Relationships between the anxiety sensitivity index, the suffocation fear scale, and responses to CO₂ inhalation

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Abstract

Interest in documenting ways to predict anxious responding in panic disorder (PD) patients has proliferated recently in the literature. In the current study, two self-report measures were assessed to determine their relative utility in predicting responses to a panicogenic challenge. The Anxiety Sensitivity Index (ASI) and the Suffocation Fear Scale (SFS) were evaluated by correlating scores on these measures with reactions to inhalation of 35% carbon dioxide (CO₂), assessed via anxiety ratings, panic symptom intensity, tidal volume (V₉) and respiratory rate (RR). A sample of 14 PD patients and 14 matched control (MC) participants demonstrated that the relationship between ASI scores and responses to 35% CO₂ were stronger than the relationship between SFS scores and responses to CO₂. Specifically, both respiratory responses (V₉ and RR) and self-reported reactions (anxiety and symptom intensity) were significantly correlated with scores on the ASI. In contrast, scores on the SFS were significantly correlated with only one measure of respiratory change (V₉). Although preliminary, these data indicate that the ASI may be a more useful tool than the SFS in predicting self-reported and respiratory responses to CO₂ challenges. © 2001 Elsevier Science Inc. All rights reserved.

Keywords: Anxiety sensitivity index; Panic disorder; Suffocation fear scale; Respiratory challenge

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1. Introduction

There has been a growing interest in documenting the psychopathological features involved in the maintenance of panic disorder (PD). As a result, several questionnaires have been developed, including the Anxiety Sensitivity Index (ASI; Reiss, Peterson, Gursky, & McNally, 1986) and more recently, the Suffocation Fear Scale (SFS; Taylor & Rachman, 1994). There has been a substantial amount of research conducted on self-report measures in order to determine their utility in understanding PD. In particular, studies utilizing the ASI have demonstrated that anxious responding to panicogenic challenges can be predicted by high scores on this measure (e.g., Rapee, Brown, Antony, & Barlow, 1992; for a review see McNally, 1994, pp. 115–119). Moreover, individuals with high ASI scores report more intense panic symptoms following voluntary hyperventilation when compared with low ASI participants (Asmundson, Norton, Wilson, & Sandler, 1994; Holloway & McNally, 1987). These findings are particularly salient due to the fact that subjective responses to hyperventilation occurred in the absence of corroborative heart rate increases (e.g., Asmundson et al., 1994). Thus, the ASI is commonly used in examinations of PD as a self-reported index of “fears of anxiety symptoms that are based on beliefs that these symptoms have harmful consequences” (McNally, 1994, p. 116) or anxiety sensitivity.

There also is a growing body of evidence detailing the psychometric properties of the ASI. Factor analytic studies have suggested that it is possible to utilize the ASI as a measure of a unitary construct (e.g., Taylor, Koch, & McNally, 1992) or as a measure with sub-scales (e.g., Cox, Parker, & Swinson, 1996). The overwhelming conclusion from these studies is that the ASI has an important contribution to make to the literature on PD. However, this contribution is not without debate (Lilienfeld, Turner, & Jacob, 1998; McNally, 1997; Reiss, 1997; Taylor, 1996). For example, concern has been expressed in the literature regarding trait anxiety and its relationship to anxiety sensitivity as measured by the ASI (Lilienfeld, Jacob, & Turner, 1989). In response to this debate, hierarchical theories have emerged to explain both the shared variance and the unique contribution of anxiety sensitivity in anxious responding (Lilienfeld, Turner, & Jacob, 1993; Zinbarg & Barlow, 1996; Zinbarg, Barlow, & Brown, 1997).

A more recently developed self-report measure, the SFS, was created to assess anxiety related to suffocation, which has been shown to be a central component of claustrophobic reactions (Booth & Rachman, 1992; Shafran, Booth, & Rachman, 1993). The underlying rationale for the measure is that claustrophobic reactions can be accounted for by fears of suffocation and restriction. In the development of the SFS, 36 rationally derived items were subjected to factor analysis, revealing a two-factor solution that accounted for 36% of the variance (Rachman & Taylor, 1993). However, these two factors, labeled suffocation and restriction were moderately correlated ($r = .56$). Hence, a 16-item version of the measure was developed from questions which loaded highly on the suffocation factor and named the Suffocation Fear Scale (S. Taylor, personal communication,
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