Review

THE CROSS-CULTURAL VALIDITY OF POSTTRAUMATIC STRESS DISORDER: IMPLICATIONS FOR DSM-5

Devon E. Hinton, M.D. Ph.D.[1]* and Roberto Lewis-Fernández, M.D.[2]*

Background: *There is considerable debate about the cross-cultural applicability of the posttraumatic stress disorder (PTSD) category as currently specified. Concerns include the possible status of PTSD as a Western culture-bound disorder and the validity of individual items and criteria thresholds. This review examines various types of cross-cultural validity of the PTSD criteria as defined in DSM-IV-TR, and presents options and preliminary recommendations to be considered for DSM-5.* **Methods:** *Searches were conducted of the mental health literature, particularly since 1994, regarding cultural-, race-, or ethnicity-related factors that might limit the universal applicability of the diagnostic criteria of PTSD in DSM-IV-TR and the possible criteria for DSM-5.* **Results:** *Substantial evidence of the cross-cultural validity of PTSD was found. However, evidence of cross-cultural variability in certain areas suggests the need for further research: the relative salience of avoidance/numbing symptoms, the role of the interpretation of trauma-caused symptoms in shaping symptomatology, and the prevalence of somatic symptoms. This review also indicates the need to modify certain criteria, such as the items on distressing dreams and on foreshortened future, to increase their cross-cultural applicability. Text additions are suggested to increase the applicability of the manual across cultural contexts: specifying that cultural syndromes—such as those indicated in the DSM-IV-TR Glossary—may be a prominent part of the trauma response in certain cultures, and that those syndromes may influence PTSD symptom salience and comorbidity.* **Conclusions:** *The DSM-IV-TR PTSD category demonstrates various types of validity. Criteria modification and textual clarifications are suggested to further improve its cross-cultural applicability. Depression and Anxiety 0:1–19, 2010.* © 2010 Wiley-Liss, Inc.

Key words: *DSM-5; culture; classification diagnostic criteria; PTSD; trauma*

INTRODUCTION: STATEMENT OF THE ISSUES AND THEIR SIGNIFICANCE FOR DSM-5

In this article, we review evidence on the validity of the DSM-IV-TR posttraumatic stress disorder (PTSD) criteria for traumatized members of diverse cultural groups. The nosological revision leading up to DSM-5 has paid special attention to the cross-cultural validity of diagnostic criteria.[1] The cross-cultural applicability of the PTSD category as currently specified has generated considerable debate, both in terms of its

[1]Department of Psychiatry, Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts
[2]Department of Psychiatry, Columbia University and New York State Psychiatric Institute, New York, New York

*Correspondence to: Devon E. Hinton, Department of Psychiatry, Massachusetts General Hospital, 15 Parkman Street, WACC 812, Boston, MA 02114. E-mail: devon_hinton@hms.harvard.edu or Roberto Lewis-Fernández, Department of Psychiatry, Columbia University and New York State Psychiatric Institute, 1051 Riverside Drive, Suite 3200 (Unit 69), New York, NY 10032. E-mail: rlewis@nyspi.cpmc.columbia.edu

The authors report they have no financial relationships within the past 3 years to disclose.

Received for publication 16 February 2010; Revised 21 August 2010; Accepted 26 August 2010

DOI 10.1002/da.20753
Published online in Wiley Online Library (wileyonlinelibrary.com).

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validity and its clinical utility.[2] Some investigators have argued that certain PTSD criteria—such as flashbacks—are a Western cultural construction.[3] Others have suggested that the specifics of the trauma response vary so much across time, place, and social subgroup that they are not amenable to standardization, and therefore a nomothetic (i.e., a highly abstracted and standardized) PTSD construct obscures at least as much as it clarifies.[45] Yet, others have proposed that although PTSD accurately describes some features of a universal trauma response, its clinical utility lags behind that of more local forms of expressing trauma-related psychopathology, including cultural syndromes.[6] Because these local expressions are more "experience-near," their clinical utility may be greater, in that they may be better able to promote empathy, reveal an association with general health status, or predict psychopathology and possibly outcome.[7–9] That is, sufferers may convey, in their own local terms and interpretations, more of the specific qualities of their illness (e.g., its severity) that correlate highly with other health indicators than is possible with a standardized diagnosis; and clinicians may need this information to more accurately assess illness presentation, to better communicate understanding and concern, and to promote treatment adherence.

Another level of critique of the PTSD category involves its dangerous potential for medicalizing human suffering; that is, for reducing the social and moral implications of traumatizing events, such as war or genocide, to a strictly professional, even biological, set of consequences.[4,10] This critique suggests that, by emphasizing the "reality" of PTSD as a universal biopsychological category, research on PTSD may have unintentionally and paradoxically helped decrease social and moral responsiveness to these events. The suffering associated with the Rwandan genocide, for example, cannot be reduced to the PTSD experience. And rushing into postconflict settings to study PTSD may divert attention from understanding and addressing the broader social causes and consequences of human suffering.[2] Even if it is diagnostically "real," too narrow a focus on PTSD may lead to neglect of research and intervention regarding current stressors, traumas, security issues, and causes of suffering.[4,11,12]

A range of trauma-related syndromes exists. Even within the DSM-IV-TR nosology, traumatic exposure can lead to multiple syndromes, including acute stress disorder and adjustment disorder, as well as major depression, panic disorder, and dissociative identity disorder.[13–15] As indicated above, in many cultural groups, there are local cultural syndromes that are a key response to trauma. In this review, we do not specifically explore the clinical utility of cultural syndromes among traumatized populations as compared to PTSD, but rather the cross-cultural validity of the PTSD construct, which includes evaluating how cultural syndromes shape the experiencing of PTSD and trauma-related disorder more generally. According to current cognitive-behavioral models, by influencing the interpretation and appraisal of trauma-related symptoms and the assessment of the long-term consequences of the trauma itself, cultural syndromes would be expected to lead to cross-cultural differences in the prominence of PTSD clusters (viz., in DSM-IV-TR, reexperiencing, avoidance/numbing, and arousal), in the salience of individual PTSD symptoms, in the comorbidity with PTSD of other symptoms or syndromes (e.g., panic attacks), and in the course of PTSD (for the DSM-IV-TR clusters and criteria, see Table 1).[16–21]

Our main purpose is to examine the validity of the DSM-IV-TR PTSD criteria as applied to traumatized members of diverse cultural groups, and the implications for the DSM-5 revision process. We seek to answer questions, such as the following: Does PTSD as currently defined apply equally well across cultures? Is it found with equivalent frequency? Do the symptoms that currently compose the syndrome cluster together in the same way? Or, instead, do cultural factors pattern alternate presentations of PTSD? Through these questions and others, we address whether or not applying PTSD cross-culturally is a "category error,"[22] that is, the misguided application of a construct only found in and applicable to a particular Western culture at a certain historical time.[2,3,5]

To answer these questions, we focus on types of validity that have been found to be important in psychiatric nosology and that have been suggested to be useful heuristics for examining the cross-cultural validity of the PTSD construct.[23] Key topics in PTSD research are reviewed under specific validity subheadings. Under "causal validity," we review data on cross-cultural rates of PTSD and the controversy over whether the conditional probability of PTSD varies across cultural groups (i.e., whether certain groups seem to have higher rates of PTSD given the same degree of trauma); in the "causal specificity" section, we examine the cross-cultural validity of criteria A1 and A2; and under "structural validity," we discuss the cross-cultural prevalence of individual PTSD symptom clusters and other criteria. We conclude by considering implications of the review's findings for DSM-5.

In this article, we use the term "race" to refer to broad differentiations based on physiognomy (e.g., White), "ethnicity" when we refer to "common descent" and affiliation with a historically continuous community (e.g., Latino), and "culture" when we refer to social groups with specific or relatively homogeneous attributes that distinguish them from other groups, including values and norms regarding accepted behaviors, cognitions, emotions, and somatic symptoms. Some authors in the trauma field have followed Hofstede's definition of culture as "the aggregate of common traits that influence the human group response to its environment."[24] In this article, we will define culture in this broad sense—as encompassing a group's particular interpretive systems, such as their

TABLE 1. Posttraumatic stress disorder: DSM-IV-TR criteria (309.81)

A. The person has been exposed to a traumatic event in which both of the following were present:
(1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others and
(2) the person's response involved intense fear, helplessness, or horror. *Note*: In children, this may be expressed instead by disorganized or agitated behavior
B. The traumatic event is persistently reexperienced in one (or more) of the following ways:
(1) recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions. *Note*: In young children, repetitive play may occur in which themes or aspects of the trauma are expressed
(2) recurrent distressing dreams of the event. *Note*: In children, there may be frightening dreams without recognizable content
(3) acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on awakening or when intoxicated). *Note*: In young children, trauma-specific reenactment may occur
(4) intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event, and
(5) physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event
C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following:
(1) efforts to avoid thoughts, feelings, or conversations associated with the trauma,
(2) efforts to avoid activities, places, or people that arouse recollections of the trauma,
(3) inability to recall an important aspect of the trauma,
(4) markedly diminished interest or participation in significant activities,
(5) feeling of detachment or estrangement from others,
(6) restricted range of affect (e.g., unable to have loving feelings), and
(7) sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span)
D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by three (or more) of the following:
(1) difficulty falling or staying asleep,
(2) irritability or outbursts of anger,
(3) difficulty concentrating,
(4) hypervigilance, and
(5) exaggerated startle response
E. Duration of the disturbance (symptoms in Criteria B, C, and D) is more than 1 month
F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning
Specify if:
Acute: if duration of symptoms is less than 3 months
Chronic: if duration of symptoms is 3 months or more
Specify if:
With delayed onset: if onset of symptoms is at least 6 months after the stressor

understanding of how the mind and body function; healing traditions; religious systems; social structures; economic situation; security situation; and patterns of previous trauma. At the same time, it must be understood that there is considerable variation within a group—not just one "culture"—and that these notions are in dynamic change.[25] Our examples of cultural factors tend to prioritize intercultural variation over intracultural variation. In particular, we explore whether culturally related cognitive/affective/somatic/behavioral elements (e.g., interpretations of illness; patterned reactions to stressors) common to a certain group affect the development or expression of PTSD. We use the term "cultural" or "cross-cultural" in this article in a nonspecific fashion to refer to more specific racial, ethnic, national, or cultural identifiers.

This article was commissioned by the DSM-5 Anxiety, Obsessive-Compulsive Spectrum, Posttraumatic, and Dissociative Disorders Work Group. It represents the work of the authors for consideration by the work group. *Recommendations provided in this article should be considered preliminary at this time*; *they do not necessarily reflect the final recommendations or decisions that will be made for DSM-5*, *as the DSM-5 development process is still ongoing*. It is possible that the proposed recommendations will be revised as additional data and input from experts and others in the field are obtained.

SEARCH METHODS

A computer search was conducted using PILOTS, Pubmed, and PsychInfo of data published since 1994 when DSM-IV came out. PTSD and trauma were combined with the terms "culture," "ethnicity," and "race." This approach yielded 1,480 articles. Reference lists were augmented by inspection of bibliographies from key articles, as well as by references from 1965 to 1994, when appropriate. The searches were then refined by restriction to articles written or translated into English.

The Annotated Listings of Changes in each DSM, the DSM-IV Sourcebooks,[26,27] and the DSM-IV Options Book[28] were consulted for details of the DSM-III to DSM-IV criteria revisions. The proceedings and/or monographs of the preparatory conference

series for DSM-5 were also reviewed. (Under the guidance of a steering committee, comprised of representatives from the American Psychiatric Institute for Research and Education of the American Psychiatric Association, three institutes of the National Institutes of Health, and the World Health Organization, 13 conferences were held from 2004 to 2008.)

RESULTS: THE CROSS-CULTURAL VALIDITY OF PTSD

Below, we examine the cross-cultural applicability of PTSD in terms of several types of validity: biomarker validity, general and trauma-specific causal validity, structural validity, and content validity. We derive these categories from the work of other cross-cultural researchers.[23,29–31] For example, in respect to the analytic schema proposed by Flaherty et al.[29] biomarker validity is a type of criterion validity, causal validity and structural validity are aspects of conceptual validity, and content validity is related to content equivalence. For further discussion of typologies of validity, see also.[9,32–34]

BIOMARKER VALIDITY

A biomarker is a characteristic that is objectively measured and evaluated as an indicator of a biological state, including a pathological condition, such as PTSD.[35] Proposed biomarkers for PTSD include platelet MAO-B activity, startle responses, and exaggerated physiological reactivity.[35] Even in Western populations, such biomarkers have not been definitively identified. Information on their cross-cultural validity is even more limited: no studies have tried to determine whether the amygdalae of trauma victims in non-Western countries react to trauma-related stimuli in the same way as Western populations. To date, challenge procedures represent the most robust evidence for a cross-culturally valid biomarker. Findings based on these procedures suggest that some DSM-IV-TR PTSD criteria may constitute a stable cross-cultural core trauma response. Kinzie et al.[36] demonstrated more physiological (e.g., heart rate) reactivity to trauma-related themes in Cambodians refugees with PTSD as compared to those without PTSD. This supports the reactivity criteria in DSM-IV-TR (criterion B5). In an orthostatic challenge (i.e., rising from sitting to standing), Cambodian refugees experienced flashbacks, some full reliving in type (i.e., there was a multisensorial reliving of the trauma event), and this was highly associated with receiving a diagnosis of PTSD.[37] This finding supports the theory that flashbacks (DSM-IV-TR criterion B3) are part of a universal biological response to trauma. In addition, the fact that orthostasis and related symptoms (e.g., dizziness and palpitations) represent trauma cues, in Cambodians who survived the Pol Pot regime, supports the cross-cultural validity of internal cues as capable of triggering a reexperiencing phenomenon (DSM-IV-TR criterion B4). These symptoms recall the dizziness and palpitations experienced by Cambodians performing slave labor while starving during the Cambodian Genocide, with collapse or syncope a frequent result.[37] Although this finding is the result of a single study, it is consistent with the provocation of trauma recall during challenge procedures among Western populations.[38]

GENERAL CAUSAL VALIDITY

PTSD is unusual among DSM-IV-TR diagnoses in that a specific causal mechanism is identified. Causal validity exists to the extent that PTSD results from its putative cause, namely, trauma; that is, to the extent that it is an entity that coheres consistently among persons who have suffered trauma. (For a particular individual, multiple variables will impact on this process, such as genes and gene–environment interactions.) Below, we review evidence of high rates of PTSD in traumatized persons in very diverse cultural settings as well as cross-national differences in community prevalence of PTSD. We also examine the issue of conditional probability; that is, whether members of certain cultural groups display more or less vulnerability to meeting PTSD criteria after experiencing comparable traumatic stressors and after adjusting for predisposing or enabling characteristics.

Cross-cultural data on the link of trauma severity to PTSD severity and on the prevalence of PTSD help to address two main questions. First, should PTSD as currently defined be considered a Western "culture-bound syndrome" with limited applicability to non-Western settings?[2] Second, do various racial/ethnic groups differ in the conditional probability of meeting PTSD criteria when exposed to trauma?[24,39] An affirmative response to either question may suggest the need to revise individual items or thresholds for PTSD criteria in DSM-5, in order to increase cultural validity. Alternatively, variability in conditional probability may simply reflect true cultural differences in vulnerability to PTSD rather than shortcomings in diagnostic criteria.

Link between trauma severity and PTSD severity. Multiple studies in many countries and among racial/ethnic minority groups and refugees indicate that the severity of trauma is predictive of the severity of PTSD (for a recent meta-analysis, see[40]). This includes research among ethnic minorities in the United States (e.g., U.S. Latinos and African Americans in the United States[24]), among refugee populations (e.g., Cambodian,[41,42] Tibetan,[43] and Vietnamese refugees[44]), and among native populations in non-Western countries (e.g., Algerians, Cambodians, Ethiopians, and Palestinians[45]). However, most studies of this kind do not distinguish between the variety of types of trauma the person has been exposed to (i.e., a simple count from a list of trauma types, such

as rape versus physical assault), assessment of trauma frequency (i.e., how many instances of assault), and severity or duration of the event (i.e., extent or length of the assault). It is possible that more fine-grained analysis of these factors would reveal cross-cultural variation in the relationship between exposure severity and PTSD severity.

Cross-cultural rates of PTSD. Multiple surveys have shown that DSM-IV-TR-defined PTSD is diagnosable in diverse cultures around the world. But the precise rates vary: 12-month community prevalence range from 0% ($SE = .0$) in the Yoruba-speaking areas of Nigeria[46] to 3.5% ($SE = .3$) in the United States,[47] even when using the same diagnostic instrument (Composite International Diagnostic Interview). Other rates are 0.2% ($SE = .1$) in metropolitan China (Beijing and Shanghai),[48] 0.4% (95% CI = 0.0–0.8) in Japan,[49] 0.6% ($SE = .1$) in Mexico,[50] 0.6% ($SE = .1$) in South Africa,[51] 0.7% ($SE = .2$) in South Korea,[52] 0.9% (95% CI = 0.7–1.1) in Europe,[53] and 1.3% ($SE = .1$) in Australia.[54] Most 12-month rates cluster around 0.5–1.0%. It is unclear why the U.S. prevalence is considerably higher, or why the rates in metropolitan China and among the Yoruba in Nigeria are lower than in other cultural settings. Methodological variability may be involved,[55] including the procedure for choosing traumatic exposures on which PTSD symptoms would be assessed, but true differences in prevalence cannot be ruled out. Difficulty applying DSM-IV-TR criteria in non-U.S. settings is another possible reason for the observed prevalence variability.

Surveys of current rates of PTSD have been conducted in groups exposed to mass trauma (genocide and war) in different countries, including refugees. Given the diversity of traumatic exposures (the types of traumas and the extent of aggregate and cumulative trauma[56]), of assessment instruments and of study sample characteristics (e.g., refugee camps versus general populations), as well as the limitations of most trauma-assessment instruments that were described above, it is not surprising that a wide range of PTSD rates have been found. The following rates are illustrative rather than exhaustive: 1.7% of a community sample in postconflict East Timor met DSM-IV PTSD criteria,[57] as did 10% of inhabitants in a Senegalese refugee camp,[58] 20% of tortured and imprisoned Tibetan refugees,[59] 59.7% of torture survivors in rural Nepal,[60] and 62% of community-based Cambodian refugees in the United States.[41] Few studies have simultaneously obtained PTSD rates in diverse settings using an equivalent methodology, but these too suggest the global presence of the PTSD syndrome[61,62]: in one major comparative study in postconflict settings, community-based rates were 37% (Algeria), 28.4% (Cambodia), 17.8% (Gaza), and 15.8% (Ethiopia).[61] Taken as a whole, this research shows that PTSD may result across culturally diverse samples after traumatic exposure.

At a fundamental level, interpreting differences in the prevalence of psychopathology across cultures remains a difficult task. In respect to PTSD, there are the problems of assessing trauma severity. Yet still, most studies do not consider differences in rates of PTSD by gender, urban–rural status, or age cohort when comparing cultural groups. And methodological standardization does not guarantee that the diagnostic instrument is identifying equivalent conceptualizations and experiences of mental illness. People endorse symptom queries within particular contexts of professional diagnostic practice, there are various levels of popular awareness of DSM-defined forms of psychopathology across societies, and local variation affects response sets to survey instruments (e.g., different experiential thresholds at which a symptom is endorsed), all of which may affect diagnosable rates of disorder. It is possible that epidemiological rates vary cross-culturally more on the basis of these contextual parameters than as a result of individual experience. Alternatively, these patterns may affect individual experience to the point that the disorder is actually experienced with a somewhat distinct phenomenology. Illustrating these issues, there is the fact that national community rates tend to be relatively low or high compared to other national samples for all anxiety disorders at once, rather than just one or a few disorders, and this suggests that cultural factors may be playing a role in the way disorders are experienced, reported, or diagnosed.[1] These various findings and caveats would suggest that more ethnographically informed studies would help to illuminate cross-cultural differences. These should include comparative studies that carefully operationalize symptoms that are hypothesized to vary across groups for particular reasons as based on ethnography. (See "structural validity" below for differences in rates of particular symptoms.)

Conditional probability of PTSD. Data on the cross-cultural conditional probability of PTSD are less clear than the data confirming the global presence of PTSD in response to trauma. Studies among U.S. cultural groups show mixed results. Community-based research tends to find few significant differences in the conditional probability of PTSD across racial/ethnic groups after adjusting for demographic and exposure characteristics.[47,63] Likewise, studies on veterans accessing VA clinics usually reveal small or no cross-cultural differences in PTSD prevalence.[64,65] On the other hand, research on individuals affected by specific traumatic stressors (e.g., combat) has sometimes found higher rates of PTSD in Latinos, African Americans, and American Indians, and lower rates in Asian Americans, compared to non-Latino whites, after adjusting for degree of exposure and other demographic variables.[24,39,66–71] Higher conditional probability in Latinos, African Americans, and American Indians has been variously attributed to overendorsement of PTSD symptoms, the effect of racism and

discrimination, predisposing vulnerability factors, unintended tapping of cultural idioms of distress by PTSD symptom scales, overreliance on fragile coping styles, such as stoic fatalism, and a tendency to peritraumatic dissociation, among other factors.[39,68,72] Lower rates in Japanese American Vietnam Veterans have been attributed to Japanese cultural values, which are thought to protect against PTSD by promoting acceptance of one's fate and endurance in the face of suffering.[70] Some of these factors (e.g., overendorsement) could result from diagnostic criteria that are not well calibrated to specific groups; other potential causes seem to be cultural differences associated with true variability in prevalence.

Some of these potential explanations have been challenged by subsequent research. Although overendorsement of PTSD symptoms among Latino veterans, for example, seems to apply mostly to self-report scales,[69] elevations in PTSD prevalence among Latinos persist even when assessed with clinician-administered instruments and after adjusting for objective measures of combat exposure. Moreover, the elevated rates are commensurate with psychosocial impairment levels in Latino veterans, suggesting true differences in prevalence rather than overendorsement.[39] In addition, prevalence differences across racial/ethnic groups disappear after adjusting for combat exposure, age at entry in Vietnam, armed forces qualifying test scores, and educational level,[73] suggesting that these factors, rather than overendorsement, account for higher rates of PTSD in Latino veterans.

Some studies that examine rates of PTSD after a mass trauma, such as a natural disaster or a terrorist attack, suggest culture-related variability in conditional probability. This approach is used in part to decrease variability in traumatic exposure in the study cohort, including standardizing the effects of time since the event on symptomatology. One study, conducted 6 months after Hurricane Andrew, showed much higher rates of PTSD among Latinos (38%) and African Americans (23%) as compared to Caucasians (15%).[24] Variability in PTSD rates was associated with both differential trauma exposure and differential vulnerability, especially among Spanish-dominant Latinos. After stratifying by level of individual traumatic exposure, the rates of PTSD differed significantly by race/ethnicity; within the cohort with the most exposure, 50% of Spanish-dominant Latinos met PTSD criteria compared to 38% of non-Hispanic Blacks and 21% of Caucasians ($P = .001$). The effect of exposure was partially mediated by demographic and culture-related variables, such as fatalism, familism (a strong emphasis on the family in identity and values), and acculturative stress.[24] This suggests that some proportion of the variance in conditional probability was due to cultural factors that may predispose an individual to PTSD, rather than to lower validity of PTSD criteria for the less-acculturated Latino group.

The World Trade Center attack of 9/11 is another mass trauma that has been examined for cross-cultural variation in conditional probability. Findings from this research provide evidence of cultural variation. In multivariate analyses adjusting for predisposing and traumatic exposure characteristics, New Yorkers of Latino origin had significantly higher rates of PTSD 5–8 weeks after the disaster than non-Latino whites.[74] However, this effect was lost at 6 months[75] and at 1 year,[76] only to be regained 2 years after 9/11, including higher rates of new-onset PTSD in the intervening period.[77] By contrast, the prevalence of PTSD among African Americans while numerically higher than that of non-Latino whites' in some studies, did not differ significantly in multivariate analyses at any time point.[74,75,77]

One possible explanation for the higher rate of post-9/11 PTSD among Latinos involves a higher prevalence of disaster-related panic attacks in this ethnic group—13.4–16.8%, depending on the Latino group versus 5.5% among non-Latino Whites,[76]—because the presence of panic attacks during or after the disaster is an independent risk factor for post-9/11 PTSD.[74] Endorsement of panic attack symptoms on research instruments may represent reports of *ataque de nervios* (attack of nerves), a cultural syndrome similar in phenomenology to panic attacks. *Ataques* are associated in Latino cultures with overwhelming stress, especially a sudden, unexpected event, such as a terrorist attack.[78] The cultural availability of *ataque* as a way of expressing peritraumatic distress may inadvertently facilitate the emergence of PTSD after a mass trauma. This may be due to the fact that *ataque* severity is associated with elevated dissociative capacity,[79,80] and peritraumatic dissociation may be a risk factor for PTSD,[81] although this association between peritraumatic dissociation and PTSD has been debated.[82] An alternative explanation for the role of *ataque de nervios* in increasing vulnerability to PTSD is the possible relationship in Latinos between fear of *ataque* and other catastrophic cognitions.[83] According to this hypothesis, the concern that the trauma may predispose to *ataques*, in conjunction with the interpretation of fear and PTSD symptoms in terms of an *ataque*, may facilitate the emergence and continuation of PTSD by increasing arousal and the self-perception of vulnerability and disability.[80,83] Either explanation suggests that the conditional probability of PTSD is modified by the presence of a cultural syndrome;[8] whether this facilitates the emergence of true PTSD or confounds the application of PTSD criteria remains unclear. Although other ethnic groups may endorse a cluster of symptoms that resemble *ataque* phenomenology,[84] there is no research to date that suggests the widespread prevalence of a named *ataque*-like syndrome among majority Whites, or that links such an *ataque*-like cluster with elevated dissociative symptoms or specific catastrophic cognitions that may predispose to PTSD.

Another study suggests some variables that may help explain cross-cultural variation in conditional probability. Following a comparative design, North et al.[62] assessed PTSD rates in survivors of similar terrorist bombings in Nairobi and Oklahoma City. Although the Nairobi survivors were assessed from 2 to 6 months after their U.S. counterparts, had more severe traumatic exposure, and had much less access to psychiatrists (but higher use of other support services), the two groups endorsed similar rates of PTSD. The correlates of PTSD differed somewhat across countries, with number of injuries to the person or important others, and death of relatives or friends, being associated with postdisaster PTSD in Oklahoma City but not Nairobi; moreover, frequent use of religious services lowered the risk of PTSD in Kenya, but not the United States. However, these findings are difficult to interpret owing to intersite discrepancies in exposure, timing of assessment, and access to treatment.

Research among Tibetans has found low rates of PTSD despite substantial traumatic exposure, leading investigators to speculate that Tibetan religious traditions may be protective against PTSD.[43,85] This hypothesis is supported by a mediation analysis in which coping activity, such as religious involvement, mediates the psychological effects of trauma exposure.[43] However, another study did not find low rates in the Tibetan population.[59]

To date, these research efforts are suggestive, but not conclusive, of cultural variability in the conditional probability of PTSD. Numerous methodological difficulties prevent a clear reading of the data, including differences across studies in the definition of what constitutes a traumatic event, in assessment of traumatic exposure, and in the inclusion of other predisposing or enabling factors, such as availability of treatment, social support, and other social resources that facilitate recovery and are confounded with racial/ethnic background.[86,87] For example, cultural groups may differ in exposure to traumas that are not assessed by the survey instrument or with respect to particular traumas that are associated with a differential probability of PTSD or of distinct PTSD symptom patterns.[56,88] There is also the question of how to weigh trauma events, because events that are most conducive to PTSD may vary by culture, as discussed below. Given these limitations of the available data, it is unclear not only to what extent there is cultural variability in the conditional probability of PTSD, but more importantly for this review, whether any variability that is found is due to limitations in the cultural validity of disorder criteria versus actual cultural differences that modify the true prevalence of PTSD. Research is needed that addresses this issue directly, such as by investigating in one study how trauma exposure (assessed in a comprehensive sense), cultural interpretations of trauma and its symptoms, and other predisposing and enabling factors all combine to modify the risk of PTSD onset or persistence.

TRAUMA-SPECIFIC CAUSAL VALIDITY

A subtype of general causal validity may be labeled "trauma-specific causal validity" or "causal specificity." This refers to the view that in order to be valid as a distinct category, the onset of PTSD should be associated uniquely with traumatic, as opposed to nontraumatic, stressors. According to this position, cases of PTSD-like symptoms that originate as a result of nontraumatic stressors (e.g., divorce) would be considered distinct from true PTSD, and thought to arise from preexisting vulnerabilities unrelated to the traumatic stressor.[89]

From a cross-cultural perspective, therefore, research that assesses the relationship of nontraumatic stress to PTSD, or that evaluates the role that interpretation of the traumatic stressor plays in the onset of PTSD, all fall under this subtype of validity. Is PTSD strictly related only to traumatic stress across cultural groups? Or does its specificity vary across cultural settings, becoming in certain locations a relatively nonspecific reaction to general stress? Likewise, does cultural variability in subjective appraisal of an event affect the probability of the onset of PTSD in response to the event, and thus its causal specificity? If the event is considered more or less catastrophic according to particular cultural values, does this affect the likelihood of PTSD? Does it increase the validity of PTSD to require negative subjective appraisal as a criterion for PTSD (i.e., criterion A2)?

Relationship of PTSD with diverse stressors. Several studies find a unique relationship between severity of trauma and PTSD severity in various cross-cultural samples, such as among Middle Eastern refugees relative to resettlement stress.[90] However, a nonspecific relationship is also found, particularly when PTSD severity is studied in relationship to a continuum of stressor severity ranging from nontraumatic to traumatic events[91]: one study of Darfuris in a refugee camp showed that basic needs and safety concerns were more highly correlated than the severity of past traumatic exposure to current PTSD severity;[92] and current nontraumatic stressors and past traumas accounted for equal amounts of variability in current PTSD severity in an Afghani refugee sample.[93]

There are several possible reasons for this association between PTSD severity and nontraumatic stressor severity. First, preexisting PTSD may affect the ability to handle nontraumatic stress. For instance, in a study of Middle Eastern refugees that adjusted for coping ability, the effect of current nontraumatic stressors on PTSD severity was not significant.[90] Second, past trauma may moderate the effect of current stress in generating PTSD, that is, past trauma may sensitize the person to current stressors[94,95]: worry in such groups may quickly result in activation of fear-related biological systems. And finally, stress may activate trauma-related distress, so that past trauma (and/or

past PTSD) becomes a mediator of the effect of stress on current PTSD symptoms.[96,97] Highlighting the importance of these various mechanisms, studies indicate that social support and current stressors may play a key role in the development of and recovery from PTSD.[74,98] Of note, these various processes may all play out differently—and vary in importance—depending on whether or not the group in question is in a situation of high stress and/or ongoing vulnerability (e.g., in a dangerous refugee camp).

Role of interpretation. One reason that studies may show variable rates of PTSD in response to traumatic events across cultures may be variability in the meaning of traumatic events, including their very definition as "traumatic." An important question to address, thus, becomes the cross-cultural importance of the criterion A2 in the conceptualization of PTSD. It does seem that the specific traumatic events that are considered most disturbing show some cultural variability. A study of North Korean defectors found that a subset of trauma items labeled "family-related trauma" was the best predictor of PTSD severity,[87] more so than physical or political–ideological trauma; this suggests that witnessing trauma events involving family members or worrying about the status of family members may be the key cause of PTSD in certain cultural–historical contexts. Studies have shown that traumatized Tibetans consider witnessing the destruction of religious symbols as more upsetting than imprisonment or torture[43,99]: among Tibetan refugees, the association between religious persecution and PTSD severity remained significant in a regression model that controlled for other traumatic exposures, whereas torture and imprisonment did not.[43] Rwandan genocide survivors considered not being able to perform indicated rites for the dead as extremely upsetting, owing to cultural ideas about the spiritual status of those who have not received those rites; given that often the bodies of genocide victims could not be found, this compounded the sense of catastrophe and loss.[100] In some cultures, rape is particularly stigmatizing, so that its negative impact may be even greater than in settings with less severe interpretations.[101] In situations of genocide and political terror, perpetrators may purposefully use those techniques that will be most upsetting in that cultural context, in order to enhance the impact of their tactics.[100–102] More research needs to be conducted in this area, because the available research is limited by small sample sizes, unclear association to PTSD in some cases as opposed to nonspecific distress, and lack of cross-cultural comparisons using a single methodology.

Given the possible impact of interpretation on the onset and/or severity of PTSD, what is the cross-cultural evidence of the utility of criterion A2? Only a few cross-cultural studies address this issue. The largest study analyzed data on nearly 103,000 participants, from more than 21 developing and developed countries, and found no effect of A2 on PTSD prevalence overall, although whether an event met PTSD criteria or not given endorsement of the A2 criterion varied across countries' income status.[103] A recent study of 212 immigrants from multiple countries, mainly from Brazil and elsewhere in Latin America, found relatively high rates of exposure to events that met A1 criteria but not A2 criteria (45%), such as witnessing violence or seeing dead bodies.[104] Application of the A2 criterion resulted in higher clinical precision: other PTSD criteria were much more likely to be met by participants who satisfied both criteria A1 and A2.[104] In a regression model, a recent study showed that A2 contributed significantly beyond A1 to the prediction of PTSD severity among Vietnamese refugees.[105]

The limited evidence prevents clear recommendations for DSM-5. Poor predictive validity of criterion A2, generally in Western samples, may result in its change from its function as required criterion in DSM-IV-TR to the status of a potential PTSD symptom (proposed criterion D4) in DSM-5.[106] Clearly, additional research is needed to evaluate the causal specificity of traumatic exposure as opposed to other stressors[89] and to assess the impact of interpretation in the onset and severity of PTSD.

STRUCTURAL VALIDITY

This type of validity has several aspects and is closely related to content validity, reviewed below. We focus on three aspects of structural validity from a cross-cultural perspective. First, we examine whether the factor structure of PTSD items varies across cultures. Second, we review the data concerning the cross-cultural prevalence of the clusters (i.e., reexperiencing, avoidance/numbing, and arousal) and of individual items. Third, we suggest possible reasons why this prevalence may vary across cultures. (We consider the salience of individual items in the structural validity section rather than under content validity, because the salience of individual items affects factor structure, the relative strength of loading on subscales, such as the PTSD clusters, a key issue in assessing structural equivalence.)

Factor analysis. Several studies have examined the factor structure of the DSM-IV-TR PTSD symptoms across cultural settings, and most of the findings differ little from what is found in Western samples.[107–111] An exception is the difference in factors found between Alaskan Natives and Euro-Americans following the Exxon Valdez oil spill. Although five factors were found in both groups, there was variation in the individual item loadings: in the Alaskan Native sample, "startled by noise," "stopped caring about activities," and "bad dreams" loaded on the same factor, but not in the Euro-American sample.[112]

Nevertheless, few studies have examined expanded item sets beyond those included in DSM-IV-TR. Using expanded lists of symptoms is an important approach in cross-cultural research, because cultural variation is naturally constrained by limiting the sample

a priori to the symptoms already included in the official nosology. One study of a mixed sample of refugees that utilized an expanded item set found various factors, including a somatic distress factor.[113] Another study using the symptoms of "complex PTSD" found major differences across countries, with varying factor structure.[114] "Complex PTSD" refers to an expanded set of symptoms hypothesized to better capture the phenomenology of the trauma response in highly traumatized populations, such as sexual abuse survivors.

None of the studies described above explained the reasons for the unique factor structure, such as the possible effect of cultural syndromes or unique profiles of trauma in shaping the factors. It is possible that even greater differences would be found if items specific to trauma-related cultural syndromes were included in the analysis, such as those that characterize *ataque de nervios* in Latin America or "*khyâl* attacks" ("wind attacks") in Cambodia (see under "content validity" below); inclusion of these items may help clarify cross-cultural variation in factor structure (see e.g.[115–117]).

Prevalence of PTSD clusters and individual items. A key part of the hypothesized structure of PTSD is its clusters. Investigators have argued that although all the DSM-IV-TR clusters—reexperiencing (B), avoidance and numbing (C), and arousal (D)—tend to be found across cultural groups, their relative saliency may vary.[118,119] One multicountry study suggests this to be case[61]: partial PTSD rates were highest in all samples (Algeria, Cambodia, Ethiopia, and Gaza) when based on the reexperiencing cluster, whereas using the arousal/numbing cluster resulted in the lowest rates in two of the countries (Algeria and Gaza) and using hyperarousal resulted in the lowest rate in one country (Cambodia). Several other studies also suggest that avoidance/numbing items, in particular, may present less consistently across cultural settings, thus raising the questions of how to reflect this in DSM-5 criteria.

Marsella et al.[119] first noted that avoidance and numbing symptoms varied across cultures, with low rates of endorsement resulting in undercounting of PTSD in some populations. A subsequent study of Kalahari Bushmen (the *Ju/'hoansi*) found that the reexperiencing and arousal clusters could be easily identified among traumatized members of that group, but not several of the avoidance/numbing symptoms.[120] Whereas nearly all the abused participants met DSM-IV-TR Criteria B and D, only 35% met Criterion C. Specifically, 75% endorsed one avoidance/numbing criterion (avoiding thinking or talking about the trauma [Criterion C1 in DSM-IV-TR]), whereas each of the other items in this cluster were only endorsed from 5 to 40% of the time. Because the requirement in DSM-IV-TR was for three symptoms in the avoidance/numbing cluster, only 35% of participants met full PTSD criteria. According to the authors, their results "demonstrate the difficulty of assessing the negative symptoms of PTSD, the avoidance symptoms, without attention to the cultural context. One possibility is that, in non-Western societies, perhaps even one type of avoidance behavior may be enough to impede cognitive processing to sufficient extent to produce full-blown reexperiencing and arousal symptoms"[120]: p 449. (For similar conclusions on the role of cultural factors in structural validity, see also.[121])

A similar finding regarding the poor performance of the DSM-IV-TR avoidance/numbing criterion has been found among Vietnamese refugees. Criterion C items were rarely endorsed, had low coherence, and were poorly correlated to trauma severity; in contrast, reexperiencing and arousal performed well.[105] An earlier study of Vietnamese refugees also found that arousal symptoms were by far the best predictor of PTSD caseness, with that cluster performing better than the entire measure.[111] This finding was later replicated by a study showing that arousal symptoms were most correlated to the severity of past torture and were the most prevalent symptoms.[44] Among Cambodians, trauma was minimally correlated with the three avoidance items.[42] A Middle Eastern sample endorsed avoidance symptoms significantly less than the other clusters, but these symptoms still had clinical utility in their ability to predict disability and severity of the other clusters.[122] The inability to remember part of the traumatic event (DSM-IV-TR criterion C3) was minimally endorsed in a Senegalese refugee group (2% of those surveyed[58]), and in another study that compared Kenyan and U.S. samples after a terrorist bombing, the rate of amnesia was lower in Nairobi than in Oklahoma City (5 versus 12%) despite higher trauma severity in the African cohort.[62] Several exceptions to this trend exist, however, including the finding of significantly higher arousal and avoidance symptoms among Hispanic police officers in three urban centers, relative to their non-Hispanic White counterparts,[67] and as mentioned above, the higher endorsement of avoidance symptoms relative to arousal symptoms among Cambodians and Ethiopians in a large multicountry study.[61]

Other than the avoidance and numbing items, all the DSM-IV-TR symptoms may be identified in diverse cultural groups, including non-Western samples, though their relative salience may vary.[58,109,122] Flashbacks (criterion B1), an item in the reexperiencing cluster, have been the subject of substantial debate in this regard. Some investigators have questioned whether flashbacks are a prominent aspect of the trauma response across cultures or whether instead they represent a culturally bound Western phenomenon. With some certainty, the available data shows that flashbacks are a prominent part of the cross-cultural trauma response. In non-Western populations with no previous exposure to information about the PTSD construct, flashbacks are identifiable and prevalent,[58,109] and several studies, among Cambodians based on detailed interviews, have shown that flashbacks are

frequently endorsed as part of the trauma response and that flashback severity significantly contributed to PTSD severity and other measures of psychopathology including panic attacks.[37,123,124]

Few studies compare the frequency of particular PTSD symptoms across cultural populations. In addition to the lower prevalence of avoidance/numbing symptoms described above, another frequently observed pattern is an increased rate of recurrent distressing dreams ("nightmares") in certain cultural groups. One recent study among American Indian combat veterans found higher reports of nightmares compared to veterans of other racial/ethnic backgrounds, a finding attributed by the authors to the cultural meaning associated with distressing dreams among American Indians.[125] Higher rates of nightmares among Alaskan Natives were also found in a study comparing their PTSD symptoms with those of Euro-Americans following the Exxon Valdez disaster.[112] Among Cambodian refugees, nightmares are often considered to signal that one has a depleted and vulnerable bodily and spiritual status, to indicate that a deceased loved one is in a purgatory-like state and/or that one has been the victim of a spiritual attack, a potentially fatal visitation by a spirit. Possibly, as a result of these culturally specific interpretations, in one study of Cambodian refugees, having nightmares during the last month was extremely highly associated (odds ratio [OR] = 126) with the presence of PTSD.[126]

Although other differences in symptom expression may be found in particular groups, a consistent pattern of difference is rarely revealed. For example, in a study with Alaskan Natives and Euro-Americans following a disaster, certain items were statistically more common in the Alaskan Native group, after controlling for degree of trauma exposure and demographic variables. These included unpleasant memories, distressing dreams, attempts to avoid thinking about the past, having trouble concentrating, and physical reactions.[112] The self-report Mississippi Scale used in the National Vietnam Veterans Readjustment Study showed varying rates of endorsement of PTSD symptom clusters across Hispanic ethnicities relative to non-Hispanic Whites. Although Puerto Rican veterans endorsed more reexperiencing, avoidance, and arousal symptoms than Whites, Mexican American veterans had higher arousal but lower avoidance symptoms, and other Hispanics showed lower numbing and avoidance symptoms.[69] In a study comparing a U.S. versus a Mexican population after a disaster, reexperiencing and avoidance symptoms were found to be higher in the Mexican group.[108] However, a study in Los Angeles using the PTSD Checklist found no significant results in a differential item functioning analysis between the Spanish-speaking and English-speaking samples.[95]

Possible reasons for cultural variation. There are several reasons why PTSD clusters and symptoms may differ across cultural groups, even after controlling for level of trauma and other demographic covariates. First, arousal and reexperiencing symptoms may be more driven by the biology of trauma, whereas avoidance and numbing may, to a greater extent, represent coping mechanisms that result from culturally indicated ways of dealing with distress.[119,120] Second, specific trauma subtypes (e.g., repeated exposure to threat of execution, prolonged starvation) may result in particular patterns of PTSD symptoms;[56,88] because the types of trauma vary across groups (e.g., being exposed to a genocide), the corresponding symptom patterns may differ as well. Third, the extent of trauma-related anger tends to vary in response to a series of sociocultural determinants.[127–131] Survivors of torture, mass conflict, and genocide may be particularly prone to heightened levels of anger, particularly when a sense of justice or reparation has not been attained or when survivors continue to live in the same community with perpetrators.[130,132] Religious and cultural ideas about revenge and forgiveness may influence the degree of anger that the person experiences, as well as cultural norms about how to express distress, current levels of stress, social conflict (e.g., parent–child friction, owing to dissonant acculturation), the nature and severity of past traumas, and the degree to which the trauma was experienced as unjust and arbitrary.[128,130]

Fourth, comorbidity profiles may influence the saliency of the clusters.[111] In a cultural group with high rates of comorbid depression, those PTSD symptoms also found in depression may be elevated (e.g., detachment, numbing, poor concentration). Among traumatized refugees, for example, this may result from high rates of depressive symptoms due to "cultural bereavement" (the loss of one's culture, such as the ability to participate in certain rituals or religious rites, the loss of language ability in the next generation),[133] "social bereavement" (the loss of social connections due to distance and death), "person bereavement" (unresolved grief after a death, e.g., due to war or genocide), and "geographic bereavement" (nostalgia for the food, climate, and place of origin).[134] Alternatively, a group with high rates of comorbidity between PTSD and panic attacks (e.g., Cambodian refugees[135] or Rwandan genocide survivors[100,136]) may experience higher rates of panic-related hyperarousal, and consequently arousal and reexperiencing symptoms. Particular comorbidities may become more salient in certain cultures due to their association with PTSD symptoms in traditional cultural syndromes (e.g., panic is highly comorbid with PTSD among Cambodian refugees, in part owing to cultural syndromes: PTSD symptoms—and arousal symptoms, more generally—being attributed to "*khyâl* attacks," and hence resulting in panic).[117,135]

Fifth, what PTSD symptoms are most prominent may be influenced by a pattern of multiple traumatizations (which is common among refugees and situations of war more generally), and it may be influenced by the

persistence of stressors and insecurity (e.g., financial, physical, and alimentary). This sense of insecurity can include a spiritual component; for example, of the dead being transmuted into vengeful beings. In such a situation, the sense of threat that is related to this expectation may result in more prominent threat-related symptoms, such as distressing dreams that are interpreted as indicating spiritual insecurity.[126,137–139] (For further discussion of "ontological security" in a broad sense, see.[126,137]) In settings of multiple traumatizations, multiple stressors, and great insecurity, it may be that arousal, hypervigilance, panic, anger, and arousal-caused somatic symptoms may be more common (see the section below on complex PTSD [Disorders of Extreme Stress Not Otherwise Specified—DESNOS], for more discussion of some of these issues). This is based on the premise that ongoing threat may activate arousal-related biological and psychological systems.

Sixth, certain PTSD symptoms may be more salient in the trauma presentation of particular cultures owing to the specific meaning of the symptoms in those settings. Some symptoms convey extensive meanings in certain cultural groups. For example, as described above, among Indonesian (Acehnese) civil war survivors,[140] American Indian veterans,[125] and Cambodian refugees,[126] nightmares are thought to be important indicators of the person's spiritual status and the status of those who have died (e.g., during a genocide). Moreover, certain PTSD symptoms may be considered in different cultures to indicate the presence of a cultural syndrome. In each setting, exposure to trauma may lead the person to scan for the presence of the feared symptom set, and when found, to amplification of that particular symptom set through attentional and arousal mechanisms.[8,141] Examples of these cultural syndromes are included below in the section on content validity.

CONTENT VALIDITY

In this section, we discuss in more detail the content validity of individual PTSD items: do they capture the core experiences of trauma-related disorder in diverse cultural contexts?[23] There are two main threats to content validity: overinclusion and underinclusion. Overinclusion indicates reliance on items to define PTSD that do not apply equally well across cultural groups. Underinclusion refers to the absence of items that constitute key trauma response elements in other cultures. We addressed problems of overinclusion in the section on structural validity, including the limited cross-cultural applicability of certain avoidance and numbing items, such as amnesia. In this section, we will examine in more detail problems of underinclusion; that is, whether key items are missing from the criteria and whether certain items that are currently included should be differently defined to increase their cross-cultural applicability, namely, recurring distressing dreams (B2) and foreshortened future (C7). We also take up in this section whether DESNOS—an expanded set of symptoms originally designed to assess "complex trauma"—represents an alternative way of assessing traumatized persons across cultures. (A proposed introductory chapter in DSM-5 may further supplement the cross-cultural evaluation of PTSD presentations by describing various cultural syndromes and their relationship to psychiatric diagnoses.)

Missing items. Several investigators have suggested that the PTSD diagnosis has limited content validity among traumatized members of diverse cultural groups because it does not include somatic symptoms.[141,142] Some of the following are examples of somatic complaints that are a prominent part of the reaction to trauma in specific cultures: a sense of bodily heat among Salvadorian refugees[143] and Senegalese refugees;[58] bodily pain among tortured Bhutanese refugees;[144] gastrointestinal distress, neck soreness, tinnitus, and orthostatic dizziness among Cambodian refugees;[123,124,135,145,146] and sudden shortness of breath among Rwandan genocide survivors.[100]

One possible solution to the problem of missing items is to add a cluster or an item on somatic symptoms to the DSM-5 PTSD criteria. There are at least two possible objections to this approach. The first is based on the tremendous breadth of possible somatic symptoms that would need to be included in the criteria. This may be resolved by developing criteria that can be met by a certain number or severity of somatic symptoms, rather than the endorsement of a specific list of symptoms. The second objection is based on the position that somatic symptoms constitute nonspecific (and pleomorphic) responses to trauma (and stress more generally), with limited specificity for PTSD versus, for instance, depression, generalized anxiety disorder (GAD), or other disorders. This second issue needs to be resolved at the level of the full manual. That is, do symptom descriptions of each disorder represent only those symptoms that are unique to that disorder as opposed to other DSM conditions? Or do the descriptions constitute a prototype of the disorder, a phenomenological snapshot, which includes all its salient manifestations, whether or not they are also present in other disorders? Sleep disturbance, for example, is a diagnostic criterion for PTSD, major depression, and GAD. In the case of PTSD, this debate has already been joined over the role of depressive-type symptoms in the PTSD criteria.[147] Some investigators maintain that depressive-like symptoms are an inherent feature of PTSD, and therefore should be included in the criteria, whereas others favor a more parsimonious approach that would only include the symptoms that make PTSD most distinct from other disorders.[147] This issue is unresolved and may require the input of investigators across several disorders. One option is to incorporate somatic symptoms in the PTSD criteria. Another alternative is for DSM-5 to supplement

individual diagnoses with a DSM-wide dimension of somatic symptoms, which may be applied to PTSD as well as to other disorders and would be analogous to proposed cross-cutting dimensions, such as anxiety and depression (and possibly panic attacks).

Several of these somatic symptoms, as well as other specific trauma-related symptoms (e.g., particular dissociative experiences, such as pathological possession trance), are prominent aspects of PTSD in certain cultural settings, in part because they are codified into cultural syndromes.[78,79,108,116,148,149] These syndromally organized idioms of distress[150] are particularly likely to arise as part of the trauma response, for one, if the idiom of distress is linked to a traumatic etiology by the cultural group; or second, if the idiom is characterized by symptoms that tend to arise as a result of trauma, such as startle, flashbacks, numbing, the somatic symptoms caused by arousal, and the emotions of fear or anger. Examples of idioms of distress that may be attributed to trauma include *susto* (fright), *nervios* (nerves), and *ataque de nervios* (attack of nerves) among Latino population;[78,79,108,116,148,149,151] "*khyâl* (wind) attacks" and "weak heart" among Cambodian refugees;[117,152] possession in Guinea Bissau and among Mozambique, Ugandan, and Bhutanese refugees;[153–156] "hypertension" (*haypatɛnsi*) among civil war victims in Sierra Leone;[157] *ihahamuka*, literally, "lungs without breath," a syndrome characterized by the sudden onset of shortness of breath among Rwandan genocide survivors;[100] *llaki* ("sorrow/sadness") among Quechua speakers of the Peruvian highlands;[158] *masilango* ("extreme fear") among the Mandika;[159] and Gulf War syndrome among Gulf War veterans.[160]

One method for better assessing the role of cultural syndromes for particular individuals would be to expand the DSM-IV-TR's Glossary of Cultural Syndromes. This would enable clinicians and researchers to identify the contribution of the cultural syndromes to the presenting phenomenology, and thereby increase the content validity of the PTSD nomothetic criteria for that specific cultural setting. Links in the text (e.g., listing of certain syndromes prevalent in certain traumatized cultural populations in the PTSD section of the Manual: *susto* in some Latino groups) to particular syndromes in the Glossary would facilitate its use. Such cultural syndromes invariably overlap with and influence the experiencing of PTSD as operationalized in DSM-IV-TR.

Overspecification of particular items. Content validity problems may arise from an overly narrow definition of a criterion. As reviewed above, recurrent distressing dreams have been found to be a prominent aspect of the PTSD response in certain cultures because of the cultural interpretation of their meaning. DSM-IV-TR however presents a fairly narrow description of what constitutes a codable nightmare, because it requires that dreams be "of the event" (Criterion B2). This level of specificity presents interpretive difficulties. In a sense, all nightmares that occur after a trauma share a trauma-recall component in that they involve a sense of threat.[161] In many cases, the most disturbing nightmares may represent a blend of several trauma events, making the deciphering of how the nightmare relates to a particular trauma very complex.[126] An increase in nightmares after the trauma may be more indicative of PTSD than the specific content of each dream. In this spirit, the instrument most used to assess PTSD in refugee populations, the Harvard Trauma Questionnaire, inquires about the presence of nightmares rather than specifying their precise content.[44] The proposed DSM-5 wording for B2 reflects these cross-cultural concerns (see under Recommendations).

Another DSM-IV-TR item in need of clarification based on cultural data is C7, a sense of foreshortened future. The current wording specifically refers to the person's sense that he/she will not participate in the normal life milestones (e.g., marriage) or will not have a normal lifespan as a result of the trauma. But several populations believe that trauma may have a direct, marked damaging effect on the body and the mind, and this gives rise to the sense of foreshortened future. The Latin American cultural syndrome of *susto* (fright) is thought to be provoked by various stressors, including those that are of traumatic proportion, and to have dangerous effects on health, which may be attributed to the loss of the person's soul.[162] The syndrome of *nervios* (nerves) is attributed to stress (including trauma) and is thought to bring about physical alterations of the nervous system (e.g., the anatomical nerves) that result in various physiological complications (e.g., gastrointestinal, motor, sensory pathology) as well as cognitive decline (e.g., memory loss, poor concentration).[78,163] These views are echoed in other settings, such as Cambodia, Rwanda, and Vietnam, where PTSD-related symptoms are thought to indicate the presence of dangerously disordered mental and physical states.[100,152,164] The self-perception of having spiritual pathology may also be seen as another consequence of traumatic exposure.[126] In order to include these cognitive, physical, and spiritual associations in PTSD criteria that create a sense of being damaged and having a foreshortened future, the DSM-5 committee is proposing a modification of C7 (now relabeled as criterion D2 in the proposed criteria for DSM-5; see Recommendations).

Disorders of extreme stress not otherwise specified. Some studies indicate that DESNOS, with its broader range of symptoms, may be a better way to delineate trauma-related disorder in certain cultural groups than the PTSD construct[114,165]—that its use results in better content validity when assessing these groups. There may be several reasons for this. First, torture, genocide, and severe adversity are not evenly distributed among cultural groups, nor are intergenerational[148] and historical trauma,[166,167] all of which may be associated with DESNOS-delineated symptoms. Second, somatic symptoms and trauma-related

anger, two dimensions of DESNOS, seem to be prominent cross-culturally; this is particularly important in respect to somatic symptoms, which are not included in the DSM-IV-TR PTSD criteria.[142,168–170] Third, dissociation, such as involuntary spirit possession, may be a prominent response to trauma across cultures, and more general types of dissociation are also included in the DESNOS construct.[106,142,154,168,171] Further research is needed in order to directly compare the content validity of DESNOS and PTSD in cross-cultural samples, and to contrast this with a PTSD definition that is augmented with key items on somatic, anger, and dissociation domains (for a critique of the cross-cultural application of DESNOS, see;[114] the authors argue that many of the items are not applicable to other cultural contexts).

DISCUSSION: RECOMMENDATIONS FOR DSM-5 BASED ON THE CROSS-CULTURAL FINDINGS

CRITERIA

1. Available cross-cultural data are unclear as to whether the A2 criterion increases the ability to predict PTSD presence and severity. There is some evidence that A2 helps to assess culturally variable meaning of trauma events, and that this culturally mediated negative appraisal of the events (A2) may be a helpful predictor of PTSD presence and severity. However, multiple studies have challenged the predictive validity of criterion A2, resulting in its likely deletion as a required criterion and its inclusion instead as an associated symptom of PTSD.[106] The limited cross-cultural data is not sufficient to oppose this change. Further research on this topic is needed, including on the cultural variability of the conditional probability of PTSD as a result of specific types of trauma.
2. The proposed DSM-5 criteria separate the avoidance from the numbing symptoms, which were previously linked in DSM-IV-TR cluster C. Avoidance symptoms now constitute a required cluster in its own right (proposed DSM-5 criterion C). The evidence of lower endorsement of avoidance symptoms in various cultural settings supports the proposed threshold of one symptom for this cluster. It also raises the question whether avoidance symptoms should constitute a separate cluster after all—this might result in artificially low rates of PTSD in certain cultural contexts. And, certainly higher thresholds (i.e., requiring more than one avoidance item) may inadvertently result in underdiagnosis of PTSD in certain settings.
3. Some cultural data indicate that there may be a higher rate of somatic symptoms associated with PTSD in certain cultural settings, possibly owing to the attribution of trauma symptoms to cultural syndromes, that is, to the view that being traumatized is the cause of a cultural syndrome. At present, however, the evidence is not strong enough to suggest the addition of a somatic item or cluster to PTSD criteria. However, additional research should explore this option, as well as the use of a cross-cutting somatic dimension throughout DSM-5. Ideally, in DSM-5, there would be a mechanism that would allow the clinician to assess the severity of somatic complaints for a particular patient meeting PTSD criteria, using a dimensional rating.
4. Cross-cultural research supports the despecification of the nightmare criterion (B2) from its DSM-IV-TR wording: "recurrent distressing dreams *of* the event" to its proposed DSM-5 version—"recurrent distressing dreams in which the content and/or affect of the dream is related to the event(s)." This wording clarifies that the relationship of the dream to the traumatic event may take the form of an affect (e.g., a sense of threat) rather than specific narrative content. If this construct is not added to the diagnostic criteria, it should be emphasized in the PTSD text and in the chapter on cultural features in DSM-5.
5. The wording for the examples illustrating the proposed criterion D2 in DSM-5 should be broadened to include other damaging effects of traumatic exposure, including physical, cognitive, and spiritual consequences. The following text is suggested for evaluation: "Exaggerated negative expectations about one's self, others, or the world (e.g., 'I am bad,' 'no one can be trusted,' '*I've lost my soul forever*,' '*my whole nervous system is permanently ruined*,' 'the world is completely dangerous')." If this construct is not added to the diagnostic criteria, it should be emphasized in the PTSD text and in the chapter on cultural features in DSM-5.
6. The validity and clinical utility of the DESNOS construct should be further evaluated, including in cross-cultural samples.

TEXT

1. Several topics reviewed in this article should be discussed in the DSM-5 text. These topics include:

   (a) lower rates of avoidance and numbing symptoms in some cultures;
   (b) the impact of the meaning attributed to the trauma event on the severity of PTSD and on the salience of specific symptoms (e.g., association of distressing dreams with spiritual consequences of the trauma);
   (c) variation in exposure to particular types of trauma among certain groups (e.g., genocide, torture); the effect of the type of trauma and the sociocultural context on the expression of individual

symptoms (e.g., anger related to a perceived sense of injustice following a genocide);
(d) the role of cultural syndromes in patterning symptoms and in linking PTSD to particular comorbidities (e.g., panic attacks);
(e) the higher rate of somatic symptoms associated with PTSD in certain cultural groups;
(f) that physical, cognitive, and spiritual effects are examples of negative expectations that may follow a traumatic event and that the relative salience of each of these negative expectations dimensions seems to vary by cultures.

2. In describing criterion B4 ("intense psychological distress at exposure to internal or external cues"), the text should clarify that the internal cue could take the form of a somatic sensation (e.g., dizziness) instead of a cognitive cue. The somatic sensation typically became encoded during the traumatic event, such as dizziness upon witnessing a murder or when receiving a blow to the head. This clarification is particularly important for patients with highly somatic presentations, which are more common in certain cultural settings and generally among survivors of mass violence.
3. The description of criterion C2 ("efforts to avoid activities, places, or people that arouse recollection of the trauma") should mention the difficulty that arises from assessing this criterion in immigrants and refugees for whom the traumatic experiences may have occurred in a physical setting, social context, or action context very different than that typically encountered in the host country (e.g., in a rice field or a situation of forced labor). Likewise, the text should also mention the difficulty of assessing this criterion in situations of ongoing, pervasive trauma, such as war-torn countries.
4. The text should note that the evaluation of trauma-related cultural syndromes should form part of the assessment of PTSD. To facilitate this assessment, illustrative syndromes may be included in the text, and for more information, the reader may be referred to the proposed chapter on cultural aspects of psychiatric diagnosis.

CONCLUSION

This review concludes that the DSM-IV-TR PTSD category is valid cross-culturally, in that it constitutes a cohering group of symptoms that occur in diverse cultural settings in response to trauma. Across cultural groups, PTSD criteria demonstrate several types of validity, including biomarker validity, general and trauma-specific causal validity, structural validity, and content validity. At the same time, our review indicates areas of substantial cross-cultural variation. The expression of PTSD is by no means identical across the globe. We discussed the following particular examples of cross-cultural variation: the relative salience of the avoidance/numbing cluster and of somatic symptoms; the importance of distressing dreams and the need to broaden the description of this item; the specific characteristics of the negative expectations as a result of trauma; the impact of the meaning of the trauma on PTSD severity and symptom expression; and the role in patterning PTSD phenomenology of cultural syndromes and of sociocultural variation in exposure to types of trauma events. The review suggests that cultural syndromes may shape symptom comorbidities and symptom profiles in important ways that should be assessed and documented to increase content validity in the assessment of trauma-related disorder. Assessing patients for somatic symptoms and cultural syndromes may also be needed to better attain content validity when PTSD is evaluated cross-culturally. A chapter on cultural aspects of psychiatric diagnoses and/or an expanded Glossary of Cultural Syndromes that describe the relationship of specific syndromes and DSM-5 disorders would help to address this issue.

Our review also found several areas in need of further cross-cultural research:

- Biomarkers.
- Conditional probability of PTSD.
- Relationship of the PTSD symptom profile to current nontraumatic stressors (e.g., a stress–spectrum model or a stress-as-mediator or a stress-as-moderator model).
- Role of the interpretation of the trauma and the symptoms that result from it in the onset of PTSD, symptom severity, and symptom profile.
- Role of A2 in highlighting cultural differences in the meaning of traumatic events (e.g., rape may be particularly stigmatizing in certain cultural contexts).
- Factor analysis with expanded lists of symptoms, ideally including symptoms not listed in the DSM PTSD criteria and including terms for the local syndromes related to trauma.
- Variability in avoidance/numbing across cultures.
- Cross-cultural differences in rates of disorders comorbid with PTSD (e.g., panic attack and panic disorder).
- Cross-cultural differences in symptom dimensions among those with PTSD (e.g., somatic complaints, dissociation predisposition, and anger severity).
- Role of context in determining symptoms (e.g., anger and sense of justice, living with perpetrators, living in conditions of continued threat).
- Salience of somatic symptoms and determining why such differences in salience may occur, such as the nature of the trauma(s), interpretation of symptoms, and current context (e.g., living in a situation of continued deprivation and danger).
- Role of cultural syndromes in patterning symptoms, comorbidities, and course.
- Relative validity of DESNOS (e.g., the utility of its somatic scale in cross-cultural perspective).

Acknowledgments. The authors thank Byron Good, Ph.D., Matthew Friedman, M.D. Ph.D., Katharine Phillips, M.D., Andrew Rasmussen, Ph.D., and the two anonymous reviewers for their very helpful critiques and suggestions. The authors also gratefully acknowledge the input and contributions of Seung-Hee Hong, Madeline Tavarez, and Greer Raggio.

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