

Psychological Trauma: Theory, Research, Practice, and Policy

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Defining Trauma: How Level of Exposure and Proximity Affect Risk for Posttraumatic Stress Disorder

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Objective: The fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)* includes significant changes to Criterion A for posttraumatic stress disorder (PTSD), the criterion that defines which events qualify as “traumatic.” This systematic review explores the fundamental question of how to define a trauma by reviewing the difference between direct and indirect trauma exposure and the risk for PTSD associated with both exposure types. Direct exposure includes experiencing a trauma firsthand or witnessing a trauma as it occurs to others. In contrast, indirect exposure may occur by learning about the violent or accidental death of a close associate, through secondary narrative accounts (e.g., in service-related professions), or through work-related media reports. This review examines whether indirect trauma exposure can lead to PTSD and the role of proximity in symptom development. **Method:** We conducted a systematic review of the research assessing changes to PTSD Criterion A in *DSM-5*, various levels of traumatic exposure, and proximity as a risk factor for PTSD. **Results:** Our review indicates that indirect exposure can lead to PTSD, although the probability of developing the disorder from indirect exposure is lower than that from direct exposure. Proximity to a trauma also increases risk, but this may be limited to direct exposure. **Conclusions:** Knowledge of the impact of level of exposure (direct vs. indirect) and proximity will help to better define what events meet PTSD Criterion A. Future research is needed to examine *DSM-5*’s requirement that exposure through media must be related to one’s work.

Keywords: PTSD, trauma, exposure, proximity, *DSM-5* changes

Posttraumatic stress disorder (PTSD) is a major public health concern that is associated with lost productivity (Kessler, 2000), a high risk for future suicide attempts (Panagioti, Gooding, & Tarrier, 2009; Kessler, 2000), and considerable levels of lifetime psychiatric comorbidity, with some comorbidity estimates as high as 80% (Fairbank, Ebert, & Caddell, 2001). Although numerous studies have sought to identify predictors of PTSD among those who have directly experienced a traumatic event, burgeoning research has indicated that those who are indirectly exposed to mass traumas may also be at risk for the development of PTSD symptoms (Sprang, 1999; Zimering, Gulliver, Knight, Munroe, & Keane, 2006; Gil-Rivas, Silver, Holman, McIntosh, & Poulin, 2007).

This systematic review addresses two key questions pertaining to the risk of posttraumatic stress symptoms after direct and indirect trauma exposure. First, can an individual still experience posttraumatic stress symptoms if he or she does not experience the trauma directly? Second, does an individual’s proximity to a traumatic event (i.e., geographic distance) affect their risk of developing posttraumatic stress symptoms? We will first describe the changes made to Criterion A in the most recent publication of

the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed., *DSM-5*; American Psychological Association [APA], 2013). We will then discuss the evidence for PTSD risk across different levels of trauma exposure, including direct and indirect forms of exposure. Finally, we will examine the possible role of proximity to the trauma as a risk factor for PTSD.

DSM Criteria

Perhaps the most basic controversy in defining the *DSM* criteria for PTSD is what is included in Criterion A, or what constitutes a trauma. There is the broader question of what types of events are considered traumatic, whereas there is also the question of how much traumatic exposure an individual needs to experience to be considered legitimately “traumatized.” In the *DSM-IV-TR*, Criterion A included both direct and indirect forms of trauma exposure, but the parameters surrounding indirect exposure were arguably vague (4th ed., text revision; APA, 2000). PTSD Criterion A in the *DSM-IV-TR* required that the individual “experienced, witnessed, or was confronted with” an event that consisted of “actual or threatened death or serious injury, or a threat to the physical integrity of self or others” (Criterion A1; APA, 2000). In addition, the individual must have experienced the event with “intense fear, helplessness, or horror,” otherwise known as Criterion A2 (APA, 2000). For direct exposure, the individual being assessed must have either experienced the event firsthand or been a witness to the event as it occurred to others. In contrast to direct exposure, indirect exposure was defined as being “confronted with” a trauma and was further described as “learning about unexpected or violent death, serious harm, or threat of death or injury experienced by a

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family member or other close associate” (APA, 2000, p. 463). However, the *DSM-IV-TR* did not clearly define what constituted an “unexpected” death and did not specify how the individual was provided with this information, such as narrative accounts, media coverage of the event, graphic images, and so forth.

The most recent version of the *DSM* (the *DSM-5*) also includes both direct and indirect forms of trauma exposure and further defines indirect exposure with more precision (APA, 2013). *DSM-5* defines Criterion A as:

exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways: 1) directly experiencing the traumatic event(s), 2) witnessing, in person, the event(s) as it occurred to others, 3) learning that the traumatic event(s) occurred to a close family member or close friend (in cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental), or 4) experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse). Note: Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work-related. (APA, 2013, p. 271)

DSM-5 has therefore made three major changes to Criterion A: the exclusion of the requirement of subjective distress (previously known as A2), the additional requirement that a family member or friend’s death be “violent or accidental,” and the inclusion of “repeated or extreme exposure to aversive details.” The first change, the exclusion of Criterion A2, has received a great deal of attention in the literature (e.g., Bovin & Marx, 2011). Research supporting this alteration has discovered that the inclusion of Criterion A2 prevents a substantial minority (approximately 25%) of individuals from reaching a diagnosis of PTSD (O’Donnell, Creamer, McFarlane, Silove, & Bryant, 2010; Creamer, McFarlane, & Burgess, 2005) and that this subjective reaction is weakly predictive of symptoms 6 months later (Rizvi, Kaysen, Gutner, Griffin, & Resick, 2008). The second change, that indirect exposure to the “actual or threatened death of a family member or friend” must be “violent or accidental” (APA, 2013), creates a major effect on the number of individuals diagnosed with PTSD. Research examining this distinction will be discussed later in the section Learning About Sudden Death of a Loved One.

The third change, that Criterion A now includes “repeated or extreme exposure to aversive details of the traumatic event(s),” represents a novel addition in *DSM-5* and may apply to service professionals such as first responders or mental health professionals. In relation to this part of Criterion A, *DSM-5* does not include “indirect trauma” as experienced via media exposure (e.g., television, journalism, photographs) but does acknowledge exposure to aversive details through the media if that exposure is “work-related.” Unfortunately, *DSM-5* does not provide details to specify what the media exposure must entail to be considered work-related or the reasoning behind this specification.

When considering the changes made to the newest *DSM*, it is important to consider what research has been conducted to substantiate the changes. For example, therapists treating trauma-exposed clients need to know which types of indirect exposure can be included in Criterion A of *DSM-5* and how media coverage may contribute to a person’s posttraumatic symptoms. Previous research on PTSD has examined the amount, or intensity, of

exposure an individual has experienced and how this relates to the development of posttraumatic stress symptoms (Sprang, 1999; Weisæth, 1989; Galea et al., 2002; Hughes et al., 2011). However, information on how direct the exposure was (direct vs. indirect) and how close an individual was to a traumatic event (proximity) may provide additional utility in determining PTSD risk after trauma exposure.

Defining Terms

Before evaluating the evidence for these diagnostic changes, we must first define two ideas that appear throughout this review: levels of exposure and proximity. Outlined in the *DSM-5* diagnostic criteria of PTSD, levels of exposure can be separated into direct and indirect exposure. Furthermore, direct exposure can be broken down into two parts: experiencing a trauma firsthand or witnessing a trauma as it occurs to others. Individuals who do not directly experience or witness a trauma may be exposed to the trauma through other sources, commonly referred to as “indirect exposure.” “Secondary trauma” is a term used to describe indirect exposure that is secondhand in nature; within the literature, this term is commonly used to describe indirect exposure occurring through one’s profession. *DSM-5* describes this type of trauma as “repeated or extreme exposure to aversive details of the traumatic event(s)” (APA, 2013, p. 271). It is important to note that not all experiences of indirect exposure meet *DSM-5* Criterion A for the diagnosis of PTSD, as discussed previously.

A common way to research the risk associated with an individual’s trauma exposure is to examine that individual’s proximity. The word “proximity” is commonly used to describe how close an individual is relative to where a traumatic event occurred and is usually defined in terms of location. An individual’s proximity can often influence the intensity of exposure experienced in the trauma, or how much the trauma affects the individual. In other words, in the occurrence of a life-threatening event, an individual is likely to experience more emotional intensity or loss the closer he or she is to the event (Blanchard et al., 2004; Schuster et al., 2001; Sprang, 1999; Schlenger et al., 2002; Şahin, Batigün, & Yılmaz, 2007). Individuals who are located geographically far from a traumatic event and are indirectly exposed to the event (typically through the media) are often referred to as “distant witnesses” in the literature (Matt & Vázquez, 2008). For our purposes, we will use the term *witness* exclusively to refer to individuals who directly witness a traumatic event in person, and will not use the label “*distant witness*” to refer to individuals who are indirectly exposed through the media.

Direct Exposure

Cumulative Trauma Burden

Direct exposure to at least one traumatic event has been the focus of a great deal of PTSD research (e.g., APA, 2000, 2013). Although traumatic events were once considered “outside the range of usual human experience” (APA, 1987, p. 250), epidemiological research has indicated that trauma exposure is much more common than previously believed (Kessler, 2000). Indeed, individuals are more likely to have a history of exposure to several traumatic events rather than a single trauma (Resnick, Kilpatrick,

Dansky, Saunders, & Best, 1993). Research on direct exposure has examined whether trauma has a cumulative or aggregate effect, such that exposure to multiple traumas confers greater PTSD risk than exposure to a single trauma. The definition of cumulative trauma is inconsistent in the literature; there are at least three distinct definitions that have been used. Martin, Cromer, DePrince, and Freyd (2013) defined a cumulative effect of trauma as the number of distinct trauma *types* experienced throughout one's lifetime (e.g., automobile accident, interpersonal violence, natural disaster, terrorist attack). A second definition is the number of times the same trauma type has been experienced (e.g., child abuse, in which multiple incidences of abuse may occur over a period of time). This definition is often termed "polyvictimization" (e.g., Cloitre et al., 2009) and generally refers to sexual or physical trauma. A third and more inclusive definition is a lifetime's total traumatic exposure, or the total number of traumatic events that have occurred across all trauma types. Much of the literature on what we are referring to as cumulative trauma uses different definitions of the term, increasing heterogeneity and making it difficult to draw comparisons across studies.

Across these different definitions, research has generally indicated that higher cumulative trauma exposure is associated with greater PTSD risk (e.g., Breslau, Chilcoat, Kessler, & Davis, 1999; Follette, Polusny, Bechtle, & Naugle, 1996; Karam et al., 2014; Wisco et al., 2014). For example, Finkelhor, Ormrod, and Turner (2007) found that polyvictimization in the past year was more predictive of trauma symptoms than other known risk factors in a nationally representative sample of youth. In a comprehensive, cross-national, population-based survey, exposure to four or more traumatic events was associated with higher probability of PTSD and greater symptom severity, comorbidity, and functional impairment than exposure to one to three traumatic events, offering strong support for cumulative effects of trauma (Karam et al., 2014).

In conclusion, research supports a cumulative effect of trauma, with greater exposure associated with greater PTSD risk. Future research on this topic could better distinguish between different definitions of cumulative trauma and examine the contribution of these various types of trauma exposure to PTSD risk.

Directly Experiencing Versus Witnessing Trauma

There is clear evidence that directly witnessing a trauma as it occurs to others can lead to PTSD (e.g., Breslau et al., 1999). However, do individuals who experience a trauma firsthand have greater risk of PTSD than trauma witnesses? Some research has directly compared these two levels of direct trauma exposure. For example, Pitts et al. (2013) and Van Winkle and Safer (2011) examined U.S. soldiers who were exposed to combat and the experience of killing. Both studies similarly found that direct experiencing of combat (killing or attempting to kill) was associated with increased risk of PTSD symptoms, even after accounting for the effects of witnessing combat trauma in fellow soldiers. Other research has compared children who have observed violence within the home with children who both observed and were victimized by the violence. For example, Spilsbury et al. (2007) found evidence that children who both experienced and observed violence experienced greater symptomatology than children who solely observed domestic violence. Similar results were found by

Kulkarni, Graham-Bermann, Rauch, and Seng (2011), who examined a similar form of domestic violence, and by Teicher and Vitaliano (2011), who examined violence to a child's sibling(s). Therefore, although few studies have offered direct comparisons, the available evidence has suggested that witnessing a trauma is associated with lower PTSD risk than directly experiencing the same trauma type. One limitation to this literature is the lack of distinction between witnessing when the risk for personal harm is also present and witnessing when there is no potential for danger or direct harm. This distinction is particularly important when attempting to contrast "witnessing" and "directly experiencing" and is a key consideration when defining the term "witnessing" and describing this level of exposure.

Indirect Exposure

Learning About Sudden Death of a Loved One

Learning about the sudden death of a loved one, such as a family member or close friend, can lead to PTSD as well. Whereas *DSM-IV-TR* included "unexpected or violent" deaths in Criterion A, *DSM-5* requires such deaths to be "violent or accidental," a more narrow definition (APA, 2000, 2013). After the initial addition of "learning about" events in *DSM-IV*, this became the most frequently endorsed event (Breslau & Kessler, 2001) and accounted for 38% of total PTSD cases (Weathers & Keane, 2007). By excluding indirect exposure to sudden, nonviolent/nonaccidental death in Criterion A, the subwork group for *DSM-5* attempted to set stricter parameters for what types of events can be considered traumatic for diagnostic purposes (Friedman, 2013). Recent research has examined the significance of this change. In a nationally representative sample of 2,953 individuals, Kilpatrick et al. (2013) found that 60% of the cases that met *DSM-IV* criteria but not *DSM-5* were solely due to this exclusion in the newest *DSM*. Other studies have found a similar but less drastic pattern in smaller samples (Elhai et al., 2012; Calhoun et al., 2012; Gentes et al., 2014). Similar results were also reported by Kloep, Lancaster, and Rodriguez (2014), who directly compared individuals exposed to sudden, violent death with individuals exposed to sudden unexpected, but nonviolent, death. They found that individuals exposed to sudden violent death reported significantly higher PTSD symptoms, particularly hyperarousal symptoms, offering support for the appropriateness of this change in *DSM-5*. This change to Criterion A may help to distinguish PTSD from related problems, such as complicated grief or adjustment disorder. However, practicing clinicians should keep in mind that there are individuals who may be greatly affected by the sudden, nonviolent death of a loved one. Future research is needed to determine whether these individuals should be precluded from receiving a PTSD diagnosis, as is currently the case in *DSM-5*, and what treatments are most helpful for this group.

Secondary Trauma

As mentioned, Criterion A of the *DSM-5* also includes indirect exposure defined as "repeated or extreme exposure to aversive details" of the event(s) (APA, 2013, p. 271). This definition (Criterion A4) is commonly referred to as "secondary trauma." Secondary traumatization is defined as the stress experienced by

an individual who is indirectly exposed to a traumatic event, usually through narrative accounts. This type of stress is commonly experienced by professionals who frequently provide services to traumatized populations, such as but not limited to mental health professionals (Bride, 2007; Schauben & Frazier, 1995; Pearlman & Mac Ian, 1995; Ortlepp & Friedman, 2002; Elwood, Mott, Lohr, & Galovski, 2011; Shoji et al., 2014), 911 telecommunicators (Pierce & Lilly, 2012), medical professionals (Peltzer, Matseke, & Louw, 2014), police officers (Brady & Hofstra, 2009), attorneys and their administrative staff (Levin et al., 2011), funeral directors (Brady & Hofstra, 2009), and television journalists (Weidmann & Papsdorf, 2010). This type of indirect exposure is referred to using a number of terms, such as “secondary traumatic stress” (Bride, 2007; Figley, 1995; Ortlepp & Friedman, 2002), “compassion fatigue” (Figley, 2002), and “vicarious traumatization” (McCann & Pearlman, 1990).

According to a study conducted by Bride (2007), 97.8% of sampled social workers assist with a client population that has experienced trauma and 88.9% report that their work with clients addresses issues related to those client traumas, illustrating that mental health professionals are commonly indirectly exposed to trauma. Of the 282 social workers assessed by Bride, 70.2% experienced at least one PTSD symptom in the past week, 55% experienced at least one core PTSD symptom cluster (i.e., reexperiencing, avoidance, and hyperarousal core clusters), and 15.2% met core criteria for a diagnosis of PTSD (excluding Criterion A). Interestingly, a higher number of trauma cases in a professional’s workload (Schauben & Frazier, 1995), a personal history of trauma (Pearlman & Mac Ian, 1995; Peltzer et al., 2014), or recent introduction into the field (Pearlman & Mac Ian, 1995) amplifies the effects of work-related exposure. Research has indicated that professionals may experience PTSD symptoms or distress related to the trauma narratives they frequently encounter. Even though the severity of symptomatology after secondary traumatization is usually lower than that after direct exposure, victims of secondary trauma have a clear potential to meet full criteria for PTSD (Pearlman & Mac Ian, 1995; Ortlepp & Friedman, 2002; Elwood et al., 2011). Therefore, the present literature justifies the inclusion of this type of indirect trauma in *DSM-5*.

Media Exposure

Given that indirectly exposed individuals are not exposed to trauma firsthand, they are often exposed to trauma via mediums (e.g., the media, narrative accounts). *DSM-5* clearly notes that exposure can be experienced through media formats; however, *DSM* requires media exposure to be “work-related” (APA, 2013). Studies following major traumas, such as the *Challenger* explosion, the Oklahoma City bombing, the Gulf crisis, and the terrorist attacks on the World Trade Center on September 11, 2001, have shown that individuals can be indirectly exposed to a trauma via media coverage, such as television, Internet, radio, or graphic images of injured persons and destruction (Ben-Zur, Gil, & Shamshins, 2012; Fallahi & Lesik, 2009; Schuster et al., 2001; Gil-Rivas et al., 2007). These media-exposed individuals frequently experience distress after a trauma, but these symptoms are often short-lived and limited in scope. This relationship has been replicated in children and adults (Nader, Pynoos, Fairbanks, Al-Ajeel, & Al-Asfour, 1993; Pfefferbaum et al., 2000; Blanchard et al., 2004).

Furthermore, the amount of media coverage (i.e., number of hours of television watched) is consistently positively correlated with posttraumatic symptoms (Ben-Zur et al., 2012; Saylor, Cowart, Lipovsky, Jackson, & Finch, 2003; Nader et al., 1993; Pfefferbaum et al., 2000). For example, in the aftermath of the shooting on Virginia Tech’s campus, as the amount of television viewing increased, so did the probability of a student reporting symptoms of “intrusive thoughts, sleep disturbance, distraction, fear, stomach upset, depression, disorganization, replaying of the event, and symptoms of anger” (Fallahi & Lesik, 2009, p. 227). The probability of experiencing these symptoms, as reported by Fallahi and Lesik, was 9% for less than 10 hr of television viewing and 30–62% for 40 hr of television exposure to the shooting. Interestingly, Saylor et al. (2003) saw a relationship in which more symptoms were experienced by children who were exposed to the trauma of 9/11 via the Internet compared with television or printed media, suggesting that PTSD risk may differ based on type as well as amount of media exposure.

Therefore, an individual can potentially be traumatized through the media. However, compared with individuals who have other forms of direct or indirect exposure, a media-exposed individual has an even lower probability of meeting a diagnosis of PTSD and of experiencing symptoms that are still present up to 7 months after the trauma (Gil-Rivas et al., 2007). The symptom severity of a media-exposed individual also depends on the amount of media exposure. In conclusion, research has generally agreed that even though media exposure may cause stress reactions in individuals located geographically distant from the trauma, these reactions are typically short-lived and generally do not satisfy full criteria for PTSD.

In addition, *DSM-5* excludes media exposure unless the exposure is work-related, and this exclusion may need to be reconsidered because individuals can still experience posttraumatic symptoms whether the exposure is work-related or not. To our knowledge, no research has directly compared work-related with non-work-related media exposure, offering no evidence to support this specification included in *DSM*. One speculation may be that media exposure outside of work is typically viewed as a voluntary occurrence (Ben-Zur et al., 2012). Even though individuals may be involuntarily exposed to traumatic images while switching television stations or while searching for nontraumatic information on the Internet, media exposure is arguably voluntary for most people, the majority of the time. On the other hand, media exposure as it occurs in the workforce is arguably involuntary. For example, journalists are likely to be exposed to graphic images and inevitably view colleagues’ reports on traumatic events. With this in mind, we might speculate that the requirement of media exposure to be work-related may have been written with this type of involuntary exposure in mind. Further research may analyze the distinction between work-related and non-work-related media exposure and the symptom risk caused by this exposure. This information may be important to clinicians who are working with traumatized populations or to an individual who is requesting insurance coverage for treatment of a significant stress reaction to media-related exposure of a nationally known, traumatic event.

Proximity to the Trauma

Related to the study of levels of exposure is the concept of proximity, or how close an individual is to the location in which a

traumatic event occurred. Proximity has been extensively studied as a trauma characteristic related to PTSD symptoms. Research has generally shown that individuals located closer to an event will experience more symptoms than those located further away (Blanchard et al., 2004; Furr, Comer, Edmunds, & Kendall, 2010; Matt & Vázquez, 2008; Schuster et al., 2001; Sprang, 1999; Weisæth, 1989). The measures of proximity used in previous research have varied from a broad scale, such as geographical regions of the country, to a specific scale, such as an individual's address. Research examining the symptoms of those located in different geographical regions of the country commonly use the terrorist attacks on September 11, 2001, as the target trauma (Blanchard et al., 2004; Matt & Vázquez, 2008; Neria, DiGrande, & Adams, 2011; Schuster et al., 2001). These studies typically find that individuals located in a geographic region closer to the event experience more symptoms. Similar findings are produced with other ways of measuring proximity, such as one's place of residence or one's specific location at the time of the traumatic event (Şahin et al., 2007; Sprang, 1999; Weisæth, 1989). For example, Şahin et al. (2007) examined Turkish youth after an earthquake that occurred in 1999 and divided these individuals into three groups: those living in regions "slightly" hit by the earthquake, those living in "moderately hit" regions, and those living in the epicenter of the earthquake. Their results supported the conclusion that those who lived closer to the epicenter had higher scores on measures of impact and posttraumatic stress. Unfortunately, in many of these studies, proximity's effect is confounded with level of exposure, such that more proximal participants are directly exposed, whereas less proximal participants are only indirectly exposed to the event. Therefore, the extent to which proximity has an effect above and beyond level of exposure is difficult to determine.

Furthermore, examining proximity's influence among indirectly exposed individuals is complicated, because proximity may not be relevant for all forms of indirect exposure. For example, when an individual is learning about the death of a loved one or is listening to narrative accounts in their profession, proximity would not pose a conceptually logical risk factor. Ironically, some of the strongest evidence for an important role of proximity within indirect forms of exposure focuses on indirect exposure to a large-scale traumatic event through the media, a form of exposure not currently recognized by *DSM-5*. For example, symptom levels after the terrorist attacks on September 11, 2001, decreased as the distance from New York City increased (see Neria et al., 2011, for a review). This research supports the conclusion that proximity may be a relevant risk factor even for those indirectly exposed to a geographically distant traumatic event. However, it is important to note that much of this research has focused on PTSD symptoms as assessed by self-report questionnaires, rather than PTSD diagnoses established by diagnostic interview. Again, it also is important to keep in mind that proximity's effect may not apply to all types of indirect exposure.

Current limitations should also be kept in mind when continuing this line of research. For example, there is difficulty distinguishing whether an individual's designated location is based on where the individual was located at the time of the event or where the individual resides and specifies as his or her address. One might speculate that one's permanent residence is relevant because the affected individual may feel a personal connection to this location.

Even though this information may be relevant, residential location does not specify where an individual himself is located when the event occurred. A significant amount of other research has referred to proximity in terms of the intensity of the trauma and the effect the event has on the individual, such as loss of housing and possessions, death of a loved one, serious injury, and so forth. Research has shown that individuals who are more severely exposed to the trauma experience a more severe posttraumatic stress reaction. This research has examined a variety of traumas, such as natural disasters (La Greca, Silverman, Vernberg, & Prinstein, 1996), college campus shootings (Hughes et al., 2011), and others (e.g., Galea et al., 2002). However, these studies examined how much participants were affected by the trauma, rather than their geographic proximity to the trauma when it occurred. Future research could continue to examine proximity on a more precise level across different trauma types and levels of exposure, in the attempt to increase our understanding of the potentially important role of proximity in the development of PTSD.

Conclusions and Future Directions

The alterations of the diagnostic criteria for PTSD between *DSM-IV-TR* and *DSM-5* sparked additional controversy on not only what constitutes a trauma but also on how an individual is exposed to said trauma. In this systematic review, we considered the potentially important roles of exposure level and proximity in the development of PTSD after a traumatic event and the extent to which the available literature supports the changes that were made to Criterion A in *DSM-5*. Changes to *DSM* criteria for PTSD include omission of subjective peritraumatic distress involving "fear, helplessness, or horror" (A2), the specification of "violent or accidental" death of a close family member or close friend, the addition of repetitive exposure to details of a trauma, and the note on work-related media exposure. Though the exclusion of the criterion previously known as A2 is widely supported, the other changes to the *DSM* have received less of a consensus in the literature.

Research examining direct forms of trauma exposure has often focused on cumulative trauma. This research has found that higher cumulative trauma exposure is associated with greater PTSD risk (Breslau et al., 1999; Follette et al., 1996; Karam et al., 2014; Wisco et al., 2014), yet future research may better distinguish between various definitions of cumulative trauma (i.e., lifetime prevalence of trauma, number of trauma types, and repeated exposure to a single trauma type) and how these contribute to PTSD risk. Little research has directly compared whether another form of direct exposure—witnessing a trauma—is associated with lower PTSD risk than directly experiencing the trauma oneself; more research on this topic is warranted, and the distinction between witnessing with and without a potential risk for direct harm may be additionally examined (Pitts et al., 2013; Van Winkle & Safer, 2011; Spilsbury et al., 2007; Kulkarni et al., 2011; Teicher & Vitaliano, 2011).

This review also discussed different forms of indirect exposure, including learning about the death of a close friend or relative, secondary traumatization through one's work, and being exposed to traumatic events through the media. This research has shown that those who have learned about the sudden, violent death of a close associate report higher PTSD symptoms than those who have

learned about a sudden nonviolent death (Kloep et al., 2014), and this distinction in *DSM-5* helps to set stricter parameters for Criterion A. However, future research in this area is needed to determine what treatments may be useful for those who learned about a sudden, nonviolent death but are still experiencing PTSD symptoms. The research surrounding the topic of secondary trauma is fairly conclusive that these individuals have the potential to meet full PTSD criteria (Pearlman & Mac Ian, 1995; Ortlepp & Friedman, 2002; Elwood et al., 2011), justifying the inclusion of secondary traumatization in the most recent version of the *DSM*. Research has shown that individuals exposed to a trauma solely through the media may experience symptoms, but these symptoms are typically short-lived and generally do not meet full PTSD criteria (Fallahi & Lesik, 2009; Saylor et al., 2003; Gil-Rivas et al., 2007). To expand on these findings, future research may directly compare work-related and non-work-related media exposure and the risk caused by these types of media exposure.

In addition, this review discussed how an individual's proximity, or geographic distance, from the trauma may influence risk for PTSD development. Research is fairly consistent in that individuals who are located closer to a trauma will generally experience more—and more severe—symptoms than those located further away (Blanchard et al., 2004; Schuster et al., 2001; Sprang, 1999; Schlenger et al., 2002; Şahin et al., 2007). However, in much of this research, proximity is confounded by level of exposure, such that the less proximal participants are those who are categorized as indirectly exposed to the event. Future research may aim to distinguish better between levels of exposure and proximity and to examine proximity in relation to a wider variety of trauma types to understand better this risk factor and its effects. In conclusion, our review suggests that both direct and indirect trauma exposure can lead to PTSD, although the probability of developing the disorder from indirect exposure is lower than that from direct exposure, and proximity may be more relevant for direct than indirect forms of trauma exposure as recognized by *DSM-5*.

In this review, we examined the literature surrounding changes to Criterion A in *DSM-5*, PTSD risk associated with direct and indirect exposure, and proximity as a risk factor for PTSD. Even though we focused on the definition of Criterion A of PTSD, there remains the possibility of an individual meeting all criteria for PTSD except for Criterion A. We propose the need for research on whether another stress-related disorder (e.g., adjustment disorder) is a strong diagnostic fit for those individuals and whether PTSD treatment or other treatment approaches are most appropriate for these individuals. In addition, to our knowledge, previous research has not directly compared the various levels of trauma exposure on outcomes other than PTSD symptoms, such as functional impairment or treatment response. We hope, with the availability of this review, future research will examine the similarities and differences of exposure levels across various trauma types on a range of important outcome variables.

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