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Anxiety Symptoms in Older Home Health Care Recipients: Prevalence and Associates

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Abstract

This study examined the prevalence and associates of anxiety symptoms in older home health care recipients (N = 249) who completed structured interviews assessing sociodemographic, cognitive, medical and disability, and psychosocial variables—including anxiety (assessed by the Clinical Anxiety Scale). Mild or moderate anxiety was reported by 3.6% of the sample. No anxiety symptoms whatsoever were reported by 63.9%, while the remaining endorsed at least one symptom. Binary logistic regression analysis revealed that the odds of having any anxiety were elevated among participants who had had a recent fall (OR = 2.81, CI = 1.46 – 5.43) and those with major depression (OR = 4.78, 95% CI = 1.46 – 15.68). These findings point to the importance of conducting studies to clarify whether the mild severity of anxiety found in this sample is best accounted for by protective factors inherent to the home health care setting or assessment factors that diminish the reporting of anxiety symptoms.

Keywords

affective assessment; gerontology; home health care; stress/coping

Introduction

The purpose of the study was to determine the prevalence and correlates of symptoms of anxiety in older adults in a high-risk group (those with medical illness and/or disability). Psychiatric distress and the mental health service needs of older adults have been underestimated, under-recognized, and understudied (U.S. Department of Health and Human Services, 1999). Although recent years have seen an increase in investigations of late life depression and the subsequent development of depression-focused interventions for older Americans, commentators note that late life anxiety has received far less attention (Lenze & Wetherell, 2011; Schuurmans & van Balkom, 2011).

This lack of attention is of concern, first, because anxiety disorders are among the most common mental health disorders in older adults (with greater prevalence than mood disorders [Lenze & Wetherell, 2011; Wolitsky-Taylor, Castriotta, Lenze, Stanley, & Craske, 2010]) and, second, because anxiety has been associated with such important outcomes as diminished sense of well being, more severe disability, increased healthcare utilization (de Beurs et al., 1999), suicidality (Alexopoulos et al., 2009) and even mortality (van Hout et al., 2004).

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Recent epidemiologic studies have found that seven percent of community-dwelling older adults suffer from a diagnosable anxiety disorder over the course of any given year (Byers, Yaffe, Covinsky, Friedman, & Bruce, 2010; Gum, King-Kallimanis, & Kohn, 2009). It has also recently been shown that a small percentage of adults evidence new onset of an anxiety disorder in later life (Chou, Mackenzie, Liang, & Sareen, 2011). Although rates of anxiety disorders among older adults are lower than in younger age groups, the number of affected individuals is large. Moreover, subthreshold anxiety symptoms appear to be common in later life, with prevalence rates in community samples documented to be as high as 26% (Grenier et al., 2011; Himmelfarb & Murrell, 1984; Mehta et al., 2003; Zung, 1986). Even though subthreshold disorders do not involve sufficiently severe or numerous symptoms to assign a full diagnosis, they too appear to confer impairment in this age group (Grenier et al., 2011).

The relatively high prevalence of anxiety among older primary care patients suggests that medical burden and disability may be implicated (Stanley, Roberts, Bourland, & Novy, 2001). Older home health care recipients, therefore, may comprise a group at risk for symptoms. They represent a large population of individuals with medical illness or disability sufficiently severe to warrant having skilled nursing and other health care services (e.g., physical therapy, occupational therapy, and social work case management) in the home. Many patients receive homecare after illness or disability has required a hospital stay. In 2011, the most recent year for which statistics are available, home healthcare agencies provided subacute care to more than 3.4 million Medicare beneficiaries, most of them age 65 years or older (Centers for Medicare and Medicaid Services, 2012).

Previous studies have shown that depression is prevalent among patients in a home healthcare setting (Bruce et al., 2002), but to our knowledge only one study of anxiety has been published as of yet (Diefenbach, Tolin, Meunier, & Gilliam, 2009). A community management organization referred patients who screened both positive for anxiety (55%) and negative for anxiety (45%) on psychosocial assessments at intake for the study. The researchers sought to evaluate the use of standardized anxiety interviews and questionnaires by exploring the psychometric properties of widely-used anxiety measures. Although the study demonstrated the feasibility of using validated anxiety measures with this patient population, it did not shed light on the prevalence or associates of anxiety.

The empirical literature is less conclusive for anxiety than for depression on what factors might lead to disorder. Anxiety is likely to arise through the interaction of individual, environmental effects in conjunction with stressors. This study, therefore, examined the association of anxiety in home healthcare recipients with sociodemographic background, cognitive status, medical and disability, and psychosocial variables shown in some prior studies to be related to anxiety (Cohen, Magai, Yaffee, & Walcott-Brown, 2006; de Beurs, Beekman, van Balkom, Deeg, van Dyck, & Tilburg, 1999; Hirsch, Walker, Chang, & Lyness, 2012; Mehta, 2003; Smallbrugge, Pot, Jongenelis, Beekman, & Eefsting, 2005). The prevalence of anxiety symptoms endorsed by this patient population was also examined. We expected that clinically significant anxiety would be prevalent among older home healthcare recipients because their medical illness and disability burden would put them at risk for developing a disorder. If our expectations were borne out, it would point to the importance of integrating the identification of anxiety and appropriate intervention into the structure of professional care and contact, as has already been done for depression (Bruce et al., 2007; Bruce et al., 2011; and Ell, 2006).

Methods

Participants

Participants were older adults referred by three home health care agencies in New York State for enrollment in a parent study that investigated depression in older home health care patients. All newly admitted patients admitted to home health care between May 2004 and June 2005 were referred by the agencies. Eligibility criteria were as follows: age ≥65 years, English-speaking, nonaphasic, not hearing impaired, non-demented (as indicated in home health care agency records), and able to give informed consent. Of 384 eligible participants contacted, 256 (66.67%) enrolled. The non-responders did not differ significantly from responders in age or gender (Chi Square $p > .05$). All procedures for the study received IRB approval. For a more detailed description of the study sample and procedures see XXX, XXX. Because anxiety data were incomplete for seven participants, the sample for the present secondary analysis was limited to the 249 participants who completed an anxiety measure.

Procedure

A trained research assistant conducted a home-based interview with each participant consisting of standardized and widely used instruments within two weeks of participants' admission to home healthcare.

Measures

Anxiety—Anxiety was assessed using the Clinical Anxiety Scale (CAS) (Snaith, Baugh, Clayden, Husain, & Sipple, 1982). This interview draws on a subset of items most highly correlated with anxiety from the Hamilton Anxiety Scale, a measure that is widely used in assessing anxiety symptoms in pharmacotherapy and psychotherapy outcome research (Hamilton, 1959). The choice of the CAS was guided, in part, by the fact that it eliminates somatic items that may be confused with the effects of physical problems, medications, or comorbid medical illness. The CAS measures the presence of seven anxiety symptoms in the prior week. The six items assess "being particularly keyed up, wound up, or nervous," "having felt muscles particularly tense," "being particularly jumpy or easily startled," "worrying a lot about unimportant things," "feeling particularly apprehensive," and "feeling particularly restless." The seventh item assessed the experience of panic.

The first six items of the CAS are scored on a scale from "0" to "4" and summed to yield a total score with potential range of 0 to 24. Panic is scored as "present" or "absent" and not included in the total score. We scored a symptom as "present" if it received a score of at least 1. Severity of anxiety is classified using scores published from a sample of outpatients with clinical anxiety: 0–4 "recovered/absent"; 5–10 "mild"; 11–16 "moderate"; and 17–24, "severe" (Snaith, Harrop, Newby, & Teale, 1986). Since its development, the CAS has consistently been shown to have high specificity for measuring anxiety rather than depression (Snaith et al., 1986; Snaith & Taylor, 1985). It has been used in a recent large-scale depression intervention outcome studies with older adults to monitor changes in anxiety (Alexopoulos et al., 2005, 2009).

Independent variables—Sociodemographic background variables (including age, gender, race/ethnicity, and education) were assessed by interview. Cognitive status was assessed by the Mini-Mental State Exam (MMSE; Folstein, Folstein, & McHugh, 1975). In order to evaluate medical status, a continuous medical burden score was inferred from each participant's medication profile. This was done by mapping individual medications to medication classes, which were then mapped to different chronic diseases (Greenberg, 2010; Clark, Von Korff, Saunders, Baluch, & Simon, 1995). Disability was measured in terms of

functional limitations, which were derived from counts of basic and instrumental activities of daily living that participants self-reportedly had difficulty performing (Lawton & Brody, 1969), while physical pain was measured by an item from the SF-36 (Ware, Kosinski & Keller, 1996). Finally, a recent fall was determined by interview. With respect to psychosocial variables, the Structured Diagnostic Interview for DSM-IV (First, Spitzer, Gibbon, & Williams, 1995) assessed current major depression, while questions from the instrumental social support sub-scale of the Duke Social Support Scale (Koenig et al., 1993) assessed social support.

Analytic Strategy

Prevalence of anxiety—The presence of anxiety symptoms was assessed using frequencies and percentages. In order to characterize anxiety the mean and standard deviation for the CAS total score were calculated.

Correlates of anxiety—In order to identify factors correlated with the presence of anxiety symptoms, a dependent variable was created based on the absence/presence of anxiety symptoms. This strategy has been used previously in other studies with older adults (e.g., de Beurs et al., 1999 and Cohen et al., 2006). The approach was preferred to one using severity of anxiety in light of the skewed distribution of anxiety scores. Bivariate correlations assessed the association between study variables.

In order to proceed with multivariate analysis we assessed for multi-collinearity among the study variables. Towards this end, linear regression analysis was performed with anxiety score as the dependent variable. Collinearity statistics (Variance Inflation Factors, VIF) were inspected to ensure that values were below 5 (the requisite cut-off to ensure that there was sufficient independence among the variables). Binary logistic regression analysis was then performed by entering the study independent variables simultaneously to predict the dependent variable (absence/presence of anxiety symptoms). There was no theoretical basis for including interactions. The model fit was evaluated using the Hosmer and Lemeshow test (Bewick, Check, & Ball, 2005). The following independent variables were coded dichotomously: gender (male/female), race/ethnicity (White non-Hispanic/non-White or Hispanic), pain (None/Any), antidepressant use (No/Yes), depression (No/Yes) and recent fall (No/Yes). Significance was set at .05.

Results

Participant Characteristics

Table 1 presents the participant characteristics. The average age of participants' was 78.18 years (SD = 7.08, range = 65–96). The sample was predominantly female (61%), white (83.5%), with a high school level of formal educational attainment (M = 13.39, SD = 3.49). The majority of participants were married (42.6%) or widowed (42.6%), while just over seven percent were separated/divorced, and just over six percent were never married. Mini-metal state scores averaged 26.33 (SD = 2.83).

Characteristics of Anxiety

The prevalence of mild anxiety (CAS scores = 5–10) was 3.2% while the prevalence of moderate anxiety (CAS scores = 11–16) was only 0.4%. No participants had anxiety scores in the severe range. The mean score on the CAS was 0.74 (SD = 1.47) and the range was 0 to 13. Table 2 presents the prevalence of anxiety symptoms in the sample. None of the participants reported panic symptoms. Other infrequently reported symptoms were "being jumpy or easily startled" (endorsed by 6.4% of the participants) and "feeling apprehensive"

(endorsed by 7.2% of the participants). The remaining four items were endorsed by 10%–11% of participants.

When participants were categorized according to the number of anxiety symptoms reported, the majority (n = 159; 63.9%) reported no anxiety symptoms whatsoever, 57 (22.9%) reported only one anxiety symptom, 21 (8.4%) reported two symptoms, and 12 (4.8%) reported three or more symptoms.

Correlates of Anxiety

Table 3 presents the bivariate correlations among study independent variables. Major depression and a recent fall were both significantly and positively correlated with the presence of anxiety among these older home healthcare patients (r=.21 and r=.18, respectively). There was no evidence of multicollinearity among study variables (i.e., VIF values ranged in value from 1.092 to 1.340). Further exploration of variables associated with recent fall (experience of dizziness or lightheadedness prior to falling, injury as a result of the fall, and physician visit) showed no significant associations of these variables with anxiety (all p values >.05).

Table 4 presents the results of binary logistic regression analysis. The model was a good fit (χ^2 [df = 8] = 11.16, p =.193). A recent fall was associated with a 2.30 greater odds of the presence of anxiety (95% CI =1.46–5.43), while major depression was associated with 4.78 greater odds of the presence of anxiety (95% CI=1.46–15.68). The model correctly classified 70% of the participants and accounted for 16% of the variance in anxiety (Nagelkerke R = . 158).

Discussion

In this sample of older home healthcare recipients, just over 36% of the participants in this study reported at least some anxiety. However, none of the participants endorsed panic symptoms. The presence of anxiety was associated with major depression and recent falls, but not with other sociodemographic, medical, disability, cognitive, or social factors captured in the study interviews.

The finding that none of the participants reported panic symptoms is consistent with the general literature, which suggests that worry disorders predominate in later life, while anxiety disorders that represent the overactivity of the autonomic nervous system are less common in older adults (e.g., Lenze & Wetherell, 2011).

The observed association of anxiety symptoms with depression is also consistent with other studies of older adults (e.g., Cohen et al., 2006; de Beurs et al., 1999; Mehta et al., 2003; Smalbrugge et al., 2005). Because anxiety may complicate recovery from major depression (Alexopoulos et al., 2005), future studies might investigate whether screening for these symptoms and enhancing depression care for home healthcare patients with additional anxiety-focused intervention enhances outcomes.

The observed association between anxiety and recent occurrence of a fall warrants further exploration. To date, numerous studies have documented the association of falls with fear of falling, an exaggerated concern that leads to activity restriction (e.g., Lach, 2002; Lenze & Wetherell, 2011; Scheffer, Schuurmans, van Dijk, van der Hooft, & de Rooij, 2008). However, only a few studies have documented the occurrence of more general anxiety symptoms in relation to falls (Drozdick & Edelstein, 2001; Tinetti, Mendes de Leon, Doucette, & Baker, 1994; Downton & Andrews, 1990). On the other hand, the severity of anxiety among fallers was mild in our study. Future efforts might investigate whether these

symptoms represent adaptive caution that should be bolstered or counter-productive worry that could be usefully ameliorated through education about falls risk and strategies for reducing the potential for falling (e.g., Adkin, Frank, Carpenter & Peysar, 2002; Rochat et al., 2010).

The study findings were not consistent with the literature in other ways. For example, although anxiety has been found to be more severe among women (e.g., de Beurs et al., 1999; Kvaal, Macijauskiene, Engedal & Laake, 2001), members of racial ethnic minority groups (e.g., Cohen et al., 2006; Mehta et al., 2003), and educational level (Cohen et al., 2006) these relations did not emerge in the current analysis.

A separate finding was that, although anxiety was prevalent, only a small minority of participants reported clinically significant symptoms. The low severity of anxiety symptoms was particularly notable given the level of medical burden and disability among the study's participants. Since high rates of major and minor depression have previously been identified in the parent study, our results are unlikely to reflect an absence of psychiatric disorder per se.

The paucity of studies of late life anxiety, limits our ability to contextualize the observed patterns of anxiety. One study of community-dwelling older adults found that 19% endorsed two symptoms "at least a little bit" or one symptom "at least quite a bit" from the three-item Hopkins Checklist (Mehta et al., 2003). Another study found that 13% of community-dwelling older adults met criteria for subsyndromal anxiety, defined as the presence of three or more anxiety symptoms (Cohen et al., 2006). The low prevalence of anxiety in our sample can be contrasted with a third study's finding that more than 41% of female and 47% of male hospitalized older adults evidence clinically significant anxiety based on a widely used measure, the State-Trait Anxiety Scale (Kvaal et al., 2001). Finally, in a sample of older adults drawn from both the community and institutions, just over 52% reported at least one anxiety symptom (Schaub & Linden, 2000).

One possible explanation of the discrepancy is that the CAS provided a rather conservative estimate of anxiety in the home healthcare patients under study. This might occur because the CAS excludes somatic items, or because the wording of questions on the instrument led to an underestimation of symptoms because older adults might not use the same terms as those on the CAS to describe their anxiety. It might also be the case that older adults are less skilled at recognizing anxiety symptoms than they are at recognizing the symptoms associated with mood states such as depression (Wetherell et al., 2009), or because the CAS does not attend to concerns around issues such as dependence and mortality (Mohlman et al., 2012) that might be relevant to this older and ill patient population.

However, findings from two studies of older adults using the CAS instrument, counter this line of reasoning: One of these studies, involving older patients from primary care and geriatric clinics, yielded a mean CAS score of 1.30 with standard deviation of 1.82 (Hirsch, Walker, Chang, & Lyness, 2012). The mean severity of anxiety among these outpatients was, therefore, almost double that obtained in our home healthcare sample even though the outpatients were likely healthier than the homecare patients. The second study involved older primary care patients with either major or minor depression (Wallace et al., 2012). The median interquartile anxiety score was 3 (range 1–6), which again is a higher than in our home healthcare sample—where the median interquartile anxiety score score was 0. Although this last result might be expected given that the sample had a great burden of mood disorder, it counters the notion that the CAS items are not relevant to older samples.

Another explanation for the low severity of anxiety in this sample may be that receiving skilled care in the home has the effect of diminishing anxiety levels. Home healthcare

recipients typically receive services from an array of providers (physicians, nurses, physical, occupational, and speech therapists, and social workers). The combination of physical care and instrumental and emotional support may serve as an important buffer against anxiety. Home healthcare recipients may also receive close attention to their mental health needs. Just over 19% of the participants in the study were taking antidepressants, which can also be effective for treating anxiety. An important question that is raised by this possibility is whether anxiety severity changes among those patients who are discharged from home healthcare to independent functioning in the community. If anxiety levels increase with the loss of support provided by home healthcare, intervention might be warranted to facilitate well-being through this transition.

Conclusions

Although the severity of anxiety, as measured by the Clinical Anxiety Scale, was relatively low in home health care patients, higher levels were observed for patients with depression and for patients who had experienced falls. Further research is needed to: a) clarify what assessment questions best capture patients' experience of anxiety, b) determine what are protective factors for anxiety in this group, and c) delineate the trajectory and impact of anxiety as patients make the transition from home health care to independence.

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Table 1

Background Characteristics of Home Healthcare Recipients (N = 249)

	n **(%)** ***m*** **(sd)**
Age (years)	78.10 (7.07)
Gender	
Male	97 (39.0)
Female	152 (61.0)
Race	
White	208 (83.5)
Black	30 (12.0)
Native American/Alaskan	1 (0.4)
Other	9 (3.6)
Missing	1 (0.4)
Ethnicity	
Hispanic	10 (4.0)
Non-Hispanic	239 (96.0)
Education (years)	13.39 (3.49)
Social Support	8.64 (2.22)
Cognitive Status	26.33 2.83
Medical Burden[a]	5.84 3.28
# Functional Limitations[b]	4.90 2.57
Physical Pain	
None	71 28.5
A Little	111 44.6
A Lot	57 22.9
Missing	10 4.0
Fall in past six months	
No	145 (58.2)
Yes	101 (40.6)
Missing	3 (1.2)
Taking antidepressant	
No	201 (80.7)
Yes	48 (19.3)
Major Depression	
No	231 (92.8)
Yes	18 (7.2)

[a] Score derived from classes of medications

[b] Score based on ADLs and IADLs possible range 0–12

Table 2

Presence of anxiety symptoms (N = 249)

Symptom	*N*	(%)
Psychic tension	29	(11.6)
Ability to relax	25	(10.0)
Startle	16	(6.4)
Worrying	26	(10.4)
Apprehension	18	(7.2)
Restlessness	26	(10.4)
Panic	0	0

Table 3

Bivariate Correlations of Study Variables

Variables	Age	Gender	Race/Ethnicity	Education	Social Support	Cognitive Status	Medical Burden	Functional Limitations	Pain	Anti- depressant	MDD Diagnosis	Recent Fall	Presence Anxiety
Age	–	.10	.19**	−.02	−.11	−.14	−.09	.05	.01	−.08	−.02	.23**	−.06
Gender		–	−.09	−.13*	−.13*	.17**	.03	−.17**	.09	.08	−.06	−.02	.04
Race/Ethnicity			–	.18**	.05	.12	−.10	.02	.08	.09	−.03	.11	−.07
Education				–	−.08	.29**	−.05	.03	.07	.05	−.08	.20**	.02
Social Support					–	−.02	.04	.15*	.10	−.06	−.06	−.17**	−.12
Cognitive Status						–	−.14*	.30**	.07	.05	−.07	.02	−.00
Medical Burden							–	.08	−.04	.17**	.06	−.05	−.01
Functional Limitations								–	.16*	.14*	.14*	.20**	.04
Pain									–	.13	.12	.09	.09
Antidepressant										–	.06	.06	−.07
MDD Diagnosis											–	.23**	.21**
Recent Fall												–	.18**
Presence Anxiety													–

* $p < .05$

** $p < .01$

Table 4

Predicting Presence of Anxiety: Results of Binary Logistic Regression (N = 227)

Study Variable	*B*	*S.E.*	*Odds Ratio*	*95% Confidence Interval*	*p*
Age	−.042	.024	.959	.914 – 1.006	.083
Gender	.118	.337	1.125	.581 – 2.180	.727
Race/Ethnicity	−.449	.391	.638	.297 – 1.375	.251
Education	.002	.048	1.002	.913 – 1.100	.963
Cognitive Status	−.010	.060	.990	.880 – 1.115	.872
Medical Burden	.014	.049	1.014	.922 – 1.115	.774
Functional Limitations	−.011	.066	.989	.869 – 1.126	.867
Pain	.332	.348	1.394	.705 – 2.757	.339
Social Support	−.066	.070	.936	.816 – 1.074	.345
Antidepressant	−.834	.426	.434	.188 – 1.002	.050
Recent Fall	1.035	.335	2.815	1.461 – 5.426	.002
Major Depression Diagnosis	1.565	.606	4.781	1.457 – 15.685	.010