

Anxiety sensitivity profile: Predictive and incremental validity[☆]

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Received 4 September 2007; received in revised form 11 December 2007; accepted 14 December 2007

Abstract

Anxiety sensitivity (AS) is a well-researched risk factor for the development of anxiety psychopathology. AS is typically measured using the anxiety sensitivity index (ASI) but limitations have led to the creation of second generation measures of AS including the anxiety sensitivity profile (ASP). The ASP has not been used very extensively, however, and we believe this may be due to two important issues: (1) the ASP is lengthy, and (2) the predictive validity of the ASP is unexplored in relation to critical outcomes such as anxiety psychopathology. The purpose of the present report was to address these two issues. We evaluated whether an abbreviated form of the ASP was viable and also conducted tests of the scale's predictive validity. Findings suggest that a 22-item version of the ASP (i.e., ASP-22) is comparable to the original 60-item ASP. Moreover, the ASP-22 was predictive of anxious responding to a CO₂ challenge. In fact, the ASP-22 outperformed the ASI as a predictor of CO₂ reactivity. Also, the ASP-22 was a significant longitudinal predictor of incidence of Axis I diagnoses. In regard to predictive validity, the ASP-22 was comparable to the original ASP. In summary, the ASP-22 appears to represent a viable measure of AS that may complement the ASI.

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Keywords: Anxiety; Panic; Validity; Prospective; Carbon-dioxide; Anxiety sensitivity; Anxiety diagnoses; Panic attacks; Longitudinal; Assessment

1. Anxiety sensitivity

Expectancy theory (Reiss, 1991) posits that anxiety-sensitivity (AS) could be a critical factor in the development and maintenance of anxiety conditions (McNally, 1990). AS was initially conceptualized as a trait-like cognitive characteristic that predisposes individuals to the development of anxiety problems (Taylor, 1999). Those possessing relatively high levels of AS are theorized to perceive bodily sensations

associated with autonomic arousal as a sign of imminent personal harm and, as a result, to potentially react to them with anxiety, panic attacks and/or the development of an anxiety disorder. Individual differences in AS are hypothesized to emerge from the combined influences of genetic variation along with any number of experiences that ultimately lead to the acquisition of beliefs about the potentially aversive consequences of arousal and anxiety-related states (Reiss & Havercamp, 1998). Research conducted across diverse populations has supported the AS model, providing strong evidence of cross-cultural and developmental specificity in terms of the latent structure and stability of the construct (Chorpita & Daleiden, 2000; Muris, Schmidt, Merckelbach, & Schouten, 2001; Zinbarg, Brown, Barlow, & Rapee, 2001; Zvolensky, Feldner, Eifert, & Stewart, 2001; Zvolensky, Kotov, Antipova, Leen-Feldner, & Schmidt, 2005). AS is also unique from, and

[☆] This project was partially supported National Institute Mental Health grants (RO1 MH064734-04a1; P50 HD052120; R21 MH62056).

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demonstrates incremental validity to, trait anxiety (Rapee & Medoro, 1994) as well as negative affectivity (Zvolensky, Kotov, Antipova, & Schmidt, 2005b).

Unlike many other cognitive conceptualizations of anxiety, AS is believed to be a dispositional characteristic that may precede the development of clinical anxiety symptoms or diagnoses. Empirical studies provide converging evidence that AS does indeed act as a risk factor for anxiety problems. First, laboratory studies indicate that baseline AS predicts fear responses to bodily sensations (Rabian, Embry, & MacIntyre, 1999; Unnewehr, Schneider, Margraf, & Jenkins, 1996; Zvolensky, McNeil, Porter, & Stewart, 2001b). Second, AS levels are elevated among individuals with anxiety disorders compared to those without anxiety disorder (Kearney, Albano, Eisen, Allan, & Barlow, 1997; Rabian, Peterson, Richters, & Jensen, 1993; Taylor, Koch, & McNally, 1992). Perhaps more convincingly, prospective studies with healthy adults (Schmidt, Lerew, & Jackson, 1997; Schmidt, Lerew, & Jackson, 1999) and adolescents (Hayward, Killen, Kraemer, & Taylor, 2000) indicate that AS predicts the future occurrence of anxiety symptoms and panic attacks. Finally, recent work has shown that AS increases risk for anxiety disorder diagnoses (Schmidt, Zvolensky, & Maner, 2006).

Although AS is one of the best-studied and most promising psychological risk factors for anxiety disorders, measurement instruments germane to AS are still relatively limited. The vast majority of this work in this area has utilized the anxiety sensitivity index (ASI), which is a 16-item self-report measure of AS. Although AS was originally conceptualized as a unitary construct (Reiss & McNally, 1985), later studies have suggested that AS may be multidimensional and hierarchical in nature (Zinbarg, Barlow, & Brown, 1997) with the first order factors typically representing fear of physical concerns, mental catastrophe, and publicly observable symptoms. However, there have been a number of concerns raised about the ASI including the fact that this measure was not designed to measure multiple factors, the extent to which the ASI has sufficient items to assess various AS domains, and the limited number of domains that the scale assesses (Taylor & Cox, 1998a). Consider also that the ASI, while often predictive of important outcomes, accounts for only a limited amount of variance in such outcomes like incidence of panic attacks or fearful responding to biological challenge (Schmidt et al., 1999, 2000).

As a result of these concerns, several expanded measures of the AS construct have been developed. Taylor and Cox created two measures in an attempt to

deal with some of these limitations. Their first expanded assessment of AS was a 36-item index called the anxiety sensitivity index-revised (ASI-R). However, due to some psychometric and conceptual problems with the ASI-R (Deacon, Abramowitz, Woods, & Tolin, 2003; Taylor & Cox, 1998a), Taylor and Cox later created the 60-item anxiety sensitivity profile (ASP). The ASP was designed to assess six features of AS including fears of publicly observable anxiety reactions, cardiovascular, respiratory, dissociative/neurological, and cognitive dyscontrol symptoms. Factor analyses, however, by both Taylor and Cox (1998b) and Olatunji et al. (2005), as well as Ayvasik and Tutarel-Kislak (2004) in a Turkish sample, indicate that the ASP may possess only four primary-order factors including fears of: (1) respiratory; (2) cognitive dyscontrol; (3) gastrointestinal (GI); and (4) cardiac symptoms.

Despite the appeal of an expanded measure of AS, there have been very few studies of the ASP. Apart from the reports noted above, we are aware of one other factor analytic focused on the ASP. Van der Does, Duijsens, Eurelings-Bontekoe, Vershuur, and Spinhoven (2003) used exploratory and confirmatory factor analyses in both psychiatric and nonclinical samples to examine the latent structural properties of the measure. EFA findings from this study suggested that the ASP could be viewed unidimensionally. CFA showed some support for the intended six-factor solution though it appears that they did not compare the six-factor model with the four-factor model. Other reports suggest that the ASP is associated with pain (Keogh, Barlow, Mounce, & Bond, 2006) and depression symptoms (Cox, Taylor, & Enns, 1999). Also, Alvarenga, Richards, Lambert, and Esler (2006) reported that the ASP was elevated in patients with panic disorder and reductions in ASP were found following treatment for panic disorder (Klein, Richards, & Austin, 2006).

Given the limitations of the original ASI along with the apparent advantages of a more fine-grained measure of AS, an important issue is attempting to account for the paucity of studies that have adopted the ASP. One consideration is that in the quest to expand our assessment of AS, we have created measures that may be too lengthy to be easily incorporated in most studies. Van der Does et al. (2003) address this issue to some extent and in fact conducted some analyses suggesting that the 60-item ASP could be reduced to 24 items without a loss in reliability (i.e., scale reduction was based on retaining the four items loading highest on the six factors). Perhaps another reason for poor utilization of the ASP is likely related to the limited data related to validity, particularly predictive validity of this

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