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Gastrointestinal symptoms in primary care: Prevalence and association with depression and anxiety

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Abstract

Objective: Results from general population studies suggest a relationship between gastrointestinal (GI) symptoms, depression, and anxiety. However, no primary care study has investigated this issue. This study investigates the prevalence of GI symptoms in primary care and their association with depression and anxiety. **Method:** Within a cross-sectional survey, 2091 consecutive patients from 15 primary care clinics in the United States completed self-report questionnaires regarding GI symptoms [15-item Patient Health Questionnaire (PHQ-15)], anxiety [seven-item Generalized Anxiety Disorder Scale (GAD-7)], and depression (PHQ-8). Of those, 965 randomly selected patients additionally underwent a criterion standard diagnostic telephone interview (Structured Clinical Interview for *DSM-IV*) for the most common anxiety disorders. **Results:** A total of 380 [18% (95% CI, 16.3% to 19.3%)] patients reported to be substantially bothered by at least one GI symptom in the previous 4 weeks. The prevalence of severe levels of depression (PHQ-8 score ≥15) was nearly fivefold in patients with GI symptoms compared to patients without GI symptoms (19.1% vs. 3.9%; $P<.001$), and the prevalence of severe levels of anxiety (GAD-7 score ≥15) was nearly fourfold in patients with GI symptoms compared to patients without GI symptoms (19.4% vs. 5.6%; $P<.001$). Similarly, with each additional GI symptom, the odds for an interview-based diagnosis of specific anxiety disorders increased significantly: For example, compared to patients with no GI symptom, the odds ratio (OR) (95% CI) for generalized anxiety disorder in patients with one GI symptom was 3.7 (2.0 to 6.9); in patients with two GI symptoms, OR=6.5 (3.1 to 13.6); and in patients with three GI symptoms, OR=7.2 (2.7 to 18.8). **Conclusion:** GI symptoms are associated significantly with depression and anxiety in primary care. It is suggested to screen as a routine for anxiety and depression in patients with GI symptoms and, if indicated, to initiate specific treatment.

Keywords: Anxiety disorders; Diagnosis; Depression; Gastrointestinal diseases; Primary health care; Signs and symptoms; Digestive

Introduction

Gastrointestinal (GI) symptoms are common in primary health care, accounting for about 1 in 12 consultations [1]. For example, abdominal pain accounts for more than 10 million clinical visits annually in the United States [2]. At the same time, about 30% of primary care patients suffer from the two most frequent mental health problems in primary care, that is, depression and anxiety [3–9]. In patients with unexplained GI complaints undergoing upper endoscopy, psychiatric disorders were detected in 60% of patients [10]. Data from the general population suggest that there is a strong association between GI symptoms, depression, and

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specific anxiety disorders, such as agoraphobia and panic disorder [11–13]. In addition, a recent general population study found that GI diseases were significantly associated with anxiety disorders [14]. However, there is only limited knowledge on the association of GI symptoms, anxiety, and depression in medical settings, and primary care studies investigating this issue are completely lacking.

In unselected primary care patients, several studies identified the number of physical complaints as predictor of psychiatric comorbidity [15–19]. Based on this finding, we hypothesized that GI symptoms are associated with elevated rates of depression and anxiety in primary care. Given that the recognition of mental health problems in primary care is often difficult [20] and that depression and anxiety often go unrecognized [8,21,22], the knowledge of the co-occurrence with GI symptoms can help to enhance physicians' attention toward the presence of anxiety and depression in patients with GI symptoms and to initiate treatment as appropriate.

To investigate the relationship between GI symptoms, anxiety, and depression, we sought to answer the following questions: First, what is the prevalence of self-reported GI symptoms in the primary care setting? Second, do patients with GI symptoms differ from those without GI symptoms in terms of demographic characteristics, health-related quality of life (HRQoL), depression, and anxiety? Third, is there a higher risk of current depression and anxiety in patients with GI symptoms? Fourth, are specific GI symptoms related with specific types of anxiety disorders and is the number of GI symptoms associated with the presence of specific anxiety disorders?

Methods

Patient sample

This study was part of the first phase of the Patient Health Questionnaire (PHQ) Anxiety Study that was conducted to develop a short self-administered measure for generalized anxiety disorder [8,23]. Patients were enrolled from a research network of 15 primary care sites (13 family practices, 2 internal medicine) located in 12 states in the United States and administered centrally by Clinvest, Inc., from November 2004 to June 2005. To minimize sampling bias, we approached consecutive patients at each site in clinic sessions until the target quota for that week was achieved. Patients were invited to complete a four-page questionnaire before seeing their physician. A total of 2149 patients (participation rate, 92%) completed the questionnaire, and 2091 (97%) had no or minimal missing data. Of the 2149 patients, 1654 agreed to a telephone interview. Of those, 965 were randomly selected to undergo this interview within 1 week of their clinical visit by one of two mental health professionals. Compared to the 1184 participants who did not undergo the mental health interview, the 965 interviewed patients did not differ in terms of age and education but were significantly more often women (63% vs. 69%; P=.003) and had slightly higher depression scores (PHQ-8 score: 5.5 vs. 4.8; P=.001) and anxiety scores [seven-item Generalized Anxiety Disorder Scale (GAD-7) score: 5.6 vs. 5.1; P=.009]. The study was approved by the Sterling Institutional Review Board.

Measures

The self-report questionnaire included questions about age, gender, education, ethnicity, marital status, physician visits and disability days in the last 3 months, and the Medical Outcome Study Short Form-20 (SF-20) [24], which measures HRQoL in six domains. GI symptoms were measured with the three GI symptom items from the PHQ somatic symptom severity scale (PHQ-15) [25] that describe the most prevalent GI complaints in primary care: (a) stomach pain; (b) constipation, loose bowels, or diarrhea; (c) nausea, gas, or indigestion. Each of these items is rated with 0 (*not bothered at all*), 1 (*bothered a little*), or 2 (*bothered a lot*) regarding the last 4 weeks. For this study, a symptom was rated as present if the patient checked that the symptom bothered him or her a lot in the past 4 weeks.

Depression was assessed with the eight-item depression module of the PHQ (PHQ-8) [26], which includes all items from the PHQ-9 [27,28] except for the item on suicidal ideation. PHQ-8 and PHQ-9 scores are highly correlated and have nearly identical operating characteristics [26]. Superior criterion validity of the PHQ compared to other established self-report questionnaires was confirmed with respect to the diagnoses of "major depressive disorder" and "other depressive disorders" made by way of a standard interview in assessing psychiatric disorders [22,29]. Anxiety was assessed with the PHQ GAD-7 [8,23], which has good internal consistency and test–retest reliability as well as convergent, construct, criterion, procedural, and factorial validity for the diagnosis of generalized anxiety disorder [8,23]. The sensitivity and specificity of GAD-7 are also good with regard to the other three most frequent anxiety disorders that are present in primary care patients — panic disorder, social anxiety disorder, and posttraumatic stress disorder (PTSD) [8]. Therefore, the GAD-7 is a reasonable overall measure of anxiety. In the present sample, internal consistency was excellent for both PHQ scales, with Cronbach's alpha of .92 for the GAD-7 and .90 for the PHQ-8. For both PHQ scales, response options are *not at all*, *several days*, *more than half the days*, and *nearly every day*, scored as 0, 1, 2, and 3, respectively. Consequently, PHQ-8 scores range from 0 to 24 and GAD-7 scores range from 0 to 21. PHQ-8 and GAD-7 scores $\geq$15 represent severe symptoms of depression and anxiety, respectively. We used cutoff scores of $\geq$15 on PHQ-8 and GAD-7, because this threshold reflects severe levels of depression and anxiety consistently [23,25,28]. In addition, the majority of patients with a score of 15 or greater meet diagnostic criteria for a