

Review

CULTURE AND THE ANXIETY DISORDERS: RECOMMENDATIONS FOR DSM-V

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Background: *The anxiety disorders specified in the fourth edition, text revision, of The Diagnostic and Statistical Manual (DSM-IV-TR) are identified universally in human societies, and also show substantial cultural particularities in prevalence and symptomatology. Possible explanations for the observed epidemiological variability include lack of measurement equivalence, true differences in prevalence, and limited validity or precision of diagnostic criteria. One central question is whether, through inadvertent “over-specification” of disorders, the post-DSM-III nosology has missed related but somewhat different presentations of the same disorder because they do not exactly fit specified criteria sets. This review canvases the mental health literature for evidence of cross-cultural limitations in DSM-IV-TR anxiety disorder criteria. Methods:* *Searches were conducted of the mental health literature, particularly since 1994, regarding cultural or race/ethnicity-related factors that might limit the universal applicability of the diagnostic criteria for six anxiety disorders. Results:* *Possible mismatches between the DSM criteria and the local phenomenology of the disorder in specific cultural contexts were found for three anxiety disorders in particular. These involve the unexpectedness and 10-minute crescendo criteria in Panic Disorder; the definition of social anxiety and social reference group in Social Anxiety Disorder; and the priority given to psychological symptoms of worry in Generalized Anxiety Disorder. Limited evidence was found throughout, particularly in terms of neurobiological markers, genetic risk factors, treatment response, and other DSM-V validators that could help clarify the cross-cultural applicability of criteria. Conclusions:* *On the basis of the available data, options and preliminary recommendations for DSM-V are put forth that should be further evaluated and tested. Depression and Anxiety 27:212–229, 2010.* © 2009 Wiley-Liss, Inc.

Key words: *DSM-V; culture; classification; anxiety disorders; diagnostic; criteria*

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STATEMENT AND SIGNIFICANCE OF THE ISSUES FOR DSM-V

The anxiety disorders specified in the third edition of *The Diagnostic and Statistical Manual* (DSM-III) through the fourth edition, text revision, of *The Diagnostic and Statistical Manual* (DSM-IV-TR) are identified universally in human societies, and also show substantial cultural particularities in prevalence and symptomatology.^[1-4] Their epidemiological variability has been noted at least since the Epidemiological Catchment Area (ECA) studies of the 1980s.^[5] It is now even better documented, as a result of the wave of international studies that have applied the Composite International Diagnostic Interview (CIDI) and uniform DSM-IV criteria to very diverse regions of the world.^[6]

The observed differences in rates among the various disorders across cultural groups raise many questions, not the least of which is whether they are due to lack of measurement equivalence, true differences in prevalence, or limited validity or precision inherent in the diagnostic criteria.^[2,7] Probably all three possibilities are in play; the fact that instruments, prevalence estimates, and criteria change over time makes the matter more complex. Even when the same instrument is used in diverse cultural settings, however, limited data are available on whether the same phenomena are being coded. Validity studies are few, and usually show much better values for aggregate diagnostic categories (i.e., any anxiety disorder) than individual disorders (e.g., Social Anxiety Disorder [SAD]), even within cultural groups.^[8] Few studies have yet tried to account for the effect of measurement differences on temporal changes in rates while at the same time focusing on cross-cultural variability.^[7] Most of the work on investigating cross-cultural variability has been conducted in the United States and Europe; limited attention to racial, ethnic, or cultural diversity of study samples is the rule elsewhere.

Despite the uncertainty introduced by these measurement issues, this review will start from the available epidemiological data and canvas within the mental health literature, for evidence of cross-cultural limitations in DSM-IV-TR criteria that might contribute to epidemiological variation. Standard Errors and 95% Confidence Intervals are provided when reported, to assist evaluation of the quality of the epidemiological data. For each anxiety disorder, we move from epidemiology, to criteria, to recommendations for DSM-V. In particular, we describe alternatives to current criteria sets or descriptive text that should be considered and tested in order to improve the validity of DSM-V. Because research in this area is limited, we err on the side of including studies that reveal cross-cultural differences, rather than similarities, in order to provide comprehensive suggestions for current and future revisions of the manual and to guide subsequent research. Posttraumatic Stress Disorder and Acute Stress Disorder are not included here, as they will be

the focus of separate articles. Likewise, cross-cultural aspects of a number of putative obsessive-compulsive spectrum disorder will be reviewed elsewhere.

One central question that helped organize our review was whether the priority given to symptom-based specification of the anxiety disorders since DSM-III has contributed to epidemiological variation. Possibly through inadvertent “over-specification” of disorders; related but somewhat different presentations of the same disorder may be missed by diagnostic instruments because they do not exactly fit specified criteria sets. The push for reliability, sometimes at the expense of validity, has been a recognized limitation of post-DSM-III editions of the manual.^[9] Unfortunately, much of the nosologically relevant data, including neurobiological markers, genetic risk factors, treatment response, and other DSM-V validators that could help clarify this issue has not been collected across cultural groups. Covariation of these factors, and other social and environmental variables, with anxiety phenotypes across diverse cultures, would go a long way to establishing the universal validity of the current anxiety disorder categories.^[1,10]

We acknowledge two main limitations of our review methodology. First, our starting point is each DSM-IV-TR disorder, rather than pathological anxiety more generally. Although this approach may seem obvious to the DSM revision process, it is not clearly advantageous from the cross-cultural perspective, as it may limit identification of alternate constructions of anxiety pathology. After all, a key finding of a recent elegant epidemiological survey, conducted in China with clinician-administered diagnostic instruments, is that nearly 60% of all cases of DSM-IV-defined anxiety disorders fall in the Not Otherwise Specified category.^[11] Although instrumentation issues are clearly a potential explanation, another possibility is that the DSM criteria embedded in the diagnostic instrument do not capture key aspects of Chinese pathological anxiety, resulting in nonspecified disorders. Clearly, both issues could be synergistically related, as suggested by the authors of an epidemiological assessment of Beijing and Shanghai that employed the lay-administered CIDI.^[12] Because the skip patterns of the diagnostic instrument are structured to closely follow DSM-IV, the embedded assumptions of the diagnostic criteria—in this case, the prioritization of psychological over somatic symptoms of anxiety—may inadvertently exclude participants whose experience of pathological anxiety does not conform to these diagnostic assumptions. As a result, mismatch between the CIDI and “the subjective flow of psychopathological experience in Chinese people” may result in false low rates of disorder (12:264). To partially address this limitation, we include data on cultural syndromes,^[13] in order to expand beyond usual mental health data supporting or challenging the cross-cultural validity of disorder criteria.

A second limitation involves the lack of attention to context in the definition of pathology. In this, we are shaped by DSM-IV-TR standards, which prioritize

descriptive symptom characterization. For now, we stipulate the question whether similar phenotypes imply equivalent levels of pathology, independent of contextual factors. For example, the type of worry experienced by an undocumented individual in a US setting, after a raid by immigration services, may be deemed “excessive” by a clinician with insufficient knowledge of the contextual factors underlying this worry. This person may ostensibly fulfill Generalized Anxiety Disorder (GAD) criteria and yet not be suffering from the same psychiatric disorder (or a “disorder” at all), as someone without these contextual factors. This issue of context also applies to the patterns of professional diagnostic practice, level of popular awareness or acceptance of DSM-defined forms of psychopathology across societies, and local response sets to survey instruments, 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. 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, suggest that contextual factors may be playing a role in the way disorders are experienced, reported, or diagnosed. This may be a reason why societies with developed public education campaigns about psychiatric disorders and widely distributed mental health service sectors—such as the United States and Europe—tend to show the highest and most convergent epidemiological rates. We do not address this question in this review.

Finally, 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 physical sensations. We particularly concentrate on culture to explore whether these cognitive/affective/somatic/behavioral elements (e.g., interpretations of illness, patterned reactions to stressors) affect the development or expression of psychiatric syndromes. We use the term “cultural” or “cross-cultural” in this report in a nonspecific fashion to refer to more specific racial, ethnic, national, or cultural identifiers.

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reflect the final recommendations or decisions that will be made for DSM-V, as the DSM-V 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 Pubmed and PsychInfo of data published since 1994, with the publication of DSM-IV. Key words relevant to each disorder were combined with the terms “culture,” “ethnic,*” or “race.” This approach yielded the following number of articles, not all of which provided relevant information: panic attacks (PAs; 278), panic disorder (PD; 342), agoraphobia (127), specific phobia (77), SAD/social phobia (602), obsessive–compulsive disorder (416), and GAD (235). Reference lists were augmented by inspection of bibliographies from key articles, as well as by references from 1965–1994, 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,^[14,15] and the DSM-IV Options Book^[16] 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-V were also reviewed.

RESULTS

PANIC ATTACK

What is the evidence of variation in prevalence rates of panic attacks across cultural groups? Few studies have reported the cross-cultural prevalence of PAs as opposed to PD. In the National Comorbidity Survey Replication (NCS-R), 12-month prevalence of PAs among US adults is 11.2% ($SE = 0.5$),^[17] whereas among 14–24 year olds in Germany the rate is 2.7% ($SE = 0.3$).^[18] In the NCS-R, the lifetime rate of PAs without agoraphobia among US Latinos and African Americans is lower than among non-Latino Whites; the rate of PA with agoraphobia, however, does not differ significantly.^[17] Racial/ethnic comparisons using the Collaborative Psychiatric Epidemiological Studies dataset, likewise, found no difference in lifetime or 12-month rates of PAs among African Americans, Asian Americans, and Latinos.^[19] However, PAs appear to arise at different rates cross-culturally in response to an acute stressor, such as the 9/11 attacks. Among New York City residents in the immediate aftermath of 9/11, rates of PAs were significantly higher in African Americans (13.4%) and Puerto Ricans (16.8%) than in non-Latino Whites (5.5%); these differences remained significant after controlling for demographic covariates.^[20]

What is the cross-cultural validity of existing panic attack criteria? *Thirteen symptoms:* The specified DSM-IV symptoms have been identified during

the PAs of many cultural groups.^[21–23] Their specific frequency appears to vary cross-culturally, although research in this area is limited and requires further replication. Examples include higher rates of paresthesias in African Americans,^[24] trembling in Caribbean Latinos,^[25] dizziness in several Asian groups,^[26] and fear of dying in Arabs and African Americans.^[24,27] Lower rates of depersonalization/derealization and loss of control have been found in some cultural settings, whereas these are very frequent symptoms amongst some groups, such as Puerto Ricans.^[23,25,28]

One possible cultural reason for this variation is differences in the content of catastrophic cognitions that lead respondents to emphasize diverse symptoms, either in the experience or the reporting of their PAs. For example, higher reports of paresthesias among African Americans may be related to greater fear of diabetes and its complications (e.g., amputations) due to their high rates in this population.^[24] Catastrophic cognitions may increase the symptom in two main ways: by *attentional mechanisms*, namely, a hypervigilant surveying of the body for the feared symptom, and by *positive feedback mechanisms*, whereby discovery of the feared symptom leads to increased arousal, resulting in potentiation of the feared symptom and other related symptoms as well.^[21,26,29,30]

A second cultural reason involves the influence on PA symptom endorsement of cultural syndromes and more general local understandings of the workings of the body (“local ethnophysiology”), which cause certain symptoms to “run together” in a particular culture.^[31] This may help explain not only variation in the frequency of the 13 specified symptoms, but also why certain autonomic arousal symptoms other than those indicated in DSM-IV are prominent during PAs in other cultures. For example, *khyâl* (wind) attacks are a Cambodian cultural syndrome resembling PAs that are attributed to dysregulation in the flow of a putative wind-like substance in the body; *khyâl* attacks are characterized by a mix of specified panic symptoms (e.g., dizziness) and culture-specific symptoms attributed to *khyâl* dysregulation, such as tinnitus and neck soreness. These latter two symptoms are connected to catastrophic cognitions about *khyâl* dysregulation, such as the view that a surge of *khyâl* (and blood) during an acutely anxious state may rupture the neck vessels, cause ear damage, and bring about syncope. Due to the availability of this cultural syndrome, Cambodians may be more likely to experience PAs that include symptoms of *khyâl* attacks, such as neck soreness or tinnitus, owing to their cultural association in a known illness cluster.^[32]

Other examples of cultural syndromes that influence the cross-cultural presentation of PAs are *trung gió* (wind-related) attacks in Vietnam (which are associated with headaches)^[33,34] and *ataque de nervios* (attack of nerves) among Latin Americans.^[35,36] *Ataques* in Puerto Ricans and Dominicans may meet criteria for PAs, or

instead be better characterized as anger episodes or grief reactions.^[35,37] Caribbean culture links these various presentations under the same rubric because of their common feature of loss of control and because they are seen as usually precipitated by a severe stressor, such as the unexpected death of a loved one. *Ataque* phenomenology may contribute to the salience in Caribbean Latinos of trembling, uncontrollable crying and/or screaming, aggressive or suicidal behavior, and depersonalization/derealization symptoms, during acute anxiety episodes that meet PA criteria.^[25,36,38] Finally, feelings of heat in specific parts of the body (head, chest, neck) are common across several cultural groups during PAs and are not well captured by the phrase “hot flushes,” which suggest full body heat sensations.^[26,30] Fifty-three percent of *ataques*, for example, are characterized by “a sense of heat rising in the chest.”^[25]

The finding that PAs cross-culturally are characterized by symptoms not currently listed in DSM-IV raises the issue of how to address this limitation of the criteria. It is possible that the absence of these symptoms contributes to underrecognition of PAs in cultures where these alternate symptoms are prominent, and thus to variation in the assessed prevalence of PD cross-nationally (see below). One option is to test whether the addition of the cultural symptoms, currently identified among Latinos and Southeast Asians (tinnitus, neck soreness, headache, and uncontrollable screaming or crying), and the rewording of the heat item improve the identification of PAs not only in these populations, but also generally. Future studies, however, may reveal other cultural symptoms of PAs, suggesting that a comprehensive list might be impractical.^[21] An alternative to this approach is to consider the current list of 13 arousal symptoms as *indicative* of a sympathetic storm and associated symptoms (i.e., catastrophic, cognitions, depersonalization/derealization), rather than specifically constitutive of the syndrome. This would permit the inclusion of diverse types of symptoms, those currently specified and others emerging from cross-cultural analysis. This option should be further considered and tested, including documenting the prevalence during PAs of other symptoms not currently specified in DSM-IV. Finally, there is debate in the field whether the paradigmatic feature of a PA is the presence of acute autonomic arousal or whether catastrophic cognitions—such as fear of dying, of losing control, or of becoming insane—are also required.^[39] This point should be noted in the text.

Ten-minute crescendo criterion: Episodes of *ataque de nervios* with PA phenomenology may be experienced as peaking over a longer period. Among Caribbean Latino psychiatric outpatients with *ataque* ($n = 66$), 36% meet full PA criteria, including the crescendo criterion; an additional 23% would meet criteria for PA, if this criterion were relaxed.^[36] PAs in various cultures are commonly experienced as arising out of more extended

worry episodes, a process facilitated by cultural syndromes attributing catastrophic consequences to worry states. This relationship with worry results in frequent reports of PAs that arise as a crescendo of escalating panic from a baseline of anxiety.^[40,41] However, no physiological studies have been conducted with culturally defined syndromes to inform the distinction between physiological arousal and subjective reporting of the crescendo criterion. A wording change proposed for DSM-V [Craske et al., submitted] would clarify that PAs may arise from a baseline anxious or nonanxious state; the validity of this change should be tested with cross-cultural samples. In addition, the actual perceived duration of PAs should be obtained to test possible cross-cultural variation of this component of PAs.

What recommendations for DSM-V emerge from the cross-cultural findings? Criteria:

1. Examine whether the addition of four culturally specific symptoms to the list of specified symptoms, and the rewording of the heat symptom item, improve identification of PAs cross-culturally. These symptoms are: tinnitus, neck soreness, headache, and uncontrollable screaming or crying.
2. Test an alternate definition of PAs that emphasizes autonomic arousal and uses the list of specified symptoms as illustrative, rather than constitutive of PAs: "An abrupt surge of intense fear or intense discomfort, that reaches a peak within minutes, and during which *four symptoms of autonomic arousal occur, such as the following...*"
3. Document which symptoms, in addition to those currently specified, are experienced during PAs across cultural groups.
4. Test the validity in cross-cultural samples of the clarification of the crescendo criterion: "...that reaches a peak within minutes..." (versus a specified duration of 10 minutes) and "The abrupt surge can occur from a calm state or an anxious state" (to clarify that PAs can arise out of worry episodes).
5. Document the actual perceived duration of PAs across cultural groups to test the validity of the crescendo criterion.

Text:

1. Describe the cross-cultural variation in PA symptoms, including the influence of cultural syndromes.
2. Reference the section of DSM-V that describes cultural syndromes in greater depth, revised from the DSM-IV Glossary of Culture-Bound Syndromes (Appendix I). The cross-cultural findings obtained from the recommendations mentioned above could be included in this glossary.

PANIC DISORDER

What is the evidence of variation in prevalence rates of panic disorder across cultural groups? Prevalence of PD in the United States is 4.7 ($SE = 0.3$) to 5.1% ($SE = 0.15$) lifetime, and 2.1 ($SE = 0.09$) to 2.8% ($SE = 0.2$) at 12 months.^[17,42] These rates are considerably higher than those reported in other countries, except for European rates, even using the same diagnostic instrument. Among adults, for example, 12-month rates of DSM-IV-defined PD based on the CIDI range from 0.1% ($SE = 0.0$) in Nigeria^[43] to 1.1% ($SE = 0.1$) in Australia.^[44] Rates are 0.2% ($SE = 0.1$) in South Korea,^[45] 0.2% ($SE = 0.1$) in metropolitan China,^[12] 0.5% (95% CI = 0.0–1.1) in Japan,^[46] 0.6% ($SE = 0.1$) in Mexico,^[47] and 0.8% ($SE = 0.2$) in South Africa.^[48] A comprehensive assessment of 27 studies in Europe revealed a 12-month median prevalence of 1.8%, with an interquartile range of 0.7–2.2%, more similar to US surveys.^[7] In one study, not a single Mapuche Indian met lifetime DSM-III-R PD criteria, despite the fact that 1.3% (95% CI = 0.1–2.5) of non-Mapuche Chileans did.^[49]

In the United States, significantly lower rates of PD are found among Latinos, African Americans, Caribbean Blacks, and Asian Americans, compared to non-Latino Whites^[43,50,51]; American Indians, by contrast, have significantly higher rates.^[42] Rates did not vary significantly by native versus foreign birth among Latinos or non-Latino Whites or by Latino subgroup, though rates among Puerto Ricans are higher (4.9%) than in other Latino subgroups (2.1–3.2%).^[52]

The causes of these cross-cultural differences remain unclear. Although measurement discrepancies likely play a role, true differences in prevalence cannot be ruled out. Diagnostic evaluations of PD in China, using the clinician-rated Structured Clinical Interview for DSM-IV which allowed probing for clinical details, did not substantially increase PD prevalence (127 per 100,000 [95% CI = 90–181] at one month) over the lay-administered CIDI;^[11] the opposite result would have been expected if measurement bias were the main reason for lower rates. In addition, more respondents received an Anxiety NOS diagnosis than all specified anxiety disorders combined, raising the possibility of criterial difficulties in evaluating anxiety disorders in China. One explanation may be that DSM-IV PD criteria are missing culturally distinct presentations of panic-level anxiety. Item-level analysis of the probability of endorsement across cultural groups would help clarify the role of instrumental limitations in yielding discrepant rates. In addition, clinical reappraisal studies that include ethnographic assessment of local expressions of panic anxiety would help examine the impact of culturally specific presentations.

What is the cross-cultural validity of existing panic disorder diagnostic criteria? *Unexpected PAs:* Culture plays an important role in linking particular

cues to the onset of PAs, which may affect the likelihood that PAs are considered expected. In certain cultures, the triggers to PAs are specified by cultural syndromes, and often those cultural syndromes create fear about the danger of certain “situations,” (i.e., these fears result in situationally predisposed PAs). These “situations” vary cross-culturally, and can range from interpersonal arguments (e.g., associated with *ataque de nervios* in Latin America), to types of exertion (e.g., standing up and *khyâl* attacks in Cambodia), to other exposures (e.g., atmospheric wind and *trung gió* attacks in Vietnam).^[33] To elaborate, if a Vietnamese individual, who considers him/herself vulnerable to *trung gió*, goes outside on a windy day, he/she may well anticipate developing a PA and may in fact panic, partly as a result of this anticipatory anxiety. The cultural syndrome links panic symptoms to the pathogenic effect of winds and creates a state of anticipatory anxiety.^[33,34] Individuals’ assessment of whether their PAs are cued, therefore, depends in part on their cultural background. Taking this into account may facilitate questioning regarding the cuedness of a panic episode. In the Vietnamese example, knowing about the potential role of anticipatory anxiety due to *trung gió* may help clarify whether the PA was expected (due to the anticipatory state) or was unexpected, but then retrospectively attributed to the effect of the winds; PD would be diagnosed in the second case but not the first.

However, individuals with cultural syndromes that link certain precipitants to PAs may still be less likely to consider their PAs unexpected and thus receive a diagnosis of PD, resulting in lack of treatment. An alternative proposal that could be considered is to define PD not by the presence of unexpected PAs but by endorsement of other PD characteristics, such as autonomic arousal, catastrophic cognitions, and post-attack behaviors.^[54–56] This approach may identify individuals who otherwise would not meet any diagnosis due to a discrepancy between their disorder attributions and those of their clinicians. Deleting the unexpectedness criterion would also assist clinicians in diagnosing recurrent PAs as worthy of clinical attention, even when they occur in the context of other disorders, such as PTSD. Currently, if a person attributes all his/her PAs to recollections of trauma or reexposure to trauma-related stimuli, a clinical diagnosis of PD is excluded. In many cultures, PAs are expected after traumatic exposures, reducing the likelihood that these attacks would meet PD criteria, as they would be attributed to the traumatic experience.^[26,38]

Postattack negative sequelae of at least one month duration: In one study, 80% of Caribbean Latino psychiatric outpatients with *ataques de nervios* endorsed at least one of the three postattack sequelae included in PD criterion A2,^[36] suggesting that this criterion adequately captures the consequences of a panic-like episode in this cultural group. However, more research is necessary on its cross-cultural validity.

Impairment: Among community respondents with PD, non-Latino Whites have significantly lower 30-day functional impairment than African Americans.^[51] This finding, together with higher rates of objectively defined severity in Caribbean Blacks with PD and lower rates of PD overall in both Black groups, suggests that individuals of African descent may meet CIDI criteria for PD only after substantial severity and impairment, possibly due to race-related limitations of diagnostic criteria or instrumentation problems.

What recommendations for DSM-V emerge from the cross-cultural findings? Criteria:

1. Based on secondary data analysis of existing epidemiological datasets, examine the impact of deleting the unexpectedness criterion, including across cultural groups, and basing the diagnosis solely on other PD criteria.
2. Evaluate the impact on clinicians’ diagnosis of comorbid disorders, such as PTSD, of deleting the unexpectedness criterion.

Text:

1. Describe the cross-cultural variation in perceived triggers of PAs, including the influence of cultural syndromes, and how these may affect the interpretation of unexpectedness.
2. Clarify concepts, such as expected and unexpected, cued and uncued, and internal cues versus external cues. Likewise, the relationship of these dichotomies to situationally predisposed PAs should be further defined.
3. Reference the revised Glossary of Culture-Bound Syndromes for a description of the cultural syndromes that impact PD phenomenology.

AGORAPHOBIA

What is the evidence of variation in prevalence rates of agoraphobia across cultural groups? Assessment of cross-cultural variation in rates of agoraphobia is complicated by epidemiological reporting of agoraphobia without panic disorder (AWOPD), rather than the full prevalence of agoraphobia. Cases of AWOPD are reported nearly universally in national surveys, indicating the validity of the condition as independent from PD,^[57] but rates show substantial variability. Twelve-month prevalence using DSM-IV or DSM-III-R criteria, which are nearly identical, range from 0% in metropolitan China^[12] to 4.8% ($SE = 0.4$) in South Africa.^[48] Rates are 0.2% ($SE = 0.1$) in Nigeria,^[43] 0.3% (95% CI = 0.1–0.5) in Japan,^[46] 0.5% ($SE = 0.1$) in Australia,^[44] 0.7% ($SE = 0.1$) in Mexico,^[47] 1.2% (95% CI = 1.0–1.4) in New Zealand,^[58] 1.3% (95% CI = 0.7–2.0) in Europe,^[59] and 3.3% (95% CI = 0.0–7.8) among the Mapuche Indians of Chile.^[49] DSM-IV-defined 12-month prevalence in the

United States varies depending on the instrument used, from 0.05%^[42] in the National Epidemiologic Survey of Alcohol and Related Conditions (NESARC), which used the AUDADIS, to 0.8% ($SE = 0.1$)^[60] in the NCS-R, which used the CIDI. Curiously, lifetime US rates of DSM-IV-defined agoraphobia with PD are identical across the NCS-R (1.1%, $SE = 0.1$) and the NESARC (1.1, $SE = 0.07$),^[17,42] as opposed to the very discrepant findings for AWOPD, suggesting particular difficulties of instrumentation in assessing AWOPD with the AUDADIS.^[42]

The cross-racial/ethnic variability of AWOPD in the United States has received little attention. One study found that African Americans and Caribbean Blacks have higher 12-month prevalence than non-Latino Whites, even after controlling for demographic covariates.^[51] Non-Latino Whites and Latinos report similar lifetime prevalence, but Puerto Ricans endorse a significantly higher rate (6%) than other Latino groups (2.1–3.2%). US birth is not associated with AWOPD prevalence across Latinos or non-Latino Whites,^[52] but is associated with higher rates of agoraphobia with PD among Asian Americans.^[61] Both the NESARC and the NCS-R found lower rates of agoraphobia with PD among African Americans; the NESARC also found lower rates among Latinos and Asian Americans and higher rates among American Indians.^[17,42] By contrast, factor analysis of National Anxiety Disorder Screening Day questionnaire revealed an agoraphobia factor that is equally valid among five US racial/ethnic groups.^[62] In terms of age of onset, Caribbean Blacks and African Americans are significantly more likely than non-Latino Whites to have a teenage onset of AWOPD; Whites show, instead, a more even age of onset distribution throughout the lifespan.^[51]

The observed cross-national variability in rates of AWOPD may be partly due to assessment bias. Careful methodological dissection of patterns of endorsement in a community study of youth between 14 and 24 years of age in Germany found that AWOPD prevalence differs substantially, depending on the number of trigger situations that provoke the agoraphobic symptoms.^[63] At least two triggers were considered necessary to reduce the number of false positives, consistent with DSM-IV's stipulation that agoraphobic fears "typically involve characteristic clusters of situations." Moreover, clinical reappraisal of the CIDI results found that over half of respondents with a CIDI diagnosis of agoraphobia were more accurately diagnosed on the SCID as suffering from specific phobia of the situational subtype. Due to these methodological limitations, the cross-cultural variability of agoraphobia remains uncertain.

What is the cross-cultural validity of existing agoraphobia diagnostic criteria? *Assessing agoraphobia:* The studies reviewed provided no data on which to assess the cross-cultural validity of the agoraphobia criteria. However, one study found that university

student scores ($n = 5,491$) on the agoraphobia fear subscale of the Fear Survey Schedule-III^[64] correlate strongly and positively (0.67) with age- and gender-adjusted masculinity and femininity scores at the national level across 11 countries.^[65] The national score of masculinity/femininity was derived by Hofstede,^[66] based on the degree to which the predominant culture of each country conformed to stereotypical gender-specific behavioral norms. Arrindell and colleagues suggested that female socialization to accept stereotypically "feminine" traits, such as submissiveness, dependency, and need for security, lead to increasing adult levels of agoraphobic fear of being in certain places and situations or of venturing outside the home.^[65] However, these data were obtained with student populations, limiting its applicability to clinical rates of agoraphobia. Several investigators have noted the importance of distinguishing agoraphobia from culturally established (though increasingly challenged) practices of restricting the participation of women in public life.^[67] This point is already noted in the text of DSM-IV-TR.

What recommendations for DSM-V emerge from the cross-cultural findings? None.

SPECIFIC PHOBIA

What is the evidence of variation in prevalence rates of specific phobia across cultural groups? As with the rates of PD, prevalence of DSM-IV-defined specific phobia in the United States, which is 7.1 ($SE = 0.3$) to 8.7% ($SE = 0.4$) at 12 months and 9.4% ($SE = 0.3$) at lifetime,^[60,68] exceeds that of other countries outside of Europe. CIDI-based 12-month rates are 1.9% ($SE = 0.5$) in metropolitan China,^[12] 2.7% (95% CI = 1.5–3.9) in Japan,^[46] 3.5% ($SE = 0.5$) in Nigeria,^[43] 4% ($SE = 0.5$) in Mexico,^[47] and 4.2% ($SE = 0.5$) in South Korea.^[45] The median 12-month prevalence in 27 European studies is 6.4%, with an interquartile range of 3.4–7.6%.^[7] Lifetime rates show similar variation. At present, there is no clear explanation for these cross-national differences in prevalence or for the convergence of rates between the United States and Europe.

Cross-racial/ethnic comparisons of specific phobia in the United States are conflicting. Based on ECA data (DSM-III), African Americans had a higher lifetime rate than other groups after adjusting for demographic covariates^[69] and Mexican Americans met lifetime criteria more frequently than Whites or Mexican immigrants.^[5] The NCS-R, however, obtained no significant differences in lifetime prevalence across English-speaking Latinos, African Americans, and non-Latino Whites (11.7–13.1%).^[51] In turn, the NESARC, which included Spanish-speaking Latinos, found significantly lower lifetime rates in Asian Americans (5.9%, $SE = 0.8$) and Latinos (7.4%, $SE = 0.6$) compared to Whites (9.9%, $SE = 0.3$), who did not differ significantly from African Americans

(9.1%, $SE = 0.5$) and American Indians (12%, $SE = 1.4$).^[68] The data are too contradictory to allow a simple conclusion.

What is the cross-cultural validity of existing specific phobia diagnostic criteria? *Phobia subtypes:* The content of phobias varies by racial/ethnic group, though the data are very limited. Non-Latino US Whites and African Americans differ significantly in the frequency of items endorsed within the specific phobia domains of the Fear Survey Schedule (FSS)-II. Specifically, African Americans endorse significantly greater animal fears and Whites significantly greater blood-injection-injury fears.^[70] Moreover, confirmatory factor analysis shows that African Americans endorse more fears related to the natural environment, whereas Whites endorse more fears related to circumscribed situations. Although animal fears in general are common to both groups, only the African American sample endorses animal fears related to stinging insects, strange dogs, rats, and mice. The results are consistent with previous findings of Neal and Turner^[71] who reported upon a large epidemiologic survey study of adults, and Last and Perrin^[72] who used the FSS for Children-Revised (FSSC-R). It must be noted that a major limitation of the Chapman et al. study^[70] is the sole reliance on self-report questionnaire data from a healthy undergraduate sample, which may not generalize to a clinical population. The available cross-national data of developed countries suggests more similarities than differences; US and Dutch community samples report the same top three phobic contents (animals, heights, and enclosed spaces), though in slightly different order.^[7,67,72]

Ollendick and colleagues^[74] examined reports of specific fears, using the FSSC-R in healthy US, Australian, Chinese, and Nigerian children and adolescents ($N = 1,200$). They found significant differences in number, content, pattern, and level of fears. Nigerian children and adolescents report higher level of fear and higher number of fears than their US, Australian, and Chinese counterparts, who do not differ from one another ($F[3,1,176] = 100.9$). Significant Country \times Gender ($F[3,1,176] = 12.25$) and Country \times Age ($F[6,1,176] = 4.5$) interactions were also found. Whereas level of fear tends to decrease with age from childhood to adolescence in Western countries, fear remains unchanged in Africa, and preadolescents in Asia report the highest level of fear compared to their younger and older counterparts. In terms of the number of fears, boys from Nigeria endorse more fears than girls, whereas girls endorse more fears than boys in Australia, the United States, and China.

With regard to the content of fear, of the 10 most common fears reported when collapsed across the four countries, at least six were reported amongst the 10 most common fears within each country. Although similarities across countries were evident, considerable differences were noted reflecting the endorsement of

country-specific fears. For example, a larger percentage of Nigerian and Chinese youths report fears of physical safety (e.g., electricity or dangerous animals), whereas more US and Australian youths report fears of personal safety (e.g., burglary or getting lost). Consistent with the authors' cross-cultural hypotheses, children and adolescents from Nigeria and China (countries which both purportedly stress self-control, emotional restraint, and compliance to social rules) report higher levels of social-evaluative and safety fears than did children and adolescents from the United States and Australia.

In terms of the age of onset of each phobia subtype, results from the Netherlands are in line with the US findings. Animal, natural environment, and blood-injection-injury subtypes typically originate during childhood, whereas the situational subtype has a later onset.^[73]

What recommendations for DSM-V emerge from the cross-cultural findings? None, as the text of DSM-IV-TR already mentions the cross-cultural variation in the content of fears

SOCIAL ANXIETY DISORDER

What is the evidence of variation in prevalence rates of social anxiety disorder across cultural groups? The 12-month US prevalence of DSM-IV-defined SAD ranges from 2.8% (95% CI = 2.5–3.1)^[75] to 6.8% ($SE = 0.3$),^[60] depending on the study, but is still considerably higher than in most non-European countries. Using the DSM-IV CIDI, 12-month rates are 0.2% ($SE = 0.1$) in South Korea,^[45] 0.2% ($SE = 0.1$) in metropolitan China,^[12] 0.3% ($SE = 0.3$) in Nigeria,^[43] 0.8% (95% CI = 0.2–1.4) in Japan,^[46] 1.3% ($SE = 0.1$) in Australia,^[44] 1.7% ($SE = 0.2$) in Mexico,^[47] and 1.9% ($SE = 0.3$) in South Africa.^[48] European studies show a median prevalence of 2.3%, with an interquartile range of 1.1–4.8%.^[7] In contrast, the 12-month prevalence of SAD in the rural population of Udmurtia, a Constituent Republic of the Russian Federation, is 44.2% (95% CI = 40.9–47.6) when using ICD-10 criteria and 49.4% (95% CI = 46.0–52.8) when using DSM-III-R,^[76] indicating either dramatic regional variation, measurement bias, or limited validity of the diagnostic criteria in this population

In the United States, being American Indian, young, and having low income increases the risk for SAD, whereas being of Asian, Latino, African American, or Caribbean Black race/ethnicity, male, or living in urban or more populated regions reduces this risk.^[50,51,75] The gender difference appears to be particularly pronounced in young adults.^[77] However, the lower risk among minorities is more pronounced at lower levels of education. Furthermore, the lower risk among Latinos, relative to non-Latinos Whites, is found only among the younger cohort (age ≤ 43 years).^[50] Although Whites, African Americans, and Caribbean

Blacks are at their greatest risk of developing SAD before age 20, the risk for the two Black groups is largely confined to this age range, whereas Whites remain somewhat at risk of developing SAD throughout their lifespan.^[51] Immigrant status is associated with significantly lower rates in both Latino and non-Latino White groups.^[52]

In sum, the epidemiological literature suggests a wide range of lifetime prevalence rates of SAD. It remains uncertain to what extent these differences in prevalence rates reflect genuine differences in psychopathology, or whether they are due to insufficient consideration of cultural aspects of the DSM criteria, the assessment instruments, or the influence of features associated with race and culture, such as level of formal education. For instance, a substantial proportion of the variance in prevalence rates may be accounted for by changing standards in diagnostic instrumentation, at least in developed regions, such as Europe.^[7] In SAD research, diagnosis rates can vary with the number of social situations probed for, such that asking about more social situations produce the highest prevalence rates, because this gives respondents a greater opportunity to describe key problem situations.^[78] In contrast to this discrepancy in prevalence rates, some associated features of SAD, such as gender ratio and psychiatric sequelae, reveal more cross-national similarity.^[79] In clinical settings in various countries, patients with SAD are more likely to be male, report an early age of onset, and have higher education levels.^[80]

What is the cross-cultural validity of existing social anxiety disorder diagnostic criteria? *Assessing social anxiety:* There is evidence to suggest that the diagnostic threshold used by mental health professionals differs across cultures. For example, one study investigated differences in the diagnosis of SAD by Japanese psychiatrists in Tokyo and US psychiatrists in Hawaii.^[81] Japanese clinicians tend to diagnose SAD congruently for the Japanese cases but not for the Japanese American cases. American clinicians tend to diagnose various categories, including GAD and avoidant personality disorder in addition to SAD, disregarding the ethnic background of the patients. These differences may be due to the patient's cardinal symptom manifestation, style of problem presentation, the clinician's professional orientation, and familiarity with this disorder and the diagnostic system.

Fear of humiliation or embarrassment: Clinical researchers from Japan and South Korea describe a subgroup of patients who avoid social situations owing to fear of being observed, but whose concern is doing something or presenting an appearance, which will offend or embarrass the *other person*. This type of presentation is locally labeled as the offensive subtype of *Taijin kyofusho* (TKS) or literally "fear of interpersonal relations," in the Japanese language.^[82] This offensive subtype is characterized by two features

considered atypical of SAD: (1) the belief that one displays certain physical flaws and/or socially inappropriate behaviors that are rarely reported in Western SAD samples, such as an unpleasant body odor or staring at others' body parts in public, and (2) the fear of offending others due to these presentations, what some have referred to as an allocentric focus of social fears.^[83] Other examples include the fear of offending others by presenting an improper facial expression or having a physical deformity.^[84]

The full range of TKS includes a nonoffensive subtype that shares many similarities with DSM-IV-defined SAD,^[85] as well as highly prevalent but transient adolescent concerns and presentations that have more in common with DSM-IV body dysmorphic disorder (BDD) or delusional disorder.^[82] Most patients with TKS experience a single circumscribed fear, although the specific focus may change over time. As with SAD in Western cultures, TKS in Japan typically begins during adolescence and early adulthood.^[84,86] Similar to most clinical studies of SAD,^[80] more males than females—about 3:2 ratio—present with TKS in Japanese clinical settings.^[84] In addition, TKS appears to respond well to an SSRI^[85,87] or an SNRI.^[88]

The relationship between SAD and the offensive subtype of TKS has been examined in several studies.^[83,89,90] Results indicate that offensive-type symptoms are prevalent in the West—thus reducing their cultural particularity—but also that some features of TKS differ from DSM-IV-defined SAD. Evidence of cross-cultural similarity comes from a study comparing Japanese ($n = 20$) and Canadian ($n = 21$) individuals with DSM-III-R-defined SAD.^[90] The results show that many symptoms considered characteristic of the offensive subtype of TKS, such as the concern that one's own glance may make others uncomfortable, are also observed in the Canadian sample. Furthermore, the symptoms in both groups tend to exacerbate under similar exposure characteristics (e.g., with strangers or people of the opposite sex). This contradicts earlier clinical reports of lower social anxiety with strangers compared to acquaintances in Japanese TKS patients, which was attributed to the anxiety-reducing effect of clearly defined cultural rules in Japan for social interactions among strangers.^[82]

Choy and colleagues^[83] compared DSM-IV-defined cases of SAD in the United States ($n = 181$) and South Korea ($n = 64$) on the prevalence of symptoms of the offensive subtype of TKS, and further analyzed the symptoms in terms of whether the fear involved offending others or embarrassing oneself. Seventy-five percent of patients with SAD in both settings endorse at least one of the five offensive TKS symptoms surveyed, namely intestinal gas, stiff facial expression, staring at others' body parts, body odor, and physical appearance. This study also found that fear of embarrassing oneself is greater than allocentric fear in both national samples, even when the focus of the

fear is the offensive symptom. Finally, Kim and colleagues^[89] found high levels of allocentric fear in 94 Australian cases of DSM-IV-defined SAD who were born in Western countries. Symptoms of SAD and offensive TKS are strongly correlated, and levels of allocentric fear decreased with SAD treatment. In contrast to the findings by Choy and colleagues, however, this study found that the prevalence of reported offensive symptoms in this Australian SAD sample is only 8.5%, and no patients met full criteria for TKS.

Other differences between TKS and Western forms of social anxiety have been documented. Most of these studies have been conducted with nonclinical samples, however, limiting their applicability to SAD. For example, the symptom overlap between TKS and SAD is only partial. Among Japanese ($n = 161$) and US ($n = 181$) college students, there is only a 50–53% co-occurrence between high scorers on TKS and SAD Scales.^[86] Moreover, among Japanese university students who report feeling tense or nervous in social or interpersonal interactions ($N = 111$), the subgroup that fits the symptom profile for offensive-type TKS ($n = 25$) has low scores on the Liebowitz Social Anxiety Scale, suggesting that the symptoms of some TKS sufferers did not fall within the SAD spectrum.^[91] In addition, factor analysis of social anxiety scale items endorsed by DSM-IV-defined SAD cases in Japan ($N = 149$) reveals a somewhat different factor structure than in US SAD samples.^[92] Two of the three factors found in Japan, *scrutiny fears* and *conversation fears*, share factor congruence coefficients of 0.83–0.92 with equivalent US factors. The third Japanese factor, *relationship fears*, is more distinct (congruence coefficient = 0.34), suggesting that SAD cases in Japan fear not only interacting with others, but even being in their presence. The authors attributed this heightened fear to cultural norms about paying attention to others' thoughts and feelings in a group-oriented society, such as Japan.

In sum, many TKS presentations share descriptive features with DSM-IV-defined SAD. Aspects of the offensive subtype of TKS, such as fear of offending others and of negative evaluation of particular behaviors and physical symptoms, have been found to also affect Western cases of SAD. Under DSM-IV-TR, these presentations are not included as components of SAD. Either they are not included in the criteria, as in the case of allocentric fear or particular TKS symptoms (e.g., staring at others' body parts), or are considered signs of another disorder, such as BDD (e.g., fear of being judged to have a physical deformity). Revised DSM-V criteria for SAD should consider the inclusion of allocentric fear as an alternative way of expressing fear of negative evaluation. In addition, the fear of offending others by emitting an unpleasant body odor, a characteristic symptom of the offensive subtype of TKS, is the core symptom of Olfactory Reference Syndrome, a new diagnostic category being proposed

for DSM-V. This new category should be included in an Appendix of Criteria Sets Provided for Further Study so that its relationship with SAD and TKS can be clarified.

Excessiveness and impairment criteria: Several studies have noted that social anxiety symptoms are endorsed more frequently on self-report scales in East Asia than in the United States and Europe, with effect sizes ranging from $d = 0.25$ to 1.1 .^[93] This finding contrasts with lower epidemiological rates of SAD in Asian countries. One possible explanation of this discrepancy is that countries, such as Japan or South Korea, with stronger collectivist orientations may consider social anxiety symptoms to be more acceptable. This could lead to higher endorsement on self-report scales and a lower likelihood of meeting the excessiveness and impairment criteria of SAD. Consistent with this explanation, 909 participants from eight countries completed vignettes describing social situations and evaluated the social acceptability of the behavior of the main actor from a cultural viewpoint.^[94] According to reported cultural norms, collectivistic countries are more accepting toward socially reticent and withdrawn behaviors than is the case in individualistic countries. Also in support of this explanation, shy and unsociable individuals in South Korea show better social and emotional adjustment than their counterparts in Australia.^[89]

Other studies suggest that the level of perceived social anxiety may be associated more specifically with a mismatch between the person's own self-construal and his/her culturally defined social role.^[95] Likewise, whereas US-born white men and women typically hold independent and interdependent self-construals, respectively, men with interdependent self-construals and women with independent self-construals show higher levels of social anxiety.^[96] These results suggest that discrepancy between personal orientation and social values may be particularly associated with social anxiety.

What recommendations for DSM-V emerge from the cross-cultural findings? Criteria:

1. Evaluate as well the validity of allocentric fear as an alternative way of expressing the fear of negative evaluation to the fear of embarrassing oneself. The second sentence in Criterion A might read: "The individual fears that he or she will act in a way (or show anxiety symptoms) that will be humiliating or embarrassing, "or that may result in another person feeling offended.""
2. Consider the following change to Criterion C that states that the evaluation of excessiveness should be made in the context of the cultural values associated with a person's social role: "The person recognizes that the fear is excessive or unreasonable "in the social reference group the person identifies with." The text would explain that the "social reference

group” can refer to race/ethnicity, gender identification, social status, and sexual orientation.

3. Include the proposed category of Olfactory Reference Syndrome in a DSM-V appendix to facilitate assessment of its relationship with SAD and TKS.

Text:

1. Include description of the cross-national and cross-racial/ethnic variability in SAD prevalence.
2. Evaluate the cross-cultural distribution of the excessiveness and impairment criteria through secondary data analysis of existing datasets; if appropriate, include the findings in the text.
3. Discuss the link between SAD and BDD, using the connection found in TKS as an example.
4. Reference the Glossary of Cultural Syndromes for more information on TKS.

OBSESSIVE-COMPULSIVE DISORDER

What is the evidence of variation in prevalence rates of obsessive-compulsive disorder across cultural groups? Early prevalence estimates of OCD using DSM-II criteria found substantial cross-cultural homogeneity. Twelve-month community prevalence ranged from 1.1% in South Korea ($SE = 0.2$) and New Zealand ($SE = 0.3$) to 1.8% ($SE = 0.4$) in Puerto Rico; the one exception was Taiwan (0.4%, $SE = 0.07$), but this country had the lowest prevalence rates for all disorders.^[97] Clinical reappraisal of these data, however, suggests that the assessment methodology used in these studies inflated the rates of OCD.^[98] More recent estimates using the CIDI and DSM-IV criteria show greater cross-national variability. No cases were reported in metropolitan China,^[12] and rates of 12-month OCD among adults are 0.1% ($SE = 0.1$) in Nigeria,^[43] 0.5% ($SE = 0.1$) in The Netherlands,^[99] 0.6% in Germany,^[63] 0.6% ($SE = 0.1$) in South Korea,^[45] 0.7% ($SE = 0.1$) in Australia,^[44] 1% ($SE = 0.3$) in the United States,^[60] and 3% in Turkey.^[100] Median prevalence in 16 European countries is 0.7%, with an interquartile range of 0.5–1.1%.^[7]

Racial/ethnic comparisons in the United States initially reported significantly lower rates of DSM-III-defined OCD among African Americans.^[101,102] This finding was not replicated in the NCS-R, however, which found nonsignificantly lower lifetime rates in African Americans (0.5%, $SE = 0.2$) and non-Latino Whites (0.4%, $SE = 0.1$), compared to Latinos (1.2%, $SE = 0.6$).^[50]

Despite this cross-national variability in prevalence, the epidemiology of OCD shows substantial similarity in gender distribution, age of onset, and comorbidity.^[103] In particular, OCD is more common across several cultural settings in male children and adolescents and in female adults; late adolescence is a period of

increased vulnerability, and individuals with OCD often have comorbid mood and anxiety disorders.

What is the cross-cultural validity of existing obsessive-compulsive disorder diagnostic criteria? *Obsessions and compulsions:* In studies using DSM-III criteria, the distribution of these two symptoms varied across national samples. Respondents meeting OCD criteria reported only obsessions in most countries, except for in Taiwan and Germany where equal amounts of obsessions and compulsions were reported, and in South Korea where compulsions were more common than obsessions.^[97] More recent cross-cultural reviews have found that the presence of mixed obsessions and compulsions predominate in clinical samples, whereas in epidemiological studies the obsessive subtype is more common.^[104,105] This has been attributed to greater severity of the illness in clinical samples. An alternate explanation is that clinicians may diagnose repetitive mental acts as compulsions, whereas a lay interviewer may simply record these as obsessions.

Meta-analysis of 21 studies ($N = 5,124$) found a similar symptom structure, with dimensions like contamination obsessions and cleaning compulsions present across the globe.^[106] A four- or five-factor model of symptoms seems to hold true internationally, providing support for distinct clinical subtypes in OCD.^[105,107] However, some clinical studies have found regional variation in subtypes, with aggressive obsessions predominating in Brazil,^[104] for example, and religious/scrupulosity concerns prevailing in Middle Eastern settings.^[108,109] These variations may stem from salient sociocultural characteristics of each setting, such as the rise of urban violence in Brazil.^[104] Thus, cultural factors appear to shape the content rather than the form of obsessions and compulsions, leading to the adoption of cultural themes (e.g., HIV/AIDS and kashrut observances).^[105,110]

Severity and impairment: Data on cross-cultural assessments of OCD severity and impairment are very scarce. A comparison of Costa Rican ($n = 26$) and US ($n = 52$) individuals with early-onset OCD revealed a nationality effect on Yale-Brown Obsessive Compulsive Scale (YBOCS) severity scores. Costa Rican respondents had significantly lower scores on the total YBOCS severity scale and the obsession and compulsions severity subscales; these results remained significant in multivariate analyses.^[111]

What recommendations for DSM-V emerge from the cross-cultural findings? None.

GENERALIZED ANXIETY DISORDER

What is the evidence of variation in prevalence rates of generalized anxiety disorder across cultural groups? Compared to 12-month community-based rates of DSM-IV-defined GAD in the United States, which range from 2.1 ($SE = 0.1$) to 2.9% ($SE = 0.2$),^[112,113] lower 12-month rates are reported in several countries. These are 0.4% ($SE = 0.1$) in

Mexico,^[47] 0.8% ($SE = 0.3$) in metropolitan China,^[12] 1.0% ($SE = 0.3$) in South Korea,^[45] 1.2% (95% CI = 0.6–1.8) in Japan,^[46] and 1.4 ($SE = 0.2$) in South Africa.^[48] In Nigeria, no GAD cases were found over the previous 12 months,^[43] an uncharacteristically low prevalence even for this study, which reported low prevalence for all anxiety disorders. Rates similar to those in the United States are found in Australia (3.6%, $SE = 0.3$)^[114] and in Europe, where the median prevalence in 27 studies is 1.7%, with an interquartile range of 0.8–2.2%.^[7] A 1-month rate of 3.0% (95% CI = 2.1–3.9) was reported from Singapore, but this study used a two-stage assessment approach, including a clinician-administered diagnostic instrument.^[115] In a large community-based study of 17 nations, mean 12-month rates of GAD are twice as high in developed countries (1.7%, $SE = 0.1$) as in developing countries (0.8%, $SE = 0.1$).^[6] Lifetime community prevalence of GAD shows similar cross-national variation.^[6]

Other studies have focused on comparisons of diverse cultural and ethnic groups within one country. In the United States, lifetime risk for DSM-IV-defined GAD is higher for non-Latino Whites than for Asian Americans, African Americans, Caribbean Blacks, and Latinos.^[50,51,113] This confirms similar findings of ethnic variation using DSM-III- and DSM-III-R criteria. The ECA study found that lifetime rates of DSM-III-defined GAD varied by ethnicity and nativity: non-Latino Whites reported twice the prevalence of GAD than US-born Mexican Americans and over four times the prevalence reported by Mexican immigrants (6.9% [$SE = 0.9$] versus 3.4% [$SE = 0.8$] versus 1.6% [$SE = 0.5$], respectively).^[5] Using DSM-III-R criteria, not a single case of GAD was found among 3,012 persons of Mexican descent in a California community study using the CIDI, despite a lifetime prevalence of 16.8% ($SE = 0.1$) for any anxiety disorder.^[116] This was attributed by the authors to participants' inability to understand key instrument items. Research in other countries has also shown substantial interethnic variability. A study of Mapuche Indians in Chile^[49] found significantly lower rates of 12-month DSM-III-R-defined GAD among the Mapuche (0.1%, 95% CI = 0.0–0.3) than in the non-Mapuche local population (1.9%, 95% CI = 0.7–3.1). And in Singapore, the lifetime rate of GAD is significantly higher among the ethnic Chinese than the Malay (3.5% [95% CI = 2.3–4.7] versus 2.2% [95% CI = 1.3–3.2]), after adjusting for demographic characteristics.^[115]

The causes of these cross-racial/ethnic differences in prevalence remain unclear. Non-Western samples (i.e., Asian, African, indigenous) tend to show much lower rates of GAD than individuals of European descent, and this pattern is reproduced in an attenuated form among racial/ethnic minorities in the United States (especially among less acculturated subgroups). One possibility is that application of DSM-IV GAD criteria result in spuriously lower rates in settings of higher

socioeconomic deprivation, possibly because the excessiveness criterion is not endorsed. However, true differences in prevalence and measurement discrepancies cannot be ruled out.^[117] Item-level analysis of the probability of endorsement across cultural groups and clinical reappraisal studies that include ethnographic assessment of local expressions of anxiety are needed to resolve this issue.

What is the cross-cultural validity of existing generalized anxiety disorder diagnostic criteria? *Assessing worry:* Prolonged, excessive worry is the hallmark of GAD in DSM-IV-TR. Although worry is a universal phenomenon, research on the cross-cultural validity of instruments assessing worry is limited and has produced mixed results. Some studies find similar response patterns cross-nationally on translated scales of pathological worry among patients with GAD.^[118,119] Others find cross-racial/ethnic differences in scale endorsement, such as higher worry scores on three psychometrically validated anxiety scales among Mexican youth in Mexico and Hispanic youth in the United States than among Euro-Americans.^[120] Finally, some researchers find equivalent scores across racial/ethnic groups on some scales but not others in the same study; for instance, on the Penn State Worry Questionnaire (PSWQ) versus the Worry Domains Questionnaire (WDQ) among college students.^[121] However, most of this research has been conducted in normal samples and data are lacking on how to translate these findings to GAD populations.

Apprehensive expectation: Halbreich and colleagues^[122] asked psychiatrists from Western and non-Western countries to describe their patients' experience of various types of dysphoria, including apprehensive expectation. Although clinicians from very different countries (i.e., India, Peru, and Morocco) describe similar experiences of worry, there are also differences in the particular expressions they used. These range from expectations of danger (e.g., "something bad is going to happen to me or my family," "expecting the worst"), to frank fear (e.g., "feel myself afraid"), to more embodied/somatic experiences (e.g., "something that does not give me rest"). We found no research studies that systematically evaluated the cross-cultural validity of apprehensive expectation as the hallmark of GAD, and therefore, cannot assess the diagnostic accuracy of this aspect of Criterion A.

Excessiveness criterion: Cross-cultural data on the diagnostic validity of this criterion is limited. GAD cases in the United States defined with or without the excessiveness criterion do not differ in race/ethnicity distribution or other demographic characteristics; both criterial definitions are less likely to be met by Hispanics and African Americans than non-Hispanic Whites.^[123] In the NCS-R, removing the excessiveness criterion increased prevalence of GAD by 40%.^[123] In Hong Kong, a community assessment that obtained prevalence rates without the excessiveness criterion

resulted in a 6-month GAD prevalence of 4.1%,^[124] many times higher and much closer to US rates than the 0.8% 12-month rate found in Beijing and Shanghai using full DSM-IV criteria.^[12] However, the methodological differences across the studies and the indirect nature of the evidence perhaps raise more questions than they answer. In the absence of additional data, no specific changes are proposed to the excessiveness criterion.

Duration requirement: The validity of the 6-month duration criterion for GAD has been questioned, because shortening the required duration has little impact on several characteristics of the disorder, such as functional impairment, comorbidity, clinical course, and heritability.^[6,112] The cross-cultural implications of loosening the 6-month requirement was recently investigated, using representative community data from 7 developing and 10 developed nations ($N = 85,052$).^[6] Findings reveal that varying the duration criterion to 1 month, 3 months, or 12 months has proportionally equivalent effects in onset, course, impairment, comorbidity, and recovery rate across developing and developed countries. Similarly, in the United States, NCS-R data shows no racial/ethnic variation across different disorder durations.^[112] In summary, based on the limited available literature, there are no data to suggest that shortening the duration criterion will have a differential effect across racial/ethnic groups.

Number and content of worry domains: Cross-national research on the number of worry domains endorsed by respondents with GAD compared to those with subthreshold or no GAD is limited, and generally supports the view that cases meeting full criteria report more worry domains.^[124] In terms of the content of worry domains, there is limited evidence of cross-cultural variability. A study of US college students showed significantly lower scores among African Americans than Caucasians or Asian Americans, in several worry content areas of the WDQ other than finances (relationship stability, self-confidence, future aims, and work competence), despite similar levels of pathological worry on the PSWQ.^[121] Asian Americans, by contrast, scored significantly higher than the other groups on the "aimless future" domain, a measure of worry about unfulfilled expectations. The authors suggested that cross-ethnic similarities in PSWQ scores indicate equivalent total level of worry across racial/ethnic groups, but that African Americans focus on content areas not tapped by the WDQ. This study focused on the general college student population, rather than on individuals with GAD, raising questions about its applicability to GAD criteria. Hong Kong respondents with GAD worry about similar domains as Western samples (e.g., finances, family, health).^[124] However, some worry domains are culturally specific, such as the concern of Cambodian refugees with GAD over the spiritual status of deceased relatives.^[40] The racial/ethnic distribution of the number, intensity, and content of worry domains

should be evaluated further in order to provide valid examples in the GAD criteria and text.

Difficult-to-control worry: Criterion B specifies that pathological worry that meets criteria for GAD is "difficult to control." Very limited data is available on the cross-cultural validity of this criterion. One study found low rates of GAD in a Peruvian nonclinical sample as a result of nonendorsement of this criterion when assessed with the Spanish equivalent of the word "uncontrollable."^[125] Respondents' PSWQ responses, however, frequently indicated difficulty controlling worry (e.g., "once I start worrying I cannot stop"), suggesting lack of semantic equivalence in instrument translation, rather than symptom variability, in explaining the observed difference in prevalence.

Associated symptoms: The most robust data for cross-cultural variability in GAD expression involves the types of symptoms associated with the disorder. Several studies have found that individuals from non-Western societies are very likely to endorse somatic symptoms as a key aspect of pathological worry. This research was conducted in cultures as distinct as Nepal, Mexico, the United Arab Emirates, and Hong Kong. GAD patients from urban mental health care facilities in Nepal, for example, scored higher than US GAD patients on the somatic subscale of the Beck Anxiety Inventory (BAI), despite similar overall BAI scores; the more commonly endorsed somatic symptoms are dizziness and indigestion.^[126] In contrast, the US group scores higher on the psychological subscale measuring feeling "scared" and "nervous." In a cross-national comparison, Mexican youths in Mexico reported more anxiety-related somatic symptoms than Euro-American youths.^[120] A study that explored "psychological" versus "somatic" presentations of psychiatric disorders among primary care patients in the United Arab Emirates found that patients who meet criteria for GAD are more likely, on the basis of symptom profiles and attributions, to have predominantly somatic presentations (18.8%) than psychological ones (14.3%).^[127] In a Hong Kong community sample,^[124] respondents who met full GAD criteria were significantly more likely than subthreshold cases (defined as those who did not meet criterion C) to endorse associated somatic symptoms that are not included in the DSM-IV criteria, such as palpitations (52 versus 34%), difficulty breathing (38 versus 22%), and sweating (33 versus 22%). However, full GAD cases are also significantly more likely to report DSM-IV symptoms, such as fatigue (84 versus 74%), irritability (81 versus 65%), difficulty concentrating (83 versus 67%), sleep disturbance (76 versus 51%), and muscle tension (74 versus 55.5%).

Differences in reports of somatic versus psychological symptoms associated with GAD have even been found in the same individuals, depending on the language used to report their symptoms. For example, a convenience sample ($n = 87$) of bilingual US Latinos with GAD completed several anxiety scales, including the BAI and PSWQ, in both the English original and

Spanish translation.^[128] Subjects' Spanish-language responses across all scales combined yielded two factors, characterized as somatic and psychological, which accounted for 59% and 17% of the variance, respectively. By contrast, the English-language responses of the same participants yielded a single factor, accounting for 64% of the variance. Moreover, the PSWQ, a measure of psychological worry, predicted ADIS-IV-defined GAD severity only for the English-speaking assessment, whereas the Beck Anxiety Inventory, which measures primarily physiological symptoms of anxiety, predicted GAD severity for both language cohorts. This contrasts with previous research, which found a lower association between GAD severity and autonomic arousal symptoms in Caucasian patients.^[129] The finding that bilingual Latinos tend to use somatic expressions to describe their GAD symptoms in Spanish and psychological ones to describe the same condition in English suggests that Spanish-monolingual Latinos with GAD may be less likely to be identified, if largely psychological criteria are adopted for the disorder.

The prevalence of somatic symptoms of GAD cross-culturally raises questions about the primacy ascribed in DSM-IV to the psychological components of generalized anxiety. This classification may be less valid for cultures where somatic presentations of generalized anxiety appear to be more common than cognitive psychological ones, or at least more prominent on initial evaluation.^[130] The inclusion of a fuller array of somatic symptoms appears to be particularly important in light of the finding that patients with somatic anxiety display higher levels of distress, disability, and use of medical services compared to patients with primarily psychological manifestations.^[131]

Although the current DSM-IV-TR GAD criteria include several somatic symptoms (i.e., fatigue, muscle tension, sleep disturbance), many that have been reported among GAD sufferers in studies with non-US samples are missing (i.e., palpitations, bowel symptoms, dizziness, indigestion). These hyperarousal symptoms were included in the DSM-III-R GAD criteria and remain in ICD-10, but were removed for DSM-IV, in order to increase the discriminant validity of GAD against nonanxious controls.^[132] However, this may have inadvertently resulted in reduced cross-cultural validity of the criteria.

Impairment: There is very limited cross-cultural data on differential impairment associated with meeting GAD criteria. Among US community respondents with GAD, non-Latino Whites have significantly lower 30-day functional impairment than African Americans.^[51] Respondents with GAD in developing countries endorse less impairment on the Sheehan Disability Scale, despite reporting a similar number of out-of-role days as their counterparts in developed countries.^[6] Unlike the more objective measure of out-of-role days, it is possible there were cross-cultural differences in

interpreting and responding to SDS items; however, true differences in impairment cannot be ruled out.

What recommendations for DSM-V emerge from the cross-cultural findings? Criteria:

1. Expand examples of worry domains included in Criterion A in DSM-IV to be more representative of the true range of these domains, for example, by adding domains related to family, social relationships, finances, health status, and/or aimless future to the current domains of work and school performance. In addition, examine the relevance of particular examples of worry domains for different cultural groups.
2. Expand Criterion C to include other somatic symptoms reported in cross-cultural studies of GAD. These may take the form of a reinstated list of autonomic hyperactivity symptoms (from DSM-III-R) or a new list derived from more recent studies, such as gastrointestinal distress, palpitations, dizziness, difficulty breathing, and sweating.
3. Assess the cross-cultural variability of the impairment associated with GAD in secondary data analyses.

Text:

1. Include description of the cross-national and cross-racial/ethnic variability in GAD prevalence.
2. Clarify the lack of cross-cultural data on the validity of the concepts of "apprehensive expectation," "excessiveness," and "controllability."
3. Describe more fully the variation in GAD associated symptoms, in terms of predominantly somatic and psychological presentations.

CONCLUSION

Perhaps, the most striking aspect of this review is the degree of cross-cultural variability it documents in the prevalence of the anxiety disorders, even when the same diagnostic instrument is applied. Whereas US and European rates generally converge, their position relative to prevalence in other countries is not always high or low. Studies in the United States and Europe show higher 12-month rates of PD, Specific Phobia, and SAD than most other national surveys. In contrast, for AWOPD, OCD, and GAD, US and European rates fall within the international range. With some exceptions, the lowest rates are consistently found in Asia and Africa, and are usually replicated by lower rates of disorder among US populations of Asian and African descent.

The causes for this degree of variability remain unclear. Although measurement limitations are likely involved, these do not necessarily invalidate concerns over lack of validity or precision in DSM-IV-TR criteria, as the two issues are intimately linked.

Throughout the review, we have noted possible mismatches between the DSM criteria and the local phenomenology of the disorder in a specific cultural context. These mismatches may particularly arise in the case of the unexpectedness and 10-minute crescendo criteria in PD, the definition of social anxiety and social reference group in SAD, and the priority given to psychological symptoms of worry in GAD. However, direct data on the non-applicability of the criteria are largely absent. On the basis of these limited findings, we have made recommendations that should be further evaluated and tested. Much additional research is needed. Improvement in our nosological system will benefit from the calibration of existing categories to increase their diagnostic sensitivity cross-culturally, as well as from ongoing critical evaluation of their universal applicability. In particular, as the DSM nosology is increasingly applied to other cultural settings, there should be a careful revisiting of the data that resulted in the current criteria. This should include regular reassessment of discriminant validity and other types of validity, optimized sensitivity and specificity of criteria in identifying disorders, other psychometric properties of instruments derived from the criteria, and triangulation of epidemiological and clinical findings with data from related disciplines, including neurobiological assessments as well as ethnographic and other experience-near methodologies. The hope is for a universalistic DSM that is closely informed by cultural particularities.

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