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Fearful responding to interoceptive exposure in social anxiety disorder

Kelsey C. Collimore*, Gordon J.G. Asmundson

Department of Psychology and the Anxiety and Illness Behaviours Laboratory, University of Regina, 3737 Wascana Parkway, Regina, Saskatchewan, Canada S4S 0A2

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ABSTRACT

There is accumulating evidence suggesting that anxiety sensitivity (AS) may play a role in social anxiety disorder (SAD; e.g., Ball, Otto, Pollack, Uccello, & Rosenbaum, 1995). Precedent research has demonstrated the role of AS in panic disorder and posttraumatic stress disorder, and subsequently, treatment techniques aimed at reducing AS (i.e., interoceptive exposure (IE)) have been studied in these populations (Schmidt & Trakowski, 2004; Wald & Taylor, 2008). The purpose of this study was to examine the types of responses elicited during IE exercises among individuals with SAD. This study describes the responses of individuals with SAD ($n = 37$) and nonclinical control participants ($n = 28$) to six IE exercises. Significant differences in responses to the IE exercises were found between participants with SAD and nonclinical controls. However, there were no significant differences in responses to the exercises among persons with SAD, depending on whether the exercises were completed in private versus group settings. Similarity to symptoms during naturally occurring anxiety significantly predicted fearful responding across all exercises in persons with SAD. Implications and directions for future research are discussed.

1. Introduction

Anxiety sensitivity (AS) – the fear of anxiety-related sensations based on the belief that they have harmful physical, social, or psychological consequences (Reiss & McNally, 1985) – is frequently elevated and associated with several of the anxiety disorders (Naragon-Gainey, 2010; Olatunji & Wolitzky-Taylor, 2009; Taylor, Koch, & McNally, 1992). People with an anxiety disorder and elevated AS may experience greater levels of anxiety because AS is an anxiety amplifier (Reiss, 1991; Taylor, 1999). Specifically, when people with high AS become anxious, they become anxious about a feared stimulus and their own anxiety response, which further exacerbates the anxiety reaction.

The relationship between AS and Social Anxiety Disorder (SAD) is often overlooked in clinical practice, despite emerging evidence that AS plays an important role in SAD. While the critical role of AS in panic disorder (PD) has been well documented (Olatunji & Wolitzky-Taylor, 2009; Taylor, 1999), there is a growing body of research demonstrating the relationship between AS, social anxiety, and SAD. Several investigations have now shown that individuals with SAD have heightened levels of AS (e.g., Anderson & Hope, 2009; Ball, Otto, Pollack, Uccello, & Rosenbaum, 1995; Harvey, Richards, Dziadosz, & Swindell, 1993; Taylor et al., 2007; Wheaton, Deacon, McGrath, Berman, & Abramowitz, 2012) and that AS is significantly associated with SAD symptoms (Cox, Taylor, Borger, Fuentes, & Ross, 1996; McLaughlin, Stewart, & Taylor, 2007; Norton, Cox, Hewitt, & McLeod, 1997). It has also been found that one dimension of AS in particular, the fear of anxiety sensations due to their feared social consequences, is elevated in persons with SAD (Deacon & Abramowitz, 2006; Rector, Szacun-Shimizu, & Leybman, 2007; Taylor et al., 2007; Wheaton et al., 2012) and consistently a significant predictor of SAD symptoms (Carleton, Collimore, & Asmundson, 2010; Deacon & Abramowitz, 2006; Rector et al., 2007).

The importance of AS and the AS social concerns dimension in SAD is further evident in cognitive-behavioural models of SAD (Clark & Wells, 1995; Hofmann, 2007; Rapee & Heimberg, 1997). Each of these theoretical models emphasizes the central role of attentional processes and suggest that heightened self-focused attention exacerbates cognitive and somatic (interoceptive) symptoms of social anxiety. According to these models, when individuals with SAD enter into a feared social situation their anxiety response is activated, including cognitive, physiological, and behavioural changes and this response becomes a further source of perceived threat (Clark & Wells, 1995; Hofmann, 2007; Rapee & Heimberg, 1997). In other words, individuals with SAD may become fearful of

* Corresponding author at: Mood Disorders Program, Royal Ottawa Mental Health Centre, 1145 Carling Avenue, Ottawa, Ontario, Canada K1Z 7K4.
Tel.: +1 613 722 6521x6623; fax: +1 613 761 3602.
E-mail address: kelsey.collimore@theroyal.ca (K.C. Collimore).

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their physical sensations of anxiety because of their feared social consequences (i.e., have heightened AS social concerns), further exacerbating their anxiety response.

Altogether, there is both empirical and theoretical support for the role of AS in SAD, suggesting that it may be useful to target AS in the treatment of SAD. Several authors have speculated that interoceptive exposure (IE) – a therapeutic method aimed to reduce AS–may be useful in the treatment of SAD (Antony & Swinson, 2000; Hofmann, 2007). A promising treatment protocol might include specific IE exercises; however, prior to including IE as an adjunct technique into existing CBT protocols, it necessary to first investigate the effects of particular IE exercises in this clinical population. Similar studies have been conducted in PD and posttraumatic stress disorder (PTSD) populations (Antony, Ledley, Liss, & Swinson, 2006; Schmidt & Trakowski, 2004; Wald & Taylor, 2008). Accordingly, the primary purpose of this study was to examine the anxiety responses elicited during a series of IE exercises, the severity of these responses, and investigate which exercises evoked symptoms similar to naturally occurring anxiety responses in individuals with SAD. Second, we examined differential responding to the exercises when conducted in a private versus a group setting. Doing so aimed to improve our understanding of the relationship between the AS social concerns dimension and SAD. Third, a nonclinical control (NC) group was included in the present study to explore differential responding to exercises by individuals with and without SAD. Fourth and finally, in line with precedent research (e.g., Antony et al., 2006b), we examined whether fear responding to the IE exercises in person with SAD varied according to AS dimension scores and similarity to naturally occurring anxiety symptoms.

We tested three related hypotheses. We hypothesized that (a) the IE exercises would elicit higher levels of anxiety responses and greater intensity of physical sensations in participants with SAD when the exercises occurred in a group rather than private setting, (b) relative to NC participants, participants with SAD would report higher levels of anxiety and greater intensity of physical sensations in response to the IE exercises, and (c) given significant associations between the AS social concerns dimension and SAD symptoms (e.g., Carleton et al., 2010; Deacon & Abramowitz, 2006; Rector et al., 2007), we predicted that the AS social concerns dimension would be significantly associated with fear responding on the IE exercises in participants with SAD.

2. Method

2.1. Participants

Ethical approval for this study was received from the University Research Ethics Board. Participants were recruited from the Regina, Saskatchewan area through media appeals, advertisements, and the Psychology Participant Pool. Inclusion criteria included (a) age between 18 and 55 years, (b) proficiency in English, and (c) SAD participants required a principal diagnosis of SAD according to the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV-TR; American Psychiatric Association, 2000). Exclusion criteria included (a) self-reported mental retardation or psychiatric disorder due to a general medical condition, (b) self-reported substance abuse/dependence in the past six months, (c) current psychosis, and (d) current suicidal ideation serious enough to warrant immediate intervention. Recruitment of participants was age and sex matched. For participants in the SAD group, we attempted to recruit a NC participant who was the same sex and who had the same (or closely similar) age.

Individuals interested in participating in the study were initially assessed for inclusion and exclusion criteria through a telephone prescreening interview. This pre-screening included the Modified M.I.N.I Screen (Sheehan et al., 1998), the Social Interaction Phobia Scale (Carleton et al., 2009), and a screen for medical illness that would preclude participation in the IE exercises. A total of 155 screens were completed. Of these screens, 77 individuals were ineligible based on exclusion criteria. Forty-nine prospective clinical participants completed the screen and were eligible. Of these participants, seven either cancelled or did not show up for the study. Five participants were found to be ineligible following the semi-structured interviewing because they did not have a principal diagnosis of SAD. Thirty-four prospective NC participants completed the screen and were eligible. Of these participants, three individuals did not show up for the study. Three individuals were found to be ineligible because of a history of anxiety or depression and psychiatric medication use. All participants provided their informed consent and received either course credit or a small honorarium ($20.00 CDN) upon completion of the study.

The final sample included 37 individuals with a principal diagnosis of SAD (59.5% women, M_{age} = 31.57, SD_{age} = 12.89, range = 18–55) and 28 individuals with no history of psychiatric disorder, constituting a NC group (57.1% women, M_{age} = 28.18, SD_{age} = 11.25, range = 18–53). The SAD and NC groups did not differ significantly in age or sex. Most participants reported having completed at least some postsecondary education (53.8%), 24.6% graduated from a two or four-year college/university programme, and 10.8% graduated from high school. Participants identified their ethnicity as Caucasian (86.2%), First Nations (3.1%), African-American (3.1%), South Asian (3.1%), or other ethnicity (4.6%).

Of the 37 SAD participants, 32 met criteria for SAD, generalized subtype. In terms of co-occurrence (current), 24.3% of the SAD participants had a mood disorder (i.e., four had major depressive disorder, five had dysthymic disorder) and 19% had an additional anxiety disorder (i.e., two had specific phobia, two had obsessive-compulsive disorder, and four had generalized anxiety disorder). Participants with SAD were allowed to be on medication. Most participants (77.1%) were not taking any medication, 17.1% were taking antidepressants, 2.9% were taking antipsychotics, and 2.9% were taking anxiolytics and sedatives. Three (8.1%) of the SAD participants were taking multiple (i.e., two) medications.

2.2. Measures

2.2.1. Intake interviews

Structured Clinical Interview for the DSM-IV (SCID-IV; First, Spitzer, Gibbon, & Williams, 1996). Participants in the SAD group were administered the SCID-IV to establish the presence of clinical diagnoses. The SCID-IV is a semi-structured interview that is used to assess Axis I disorders. All interviews were conducted by the first author (KCC) under the supervision of a registered doctoral clinical psychologist (GJGA). The interviewer underwent extensive training and supervision in conducting this interview. Earlier versions of the SCID-IV have demonstrated adequate inter-rater reliability for all disorders (overall reliabilities ranging from .69 to 1.0; Zanarini & Frankenburg, 2001).

Modified M.I.N.I. Screen (MMS; Sheehan et al., 1998). Prospective participants were screened for DSM-IV conditions using a telephone interview based on the MMS (Sheehan et al., 1998). The screen contains 22 items and the questions are based on criteria from the DSM-IV, SCID-IV (First et al., 1996), and the Mini International Neuropsychiatric Interview (M.I.N.I.; Sheehan et al., 1998). The M.I.N.I. is widely used and has been validated with the SCID-IV (Sheehan et al., 1997) and the Composite International Diagnostic Interview for ICD-10 (CIDI; Lecrubier et al., 1997).

2.2.2. Self-report measures

Participants completed the following measures and a demographics form, which were administered in an online format.