



Ethnoracial differences in anxiety sensitivity: Examining the validity of competing anxiety sensitivity index subscales

Lora Rose Hunter^a, Meghan E. Keough^b, Kiara R. Timpano^c, Norman B. Schmidt^{a,*}

^a Florida State University, United States

^b University of Washington, United States

^c University of Miami, United States

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ABSTRACT

Despite the increasing number of Americans who are considered to be a part of an ethnoracial minority group, there have been few investigations of the cross-cultural validity of measures of psychopathology. The limited existing literature suggests potential differences between African American (AA) and European American (EA) individuals with respect to the utility of self-report measures, including anxiety sensitivity. Physical, mental, and social domains of anxiety sensitivity are measured using subscales derived from a 3-factor model reported in EA samples despite evidence suggesting that anxiety sensitivity in AA samples is characterized by more distinct physical concerns. The current study compared the concurrent and predictive validity of the traditional anxiety sensitivity subscales representing 3 domains and a 4-subscale formulation based on predictions about the construct in AA samples. Comparisons of both AA ($N = 41$) and EA ($N = 298$) samples are included. Findings suggest some ethnoracial group differences in the concurrent and predictive validity of anxiety sensitivity subscales, specifically supporting the appropriateness and specificity of the 4-factor model of anxiety sensitivity in AA samples. Implications are discussed, including identification of sociocultural mechanisms that might influence psychometric properties of measures of anxiety.

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1. Background

Recent research has highlighted the need to focus on the influence and implications of culture in the context of anxiety phenomenology (Draguns & Tanaka-Matsumi, 2003; Good & Kleinman, 1985; Hunter & Schmidt, 2010; Kirmayer, Nutt, Lecrubier, Lepine, & Davidson, 2001; Teachman & Gordon, 2009). Hunter and Schmidt (2010) identified environmental differences between two ethnoracial groups, African American (AA) and European American (EA), which might influence interpretations of physical symptoms of anxiety. AA individuals as a group have disproportionately high rates of physical illnesses that include symptoms that may be misinterpreted or mimicked by physiological symptoms of anxiety (e.g., cardiovascular disease and cardiopulmonary anxiety symptoms). As a result, Hunter and Schmidt (2010) developed a model suggesting that the interpretation of anxiety and anxiety-related constructs may be differentially impacted by sociocultural factors

in AA and EA samples. This has important implications for certain cognitive risk factors that are associated with the development and maintenance of anxiety psychopathology (see Barlow, 1991; Mineka & Zinbarg, 2006; Olatunji & Wolitzky-Taylor, 2009; Zinbarg, Barlow, & Brown, 1997).

Anxiety sensitivity is considered a trait-like cognitive vulnerability that in part reflects learned beliefs about the effects of physiological symptoms of anxiety (Reiss & McNally, 1985). Described as the tendency to be fearful of physiological symptoms of anxiety, believing these symptoms have negative physical, social, or psychological consequences, anxiety sensitivity has received tremendous attention in recent decades (for a review see Olatunji & Wolitzky-Taylor, 2009; Taylor, 1999). This literature suggests anxiety sensitivity is associated with and predicts fearful responses to anxiety symptoms as well as the development of panic attacks and other anxiety conditions (Schmidt, Lerew, & Jackson, 1999; Schmidt, Zvolensky, & Maner, 2006). In sum, there is a growing literature supporting the utility of this construct and compelling theoretical reasons to examine sociocultural factors that may influence it.

Findings from several studies provide support for the idea that ethnoracial group membership is a marker for systematic differences in the experience of anxiety (Friedman & Paradis, 2002;

* Corresponding author at: Department of Psychology, Florida State University, 1107 W. Call Street, Tallahassee, FL 32306-4301, United States.
Tel.: +1 850 644 1707.

E-mail address: schmidt@psy.fsu.edu (N.B. Schmidt).

Horwath, Johnson, & Hornig, 1994; Smith, Friedman, & Nevid, 1999). Differences in the experience of anxiety may result in reported differences in epidemiology, phenomenology or expression of anxiety. For example, the National Comorbidity Survey Replication suggests that AA individuals with anxiety tend to show a more chronic course (Breslau et al., 2006; Breslau, Kendler, Su, Gaxiola-Aguilar, & Kessler, 2005). Also, AA individuals show a lower lifetime prevalence of certain conditions such as panic disorder and generalized anxiety disorder (Breslau et al., 2006). When anxiety problems emerge, they may be expressed differentially. In the case of panic disorder, AA individuals endorsed higher lifetime incidence of the intensity and rates of certain panic symptoms such as hot and cold flashes, tingling in the extremities, and fears of dying (Friedman & Paradis, 2002; Horwath, Johnson, & Hornig, 1994; Smith, Friedman, & Nevid, 1999).

As noted above, anxiety sensitivity appears to be related to risk for anxiety generally and may be especially elevated in certain conditions such as panic disorder and PTSD (Olatunji & Wolitzky-Taylor, 2009). A few investigations have compared AA and EA samples in the context of anxiety sensitivity (Carter, Miller, Sbrocco, Suchday, & Lewis, 1999; Lambert, Cooley, Campbell, Benoit, & Stansbury, 2004). The Anxiety Sensitivity Index (ASI; Reiss, Peterson, Gursky, & McNally, 1986), a 16-item self-report measure is widely used to assess this construct. A 3-factor model of anxiety sensitivity has been reported (Zinbarg et al., 1997). As a result, subscale scores can be derived representing concerns about negative physical, mental, and social implications of anxiety symptoms (Zinbarg et al., 1997). This conceptualization of anxiety sensitivity is widely accepted in the literature (see Bernstein et al., 2007).

Questions have been raised about whether ASI subscales are similarly appropriate when used in AA and EA samples. Investigations of the factor structure of anxiety sensitivity yield indirect evidence to suggest ASI subscales lack validity in AA samples (Carter et al., 1999; Lambert et al., 2004). For example, factor analysis of the ASI from a sample of AA college students indicated a 4-factor solution provided the best fit to the data, rather than the traditional 3-factor solution (Carter et al., 1999). The most comparable factor to the standard solution was a replication of the mental concerns factor. The social concerns factor was replaced with an emotional control factor emphasizing fears about staying in control of one's emotions and the physical concerns factor was broken into two facets describing fear of unsteadiness and fear of cardiovascular problems (Carter et al., 1999). Similar differences in factor structure have also been reported from a sample of AA children (Lambert et al., 2004). Plausible explanations have been put forth, including that the nature of anxiety sensitivity-related concerns differs in AA individuals as a result of environmental influences. AA individuals may focus on fears of incapacitation or losing mental and physical functioning, rather than social evaluation (Carter et al., 1999; Lambert et al., 2004). In addition, the specificity of physical concerns may reflect disproportionately high rates of physical illnesses, like diabetes and cardiovascular diseases, in AA communities (Carter et al., 1999; Gordon & Teachman, 2008).

It is unclear whether structurally disparate models of anxiety sensitivity reflect subscale scores that differentially predict important anxiety-related outcomes. To expand knowledge in this area, the current investigation tests cross-sectional and longitudinal relationships between ASI subscales derived from the traditional 3 factor model (Zinbarg et al., 1997) as compared to four subscales empirically derived from AA samples (Carter et al., 1999). We predicted that four novel subscales would provide superior validity for our AA sample whereas the traditional subscales would generally offer better validity for the EA sample.

2. Method

2.1. Participants

Archival data from a previous study were used in the current examination (Schmidt, Maner, & Zvolensky, 2007). Data regarding ethnic differences have not been reported in prior publications from this study. In this study, participants were recruited from Ohio State University, and the greater Columbus, OH community ($N = 346$; see Schmidt, Eggleston, et al., 2007 for a detailed description of methodology). At baseline, the sample was relatively young ($M = 19.4$, $SD = 3.8$) and primarily female (63%). Approximately 10% ($n = 41$) of the sample was AA, with the majority (approximately 73%) being EA ($n = 298$). A subset of participants ($n = 178$) completed self-report measures at baseline and follow-up (~12 months later). At follow-up, the sample included 154 EA and 24 AA participants. There were no significant differences in age or sex across the EA and AA groups.

2.2. Measures

The *Anxiety Sensitivity Index* (ASI; Reiss, Peterson, Gursky, & McNally, 1986) is a 16-item questionnaire that measures fears of anxiety related symptoms. For each item, participants rate how much the item is consistent with their usual way of thinking from 0 (*very little*) to 4 (*very much*). The structure of the ASI is hierarchical (Zinbarg et al., 1997). Three subscales have been derived using items specified by Zinbarg et al. (1997): physical concerns (Items 3, 4, 6, 8, 9, 10, 11, & 14), mental concerns (Items 2, 12, 15, & 16), and social concerns (Items 1, 5, & 13). The four subscale approach was derived by Carter et al. (1999) including: emotional control (Items 1 & 5), mental incapacitation (Items 2, 12, 14, & 15, 16), unsteadiness (Items 4, 8, & 9), and cardiovascular concerns (Items 6, 9, 10, & 11). Note that the 3-factor solution utilizes all of the original ASI items whereas the 4-factor solution omits two items. The scale showed good internal consistency in the overall sample ($\alpha = .87$). Additional psychometrics are provided in the results section.

Several self-report measures were used at baseline and follow-up to evaluate the relationship between anxiety sensitivity and several other domains of anxiety.

The trait subscale of the *State-Trait Anxiety Inventory* (STAI; Spielberger, Gorsuch, Luschene, Vagg, & Jacobs, 1983) was used to assess trait anxiety. The STAI is also widely used with good reliability and validity in clinical and college samples (Knight, Waal-Manning, & Spears, 1983). Analyses of the psychometric properties of the STAI in AA samples have not been reported. In the present report, internal consistency was good for both groups (EA $\alpha = .87$; AA $\alpha = .83$).

The *Social Interaction Anxiety Scale* (SIAS; Mattick & Clarke, 1998) was used to measure social concerns. The scale demonstrates high levels of internal consistency across clinical, community, and student samples (Heimberg, Mueller, Holt, Hope, & Liebowitz, 1992; Osman, Gutierrez, Barrios, Kopper, & Chiro, 1998). Although, the results of differential item analyses indicated that individual SIAS items may be less likely to accurately discriminate between levels of social anxiety in AA individuals (Hambrick et al., 2010). In the present report, internal consistency was good for both groups (EA $\alpha = .83$; AA $\alpha = .85$).

The *Penn State Worry Questionnaire* (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990) was used to measure trait worry. The PSWQ has reported good reliability and validity in college and clinical samples (Brown, Antony, & Barlow, 1992), including internal consistency in AA samples (Carter et al., 2005; Scott, Eng, & Heimberg, 2002). In the present report, internal consistency was good for both groups (EA $\alpha = .79$; AA $\alpha = .82$).

The *Beck Depression Inventory-II* (BDI; Beck, Steer, & Brown, 1996) was used to assess depression symptoms. It has well

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