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Differences Among Ethnic Groups in Trauma Type and PTSD Symptom Severity

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Psychologists are interested in individual characteristics associated with posttraumatic stress disorder (PTSD) to better understand stress and stress responses. The current literature is mixed about differences among ethnic groups for trauma and PTSD symptom endorsement and severity. Culture-specific perspectives lend different interpretations of potentially traumatic events, suggesting that members from different ethnic groups experience stressors differently and may consequently endorse different symptoms. Although some studies have examined differences among ethnic groups with respect to mental illness, research on the relationship between ethnicity and endorsement of trauma or PTSD symptoms is limited. Further, few studies have explored explanations for such differences. Group differences in symptom endorsement between individuals from African American, Hispanic, and non-Hispanic Caucasian ethnic groups will be examined. Additionally, hypothesized reasons for these differences (such as response bias and methodological issues) will be explored. This review highlights the importance of considering ethnicity-specific as well as methodological factors that influence endorsement of traumatic events and PTSD symptoms in response to traumatic stressors. This review will guide treatment providers in understanding and appropriately assessing PTSD symptoms by enhancing their understanding of the role of culture.

Posttraumatic stress disorder (PTSD) has been a topic of interest for more than 30 years. PTSD affects people from all ethnic groups; however, cultural dynamics complicate understanding PTSD across ethnic groups. For example, some studies suggest that unique cultural factors increase ethnic minorities' risk for PTSD (Breslau et al., 1998; Marsella, Friedman, & Spain, 1996; Pole, Gone, & Kulkarni, 2008). Cultural experiences, values, and beliefs influence the interpretation of and reaction to traumatic stressors, expression of PTSD symptoms, symptom severity, coping skills for dealing with symptoms, likelihood of seeking and completing treatment programs, and response style on self-report instruments (Brewin, Andrews, & Valentine, 2000; Elhai & Ford, 2007; Jobson & O'Kearney, 2008; Matlow & DePrince, 2012; Stephens et al., 2011). Additionally, type of trauma exposure, perceived severity, and level of engagement in treatment affect development of PTSD differently across ethnic groups (Brewin et al., 2000).

PTSD is characterized by a response of intense helplessness, fear, or horror, to actual or threatened death, serious injury, or threat to the physical integrity of oneself, or learning about a traumatic event that occurred to a close friend or relative. Several traumatic events recognized by the American Psychiatric Association (2000) include: military combat; assault (e.g., sexual assault, non-sexual attack, torture, robbery, mugging); natural or manmade disasters; incarceration; being in an accident, kidnapped or taken hostage; or diagnosed with life-threatening illness. In addition to responding with intense helplessness, fear, or horror, individuals must also experience at least one re-experiencing symptom (e.g., nightmares, intrusive or unwanted thoughts, flashbacks), three avoidance symptoms (e.g., avoiding stimuli associated with the event, conversations, people, or places that remind the individual about the event, difficulty remembering important parts about the event, decreased interest in activities that used to be enjoyable, feeling emotionally numb, guilty, or depressed), and two hyper-arousal symptoms (e.g., difficulty sleeping, being easily startled, "on edge," or tense). Additionally, symptoms must cause impaired functioning in social, occupational, or other areas for a period of one month or more. Duration of symptoms determines whether an acute (one to three months), chronic (three or more months), or delayed onset (symptoms begin six months after the event) specifier is used (American Psychiatric Association, 2000).

Diagnostic criteria for PTSD have changed over the years, indicating that clinicians' understanding of PTSD is constantly evolving. The Diagnostic and Statistical Manual, Third Edition (DSM-III) required an individual to experience a catastrophic event outside the normal human range of experience. In contrast, the DSM Fourth Edition, Text Revision (DSM-IV-TR) requires an individual to be exposed to a traumatic event and respond with intense helpless, fear, and horror (American Psychiatric Association, 2000). Criteria for PTSD for the DSM, Fifth Edition (DSM-5) are currently under review. The goal of this revision is to make diagnostic criteria more specific to PTSD and to increase validity of the diagnosis across samples (Friedman, Resick, Bryant, & Brewin, 2011).

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Despite the addition of PTSD to the DSM-III in 1980 by the American Psychiatric Association (2000), relatively few studies have explored the experience of members of non-Caucasian ethnic groups who have lived through a traumatic stressor (Triffleman & Pole, 2010). Therefore, these groups are greatly underrepresented in current research (Kramer, Ross, & Davidson, 2001). Some meta-analyses and major epidemiologic studies (e.g., Brewin et al., 2000; Kessler et al., 2005) explored PTSD but omitted ethnicity from their analyses entirely, grouped all minorities into broad groups, or grouped all minorities into one 'supergroup' to compare to non-Hispanic Caucasian adults as a reference group (e.g., Breslau et al., 1998; Brewin et al., 2000). Moreover, studies that have examined ethnicity present mixed conclusions about the relationship between ethnic groups, trauma type, and PTSD symptom endorsement (Roberts, Gilman, Breslau, Breslau, & Koenen, 2011). These differences may be attributed to a number of factors, such as protective and risk factors.

Many people do not develop symptoms that warrant a diagnosis of PTSD after exposure to a traumatic event (U.S. Department of Health and Human Services, 2009). Lifetime prevalence for PTSD among American adults is between 3.5% and 6.8% (Kessler et al., 2005). However, a more recent study suggests that lifetime prevalence of PTSD is on the rise. According to Roberts and colleagues (2011), African American adults have a higher lifetime prevalence (8.7%) than Hispanic adults and Caucasian adults (7.0% and 7.4%, respectively). Also, African American individuals are more likely to meet criteria for PTSD than Hispanic individuals or non-Hispanic Caucasian individuals (Asnaani, Richey, Dimaite, Hinton, & Hofmann, 2010).

The rates of PTSD are lower than rates of other mental illnesses (Roberts et al., 2011). Low rates of PTSD in comparison to other mental illnesses may be due to various protective factors such as social support, religion, reframing the traumatic event as a learning experience and catalyst for positive change, accepting one's actions during the event, or the perception that one responded effectively during the stressor despite being afraid (Charney, 2004; Kleim & Ehlers, 2009). Nevertheless, such coping mechanisms for trauma differ across ethnic groups. For example, some studies have suggested that African American adults and Hispanic adults identify religion as a coping skill. However, in these studies, African American adults were more likely than Caucasian adults (Bradley, Schwartz, & Kaslow, 2005; Greenawalt et al., 2011; Weist et al., 2007) and Hispanic adults (Ford, 2012) to identify religion as a primary coping mechanism. Coping skills may also mediate PTSD symptoms and substance use, such that individuals with coping skills for PTSD symptoms are less likely to use substances and consequently are less likely to experience severe PTSD symptoms (Yeater, Austin, Green, & Smith, 2010).

Several risk factors are associated with the development of PTSD. These include low socioeconomic status (SES), low education, low intelligence, pre-existing psychiatric disorders such as depression or anxiety (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Shalev et al., 1998), family history of mental illness (Brady, Killeen, Brewerton, & Lucerini, 2000; Breslau, 2002; Brewin et al., 2000; Ozer, Best, Lipsey, & Weiss, 2008; Ullman & Filipas, 2001), childhood trauma (Andrews, Brewin, Rose, & Kirk, 2000; Breslau, 2002; Brewin et al., 2000; Wu, Schairer, Dellor, & Grella, 2010), re-exposure to traumatic events in adulthood (Khoury, Tang, Bradley, Cubells, & Ressler, 2010), and repeated exposure to the same or multiple traumas (Al-Saffar, Borgå, Edman, & Hällström, 2003; Green et al., 2000; Matlow & DePrince, 2012).

Socio-demographic variables, such as geographic location, social status, acculturation, and perceived discrimination, may also affect the type of trauma experienced, PTSD endorsement, and symptom severity (Koenen, Goodwin, Struening, Hellman, & Guardino, 2003). For example, individuals who are members of a minority group may be more likely to live in lower income communities, be less acculturated to the dominant group, experience hardships such as discrimination, and are consequently more likely to be exposed to potentially traumatic events such as dangerous shootings or other threats to the physical integrity of oneself or others (Brewin et al., 2000; Breslau, 2002; Chipman, Palmieri, & Hobfoll, 2011; Turner & Lloyd, 2004). Although the trend is changing, current research suggests that individuals of minority groups are also less likely than Caucasian adults to pursue higher education (Orfield & Lee, 2005). Regardless of magnitude of exposure to traumatic stressors, individuals who are less educated are more likely to develop PTSD than are individuals who are more educated (Breslau, Peterson, Poisson, Schultz, & Lucia, 2004).

Independent of SES and education level, comorbidity of PTSD with other diagnoses is the norm rather than the exception. About 80% of individuals diagnosed with PTSD are diagnosed with at least one other disorder (Grinage, 2003; Kilpatrick et al., 2003; Najavitis, Schmitz, Gotthardt, & Weiss, 2005) such as depression (Kessler et al., 1995; Shalev et al., 1998) or substance use (Najavitis et al., 2005; Yeater et al., 2010; Wolff et al., 2010). Substance use may be a method of avoiding distressing intrusive thoughts and other PTSD-related symptoms; however, substance users may not recognize the relationship between behavior and avoidance (Wolff et al., 2010). Co-occurring disorders make understanding unique PTSD characteristics more difficult because they compound impairment in social, occupational, or other areas of functioning (Breslau, 2002; Brunello et al., 2001; Hein, Cohen, & Campbell, 2005; Najavits, Norman, Kivlahan, & Kosten, 2010; Najavitis et al., 2005).

Ethnicity may also affect the likelihood of seeking and completing treatment. Individuals from ethnic minority groups are less likely than Caucasian individuals to seek treatment for PTSD unless they know where to obtain treatment, have resources to pay for treatment, and have symptoms that significantly disrupt one or more areas of functioning (Roberts et al., 2011; Wang et al., 2005). In comparison to Caucasian and African American adults,

Hispanic adults are more likely to wait longer to seek mental health services due to concern of stigmatization. Likewise, Lester, Resick, Young-Xu, and Artz (2010) found that African American respondents were significantly more likely to drop out of or not begin therapy, even when age, income, education, treatment expectations, and trauma exposure variables were taken into account. It is questionable whether differences in trauma exposure among ethnic groups are due to actual differences or due to other factors such as SES. Controlling for SES and exposure to traumatic events removed differences between African American and Caucasian subjects in some studies (Kulka et al., 1990; Monnier, Elhai, Frueh, Sauvageot, & Magruder, 2002) but not others (Alim, Charney, & Mellman, 2006; Lester et al., 2010). For example, African American veterans reported higher rates of PTSD and greater symptom severity than Caucasian veterans; however, these differences ceased to exist when controlling for SES and type of exposure to trauma (Kulka et al., 1990; Green et al., 1990).

Counselor or researcher ethnicity may also influence individuals' likelihood of being open and honest when reporting symptoms (Sue, Rivera, Capodilupo, Lin, & Torino, 2010). For example, patients from ethnic minority groups who are paired with a counselor from a non-minority ethnic group (i.e., an African American patient with a Caucasian counselor) are more likely to drop out of treatment prematurely than those paired with an ethnically-matched counselor (Rosenheck, Fontana, & Cottrol, 1995). Such factors may result in underreporting of symptoms and symptom severity until they are unable to cope with symptoms (MacDonald & Calhou, 2010). Since minorities tend to wait to seek services until symptoms are unbearable, severity of symptoms and willingness to endorse symptoms may be significantly higher for African American or Hispanic individuals than for Caucasian individuals seeking counseling to ensure that they receive psychotherapeutic treatment when necessary. In addition, they may be more likely to seek more inexpensive services from mental health providers with less training, to feel disrespected and misunderstood by providers, and to drop out of treatment prematurely (Roberts et al., 2011; Lester et al., 2010; Ruef, Litz, & Schlenger, 2000). This underscores the importance of reducing stigmatization, building rapport and trust, as well as other factors that may influence patient disclosure to minimize omission of valuable information.

Understanding the expression of PTSD symptoms among ethnic groups has significant clinical implications. Such understanding will enhance providers' cultural competence in delivery of treatment interventions aimed at addressing and alleviating PTSD symptoms. This review will first examine the differences in type of trauma experienced as well as the impact of trauma on persons of different ethnic groups in terms of self-reported symptom severity. Then, response style and measurement bias will be explored as proposed explanatory factors for discrepancies among prior studies. Finally, recommendations for future research will be provided.

Trauma Type and Symptom Severity

Certain traumas are reported as being more distressing than others. The development of PTSD and the type of traumatic stressor may influence disclosure of experience (Bedard-Gilligan, Jaeger, Echiverri-Cohen, & Zoellner, 2012). In general, individuals who develop PTSD after exposure to a traumatic stressor report greater difficulty in disclosing their traumatic event and details of the event than those who did not develop PTSD. Individuals who reported sexual and childhood trauma reported greater difficulty disclosing their trauma than individuals who reported other traumas (Bedard-Gilligan et al., 2012). Ethnicity may also impact comfort with disclosure. African American adults were less likely than Caucasian adults to disclose incidence of sexual trauma; and reported regret at disclosing their experience due to negative reactions of their confidant (Jacques-Tiura, Tkatch, Abbey, & Wegner, 2010). This may be due to social factors such as guilt, shame, mistrust of the interviewer, and fear of the consequences of disclosure (Jacques-Tiura et al., 2010).

Although a few studies (e.g., Breslau, 1998; Mainous, Smith, Acierno, & Geesey, 2005) suggest that ethnicity is unrelated to trauma type, other studies (i.e., Alim et al., 2006; Breslau et al., 2006; Marshall, Schell, & Miles, 2009; Norris, 1992; Roberts et al., 2011) suggest that differences do exist. For example, Caucasian individuals are more likely than African American individuals to experience robbery or disaster (Norris, 1992) and to learn about a traumatic event to someone they are close to (Roberts et al., 2011), whereas African American individuals are more likely than Caucasian individuals to be exposed to assaultive violence, such as physical assault, homicide, and rape (Alim et al., 2006; Breslau et al., 1998). In addition, African American and Hispanic adults are more likely than Caucasian adults to report childhood maltreatment, witnessing domestic violence, and war-related events as traumatic events (Roberts et al., 2011; Alim et al., 2006). Controlling for demographic differences does not eliminate differences between groups (Alim et al., 2006; Spoont, Hodges, Murdoch, & Nugent, 2009). That is, Alim and colleagues (2006) found that controlling for demographic variables decreased exposure to traumatic events but did not eliminate differences between ethnic groups and type of trauma reported. Therefore, type of trauma is important to consider because different traumas elicit symptoms differently across ethnic groups.

'Symptom severity' is a term frequently used to describe the magnitude of distress experienced by an individual in response to particular traumatic events (Brewin et al., 2000). Although some studies suggest that there are no differences between individuals from African American, Hispanic, and Caucasian ethnic groups with respect to symptom severity (Adams & Boscarino, 2011; Mainous et al., 2005; Montoya, Covarrubias, Patek, & Graves, 2003; Ozer et al., 2008), other studies suggest that there are differences (Breslau et al., 2006; Marshall et al., 2009; Pole et al., 2008; Pole, Best, Metzler, & Marmar, 2005; Pole et al., 2008; Rosenheck & Ortega, 2000;

Stephens et al., 2010). For example, Mainous et al. (2005) initially found no significant differences in symptom severity or rates of PTSD diagnosis between Caucasian and African American individuals. However, when trauma type was included as a control variable, Caucasian subjects reported significantly more distress than did African American subjects stemming from hyper-arousal, re-experiencing, and avoidance symptom clusters in response to a nonphysical trauma. This suggests that studies which do not account for trauma type in analyses may neglect rich information about differences among ethnic groups in response to trauma.

Marshall and colleagues (2009) found significant differences between Hispanic and Caucasian, but not between Hispanic and African American, individuals for symptom endorsement and severity. Alternatively, other studies suggest that Hispanic adults report greater overall symptom severity than African American and Caucasian adults (e.g., Breslau et al., 2006; Pole et al., 2008; Pole et al., 2005; Rosenheck & Ortega, 2000). Hispanic adults may also experience symptoms differently, such that they are significantly more likely to experience hyper-vigilance and more severe physiologically-based symptoms than African Americans (Marshall et al., 2009). Alternatively, African American adults who reported emotional abuse reported greater symptom severity than Hispanic adults. African American adults who reported emotional abuse reported greater symptom severity from adult victimization than Hispanic or Caucasian adults, even when amount of victimization is similar across the groups (Ford, 2012). Alternatively, Hispanic adults who suffered physical abuse and African American adults who suffered emotional abuse were more likely to report greater overall symptom severity (Balsam, Lehavot, Beadnall, & Circo, 2010).

However, greater overall symptom severity does not necessarily equate to greater impairment. Rosenheck and Ortega (2000) posit that the differences in reported symptom severity among individuals from Hispanics, African Americans, and Caucasian ethic groups are influenced by expressed emotion. These authors attribute Hispanic adults' significantly higher levels on symptom severity to their expressive style. However, both Hispanic and African American adults who reported child abuse reported greater PTSD severity than Caucasian adults, even when SES was taken into consideration (Marshall et al., 2009). This suggests that there are unique within-group cultural features irrespective of certain variables (e.g., SES, comfort with disclosure, expressed emotion) that may influence individuals' experience of trauma.

Some researchers have examined clusters of symptoms rather than individual symptoms (e.g., Green et al., 2000; Khoury et al., 2010). Cluster analysis can be problematic because it overlooks potentially significant between-group differences with respect to individual symptoms. Although some studies have examined differences between groups with respect to clusters of symptoms, few studies have examined differences in individual symptoms across ethnic groups. One study conducted by Marshall and colleagues (2009) suggests that Hispanic adults endorse similar individual symptoms as Caucasian adults, but the study did not find a clear pattern of differences among PTSD clusters. However, the authors did find that Hispanic individuals reported more positive symptoms (hyper-vigilance, intrusive thoughts, flashbacks, emotional reactivation) than negative symptoms (emotional detachment, restricted affect, difficulty sleeping, impaired concentration). Matlow and DePrince (2012) did not find significant differences among ethnic groups and total PTSD symptom endorsement; however, African American respondents were more likely to endorse item 14 of the Postttraumatic Diagnostic Scale (PDS)—i.e., feeling irritable or having angry outbursts (Foa, 1995).

Since differences in individual symptom endorsement emerge even when differences in clusters do not emerge, theories that rely solely on an overall increase in PTSD symptoms or cluster-analysis are helpful but insufficient. This suggests that varied results about whether there are significant differences between ethnicity and PTSD may be due to lack of item-level analyses. That is, there may be significant differences among ethnic groups' endorsement of items, despite non-significant differences among ethnic groups in total PTSD symptoms (Matlow & DePrince, 2012). This suggests that there are factors associated with certain ethnic groups that affect their experience of trauma and trauma-related symptoms.

In addition to influencing the likelihood of developing PTSD, ethnic identity, SES, level of education, acculturation, and perceived discrimination also influence the experience and severity of trauma (Khaylis, Waelde, & Bruce, 2007; Kulka et al., 1990; Green et al., 1990; Matlow & DePrince, 2012). More specifically, lower SES, limited access to resources, minimal or no social support after a traumatic event, and experience of additional stressors such as job loss and financial hardship after the event increase symptom severity. Additionally, repeated exposure to multiple traumatic events and surviving dangerous events when others did not survive increased risk for development of PTSD and symptom severity (Brewin et al., 2000; Matlow & DePrince, 2012). Symptom severity may also be influenced by acculturation and perceived discrimination. In particular, minorities who strongly identify only with their ethnic group and not the dominant group may perceive greater stigma and discrimination are more likely to report greater PTSD symptom severity (Breslau, 2002; Galea et al., 2004; Khaylis et al., 2007; Loo et al., 2001).

Discrimination is multidimensional in that it can occur within subgroups, between minority groups, and between minority and majority groups (Ruef et al., 2000). Perceived discrimination accounts for greater differences in mental health than does SES. Individuals who are members of the African American ethnic group are more likely to perceive discrimination than are individuals who are members of Hispanic or Caucasian ethnic groups (Hausmann, Jeong, Bost, & Ibrahim, 2008). Minorities who perceive that they have been discriminated against report greater symptom severity than individuals who identify with the majority group

(Bogart et al., 2011; Wagner, Bogart, Galvan, Banks, & Klein, 2012). For example, African American and Hispanic adults who reported that they were discriminated against reported greater symptom severity than Caucasian adults who did not perceive discrimination (Ruef et al., 2000). They also report worse mental health care (Hausmann et al., 2008).

Thus, differences in response to trauma are influenced by a variety of factors and may be explained by one's experiences and worldview. This suggests that differences between ethnic groups may be due to factors associated with particular ethnic groups rather than the ethnic group itself. Future studies should consider socio-demographic variables in analyses to determine whether differences in trauma type and symptom severity between ethnic groups are due to ethnicity itself rather than factors associated with all ethnic groups. In a similar vein, differences in response style should be considered to rule out between-group differences in response styles.

Response Style and Measurement Bias

Response styles are defined as a person's way of responding to questions such as those in psychological assessment inventories (Franklin & Thompson, 2008). Several response styles cited in the literature include socially desirable responding, acquiescence, and extreme responding (Johnson et al., 2011; Marshall et al., 2009). Response styles are important to consider when assessing PTSD because self-report measures are frequently used to assess symptoms (Elhai, Gray, Kashdan, & Franklin, 2005). Differences in response style make it difficult to identify exaggeration in patients who may receive secondary gain from a PTSD diagnosis. Response styles may artificially magnify or conceal differences in endorsement of trauma and symptom severity. That is, an observed difference may be due to the construct of PTSD rather than actual differences between groups. Alternatively, if no differences are found, there may be problems with measurement methods that suppress differences (Drasgow & Probst, 2004).

Most studies on PTSD do not explore response style, despite bias in self-reported symptoms (Franklin & Thompson, 2008). In such studies, it is unknown whether differences are due to differential response styles or actual differences between ethnic groups. For example, Hispanic culture may be more accepting of and open to discussing anxiety-related symptoms. If this is the case, endorsement of such items is attributable to differences in cultural norms about appropriate sincerity and modesty in social interactions (Rosenheck & Ortega, 2000).

Another explanation for between-group differences may be due to differences in interpretation. For example, ethnic differences may be due to measurement artifacts such as differential item functioning (DIF) or problems associated with translation (Lewis-Fernandez et al., 2008; Miles et al., 2008) and sensitivity and severity when assessment instruments are used in different populations (McDonald & Calhou, 2010). It is also important that measures are translated correctly. For example, the Posttraumatic Stress Disorder Checklist (PCL; Weathers, Litz, Herman, Huska, & Keane, 1993) is a frequently used self-report instrument used to measure PTSD symptoms and severity (Blanchard et al., 1996). Marshall et al. (2009) did not find disparities between responses on Spanish and English versions of the PCL. However, these authors only included individuals who experienced a physical injury that was severe enough to warrant hospitalization. Since prior studies suggest that there are group differences in type of trauma experienced, future research should evaluate differential item functioning of Spanish and English versions of the PCL in groups which experienced different types of trauma (Clarke, 2000; Miles et al., 2008; Weathers et al., 1993). Therefore, it is necessary to ensure the items in PTSD instruments do not pull for certain answers (Miles, Marshall, & Schell, 2008).

Social desirability may also affect responses. Socially desirable responding is defined as reporting information that portrays oneself in a more favorable light (Johnson et al., 2011). Individuals who are from ethnic groups which value harmony and conformity are more likely to demonstrate socially desirable responding than are individuals from ethnic groups which value independence and autonomy (Johnson et al., 2011). For example, individuals from African American and Hispanic ethnic groups were more likely to respond to PTSD questionnaires in a socially desirable manner when compared to individuals from the Caucasian ethnic group (Pole et al., 2005).

Similarly, acquiescence bias, defined as agreeing or disagreeing with the majority of statements, may account for differences between ethnic groups such that individuals who identify with certain ethnic groups may also be more likely to over- or under-endorse certain items (MacIntosh & Strickland, 2010; Marshall et al., 2009; Pole et al., 2005). Specifically, African American adults are more likely than Caucasian adults to demonstrate acquiescence and extreme responding in their endorsement of items at the extreme ends of response scales, regardless of content (Bachman & O'Malley, 1984; Clarke, 2000). Hispanic individuals are also more likely than Caucasian individuals to acquiesce and demonstrate extreme responding (Ortega & Rosenheck, 2000). In contrast to African American adults, Hispanic adults are more likely to agree with items indicating a directional bias, which may influence conclusions drawn from the data (Bachman & O'Malley, 1984; Clarke, 2000). Given these findings, it may appear that Hispanic individuals tend to report more symptoms and endorse unusual items that consequently lead to inflated scores even when not more severely impaired than individuals who are members of non-Hispanic ethnic groups (Pole et al., 2005).

Instruments used to compare response styles among clinical samples are increasing in popularity (Franklin & Thompson, 2008). The Trauma Symptom Inventory (TSI; Briere, 1995) is cited as a useful instrument for measuring response style as well as post-traumatic psychopathology. This 100-item structured self-report instrument has three validity scales (Response Level, Inconsistency, and Atypical

Response). However, most research conducted with this instrument uses college students and may not generalize to ethnically diverse or clinical samples. The Minnesota Multiphasic Personality Inventory 2 (MMPI-2; Hathaway & McKinley, 1940) and Structured Interview of Reported Symptoms (SIRS; Rogers et al., 1992) may also be used to assess response styles. It is important to select instruments that have been validated using samples that reflect the population of interest. That is, instruments selected to assess PTSD in African American adults should be normed using a similar sample of individuals to minimize measurement bias. Measurement bias inflates measurement error and complicates interpretation of findings. Since PTSD is assessed using various instruments and methods, is also important to minimize contamination from measurement bias. Sources of measurement bias include problems with translation, comprehension, cognition, memory, experimenter expectancy (the susceptibility of researchers to find what they expect to find), experimenter reactivity (the susceptibility of researchers to influence the behavior of subjects either intentionally or unintentionally), and social desirability (Johnson et al., 2011).

In addition to measurement bias from characteristics of extraneous variables, the assessor's, or instruments', administration method may also influence self-report. Individuals are more likely to report greater symptom severity in response to a traumatic event when interviewed by an interviewer than when given a self-report questionnaire (Breslau et al., 2006). Therefore, utilizing both structured interviews and questionnaires is recommended to cross validate responses.

Self-report and clinician-assessed symptoms are comparable across ethnic groups (MacDonald, Greene, Torres, Frueh, & Morland, 2012). However, method of administration (e.g., computerized or paper-and-pencil) may influence results. Although computer-administered or paper-and-pencil measures do not always result in differences between ethnic groups (Booth-Kewley, Edwards, & Rosenfeld, 1992), paper-and-pencil and interviewer-administration has more of an impact on social desirability than does computer administration, especially when questions are highly personal, disturbing, intrusive, or sensitive, and when the interviewer is of a different ethnicity than the respondent (Wood, Nosko, Desmarais, Ross, & Irvine, 2006). In such cases, computer administration is beneficial since it reduces social desirability and scoring time, while increasing accuracy of scoring. However, computerized assessments can introduce user error if participants are not comfortable with using computers. If comfort level with computers is not assessed, methodology may impact accuracy such that individuals with less computer experience may make more errors and thus provide less accurate information about their experience with traumatic events (Montoya et al., 2003). This may lead clinicians to misdiagnosis individuals (Alim et al., 2006).

Response bias and measurement bias may explain discrepancies among research studies aiming to clarify whether differences among ethnic groups actually exist or are measurement artifacts. Future studies should carefully and comprehensively evaluate the influence of response style and measurement bias among ethnic groups to avoid drawing incorrect conclusions about PTSD symptom severity and type of trauma. Instruments such as the Greenleaf Extreme Response Measure (Greenleaf, 1992) , an instrument with 16 items that are cross-culturally applicable, and an instrument to measure social desirability, such as the Social Desirability Scale (Stoeber, 2001) may be helpful to determine whether participant responses fit a pattern rather than the construct of interest (Clarke, 2000). Statistical analyses will clarify the source of differences between ethnic groups due to unique characteristics of members that comprise the groups, rather than the instruments used to elicit information about traumatic experiences. Statistically significant differences in response style and socially desirable responses would necessitate controlling one or both of these variables.

Furthermore, most studies have examined ethnic minority groups as broad categories. Some studies (e.g., Breslau et al., 2006; Brewin et al., 2000) cluster all ethnic minority groups into one 'supergroup' to compensate for insufficient sample size. Comparing this 'supergroup' of all non-Caucasian adults to Caucasian adults as a reference group reduces generalizability because important differences in the manifestation and experience of symptoms between ethnic groups may be overlooked (Roberts et al., 2011). Grouping all Hispanic individuals into one categorical group neglects the heterogeneity of groups and, consequently, loses important information unique to subgroups. For example, Hispanic adults from different regions (e.g., Mexico, Puerto Rico, Dominican Republic, and Cuba) have unique aspects of their culture that impact manifestation of symptoms as well as reporting of symptoms on PTSD instruments. Future studies should include ethnic sub-groups to determine if group differences may be accounted for by one sub-group. Multimodal assessment is also recommended for assessing PTSD symptoms because response style may lead to faulty conclusions about ethnic group differences. Clinician-administered and self-report measures allow researchers to evaluate discrepancies or similarities among individuals' response styles.

Conclusion

The purpose of this review was to highlight differences in response to traumatic events. Differences among ethnic groups underscore the importance of cultural competency when assessing PTSD. Possible explanatory factors for these differences were examined to enhance understanding about the differences in trauma and PTSD symptoms experienced by members of different ethnic groups. Previous research shows that there are qualitative differences between individuals from Caucasian, African American, and Hispanic groups in terms of interpretations of traumatic events and self-reported PTSD symptoms. Response style and measurement bias may help to explain these findings. Future

studies should include measures of acculturation to explore the impact of level of acculturation on self-reported PTSD symptoms, since treatment practices that were normed on Caucasian-dominant populations may need to be revised to better address issues relevant to ethnic minority groups.

Furthermore, in many cases, sub-groups are combined into largely generalized groups. By doing so, researchers are neglecting within-group differences and increasing the possibility of drawing incorrect conclusions about between-group differences. Existing literature about ethnic differences and PTSD is also limited by global groupings of participants into minority and majority groups, as well as by failure to consider differences in trauma type, symptom severity, and the impact of response and measurement bias on participant responding. Although the examination of ethnic differences is becoming more popular in contemporary research, many studies do not consider the impact of acculturation and perceived discrimination, nor do they take into account the heterogeneity of ethnic groups. Therefore, future researchers should examine differences among ethnic sub-groups rather than combining minorities into general groups (e.g., African Americans, Hispanics, and Caucasian adults) or combining them into one large supergroup. Future studies should also allow subjects to indicate the sub-group with which they identify. This would allow researchers to build a more precise picture of differences and similarities among ethnic groups with respect to trauma and PTSD symptom severity. Recruiting a sample of trauma survivors that is large enough to be representative of the larger group inclusive of subgroups would provide a closer examination of differences in symptom manifestation, expression, and appropriate attention to differences in response style.

Although a few researchers (e.g., Adams & Boscarino, 2011; Kessler et al., 1995; Mainous et al., 2005; Montoya et al., 2003; Ozer et al., 2008; Spoont et al., 2009) maintain that there are no differences among ethnic groups for type of trauma experienced and PTSD symptom severity, other researchers (e.g., Khaylis et al., 2007; Kulka et al., 1990; Green et al., 2000) provide evidence for between-group differences among ethnic groups. This review highlights the importance of considering multiple factors when drawing conclusions about individuals from different ethnicities with PTSD. Several explanations have been offered to explain differences among trauma type and symptom severity reporting among ethnic groups in the literature. Socio-economic status, acculturation, perceived discrimination, response style, and measurement bias may differentially contribute to differences among ethnic groups. Additionally, differences in individual life experiences can influence interpretation of trauma and, consequently, manifestation of PTSD symptoms. A multimethod approach including self-reports and clinician-administered, qualitative instruments may be helpful for understanding culturally specific factors related to PTSD.

Researchers and therapists would benefit from increasing their awareness about differences among ethnic groups in terms of the types of trauma they are more likely to experience, as well as the perceived severity of trauma-related symptoms when working with PTSD. In particular, awareness of between-group ethnic differences would avoid prescribing a blanket solution to assessing and treating patients with PTSD symptoms. Addressing the aforementioned concerns will enhance researchers' and mental health providers' understanding and conceptualization of PTSD and may consequently improve the quality of future research studies and treatment interventions.

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