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Research paper

The structure and intensity of self-reported autonomic arousal symptoms across anxiety disorders and obsessive-compulsive disorder

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ABSTRACT

Background: Heightened autonomic arousal symptoms (AAS) are assumed to be a central feature of anxiety disorders. However, it is unclear whether the magnitude and profile of AAS vary across anxiety disorders and whether heightened AAS characterises obsessive-compulsive disorder (OCD).
Aims: We sought to determine whether the intensity and structure of AAS varied across anxiety disorders and OCD.
Method: A sample of 459 individuals with a primary anxiety disorder or OCD were administered the Symptom Checklist-90R. Nine items referring to prototypic AAS were included in a latent class analysis.
Results: A 2-class solution (high and low AAS classes) best fitted the data. Participants comprising the high AAS class scored uniformly high across all assessed AAS symptoms. Older age and the presence of panic disorder, social anxiety disorder and generalized anxiety disorder predicted membership in the high AAS class. No OCD symptom dimension was significantly associated with membership in the high AAS class.
Limitation: AAS were assessed using a self-report measure and replication is needed using other methodologies.
Conclusions: These findings suggest that OCD may be sufficiently distinct from anxiety disorders and do not support subtyping of anxiety disorders on the basis of the predominant type of AAS. Therapeutic approaches that target AAS might best be applied in the treatment of panic disorder, social anxiety disorder and generalized anxiety disorder.

1. Introduction

There is an increasing appreciation of the diversity of anxiety disorders. Anxiety disorders not only vary in terms of the feared object or situation, but also in the patterns of prototypic responses to perceived threats (e.g., avoidance). Autonomic arousal (AA) is assumed to be one of the few unifying features of anxiety disorders, as proposed by models that delineate anxiety disorders from depression (e.g., the Tripartite model; Clark and Watson, 1991) and consistent with the assumption that fear characterises all anxiety disorders (American Psychiatric Association, 2013). However, it remains unclear whether there is variation in either the structure or severity of AAS between individuals with various anxiety disorders.

So far as the structure of autonomic nervous system symptoms is concerned, there may be variation in symptom profiles between different groups of individuals with anxiety disorders. This would be evident if certain AAS were more prominent in some groups of individuals than others such that these symptoms might be grouped in meaningful ways that correspond to particular groups of individuals with anxiety disorders. For instance, a respiratory subtype was identified in individuals with panic disorder (Briggs et al., 1993; Roberson-Nay et al., 2012). This subtype comprises symptoms of dyspnoea, chest pain, feelings of choking and paraesthesia, in contrast to a non-respiratory cluster of symptoms including tachycardia, sweating and trembling. However, beyond respiratory-challenge and biological studies that have supported such a distinction, the evidence otherwise remains inconclusive (Freire et al., 2010) and the degree to which a subtype of

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respiratory-prominent AAS extends to other (non-panic) anxiety disorders is unclear. In social anxiety disorder, there is preliminary evidence that individuals who report prominent blushing may also be characterised by elevated heart rates (and palpitations) during exposure to social stressors (Gerlach et al., 2001) and that they are distinguishable from others with social anxiety disorder. Again, it is unclear to what extent such a cluster of symptoms extends beyond social anxiety disorder. Improving our understanding of the ways in which AAS cluster may provide insights for targeted treatment approaches (e.g., the use of controlled breathing strategies for individuals with prominent respiratory symptoms).

Individuals with anxiety disorders may also differ in the overall severity of their autonomic symptoms, regardless of how individual symptoms cluster together. In this respect, there may be between-disorder differences in the magnitude of all AAS, regardless of their type. Attempts have been made to distinguish "fear-circuitry" disorders, such as panic disorder, social anxiety disorder and specific phobias, from "anxious-misery" disorders, including generalized anxiety disorder (GAD) and depression (Andrews et al., 2009) – with posttraumatic stress disorder (PTSD) potentially having features of each (Forbes et al., 2011). A similar dichotomy between fear-related and distress disorders has been proposed by Watson (2005). A key difference between these groups of disorders is thought to be the magnitude of AAS, with the fear-circuitry disorders characterised by greater levels of autonomic arousal.

There is some support for the notion that disorders may be distinguishable by overall levels of autonomic arousal. Brown and McNiff (2009) investigated autonomic arousal in 293 outpatients attending an anxiety disorders centre. Self-reported AAS were associated with panic disorder and PTSD, but not with GAD, obsessive-compulsive disorder (OCD) or social anxiety disorder. These findings were thus broadly consistent with the notion that fear-circuitry disorders might be characterised by more prominent AAS, social anxiety disorder notwithstanding.

The recent release of the Fifth Revision of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013) signalled a shifting conceptualisation such that PTSD and OCD are now considered to be key members of the trauma- and stressor-related disorders and obsessive-compulsive and related disorders, respectively. The DSM-5 criteria for PTSD explicitly acknowledge a broad range of emotions (including horror, anger, guilt and shame), besides fear. While AAS are not a part of the official diagnostic criteria for PTSD, a cluster of symptoms labelled "marked alterations in arousal" remains essential for the DSM-5 diagnosis of PTSD. With regards to OCD, the nature and severity of AAS associated with this condition remains less well researched and less clear. On the one hand, some studies suggest high levels of fear (and by extension, high levels of AA; Prenoveau et al., 2010) in OCD. However, other studies have suggested relatively low levels of AA (Pruneti et al., 2010) in OCD, and levels of AAS may be determined in part by the predominant OCD symptom subtype. For instance, individuals with OCD and "not just right" feelings and associated compulsions may report guilt and emotional states that are unrelated to AAS (Mancini et al., 2008).

A recent study found that all OCD symptom dimensions were related to fear (Raines et al., 2015). Contamination obsessions and washing compulsions were exclusively related to fear, whereas other OCD symptom dimensions were additionally related to distress. However, the authors of this study relied on the Panic Disorder Severity Scale (PDSS; Shear et al., 1997) for the measurement of fear symptoms and the Penn State Worry Questionnaire (PSWQ; Meyer et al., 1990) for the measurement of distress symptoms. The PDSS includes items related to distress (associated with panic attacks) as well as fear and the PSWQ is confined to measuring distress in the context of worry. Moreover, the sample was recruited online and included individuals who did not necessarily meet criteria for OCD. There is thus a need for a more rigorous assessment of AAS in an OCD sample.

The present study had two aims. First, we wanted to determine whether there are distinct profiles of AAS in anxiety disorders and OCD such that particular groups of individuals with these disorders might be characterised by distinct clusters of AAS. To the best of our knowledge, such a comprehensive transdiagnostic investigation of AAS has not been conducted previously. In this regard, we expected that respiratory symptoms (dyspnoea, chest pain, paraesthesia) might cluster separately from other autonomic symptoms and that they might especially characterise individuals with panic disorder. Second, we compared various anxiety disorders and OCD in terms of the severity of AAS, expecting prototypic fear-circuitry disorders, such as panic disorder and social anxiety disorder, to be characterised by more severe AAS (regardless of type) than GAD. With regard to OCD, the absence of previous studies addressing this question in clinical samples and equivocal findings from the aforementioned literature precluded definitive hypotheses, although the findings of Raines et al. (2015) suggested that perhaps all OCD symptom dimensions might be associated with fear and by extension, with AAS.

2. Method

2.1. Participants

A total of 459 participants (mean age = 40.21; SD = 14.41; n = 146 [31.8%] males) were recruited through the Nepean Anxiety Disorders Clinic and the Department of Psychiatry at Nepean Hospital. All participants were on a waiting list before attending either of these outpatient services and those taking medications were on a stable pharmacotherapy regimen. Two-hundred and forty one (52.5%) were married or in a de facto relationship, 211 (46.0%) were currently engaged in paid employment and 69 (15.0%) had completed a bachelor's degree or higher level of education. Approval for the study was obtained from the Nepean Blue Mountains Local Health District Human Research Ethics Committee (study numbers 04/053 & 07/032) and all participants provided written signed consent before the questionnaires were administered.

Participants had the following DSM-IV diagnoses, where a "primary disorder" refers to the condition which was causing them the most distress and impairment: panic disorder with/without agoraphobia n = 195 (42.5%; primary diagnosis n = 140, 30.5%); social anxiety disorder n = 106 (23.1%; primary diagnosis n = 42, 9.2%), GAD n = 175 (38.1%; primary diagnosis n = 57, 12.4%), OCD n = 225 (49.0%; primary diagnosis n = 213, 46.4%), specific phobia n = 96 (20.9%; primary diagnosis n = 4; 0.9%) and anxiety disorder not otherwise specified n = 3 (0.7%; primary diagnosis n = 3, 0.7%). Overall, 317 participants (69.1%) had at least one co-occurring Axis I diagnosis, and 187 (40.7%) had two or more co-occurring Axis I diagnoses.

2.2. Measures

Participant diagnostic groupings were derived from the clinician-rated Mini Neuropsychiatric Interview (MINI; Sheehan et al., 1999). The MINI has been validated against other widely used structured and semi-structured diagnostic interviews and has been shown to have good psychometric properties. All research staff were trained in the use of the MINI and interrater reliability data were obtained for 48 of the interviews. Kappa values of interrater agreement were 0.93 for panic disorder, 0.89 for social anxiety disorder, 0.82 for GAD and 1.00 for OCD.