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Anxiety and depressive symptoms and medical illness among adults with anxiety disorders

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ABSTRACT

Objective: Anxiety is linked to a number of medical conditions, yet few studies have examined how symptom severity relates to medical comorbidity.
Purpose: The current study assessed associations between severity of anxiety and depression and the presence of medical conditions in adults diagnosed with anxiety disorders.
Method: Nine-hundred eighty-nine patients diagnosed with panic, generalized anxiety, social anxiety, and post-traumatic stress disorders reported on the severity of anxiety and depressive symptoms and on diagnoses of 11 medical conditions.
Results: Severity of anxiety and depressive symptoms was strongly associated with having more medical conditions over and above control variables, and the association was as strong as that between BMI and disease. Odds of having asthma, heart disease, back problems, ulcer, migraine headache and eyesight difficulties also increased as anxiety and depressive symptom severity increased. Anxiety symptoms were independently associated with ulcer, whereas depressive symptoms were independently associated with heart disease, migraine, and eyesight difficulties.
Conclusions: These findings add to a growing body of research linking anxiety disorders with physical health problems and indicate that anxiety and depressive symptoms deserve greater attention in their association with disease.

Individuals with elevated anxiety are more likely than those without anxiety to have a wide array of medical conditions, including cardiovascular, autoimmune, and neurodegenerative diseases, and are at greater risk for early mortality [1–4]. The association between anxiety disorders and disease is understudied compared to that of depression and disease [5], which is surprising given that anxiety disorders are the most prevalent psychological disorders, affecting 30% of the population [6]. Anxiety can be successfully treated with psychotherapy and medication (e.g., [7,8]), and successful anxiety treatment significantly improves physical functioning [9]. There is a pressing need to better understand the extent to which anxiety is linked to poor health and to specific illnesses. The goal of the current study is to assess the association between anxiety and depressive symptom severity and medical comorbidity in a sample of patients diagnosed with anxiety disorders.

The presence of an anxiety disorder is associated with greater medical comorbidity. In a large community sample (N = 42,249), people diagnosed with anxiety disorders were more likely to have a variety of medical conditions including obesity (OR 1.2), diabetes (OR 1.3), asthma (OR 1.6), hypertension (OR 1.7), arthritis (OR 1.7), ulcer (OR 1.9), back/neck problems (OR 2.0), heart disease (OR 2.0), headache (OR 2.3), and multiple pains (OR 2.3) [10]. Other studies report that adults with anxiety disorders have increased prevalence or risk of peptic ulcer disease [11], hypertension [12], coronary heart disease [13], and diabetes [14], and in a study of older adults, eyesight deterioration was associated with an increase in anxiety symptoms [15].

Associations between anxiety and disease may be explained by underlying biological processes such as allostatic load [16], inflammation [17], hypothalamic–pituitary–adrenal reactivity [18], and other neuroendocrine responses [17]. Equally plausible is that having a medical

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condition leads to increased anxiety due to consequences of or discomfort associated with the condition. Bidirectional relations between anxiety and disease are likely.

Anxiety and depressive disorders are highly comorbid and their symptoms overlap [19]. Therefore, it is important to assess whether links between anxiety and medical conditions are explained by overlap between anxiety and depression or whether anxiety contributes uniquely to medical comorbidity. Studies reveal unique contributions of anxiety to medical comorbidity over and above depression. For example, anxiety was a unique predictor of cardiac rehospitalization and prognosis over and above depression [20]. Depression and anxiety disorders each uniquely contributed to risk for cardiac events in a longitudinal study [13]. Comorbid anxiety and depression were associated with increased likelihood of medical disease presence relative to either disorder alone in one study [10] but not in another [13]. These studies suggest that anxiety and depression are independently associated with medical comorbidity, but it is unclear whether having comorbid anxiety and depressive disorders confers greater risk.

Although it is clear that medical conditions are more prevalent among patients with anxiety disorders compared to those without anxiety disorders, the current body of research has a number of limitations. First, to our knowledge, no studies have examined how the severity of anxiety and depressive symptoms relates to the presence of physical illness among individuals with anxiety disorders. Although causality cannot be inferred, cross-sectional associations between anxiety and depressive symptom severity and medical illness can elucidate whether there is a dose–response relationship between disorder severity and disease risk. Second, among studies that have examined anxiety in the context of medical disease, most have examined only one medical condition at a time [11,14,21]. This approach limits understanding of how anxiety relates to multiple medical conditions within the same sample. Third, the majority of studies have assessed anxiety and depressive symptoms using self-report measures in the absence of independent diagnostic evaluations. Thus, knowledge of disorder-level anxiety and depression comorbidity and its relation to medical conditions is limited.

The current study sought to fill these gaps using a convenience sample of patients diagnosed with anxiety disorders enrolled in the coordinated anxiety learning and management (CALM) treatment study. Results have been published from this sample showing higher levels of anxiety symptoms in patients with two or more medical conditions compared to those with no medical conditions [22]. The current study builds on this finding by examining the strength of the association between anxiety and depressive symptoms with the number of medical conditions controlling for demographic and health behaviors. In addition, the association between severity of anxiety and depressive symptoms with specific medical conditions including asthma, diabetes, hypertension, arthritis, heart disease, back problems, ulcer, inflamed bowel, thyroid disease, migraine, and eyesight difficulties was examined. The study had three aims. The first was to assess whether comorbidity of anxiety and depressive disorders was associated with higher overall and specific disease presence. The second was to assess whether greater severity of anxiety and depressive symptoms was associated with higher overall disease rates and presence of specific diseases. The third was to assess unique contributions of anxiety and depressive symptoms to disease rates and specific diseases.

Method

Participants

Participants were 989 primary care patients between the ages of 18 and 75 (see Table 1 for demographics). Between June 2006 and April 2008, 1620 primary care patients consented to complete a study eligibility interview, and 1004 patients with panic disorder (with or without agoraphobia), generalized anxiety disorder, social anxiety disorder, or posttraumatic stress disorder were enrolled. Fifteen participants had missing data on the variables of interest for the current study and were excluded from analyses. Participating research institutions were: University of Washington (Seattle), University of California-Los Angeles, University of California-San Diego, University of Arkansas for Medical Sciences, and the RAND Corporation (an assessment site only). Details are presented elsewhere [23].

Table 1
Characteristics of participants (n = 989)

Continuous variables	Mean (SD)
Age (years)	43.48 (13.5)
Body mass index (kg/m^2)	28.14 (7.1)
Categorical variables	**No. (%) of patients**
Women	705 (71.3)
Education	
< High school	52 (5.3)
12 years	163 (16.5)
> 12 years	774 (78.3)
Race/ethnicity	
Hispanic	186 (18.8)
Black	115 (11.6)
White	565 (57.1)
Other	123 (12.4)
Married or living together	530 (53.6)
> 100 cigarettes in lifetime	482 (48.7)
Alcohol use	216 (21.5)
Never	318 (32.2)
One night per week	254 (25.7)
≥ 2 nights per week	417 (42.2)
Exercise	
Regularly	430 (43.5)
Occasionally	289 (29.2)
Sometimes	216 (21.8)
Never	54 (5.5)
Number of medical conditions	
0	199 (20.1)
1	183 (18.5)
≥ 2	607 (61.4)
Anxiety disorders	
Panic	471 (47.6)
Generalized anxiety	745 (75.3)
Social phobia	398 (40.2)
Posttraumatic stress	176 (17.8)
Psychological comorbidity	
One anxiety dx	161 (16.3)
Multiple anxiety dx	149 (15.1)
One anxiety dx and a depression dx	275 (27.8)
Multiple anxiety dx and depression dx	404 (40.9)
Prescription psychotropic medication	625 (63.2)

Note. dx = diagnosis.

Recruitment

Primary care providers and clinic nursing staff directly referred potential participants. At some sites, a five-question anxiety screener, the Overall Anxiety Severity and Impairment Scale (OASIS; [24]) was used to identify potential participants. A trained study clinician, the Anxiety Clinical Specialist (ACS), functioned as the diagnostician who met with referred patients to determine eligibility. All participants gave informed written consent to participate in this study, which was approved by each institution's Institutional Review Board.