-BPD is associated with earlier CSA onset (Hefferman & Cloitre, 2000), CPA (Clarke, Rizvi, & Resick, 2008; Zlotnick et al., 2003), or cumulative abuse (Zlotnick et al., 2003). Related, CSA and CSA severity (i.e., penetration, intrafamilial CSA, involvement of more than one perpetrator, longer duration) are associated with PTSD comorbidity in female BPD patients (Van Den Bosch, Verheul, Langeland, & Van Den Brink, 2003). In a prospective study of 500 adults with substantiated child maltreatment, PTSD mediated the link between childhood neglect (and any abuse/neglect) and BPD (Widom, Czaja, & Paris, 2009). In addition, PTSD appears to exacerbate affective instability in BPD (Marshall-Berenz, Morrison, Schumacher, & Coffey, 2011); hence, the significant PTSD-BPD comorbidity in adults with child maltreatment may be due in part to emotion dysregulation found in both disorders. Additional research is needed on PTSD-BPD, particularly studies focused primarily on PTSD and emotion dysregulation among adults maltreated as children.

COMPLEX PTSD: RELEVANCE OF A NEW DIAGNOSIS FOR MALTREATED ADULTS
The clinical presentation of individuals with exposure to complex (i.e., cumulative) trauma, which involves simultaneous or sequential co-occurrence of maltreatment, often differs from the presentation of individuals who experience single-event traumas. Exposure to two or more types of childhood maltreatment or adversity is associated with a cumulative impact of trauma indicative of significant diagnostic complexity expressed as high levels of comorbidity and number of presenting symptoms (Kennedy et al., 2014; Putnam et al., 2013). For some individuals with complex adult psychopathology (i.e., who meet criteria for an average of 6–7 DSM Axis I lifetime disorders), superordinate diagnostic constructs such as complex PTSD may be warranted (Putnam et al., 2013). Although not included in DSM-5, there is a proposal to add complex PTSD to the ICD-11. In that diagnostic system, complex PTSD includes a reduced set of six PTSD symptoms (identical to those for ICD-11 PTSD) from three domains: re-experiencing of the traumatic event(s) accompanied by fear or horror; avoidance of reminders; and a sense of
current threat expressed as hyperarousal symptoms (Cloitre, Garvert, Brewin, Bryant, & Maercker, 2013).

In addition, the proposed complex PTSD also includes disturbances in self-organization that are pervasive, occur across various contexts and relationships regardless of proximity to traumatic reminders, and involve disruptions in affect, self-concept, and interpersonal relations. Affective dysregulation includes symptoms such as heightened emotional reactivity, emotional numbing, and/or a tendency to prolonged dissociative states. Self-disturbances involve persistent beliefs of a diminished, defeated, or worthless self, which may be accompanied by pervasive feelings of shame or guilt. Interpersonal difficulties include avoiding relationships, difficulties feeling close to others, and problems sustaining or maintaining emotional engagement in relationships (Cloitre et al., 2013).

In an effort to establish the validity of complex PTSD as a diagnosis considered for ICD-11, Cloitre et al. (2013) conducted a latent profile analysis with 302 individuals who had sought treatment for interpersonal traumas including chronic trauma (e.g., childhood abuse) as well as single-incident events (e.g., exposure to 9/11 attacks). Results support a distinction between PTSD and complex PTSD. The two groups were equivalent in severity of PTSD symptoms (re-experiencing, avoidance, or numbness), but differed significantly on additional dimensions indicative of complex PTSD (affect dysregulation, negative self-concept, and interpersonal problems). Chronic trauma in the form of childhood abuse was more strongly predictive of complex PTSD than PTSD, and conversely, single-event trauma was more strongly predictive of PTSD. Individuals with complex PTSD tended to more frequently endorse childhood abuse (sexual and/or physical) as the worst trauma compared to the PTSD group, and reported greater cumulative (number of different types of) childhood abuse, but did not differ from the PTSD group in number of adult-onset interpersonal traumas. Compared to those in the PTSD group, individuals with complex PTSD did not report more severe PTSD symptom severity, but did report higher levels of affect dysregulation, negative self-concept, and interpersonal problems, as well as greater functional impairment.

Given the importance of distinguishing complex PTSD from BPD, Cloitre, Garvert, Weiss, Carlson, and Bryant (2014) examined clusters of symptoms of PTSD, complex PTSD, and BPD in a sample of 280 treatment-seeking women with histories of childhood abuse. Findings revealed three symptomatic groups (PTSD, complex PTSD, and BPD) and a group with low/minimal symptoms. Supporting the proposed ICD-11 framework, both the PTSD and complex PTSD group met criteria for PTSD (e.g., re-experiencing, avoidance, numbing, and hyperarousal symptoms), but the complex PTSD group also endorsed symptoms in three additional domains: affect dysregulation, negative self-concept, and interpersonal problems. Individuals with PTSD had fewer difficulties in these three domains compared to women in the complex PTSD and BPD groups. However, the complex PTSD group did not endorse symptoms consistent with BPD (e.g., frantic efforts to avoid abandonment, impulsiveness, self-harm). Individuals with BPD were more likely to have comorbid PTSD (54%) than complex PTSD (44.6%). The only common symptom between complex PTSD and BPD was a sense of emptiness. These findings provide evidence that complex PTSD is a distinct diagnostic construct, albeit related to BPD. Furthermore, this study reveals a link between specific forms of child maltreatment and risk for complex PTSD. Individuals with complex PTSD had higher rates of CSA compared to those with BPD or no diagnosis, although there were no other differences in rates of other childhood abuse, neglect, or other adult traumatic events across diagnostic (and control) groups.

Results from these studies suggest complex PTSD is a valid and distinct diagnostic construct that may be useful to address psychiatric complexity among adults who experienced complex childhood trauma (Putnam et al., 2013). The diagnosis of complex PTSD is particularly appropriate for individuals who have sustained chronic and extensive interpersonal trauma that is developmental and cumulative in nature. Yet, Cloitre et al. (2013, 2014) caution against articulating an explicit criterion of cumulative trauma exposure for the disorder of complex PTSD, instead suggesting the disorder may be relevant to heterogeneous trauma exposure. Additional research is needed to substantiate the construct of complex PTSD. Yet, it seems likely that a subset of traumatized individuals, particularly adults with a history of child maltreatment, may benefit
from this diagnosis if the resulting intervention is designed to address numerous domains of impairment in a holistic, trauma-focused framework. Thorough assessment of trauma history and difficulties in the domains outlined above would likely improve extant protocols with select groups of adult survivors presenting for treatment.

**TREATMENT RECOMMENDATIONS**

A recent meta-analysis indicates psychological treatments are efficacious for child maltreatment–related PTSD in adults (Ehring et al., 2014). In that review, active treatments (particularly trauma-focused treatments) showed moderate to large effect sizes for PTSD symptoms, as well as comorbid depression, anxiety, and dissociation. Trauma-focused, cognitive-behavioral treatments (CBT) such as cognitive processing therapy (CPT; Resick & Schnicke, 1992), prolonged exposure (PE; Foa, Rothbaum, Riggs, & Murdock, 1991), and skills training in affect and interpersonal regulation with exposure (STAIR; Cloitre, Koenen, Cohen, & Han, 2002) reduce PTSD and emotion dysregulation related to child maltreatment (Chard, 2005; Cloitre et al., 2010; Jerud, Zoellner, Pruitt, & Feeny, 2014). Interpersonal therapy models designed to reduce PTSD and improve self-regulation skills include present-centered therapy (PCT; McDonagh et al., 2005) and present-focused group therapy (PFGT; Spiegel, Classen, Thurston, & Butler, 2004). These approaches focus on social problem-solving and foster awareness of the connection between problematic behavioral patterns and PTSD. PFGT reduced PTSD symptoms and substance use, as well as improved interpersonal functioning (Spiegel et al., 2004). PCT leads to decreases in PTSD and emotion dysregulation, with improvements comparable to CBT-based approaches (McDonagh et al., 2005), although dropout was higher in PCT versus CPT (Clarke et al., 2008).

Clinicians working with adult survivors of maltreatment may also focus on promoting effective emotion regulation in therapy for PTSD. The STAIR method involves a focused, sequential approach that aims to (a) improve emotion regulation capacity via psychoeducation and behavioral intervention, (b) address chronic PTSD through cognitive-behavioral narrative exposure, and (c) improve interpersonal relationships and assertiveness via cognitive intervention focused on maladaptive interpersonal schemas (Cloitre et al., 2002). STAIR has demonstrated significant improvement in emotion dysregulation, interpersonal skills, and PTSD symptoms among adults with histories of CSA and CPA (Cloitre et al., 2002, 2010). However, not all clients may need additional components to address emotion dysregulation. For example, prolonged exposure (PE) therapy significantly improved emotion regulation in adults with PTSD, including both those with and without childhood abuse, and without additional components directly targeting emotion dysregulation (Jerud et al., 2014).

Other interventions address PTSD for individuals with comorbid conditions. Dialectical behavior therapy (DBT) sequenced with PE has been used successfully to treat PTSD-BPD in a pilot study of women (Harned, Korslund, Foa, & Linehan, 2012), the majority of whom experienced CSA (61.5%). In that study and a follow-up randomized controlled trial, DBT-PE showed improvements in PTSD in the majority of treatment completers, as well as improvements in suicidal ideation, dissociation, trauma-related guilt, shame, anxiety, depression, and social adjustment (Harned, Korslund, & Linehan, 2014; Harned et al., 2012). DBT has also been combined with trauma-focused interventions in a 12-week residential program for women with histories of CSA (Bohus et al., 2013). This inpatient hybrid program also demonstrated significant improvement in PTSD symptoms compared to a treatment-as-usual wait-list control, reducing PTSD symptoms regardless of comorbid BPD, but did not impact BPD symptoms. However, additional components or hybrid interventions may not always be indicated for individuals with comorbid PTSD-BPD, given evidence that CPT improves PTSD outcomes and characteristics of BPD for women (Clarke et al., 2008) and shows better retention than PCT (McDonagh et al., 2005). In addition, seeking safety (Najavits, 2002) may be a useful precursor to PTSD-focused treatments for individuals with comorbid PTSD-SUD. Seeking safety does not involve exposure, but is designed to enhance safe coping skills as well as challenge maladaptive beliefs related to traumatic experiences and substance use, and can reduce PTSD symptom severity and co-occurring substance use disorders, as well as anxiety, depression, hostility, suicidality, and interpersonal problems (Najavits, 2002).
CONCLUSION

Adults who experienced child maltreatment show elevated rates of PTSD, which is especially prevalent in the context of cumulative abuse. Evidence of additive and synergistic effects of multiple forms of maltreatment and other adverse childhood events suggests a subset of adult survivors will present with complex psychopathology in addition to PTSD. Both child maltreatment and related PTSD are associated with elevations in numerous forms of emotion dysregulation, including impaired emotion regulation strategies, which may impact PTSD comorbidities. Indeed, PTSD related to child maltreatment is frequently comorbid with disorders that involve significant emotion dysregulation, including substance use disorders, eating disorders, and BPD. Moreover, the complexity of traumatic sequelae, along with disruptions in emotion regulation, self-concept, and interpersonal functioning, may also necessitate alternate conceptualizations such as complex PTSD. The unequivocal cumulative, synergistic effects of child maltreatment indicate a need for professionals to assess for such experiences as well as their deleterious consequences. Numerous therapy models are available to treat chronic PTSD as well as more complex presentations. Additional research is needed to delineate the complex interplay of numerous aspects of emotion dysregulation and PTSD comorbidities, particularly to determine the role of child maltreatment in development of emotion regulation difficulties, PTSD, and comorbidities.

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