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The combination of health anxiety and somatic symptoms: Specificity to anxiety sensitivity cognitive concerns among patients in primary care

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ABSTRACT

Prior research has found that health anxiety is related to poor patient outcomes in primary care settings. Health anxiety is characterized by at least two presentations: with either severe or no/mild somatic symptoms. Preliminary data indicate that anxiety sensitivity may be important for understanding the presentation of health anxiety with severe somatic symptoms. We further examined whether the combination of health anxiety and somatic symptoms was related to anxiety sensitivity. Participants were adults presenting for treatment at a community health center ($N=538$). As predicted, the interactive effect between health anxiety and somatic symptoms was associated with anxiety sensitivity cognitive concerns. Health anxiety shared a stronger association with anxiety sensitivity cognitive concerns when coupled with severe, relative to mild, somatic symptoms. Contrary to predictions, the interactive effect was not associated with the other dimensions of anxiety sensitivity. We discuss the potential relevancy of anxiety sensitivity cognitive concerns to the combined presentation of health anxiety and severe somatic symptoms, as well as how this dimension of anxiety sensitivity could be treated in primary care settings.

1. Introduction

Health anxiety is defined as the wide range of worry that people can have about their health (Asmundson and Taylor, 2005) and is frequently experienced by patients in primary care (Tyrer et al., 2011). Health anxiety is dimensional, ranging from mild concern about one's health to excessive preoccupation with one's health (Ferguson, 2009; Longley et al., 2010), and severe health anxiety is related to the greater use of primary care services (Fink et al., 2010). Health anxiety is characterized by at least two presentations: with either severe somatic symptoms or no/mild somatic symptoms (American Psychiatric Association, 2013). The combined presentation of elevated health anxiety and severe somatic symptoms is related to particularly poor patient outcomes, including greater use of medical services (Creed, 2011). Such findings led Creed (2011) to suggest that patients with this particular symptom presentation may especially benefit from receiving psychological intervention.

Competencies for psychological practice in primary care include using interventions that reduce anxiety and encourage proper use of healthcare resources (McDaniel et al., 2014). Cognitive-behavioral therapy (CBT) has been found to reduce health anxiety in primary care patients (Barsky and Ahern, 2004). However, Barsky and Ahern (2004) found that CBT did *not* reduce the severity of somatic symptoms in their primary care sample. CBT for health anxiety seeks to target factors that contribute to catastrophic misinterpretations of somatic symptoms (Taylor and Asmundson, 2004). Anxiety sensitivity is sometimes targeted within CBT for health anxiety (Abramowitz and Braddock, 2008), although the CBT examined by Barsky and Ahern did *not* include intervention strategies that directly targeted anxiety sensitivity.

Anxiety sensitivity pertains to the fear that anxiety may result in physical, cognitive, and social consequences (Reiss, 1987). Prior research has found that anxiety sensitivity relates to greater health anxiety (Abramowitz et al., 2007), medical utilization (Fergus and Valentiner, 2010), somatic symptoms (Hensley and Varela, 2008), and fearful responding to somatic symptoms (Schmidt, 1999). Fergus et al. (2014) proposed that anxiety sensitivity could contribute to the concurrent presentation of health anxiety and severe somatic symptoms. Consistent with this proposal, Fergus et al. found that health anxiety shared a stronger positive association

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with all three dimensions of anxiety sensitivity when coupled with more severe somatic symptoms in a college student sample. Based upon these findings, Fergus et al. speculated that intervention strategies used to decrease anxiety sensitivity could be effective for individuals presenting with health anxiety and severe somatic symptoms.

Following from Fergus et al. (2014), anxiety sensitivity could be an important target for intervention among patients presenting with health anxiety and severe somatic symptoms in primary care. As an initial step in support of such a possibility, we sought to replicate Fergus et al.'s results found using college students among patients presenting for treatment at a community health center. More precisely, we examined whether the combination of health anxiety and severe somatic symptoms would cluster with the physical, cognitive, and social dimensions of anxiety sensitivity. In doing so, it is important to highlight important aspects of our data analytic strategy. The present research was fundamentally interested in the *combination* of health anxiety and somatic symptoms, such that associations between health anxiety and anxiety sensitivity may depend upon the severity of somatic symptoms. Extant studies support conceptualizing health anxiety (Ferguson, 2009; Longley et al., 2010) and somatic symptoms (Jasper et al., 2012) as continuous variables, such that differences in these variables are best viewed as one of degree rather than kind. One implication of the continuous nature of health anxiety and somatic symptoms is that researchers should use the full range of these variable scores rather than dichotomizing the variables. To examine the combination of these two continuous variables, we thus computed an interaction term between health anxiety and somatic symptom severity rather than assigning participants to groups of high versus low scores on the respective variables.

Because the combination of health anxiety and somatic symptom severity was examined through the use of a continuous interactive effect, anxiety sensitivity was consequently treated as the criterion variable in the present study. This sequencing of variables is inconsistent with viewpoints that anxiety sensitivity is a potential cause of health anxiety (Abramowitz and Braddock, 2008). However, it is important to note that our sequencing of variables parallels prior studies looking at group differences in anxiety sensitivity scores among respondents with elevated symptom severity, including elevated health anxiety (e.g., Deacon and Abramowitz, 2006; Wheaton et al., 2012). In those prior studies, anxiety sensitivity was treated as the criterion variable to examine whether it clustered with particular groups of respondents. Similarly, in the present study, we examined if the combination of health anxiety and severe somatic symptom scores clustered with anxiety sensitivity. We completed supplemental analyses to examine whether other combinations of the variables also merited attention (e.g., interactive effect between anxiety sensitivity and somatic symptom severity in relation to health anxiety).

It is important to note that taxometric studies examining anxiety sensitivity have led to equivocal conclusions, with studies supporting categorical, dimensional, and dimensional-categorical structures (e.g., Allan et al., 2014; Asmundson et al., 2011; Bernstein et al., 2010; Broman-Fulks et al., 2010). A notable limitation of categorical (or dimensional-categorical) approaches is that, to date, studies have found differing cutoff scores to identify elevated anxiety sensitivity cases (e.g., Allan et al., 2014; Bernstein et al., 2010). Given the current state of that literature, cases were not selected based upon anxiety sensitivity scores and anxiety sensitivity was analyzed dimensionally. A practical advantage of this approach is that it allowed analysis of data from all participants, versus a subset of participants who likely had a restricted range of scores on a study variable (i.e., anxiety sensitivity), thereby increasing statistical power to detect the predicted interactive effects (Cohen et al., 2003).

Replicating Fergus et al.'s (2014) findings, we predicted that the interactive effect between health anxiety and somatic symptom severity would relate to the three dimensions of anxiety sensitivity (physical, cognitive, and social). We expected that the pattern of the predicted interactive effect would reveal that health anxiety more strongly associates with the dimensions of anxiety sensitivity when coupled with severe somatic symptoms relative to when coupled with minimal somatic symptoms. Given the impact of gender and general distress among the examined variables (e.g., Jasper et al., 2012; MacSwain et al., 2009; Norton et al., 2005; Stewart et al., 1997), gender and general distress were included as covariates.

2. Method

2.1. Participants

The sample consisted of 538 adults presenting for treatment at a community health center in a moderately sized southern United States city. The average age was 45.5 (SD=17.4) years and the sample was predominantly female (76.4%). Among the sample, 183 (34.0%) self-identified as Black, 177 (32.9%) as non-Hispanic White, 173 (32.2%) as Latino, three (0.5%) as Asian, and two (0.4%) as "other." About half of the sample was insured through a state/federal insurance program (50.4%), 23.3% were uninsured, 12.8% were insured through a private insurance program, and 13.5 were insured through another insurance program.

There was heterogeneity in the primary presenting problem of participants, which was determined by physician diagnoses using the clinical modification of the ninth revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-9-CM; Medicode, 1996). For descriptive purposes, we report the percentage of participants having a primary presenting problem within classes of presenting problems defined in the ICD-CM-9. The percentage of participants having a primary presenting problem within a specific class was: 15.4% endocrine, nutritional, and metabolic disease, 15.2% mental disorder, 12.3% disease of circulatory system, 10.9% symptom, signs, and ill-defined condition, 9.9% external cause of injury and supplemental classification, 6.5% disease of respiratory system, 5.0% disease of genitourinary system, 3.5% infectious and parasitic disease, 3.5% disease of the musculoskeletal system and connective tissue, 3.2% disease of the skin and subcutaneous tissue, 3.0% neoplasm, 2.6% disease of the nervous system and sense organs, 2.4% disease of digestive system, 2.4% complication of pregnancy, childbirth, and the puerperium, 1.9% disease of blood and blood forming organs, 1.9% injury and poisoning, and 0.4% congenital anomalies. There was heterogeneity in psychological disorder diagnoses (e.g., anxiety, mood, personality, psychotic, and substance use disorders) and substance use disorders were most highly represented (58.5% of the psychological disorder diagnoses). None of the diagnoses were hypochondriasis.

2.2. Measures

2.2.1. Whiteley Index (WI; Pilowsky, 1967)

The original WI was a 14-item measure that assessed health anxiety (e.g., *Do you worry a lot about your health?*) using a true/false rating of items. Welch et al. (2009) recommended using a 5-point rating scale (ranging from 1 to 5) instead of the dichotomous response option. Welch et al. further recommended using a revised 6-item version of the WI identified by Asmundson et al. (2008) that is more factorially stable than the original 14-item version of the measure. Asmundson et al.'s 6-item version of the WI was used in this study. The 6-item WI total scale strongly correlates (*r*s of 0.63 and 0.80) with other measures of health anxiety (Fergus, 2013) and showed adequate internal consistency (Cronbach's α=0.83) in this study.

2.2.2. Patient Health Questionnaire-15 (PHQ-15; Kroenke et al., 2002)

The PHQ-15 is a 15-item self-report measure that assesses the severity of somatic symptoms (e.g., *stomach pain, chest pain, dizziness*) over the past month using a 3-point scale (ranging from 0 to 2). The PHQ-15 is considered to be a preferred measure to assess for the severity of somatic symptoms (Kroenke, 2007). There is one item of the PHQ-15 (i.e., *menstrual cramps or other problems with your periods*) that is used in the scoring of female, but not male, respondents. The PHQ-15 showed adequate internal consistency in this study (α=0.83).

2.2.3. Anxiety Sensitivity Index-3 (Taylor et al., 2007)

The ASI-3 is an 18-item measure that assesses the three introduced dimensions of anxiety sensitivity using a 5-point scale (ranging from 0 to 4). The ASI-3 scales are physical (e.g., *It scares me when I become short of breath*), cognitive (e.g., *When I*