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Generalized Anxiety Disorder in Older Medical Patients: Diagnostic Recognition, Mental Health Management and Service Utilization

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Abstract *Background* Primary care physicians often treat older adults with Generalized Anxiety Disorder. *Objective* To estimate physician diagnosis and recognition of anxiety and compare health service use among older adults with GAD with two comparison samples with and without other *DSM* diagnoses. *Methods* Participants were 60+ patients of a multi-specialty medical organization. Administrative database and medical records were reviewed for a year. Differences in frequency of health service use were analyzed with logistic regression and between-subjects analysis of covariance. *Results* Physician diagnosis of GAD was 1.5% and any anxiety was 9%, and recognition of anxiety symptoms was 34% in older adults with GAD. After controlling for medical comorbidity, radiology appointments were increased in the GAD group relative to those with and without other psychiatric diagnoses, χ^2 (2, $N = 225$) = 4.75, $p < .05$. *Conclusions* Most patients with anxiety do not have anxiety or symptoms documented in their medical records.

Keywords Generalized anxiety disorder · Primary care · Older patients · Database study · Medical record review

Generalized anxiety disorder (GAD) is one of the most frequent anxiety disorders seen in primary care and is particularly prevalent among older adults in this setting (Wittchen, 2002). GAD is a complicated diagnosis consisting of many physical symptoms and persistent worry lasting a minimum of 6 months. The chronic nature and vague physical symptoms may lead to difficulty in diagnosing GAD (Hoehn-Saric, 2005). To complicate diagnosis further, older adults are less likely than their younger counterparts to attribute their somatic symptoms to psychological problems, which diminishes the likelihood of being asked about anxiety by their physicians (Klap, Unroe, & Unutzer, 2003). Primary care physicians recognize that most patients with GAD experience emotional distress, but only 25% to 50% receive diagnoses (Roy-Byrne & Wagner, 2004; Wittchen et al., 2002; Weiller, Bisserbe,

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Maier, & Lecrubier, 1998). A substantial number of patients with GAD remain unrecognized by their physicians as having a psychiatric disorder. This study investigated the diagnostic recognition, mental health management and healthcare utilization of older adults in a medical setting.

Management of GAD in Primary Care

Despite available pharmacological and nonpharmacological treatments, anxiety disorders remain undertreated. In a British study, only 17% of adult patients with GAD visiting their physician with psychiatric complaints received treatment (Bebbington et al., 2000). Another study based on physician interviews indicated that 55% of patients with pure GAD and 76% of patients with GAD and depression received at least minimal treatment (Wittchen et al., 2002). There are promising psychotropic treatments for GAD include selective serotonin reuptake inhibitors (SSRIs), busporine, venlafaxine, short term benzodiazepine use and non-medication treatments including CBT (Culpepper, 2002; Schulz, Gotto, & Rapaport, 2005). Yet, primary care studies addressing the treatment of anxiety have consistently found that only 20% to 25% of treatments provided involve appropriate medications and dosage (Klap et al., 2003; Roundy et al., 2005; Stein et al., 2004).

Health Service Utilization

Among younger adults, GAD has been associated with increases in outpatient, emergency room and specialists' visits (i.e., gastroenterologist, cardiologist) and medications (Ansseau et al., 2004; Belanger, Ladouceur, & Morin, 2005; Logue et al., 1993; Roy-Byrne & Wagner, 2004). GAD also is associated with increased frequency of laboratory tests and diagnostic procedures related to somatic symptoms of anxiety (Wulsin, Arnold, & Hillard, 1991). The relation between late-life anxiety and healthcare use in older adults has received little attention, even though older adults with anxiety use health services more than their younger counterparts with anxiety (Marciniak et al., 2005).

In the few studies examining anxiety disorders among older adults, increased health service use was no longer evident after controlling for comorbid chronic diseases (deBeurs et al., 1999; Gurmankin Levy, Maselko, Bauer, Richaman, & Kubzansky, 2007). However, both of these studies examined anxiety disorders as a group and it is possible that GAD may impact health service use differentially compared to other anxiety disorders. Stanley et al. (2003) also did not find differences in healthcare use among older adults with or without GAD in primary care, although the sample size was small ($n = 22$); and the study examined only self-reported healthcare use over a 3-month period.

The first objective of this study was to identify physician diagnostic recognition of GAD in a sample of independently diagnosed older adults with GAD. It was predicted that overall diagnostic recognition of GAD would be poor and that comorbid psychopathology would increase diagnostic recognition of GAD. The second objective was to compare and assess mental health management (medication and referral) provided by primary care physicians to a group of independently diagnosed older adults with GAD with a group with other mental health disorders. Physician recognition of GAD was expected to increase rates of psychiatric medication and/or referrals to mental health services. After adjusting for comorbid medical illness, health service use was expected to be greater in patients with GAD than in patients with no mental health disorder and comparable with those with other mental health disorders. GAD severity and co-occurring depression were predicted to increase healthcare service use in patients with GAD.

Methods

This study was approved by the institutional review boards of Baylor College of Medicine and the Michael E. DeBakey Veterans Affairs Medical Center.

Recruitment/Screening

Participants were patients of Kelsey-Seybold Clinic (KSC), a large multi-specialty medical organization that serves over 400,000 patients at 18 clinics in the greater Houston, Texas, area and were interested in pursuing non-medication treatment for worry. The study was part of a clinical trial of cognitive behavioral therapy for older adults with GAD. A research assistant at the Kelsey Research Foundation, which coordinates all research conducted at KSC, sent a recruitment letter to patients who were age 60 or older. The letter included contact information to enable patients to call the research staff at Baylor College of Medicine if they were interested in participating in the study. Participants were recruited by the informational letters ($n = 600$), exam room screens performed by a nurse ($n = 58$), physician referrals ($n = 97$), educational brochures/information in the provider's waiting room ($n = 94$), family/friends ($n = 8$) and from an unknown source ($n = 1$). Interested participants provided informed consent and responded to two GAD screening questions from the PRIME-MD (Spitzer et al., 1994). Of the 858 contacted, 381 provided consent. Reasons for not enrolling in study included not interested ($n = 299$), no anxiety

($n = 74$), scheduling conflicts ($n = 57$), too young ($n = 13$), not enrolled in participating clinic ($n = 23$), did not speak English ($n = 9$) and other ($n = 2$). After signing consent and before further assessments, 68 additional patients dropped out because of lack of interest ($n = 35$), no anxiety ($n = 14$), schedule conflicts ($n = 7$), inability to contact ($n = 8$), being told that they were not appropriate by their primary care provider ($n = 2$), and other reasons ($n = 2$).

Participants

Diagnostic assessments included the Mini-Mental State Examination (MMSE) and the Structured Diagnostic Interview for *DSM-IV* (SCID-I/P). Demographic information was collected at this time. The diagnostic assessments were completed by masters level clinicians. A random 20% ($n = 50$) of diagnostic assessments were rated by a clinical psychologist to calculate interrater agreement Patients were excluded after diagnostic assessment if they reported cognitive impairment, according to a MMSE score of 23 or lower ($n = 23$), current psychosis or bipolar disorder ($n = 1$), current substance abuse ($n = 9$) or suicidality. Patients were also excluded from the study if they identified a non-KSC primary physician ($n = 53$). A total of 227 patients were included in the study: 134 patients with principal or co-principal GAD, 41 patients with no mental health diagnosis, and 52 patients with a mental health diagnosis other than GAD.

Measures

GAD Severity

The Structured Interview Guide for the Hamilton Anxiety Rating Scale (SIGH-A) measures the somatic and psychological symptoms of anxiety. It frequently serves as a measure of severity of anxiety in adults with GAD (Lenze et al., 2005; Pollack, Meoni, Otto, & Hackett, 2003; Rollman et al., 2005) and is a reliable instrument for use with older primary care patients (Skopp et al., 2006).

Physician Psychiatric Diagnosis

The KSC administrative database was examined for each patient's index year, the 12 months prior to study enrollment (from 3/1/2004 to 9/25/2006), to obtain physician-recorded mental health diagnoses.

Mental Health Management

Notes written in the medical record from 12 months before study enrollment were reviewed for patients in the GAD group and for patients in the other mental health disorders comparison group. The number of records in which anxiety and/or depression was noted was recorded, regardless of physician diagnosis. *Management* was defined as medications being started or continued and/or referrals to mental health. Medications were classified as antidepressants, benzodiazepines, non-benzodiazepine anxiolytics, antipsychotics, or sedatives.

Health Services Use

The KSC administrative database was examined for the index year to obtain the total number of outpatient visits, labs, radiology appointments and surgeries.

Medical Comorbidity

The Charlson comorbidity index is a sum of selected medical diseases with the diagnoses weighted in severity (Charlson, Pompei, Ales, & MacKenzie, 1987). Medical diagnoses were obtained from the KSC administrative database for the index year. International Classification of Diseases codes were categorized into the Charlson comorbidity categories based on the codes provided by Deyo, Cherckin, and Ciol (1992) for use in administrative databases.

Procedures

Following inclusion into the study, a trained independent evaluator administered the baseline measures for the clinical trial. The baseline measures including the SIGH-A was administered via the telephone. A random 20% of the phone interviews were rated by a clinical psychologist to calculate interrater agreement. Intraclass correlations for individual items on the SIGH-A ranged from .87 to .95. All medical records were reviewed by either the first author or one of two research assistants using a standard format. A random 13% of records were selected for review by a second rater to calculate interrater agreement. Rater agreement on the medical record review was excellent (kappas ranging from .92 to 1.0).

Analyses

Logistic-regression analysis was used to determine whether physician record of GAD and/or any alternative anxiety disorder in the medical record was predicted by gender, race (Caucasian and non-Caucasian), or co-occurring depressive or anxiety disorder as diagnosed with the SCID.

The use of psychiatric medication in response to SCID diagnosed patients (GAD and other psychiatric disorders) was assessed and compared and therefore, the non-mental health disorder patients were not utilized for this analysis.

The impact of the physician recognition of anxiety or depression (by either diagnosis or notation in the medical record) on psychiatric medication was examined in patients with a SCID diagnosis by a direct logistic regression. Gender and race were covariates in this and all subsequent analyses.

Health service use variables, except outpatient visits, were analyzed as dichotomous variables. Mean differences in frequency of outpatient visits between subgroups (GAD, other mental health and no mental health disorders) were analyzed with between-subjects analysis of covariance (ANCOVA). Group differences and the impact of symptom severity in radiology appointments, inpatient days, surgeries, and lab tests were analyzed using direct logistic regression. Covariates included gender, race, and medical comorbidity (Charlson comorbidity index).

Results

Demographic characteristics for all participants are presented in Table 1. There were no significant differences between diagnostic subgroups in demographic variables. Two patients in the GAD group did not have any appointments in their index year according to the KSC administrative database and were not included in any subsequent analyses, leaving the final GAD sample of 132 patients. For analyses including race, categories consisted of non-Hispanic Caucasians ($n = 94$) and a group consisting of African Americans, Asians, and Hispanics ($n = 38$).

Physician Diagnostic Recognition

According to the administrative database, GAD had been diagnosed by physicians for only 1.5% of patients identified by the SCID as having GAD. For 9.1% of GAD patients, the physician had diagnosed some type of anxiety disorder (6.8% anxiety not otherwise specified [NOS]; 1.5% GAD; 0.8% acute stress disorder), and for 22%, the physician had diagnosed a depressive disorder (20.5% depression NOS; 0.8% dysthymia; 0.8% major depressive disorder). Anxiety disorder was diagnosed more often for

Table 1 Demographics of older medical patients

	GAD group ($n = 132$)	No MH disorder comparison Group ($n = 41$)	Other MH disorders comparison group ($n = 52$)
Mean age	67.3 (60–88; SD = 6.18)	69.6 (59–85; SD = 6.56)	67.8 (60–86; SD = 6.48)
Mean education	16.1 (8–20; SD = 3.0)	15.5 (8–20; SD = 2.9)	15.4 (6–20; SD = 3.2)
% Women	75.8% ($n = 100$)	58.5% ($n = 24$)	69.2% ($n = 36$)
Race			
Non-Hispanic Caucasian	70.1% ($n = 94$)	63.4% ($n = 26$)	55.7% ($n = 29$)
African American	17.9% ($n = 24$)	31.7% ($n = 13$)	32.7% ($n = 17$)
Asian	1.5% ($n = 2$)	–	–
More than one race	0.7% ($n = 1$)	2.4% ($n = 1$)	–
Ethnicity			
Hispanic	8.2% ($n = 11$)	2.4% ($n = 1$)	9.6% ($n = 5$)
Yearly income			
<10, 000	4.5% ($n = 6$)	12.2% ($n = 5$)	5.8% ($n = 3$)
10–19,000	9.8% ($n = 13$)	7.3% ($n = 3$)	17.3% ($n = 8$)
20–29, 000	16.4% ($n = 22$)	9.8% ($n = 4$)	19.25% ($n = 10$)
30–39, 000	12.9% ($n = 17$)	12.2% ($n = 5$)	13.5% ($n = 7$)
40–49, 000	8.2% ($n = 11$)	14.6% ($n = 6$)	13.5% ($n = 7$)
50–59, 000	14.9% ($n = 20$)	12.2% ($n = 5$)	9.6% ($n = 5$)
>60, 000	29.9% ($n = 40$)	22.0% ($n = 9$)	15.4% ($n = 8$)
MH disorders[a]		–	
GAD	100%		–
Depressive	47.8% ($n = 64$)		48.1% ($n = 25$)
Other anxiety	31.6% ($n = 51$)		50% ($n = 26$)
Other MH	5.3% ($n = 7$)		25% ($n = 13$)

[a] Categories not mutually exclusive

GAD = generalized anxiety disorder

MH = mental health

patients with co-occurring SCID-diagnosed depressive disorder (4.29% to 14.5%; χ^2 (1, 132) 4.16, $p < .05$). Depression was diagnosed in patients without a diagnosis of depression with comparable frequency as for patients with a depressive diagnoses, 22.9% and 21%, respectively. Seventy-two percent of patients did not have either an anxiety or a depression diagnosis in the administrative database.

Physician diagnostic recognition was not reliably predicted by a model that included gender, race, and co-occurring depressive or anxiety disorder, χ^2 (3, 129) = 6.42, $p = .170$, indicating that the predictors, as a set, did not reliably distinguish between patients with a diagnosis of anxiety from a physician and those with no anxiety diagnoses. Although the model was not reliable, the SCID-diagnosed co-occurring depression was a reliable predictor χ^2 (1, 129) = 4.16, $p < .04$, with an OR of 4.33 (95% CI: 1.09–17.67).

Anxiety was noted in the medical record notes for 29.3% of patients with GAD and co-occurring depressive disorder and 39.1% of those with GAD alone The differences between anxiety diagnosis with and without co-occurring depression were not significant; χ^2 (1, 127) = .97, $p = .62$.

Mental Health Management

In the comparison of patients with GAD versus other mental health disorders, four medical records were not available; and 4 records obtained for review did not have primary care visits in the index year. Excluding these patients left 127 GAD and 49 other mental health patients' medical records for inclusion in the analysis.

Medications were noted in 55.1% of the other mental health disorders sample, 52.0% in patients with GAD. In the GAD group, the most frequently prescribed medication was antidepressants (40.9%), followed by benzodiazepines (11.8%), and sedatives (5.5%). Mental health referrals were offered to 7.9% of the GAD group and 6.3% of the other mental health disorders group.

Physician recognition of anxiety or depression had a significant impact on mental health management, χ^2 (4, 172) = 83.82, $p < .0001$. Physician notation of depression and diagnosis of either anxiety or depression reliably contributed to the model's significance (respectively, χ^2 (1, 172) = 14.94, $p < .05$, χ^2 (1, 172) = 20.08, $p < .05$). Physician notation of depression was a reliable contributor to the model, but the OR of .102 demonstrates only a small amount of change because of this variable alone. Physician diagnosis of anxiety or depression OR demonstrated a 13.8:1 ratio of increased psychiatric medication when the physician provided the diagnoses.

Health Service Use

Details on means of outpatient visits and frequencies of healthcare procedure for the index year are presented in Table 2. After adjustment for covariates, outpatient visits did not vary significantly between groups, F (2, 218) = 2.21, $p = .112$. Race and gender provided no reliable adjustment on outpatient visits.

Patients with GAD had more radiology appointments than patients with other mental health or no mental health disorders, χ^2 (2, $N = 225$) = 6.42, $p < .05$ (Table 3). Gender was also a reliable predictor for radiology, with more women undergoing radiology appointments, OR = 2.04, 95% CI = 1.08 to 3.98. There were no group differences in surgeries, lab tests or inpatient days.

Anxiety severity and comorbid depression, respectively, did not reliably differentiate health service use (Table 3). Thirty three participants did not complete the measure of anxiety severity (SIGH-A), leaving a subsample of 192 (GAD = 121, other mental health = 39, and none = 32). Frequency of outpatient visits did not vary significantly based on anxiety severity or comorbid depression F (1,

Table 2 Health service use means and frequencies

Health services	GAD group ($n = 132$)		Other MH D/Os ($n = 52$)		No MH D/Os ($n = 41$)	
Outpatient visits	M = 6.7 FREQ	SD = 4.9 %	M = 6.0 FREQ	3.7 %	M = 8.0 FREQ	6.1 %
Radiology	103	78	31	60.9	27	65.9
Inpatient	12	9.1	6	11.8	6	14.6
Surgeries	76	57.6	24	47.1	24	58.5
Lab tests	66	50	19	37.3	18	43.9

GAD = generalized anxiety disorder

MH = mental health

D/O = disorders

FREQ = frequency

Table 3 Logistic regression for differences due to anxiety severity and co-occurring depressive disorders

	SIGH-A		Depressive Dx		Charlson Index	
	χ^2 (1)	p	χ^2 (1)	p	χ^2 (1)	p
Radiology	1.08	.30	0.01	.98	0.35	.55
Inpatient	0.23	.63	0.42	.52	8.71	<.001
Surgeries	1.08	.30	0.03	.99	.35	.55
Lab tests	1.05	.28	0.00	.98	.53	<.05

SIGH-A = Structured Interview Guide for the Hamilton Anxiety rating Scale

Dx = diagnoses

188) = .01, $p = .94$; F (1, 188) = .51, $p = .48$, respectively.

Discussion

The physician diagnosis of GAD (1.5%) or any anxiety disorder (9%) was lower than expected, based on reports from other studies in primary care. Wittchen et al. (2002) reported diagnostic recognition of 34% for GAD alone and 43% for GAD and major depressive disorder. The overall lower recognition in this primary care setting might be because of the lack of internal mental health services within the healthcare organization but also may be more representative of diagnosis in busy non-university affiliated medical settings. Other reasons for poor recognition rates in primary care may include the many physical symptoms associated with GAD (sleep disturbances, fatigue, restlessness, difficulty concentrating) that overlap with medical conditions. The lack of understanding of complicated diagnostic criteria and physician time pressures also may contribute to the difficulty in recognition (Allgulander, 2006; Culpepper, 2002).

Anxiety was recognized by physicians at higher rates when depression was also present. This diagnostic pattern may result from increased attention to more severe mental health symptoms. A depressive diagnosis was assigned frequently when anxiety alone was present; specifically, physicians diagnosed depression for 23% of patients with GAD who did not have coexistent depressive disorder according to the SCID. It may be that GAD is underreported and depression in older adults is slightly over reported due to misdiagnosis. Symptoms of GAD may be misconstrued as depression, given overlapping symptoms. Worry, the cornerstone symptom of GAD, may appear to physicians as less severe without depression or may be difficult to distinguish with confidence from the negative ruminations in depression. It could also be helpful to have screening questions that help physicians to differentiate between symptoms of generalized anxiety and depression.

Regardless of low recording of mental health diagnoses, the medical record review revealed that physicians reported anxiety in their older patients more frequently than they recorded an anxiety diagnosis in the medical records. Physicians noted anxiety during a visit at least once in the index year for approximately one-third of all patients with GAD, indicating the physicians' recognition of general distress. Greater recognition of general distress without diagnosis has been noted in other studies of GAD in primary care (Wittchen et al., 2002).

Approximately one half of patients with GAD were prescribed psychiatric medication, even though recognition of anxiety was low. This implies that these patients are either discussing mental health concerns, sleep difficulties and/or the physician is aware of symptoms that could be alleviated by psychiatric medication. Several studies have found similar results (60% to 66%; Gurmankin Levy et al., 2007; Stein et al., 2004; Wittchen et al., 2002). Prescription of psychiatric medication was more likely if there was a notation of depression in the medical record or a physician's diagnosis of anxiety or depression. Other studies have demonstrated that patients with co-occurring anxiety and depression are more likely than patients with GAD alone to be prescribed psychiatric medications by physicians (Bebbington et al., 2000; Gurmankin Levy et al., 2007; Stein et al., 2004). Most medications prescribed were antidepressants, typically the first-line medication treatment in older adults with GAD and depression (Allgulander, 2006; Schulz, Gotto, & Rapaport, 2005). However, the study design did not enable us to examine appropriate dosages.

The findings that the GAD or other mental health diagnosis is infrequent even when prescribing psychiatric medication or noting anxiety in the chart could have implications to increase education to primary care physicians on particular common psychiatric diagnoses. The reticence to diagnose could also be due to a belief that the psychiatric diagnosis would be stigmatizing or not helpful to an older adult. Future research could help identify the physician reasons behind why they do not typically provide diagnosis and also how they decide for which patients they will record a psychiatric diagnosis.

Overall, GAD patients did not have increased health service use compared with patients with other mental health diagnoses or no diagnosis. Group differences did appear for radiology with GAD patients having more appointments compared to non-GAD patients. Adults with anxiety may ask more questions and insist on more exploratory tests for vague symptoms than adults without anxiety. However, if this is the case, it is not clear why differences would not also emerge in the number of lab tests. This sample also did not demonstrate clear increases in healthcare use based on severity of anxiety or co-occurring depression.

Limitations of the study to find significance in health service use based on anxiety or depression could be due to the design of the study. It is possible that differences in health utilization would be seen in the following years instead of previous years, especially if their mental health concerns did not occur the entire previous year or worsened recently prior to the diagnostic interview. The lack of differences could be because of the way this particular sample was recruited. All included patients had self-selected as interested in a non-medication treatment for worry in primary care. This recruitment method may have led to an especially psychologically minded and well-educated group of older adults. The method of recruitment and the relatively high level of education and income might have led to a lack of variability in the three groups. There is also evidence that higher educational level is associated with increased physician office visits (Young, Klap, Sherbourne, & Wells, 2001). Outpatient visits in this study were higher than mean outpatient visits for all KSC patients 60 and over from year 2005 (6.7 vs. 4.08).

In summary, this study demonstrated lower recognition of GAD in a non-university affiliated medical clinic sample than previously reported, frequent diagnosis of depression instead of GAD and a low rate of treatment. Treatment, when provided, was consistent with medication guidelines of mostly antidepressants and a small number on benzodiazepines and sedatives. Health service use demonstrated increases in radiology appointments but in no other service categories. The method of recruitment might have led to lack of variability between groups and increase service use in all groups. Further studies on the impact of healthcare services are warranted with a sample that is generalizable in age, education, and ethnicity to the typical older adult population.

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