Depression Screening in Medically Ill Homecare Elderly

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Abstract

Purpose—This article provides data on a depression screening model (HOME) in acute home health care designed to detect clinical depression among medically ill homebound older patients. The model was developed to address the lack of mental health services in home health care settings and to specifically improve geriatric depression screening as part of routine care. Authors report on the concordance of homecare and research interview ratings of depression in older homecare patients.

Design and Methods—Using a prospective cohort design, data were collected from 289 elderly patients, aged 65 and older, from a large home health care agency to examine depression, cognitive functioning, medical comorbidity, functional status, and social isolation. Research interviews used the depression module of the structured clinical interview for DSM (SCID).

Results—The overall prevalence of major depression was 5.7 percent according to both homecare and research raters. The prevalence of subthreshold depressive disorder was 16.4 percent as reported by research raters. Observed agreement was 73 percent and kappa agreement was 0.42, indicating a fair to moderate agreement. We identified patient characteristics that may influence the accuracy of homecare worker estimates of depressive symptoms.

Implications—Findings suggest that depression continues to be underdetected in medically ill homebound elderly patients. Ongoing training in depression screening methods, patient follow-up interviews, and appropriate referral would improve care of depressed elderly homecare patients.

Keywords

Homecare workers provide community-based medical services to some of the oldest and most vulnerable members of society. Depression is highly prevalent among medically ill homecare elderly, with estimates of 13.5 percent for major depression (Bruce et al., 2002). Depression is co-morbid with chronic medical conditions and is associated with significant functional decline, lower quality of life, and increased health care utilization (Blazer, 2003; Gellis, 2009). The WHO Global Burden of Disease Study ranks depression second only to heart disease in burden, as measured by the impact on disability-adjusted life years (World Health Organization, 2008). Depression is twice as prevalent in the home health care setting as in primary care (Bruce et al., 2004) and disproportionally higher than studies of community-dwelling older adult samples (0.7% – 1.4%) (Kessler et al., 2003). Despite this significant prevalence, recent evidence suggests that only 12 percent of homecare elderly with major depression receive adequate treatment, even though effective evidence-based screening and treatment options for depression exist (Gellis, McGinty, Horowitz, Bruce, & Misener, 2007). Yet depression is frequently under-diagnosed and undertreated among home healthcare patients (Brown, Kaiser, & Gellis, 2007).

Accruing evidence in primary care settings suggests that system-level interventions including collaborative treatment that integrates mental health therapists into primary care

improves outcomes of depressed patients. However, for home care, specialty mental health care is costly and does not offer home-based services. Thus, it is imperative that scarce resources within home care settings are used where they are most needed. Home care represents a unique setting in which to improve depression care and increase the number of depressed elderly who receive effective depression care management.

Frequently, homecare workers do not recognize depression, and primary care physicians do not treat or inadequately treat it (Brown, Kaiser, & Gellis, 2007; Brown, McAvay, Raue, Moses, & Bruce, 2003). Thus, elderly homecare patients are at high risk for negative outcomes. Given the significant consequences of late life depression and low rates of treatment in this population (Crystal, Akincigil, & Siegel, 2008; Wei, Sambamoorthi, Olfson, Walkup, & Crystal, 2005), interventions to screen and manage depression are needed. In a recent report, the U.S. Preventive Services Task Force recommends screening for depression in adults if there is a mechanism in place for adequate diagnosis, treatment, and follow-up (U.S. Preventive Services Task Force, 2006). Because homecare workers provide medical care to older adults in their own homes, they are well-positioned to identify and assess those older persons in need of depression care management.

An integrated depression screening model as an initial step in depression care is advantageous because (a) nurse screening for depression can be formalized and an internal referral to the home care social worker can be initiated for depression treatment in the patient's home, (b) it reduces barriers to depression care and provides the homebound patient with direct access to needed services, (c) it reduces the high cost of adding an external mental health therapist into home care, and (d) the opportunity to provide depression care is maximized.

Researchers have examined the accuracy of depression ratings by homecare nurses on the Medicare-mandated Outcome and Assessment Information Set (OASIS), a home health care-specific intake questionnaire (Brown et al., 2004). Results indicated that home care nurses often did not accurately identify depression. Another study found that home care nurses were able to detect depression in elderly patients using the 9-items on the Patient Health Questionnaire (Ell, Unutzer, Aranda, Sanchez, & Lee, 2005). Others have demonstrated that an educational intervention improved depression assessment and appropriate referral in home healthcare (Bruce et al., 2007). These studies demonstrated that various reliable and validated depression measures can be used successfully by home care nurses in screening patients. Previous research has also assessed patient and family/caregiver informant reports of depressive symptoms in older adult samples (Burke, Rangwani, Roccaforte, Wegel, & Conley, 1997; Lewis, Hinchcliffe, Katona, & Livingston, 1998; Magaziner, Zimmerman, Gruber-Baldini, Hebel, & Fox, 1997; McAvay, Bruce, Raue, & Brown, 2004). Findings from these studies showed moderately robust correlations (range 0.5–.08) between patient and informant reports on depression measures such as the Geriatric Depression Scale and the Center for Epidemiologic Studies Depression Scale.

Due to the high prevalence of depression in medically ill older adult patients, a key challenge for home health care is to improve screening and referral to primary care, the home care social worker, or a mental health provider. Researchers have recommended a community partnership model to expand the scope of mental health services research to hard-to-reach populations such as the frail homebound elderly (Wells, Miranda, Bruce, Alegria, & Wallerstein, 2004). Therefore, to address the dearth of mental health services in homecare agencies and, more specifically, to improve the recognition of depression among medically ill older adults receiving home care services, our team developed the HOME program, which stands for Homecare and Mental Health for the Elderly. This model was developed using a community-based participatory research model proposed by Wells et al.

(2004), which integrated evidence-based services delivery research as part of a collaborative partnership between home health care agencies and clinical researchers.

In this article, the HOME program is described, and we report on the results of a comparison of homecare worker and research interview ratings of recent (past month) depressive symptoms in a random sample of older medically ill homebound patients. A primary aim was to investigate group differences in depression ratings and then to assess whether certain patterns of agreement and disagreement were related to patient characteristics (i.e., medical disability, functional disability [ADLs: activities of daily living], isolation, cognitive functioning) that are known to be associated with depressive symptoms. Specifically, we were interested in discerning whether older homecare patients who were identified as depressed (by homecare and research screening interviews) would have less social contact, greater medical comorbidity, and functional disability, when compared with older homecare patients who were not identified as depressed.

The HOME Program

Home health care agencies typically provide diagnostic, therapeutic, and social support services in the patient's home by a variety of professionals, including nurses; social workers; speech, physical, and occupational therapists; nutritionists, and home aides. Generally, nurses provide greater than 85 percent of all skilled services (Munson, 1999), and Medicare is the primary payer for homecare services for older adults after discharge from an acute hospital stay.

The HOME model was designed to screen for elderly depressed medically ill homebound patients receiving standard homecare services. HOME was conceptually guided by a community participatory partnership between researchers, homecare nurses, social workers, mental health therapists, homecare supervisors and managers, and primary-care physicians in the planning and implementation of the model. The collaborative approach was selected to increase feasibility, acceptability, and staff investment in the depression screening initiative using principles of community-based participatory research (Hall, 1992; Gellis, 2001). The collaborative identified the scarcity of mental health services, the lack of standardized depression screening for older homecare patients, and the need for education in geriatric mental health. Development of the model also utilized theories of behavior change, suggesting that service-delivery modification in homecare settings occurs in stages, and early adopters can be influential in promoting diffusion of the HOME initiative to other professional staff (Rogers, 2003).

A distinct component of HOME is the depression assessment and referral team (DART), which consists of an interdisciplinary group of homecare and mental health professionals (two master's-level social workers, a mental health therapist, consulting PhD-level geriatric depression specialist, and a nurse supervisor). In addition to depression-specific case consultation, the DART team also provides evidence-based treatment for identified depressed homecare patients, which is described in detail elsewhere (Gellis, McGinty, Horowitz, Bruce, & Misener, 2007). HOME staff time is divided between direct practice with elderly patients and weekly mental health case consultation in the homecare agency. All homecare workers were trained in depression screening and case referral for care in a 2-hour continuing-education session, with a booster session 6 months later. The educational session included mini lectures on depression screening, measurement tools, video, role playing, and behavior rehearsal with case examples.

Homecare nurses are required to assess all new homecare patients using the Medicare-mandated OASIS questionnaire for physical and cognitive functioning, medications, behavior, medical history, ADLs, instrumental ADLs, and risk for falls in patient's homes.

A key innovation of the HOME model was to integrate a standardized depression-screening measure— the 11-item scale of the Center for Epidemiological Studies-Depression (CES-D) —into routine practice at patient intake. Since the homecare agency site was using electronic records for chart management, it was practical to embed, administer, and view the score of the patients' depression screen electronically. This collaborative decision was made in order to provide a reliable and valid indicator of depression severity without adding staff burden to an already time-consuming OASIS intake process.

Methods

Participants

Participants (65 years and older) were recruited for a prospective cohort study of late-life depression in homecare patients with chronic medical problems. The site was a large Medicare-certified homecare agency providing home-based services in three counties (urban and rural) in New York State. During an 18-month period (January 2005 to June 2006), all homecare patients were assessed in their homes during the admission phase, using the OASIS instrument required by the Centers for Medicare and Medicaid Services (2002). Integrated into the OASIS was the CES-D scale, a short version 11-item measure to screen for depression.

To be eligible for inclusion into the study, participants had to be 65 years of age or older, cognitively intact, no imminent transfer to hospital, rehabilitation, or nursing home facility, not actively suicidal, and not currently receiving depression treatment. Elderly homecare patients were excluded if they had a chart diagnosis of dementia (n = 18), bipolar disorder (n = 3), or psychosis (n = 1), if they could not read and understand the informed consent (n = 6), if they were judged by the homecare clinician to be severely medically ill based on functional status (n = 9), or if they refused participation (n = 33). Therefore, among 359 eligible patients aged 65 years and over, 289 (81%) agreed to the baseline assessment.

Procedure

At baseline, the study was described to the patient and informed consent was obtained. Homecare nurses completed the patient OASIS assessment, including the CES-D screening measure. Patients were assessed at their place of residence, and relevant information was solicited from caregivers, physicians, and other community agencies as needed. About one week later, trained research assistants administered the Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders (SCID) depression module (First, Spitzer, R., Miriam, & Williams,, 2002) and were blind to the patient's initial homecare CES-D responses. Care plans and treatment goals were developed and implemented by the assigned homecare nurse who coordinated the patient's care. Identified depressed elderly patients were referred (within 2 days) to the homecare social worker for a home-based psychosocial assessment (about one hour in length). After consultation with the HOME team on patient care, a referral was made to the mental health therapist for evidence-based depression treatment in the home if it was warranted. In collaboration with the primary care physician, a medication review was also requested. The HOME program provided primary-care physicians with treatment guidelines from the American Psychiatric Association on antidepressant management for elderly patients. The mean number of homecare visits per patient was 19 and the mean length of time patients remained on homecare caseloads was 36 days.

Measures

Sociodemographic variables—Research assistants abstracted patient sociodemographic variables from the medical chart (age, gender, marital status, and education).

Depression—Homecare workers used the 11-item CES-D short-version scale to screen elderly participants for depressive symptoms. This is a well-established reliable and valid measure, which has been used with elderly samples (Grayson, Mackinnon, Jorm, Creasey, & Broe, 2000). The established cut-off of 16 or higher corresponds to the likelihood of depression. Scores were transformed to the original 20-item scale parameters following published procedures (Kohout, Berkman, Evans, & Cornoni-Huntley, 1993).

***Structured Clinical Interview for DSM-IV – Axis I* (SCID; First, Spitzer, Miriam, & Williams, 2002)**—The depression disorders module of the SCID was included. The SCID is a structured clinical interview used to diagnose psychiatric disorders based on criteria from the DSM-IV.

Cognitive Functioning—The number of errors on a subscale of 13 items from the Mini Mental Status Exam (MMSE; Folstein, Folstein, & McHugh, 1975) was used to assess participant orientation and recall. The measure has excellent test-retest reliability.

Medical morbidity—The total number of medical conditions extracted from the patient's chart was computed.

Functional Ability—The ability to perform self-maintenance tasks, including ambulation, eating, dressing, bathing, grooming, toileting, and transfer, was assessed using the Multidimensional Functional Assessment Questionnaire of Older Americans Research and Service Center instrument (OARS). The OARS scale has been tested with in-home service patients and has good reliability and validity (Fillenbaum & Smyer, 1981).

Social Contact—Given that participants were homebound, we expected that social visits from others would be a highly relevant source of social contact. We asked participants how often they had visitors in the past 2 weeks and whether they lived alone.

Data Analyses

Data analysis was completed using SPSS 14.0 software, and all tests of significance were 2-tailed. The 289 depression-screening interviews by homecare and research raters were included in the analyses. Descriptive statistics were calculated for sociodemographic and clinical characteristics of patients. Categorical measures were compared in the two groups (homecare and research ratings) using chi-square tests. Mean values for continuous variables were compared by t test. The 0.05 level of significance was used when interpreting the analyses. A multivariate logistic regression model was then estimated for our hypothesis following the model-building strategies by other homecare researchers (McAvay et al., 2004) as suggested in Hosmer & Lemeshow (2000). Variables for which the univariate statistical test had a p value less than or equal to 0.05 were included in the model.

Results

The 289 homecare patients had a mean age of 76.5 years (SD = 6.4; range 65–89); 71 percent were female; most were Caucasian (85.4%); 67 percent lived alone; 23 percent were married; the majority had 12 years of education (54.3%) and 98 percent were on Medicare. The sample was medically disabled, with an average of three diagnosed chronic medical conditions. Based on chart review, participants had an average of ten prescribed medications.

We utilized a best-prevalence estimate procedure developed by our colleagues (Bruce et al., 2002), which entailed a review of information on depression symptoms gathered from the

homecare interview, the research interview, and the patient's medical record. Table 1 delineates prevalence of major and subthreshold depression according to homecare and research diagnostic ratings. In this study, the overall prevalence of major depression was 5.7 percent according to both reporting sources, somewhat lower than reported in previous work (Bruce et al., 2002). However, subthreshold depressive disorder estimates were substantially higher and similar to other studies (Bruce et al., 2004; Gallo, Rabins, & Anthony, 1999). Homecare workers reported substantially more subthreshold depression (43%) than research raters (16.4%). Due to small cell sizes, we combined major and subthreshold cases, assessed reports of any depressive disorder as our primary outcome, and compared that with the diagnostic research ratings of depression. The resulting four cells in Table 1 formed the four groups that were compared in a multiple logistic regression model. Thus, the frequency of homecare and research ratings of the presence or absence of depressive symptoms is presented.

Overall, the prevalence of depressive symptoms ranged from 30 percent (homecare ratings) to 42 percent (researcher rating). Observed agreement was 73 percent and kappa agreement was 0.42, indicating a fair to moderate agreement. Among the 121 elderly patients with research ratings of depressive symptoms, homecare ratings also reported that 66 (55%) of these patients had depressive symptoms, while 55 other cases (45%) were reported as depression absent. Finally, 168 patients did not meet depression criteria in research interviews, while homecare workers reported that 22 (13%) of these patients had depressive symptoms.

The sociodemographic, medical, and cognitive characteristics of these four groups are presented in Table 2. In the first group comparison, the 66 elderly patients that homecare reported with depressive symptoms and that were also reported by the research raters (Group 1) were compared with the 146 elderly patients for whom both the homecare and research raters reported no depression (Group 4). As shown in Table 2, depressed patients in Group 1 were more likely to have a high school education, less social contact, increased medical comorbidity and functional disability as compared with Group 4 patients without depressive symptoms.

In the second comparison, Group 1 patients (n = 66), with research ratings of depressive symptoms, were compared with Group 2 (n = 22) patients that only homecare reported with depressive symptoms. Patients identified as depressed only by homecare workers were older and had poorer recall/orientation scores on the MMSE. No other differences on sociodemographic or medical characteristics were found.

For the third comparison, Group 2 patients with homecare-rated depressive symptoms alone were compared with Group 4 patients (n = 148) without depressive symptoms from both rating sources. Patients who were rated by homecare workers as depressed were older, had greater disability (but not medical comorbidity), and reported less social contact, when compared with patients reporting no depressive symptoms.

For the final comparison, the 66 patients who reported severe depressive symptoms according to both sources (Group 1) were compared with homecare workers who reported depression (n = 55) that was not identified by the research interview (Group 3). Patients who were not identified as depressed by the research raters were more likely to live with someone.

We then tested whether the preceding variables (i.e., cognitive functioning, medical comorbidity, ADL functional disability, social contact, living alone) that differed by group would remain significant in a multivariate logistic regression model presented in Table 3. Four multiple logistic regression models were computed, with the outcome reflecting

membership in the two groups compared within each cell from Table 1. In our first step, social contact dropped out of the model comparing depressed elderly homebound patients (by both rating sources) with elderly homebound patients who were not depressed (by either source). Education, comorbidity, and ADL functional disability variables remained in the model. In the second step, education dropped out, but cognitive functioning (MMSE score) still distinguished patients with homecare-reported depressive symptoms versus patients with depressive symptoms reported by both sources. In our third step, ADL functional disability was dropped from the model that compared the homecare-identified depressed cases (CES-D score ≥ 16) with nondepressed patients, while medical comorbidity differed in these two groups. In the final step, only the living alone variable differed for the depressed patient groups by both rating sources when compared with the homecare workers who reported depression that was not detected by the research ratings.

Discussion

This article described the HOME model for depression screening in home health care. The aim of the model is to deal with low rates of depression detection in medically ill homebound elderly. Accurate recognition by homecare workers is a critical first step toward improving depression care. HOME draws upon evidence-based research on depression in older adults. A key innovation is the use of a collaborative and interdisciplinary partnership among homecare nurses, social workers, mental health therapists, homecare supervisors, and primary-care physicians. The purpose of the partnership approach was to provide depression training and to integrate a depression screening protocol into routine homecare practice in order to improve detection of late-life depression in elderly homecare recipients. The overall management of depression in older homecare patients included a follow-up psychosocial interview, which allowed for clinical judgment, an evidence- based depression treatment in the patient's home (Gellis et al., 2007), and ongoing medication management with the primary-care physician.

During a period of 18 months, we investigated the concordance between homecare workers and research diagnostic raters on the prevalence of depression among medically ill homecare elderly. We found modest agreement between homecare workers' reports and research ratings of depressive symptoms, whereby homecare workers were less likely to report depression in patients than research interviews. We found that patient medical comorbidity, functional disability, and less social contact were associated with the presence of clinically significant depressive symptoms by both sources (homecare and research ratings) when compared with depression-absent cases. The agency staff reported high satisfaction with the initial screening results, while attempting to reduce the number of patients who were inaccurately identified as depressed by the homecare workers. Agency managers learned that continuous reminders to staff about screening in biweekly team meetings as well as e-mails increased the frequency of depression screens as well as social work referrals for follow-up assessments. Ongoing advanced training in depression recognition and referral will likely improve assessment skills among homecare workers to minimize false positives.

Reports have described many barriers to accurate screening for depression among older homecare patients, including agency time constraints, deficient worker knowledge and lack of interest in training in mental health, scarcity of agency referral resources, patient stigma, and negative attitudes toward older persons among health care workers, to name a few (Bruce et al., 2007; Gellis, 2009). The heterogeneity of depression, coupled with physical and cognitive impairment, social vulnerabilities, and co-morbid medical conditions prevalent in homecare patients, also makes it more difficult for accurate assessment, diagnosis, and treatment in this elderly population (Blazer, 2003).

Other impediments to developing depression-screening initiatives in homecare settings include agency financial constraints and service reimbursement. Homecare agencies generally focus on medical diagnoses and health issues that drive the treatment plan. Uncertainty in detecting and treating mental health problems, the number of reimbursable visits allowed, and time limitations during a home visit may lead to minimizing the level of psychological distress in older homecare patients, and thus attributing psychological symptoms to the medical illness. The stigma associated with mental illness may also influence the homecare professional and older patient's communication about depression during the assessment. The homecare worker may hesitate in raising concerns about mental health issues since it may cause embarrassment for the older homecare patient and increase anxiety for the worker.

Targeted training in depression screening and allowing for clinical judgment and decision making in the presence or absence of gateway depression symptoms such as anhedonia and depressed mood may be indicated. For those patients who are depressed but show no signs of sadness, other training in assessment methods may be needed on subtypes of depressive disorders, including minor, subthreshold, subdysthymic, nondysphoric, and masked depression (Gallo, Rabins, & Anthony, 1999).

This study provides further data on the clinical detection and prevalence of depression in elderly homecare patients. However, the study found misclassification of depression severity by homecare workers, which requires additional investigation. Reasons for such discrepancy may include the reluctance of medically ill homebound patients to communicate with their homecare worker about an emotional problem. A lack of homecare-professional training on depression may lead to hesitancy in workers using screening questions at all or using them improperly. There may be times during an assessment that neither the older patient nor the homecare worker may suspect that some somatic symptoms may be the result of an underlying depression rather than a medical illness.

The study used one homecare site; though not representative of all nonprofit or for-profit homecare agencies, it was statistically characteristic of home health care agencies nationally. Patients who were cognitively impaired (5%) and those who could not provide consent (< 2%) were excluded. The study did not collect demographic information on the homecare personnel. This type of information may assist researchers to focus educational efforts on depression screening. However, some researchers have found that regardless of years of experience or level of education, a majority of health care professionals reported that they did not assess their older patients for depression (Proffitt, Ausberger, & Byrne, 1996).

Screening for the detection of depressive disorders involves the use of easily administered, inexpensive procedures to identify older adults who may be experiencing mental health problems. This is critical since depression is a treatable mental health condition. Criteria to justify mental health screening in an agency include the following:

1. Is the incidence high enough to justify the cost of screening in an agency?

2. Does the problem have a significant effect on the quality of life of the older adult?

3. Is effective treatment available for late-life depression?

4. Are available depression-screening instruments valid and cost-effective?

5. Are the adverse effects (if any) of depression-screening tests acceptable to older adult clients?

It is clear from this study that the prevalence of depression among older adults is frequent enough and causes sufficiently serious negative outcomes to warrant screening. In the

current homecare environment in which staff turnover, time, and cost factors often limit use of mental health specialists, homecare professionals are often called upon to attend to myriad elderly patient needs. Efforts to improve the identification of depression in elderly homecare patients may be targeted at cardinal symptoms (i.e., anhedonia and depressed mood) (Brown, Kaiser, & Gellis, 2007). Educational plans would include teaching homecare professionals appropriate home-based depression-assessment strategies with their older patients. Homecare professionals can develop skills in identifying symptoms such as anhedonia and sadness, and understand how pain and hopelessness are exhibited in depressed patients with chronic medical disease.

Given that high rates of depression are prevalent in medically ill elderly, home care is an ideal setting to intervene for late life depression. Home care serves a large elderly population that is particularly vulnerable to depression because of their co-morbid medical conditions and homebound status. As part of the community-based health care system, home care is amenable and ready for practice modification to address the gap in depression care. Home care employs professionals that can treat depressed elderly with appropriate evidence-based training. Home care can take advantage of internal social work staff working synergistically with medical nurses and externally with primary care in providing depression care management to create a tightly integrated and effective treatment model for depressed medically ill older adults.

Home health care services have grown rapidly during the past 2 decades and have become a vital source of community-based care for a majority of medically ill elderly patients. Depression is prevalent in this isolated, frail, and vulnerable population as compared with the general community-dwelling elderly population. Frequently, depression treatment is not part of routine care in homecare agencies, often leading to deterioration in physical functioning, exacerbation of chronic medical conditions, and increased risk for suicide in elderly patients. Depression continues to go undetected and undertreated in homecare agencies. Integration of depression-screening protocols into homecare agencies is vital to assist homecare clinicians in timely evaluation of their older patient's depression status and overall improvement of their psychosocial care. Collaboration among homecare staff, managers, and internal mental health therapists can lead to innovative depression-screening and treatment initiatives for improvement of depression care among medically ill homebound elderly. Home health care can play a critical role in identifying depressed older adults in the community and providing referrals for evidence-based depression care.

Acknowledgments

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Table 1

Concordance between Homecare and Research Ratings of Depression</TT>

(i)	Homecare Ratings			
	Major Depression	**Subthreshold Depression**	**Depression absent**	**Row total**
Major & Subthreshold Depressive Disorders				
Research Ratings				
Major Depression	12	9	24	45
Subthreshold	20	25	31	76
Depression absent	10	12	146	168
Column total	42	46	201	$n = 289$
(ii)	Homecare Ratings			
	Depression present	Depression absent		
Research Ratings				Row total
Depression present	66	55		121
Depression absent	22	146		168
Column total	88	201		$n = 289$

Table 2

Sociodemographic and Clinical Characteristics of Homecare Patients by Rating Group (N = 289) </TT>

Depression rating by Researcher.......... Homecare..........	Group 1 Depressed Depressed (n = 66)	Group 2 Not Depressed Depressed (n = 22)	Group 3 Depressed Not Depressed (n = 55)	Group 4 Not Depressed Not Depressed (n = 146)	Total	Group 1 vs. Group 4.	Group Group 1 vs. Group 2	Comparisons Group 2 vs. Group 4	Group 1 vs. Group 3
Sociodemographics									
Age in years (mean ± s.d.)	79.1 ± 5.7	74.3 ± 6.3	77.5 ± 8.1	77.3 ± 7.2	76.5 ± 6.4	$t = 0.49$ $p = 0.78$	$t = 2.08$ $p = 0.05$	$t = 2.41$ $p = 0.05$	$t = 0.69$ $p = 0.52$
Female	70.1%	75.3%	71.0%	69.2%	71.0%	$p = 0.87$	$p = 0.54$	$p = 0.38$	$p = 0.91$
High School education	62.1%	55.4%	57.3%	51.0%	54.3%	$p = 0.05$	$p = 0..31$	$p = 0.73$	$p = 0.62$
Living alone	63.4%	70.6%	79.3%	65.9%	67.2%	$p = 0.45$	$p = 0.37$	$p = 0.49$	$p = 0.04$
Social contact									
No. of visits/week (mean ± s.d.)	4.3 ± 3.7	4.0 ± 3.9	6.1 ± 5.4	8.2 ± 2.9	6.4 ± 4.1	$t = 2.68$ $p = 0.03$	$t = 0.28$ $p = 0.57$	$t = 2.59$ $p = 0.02$	$t = 0.73$ $p = 0.52$
Medical disability									
No. of medical conditions (mean ± s.d.)	3.4 ± 2.7	3.2 ± 2.5	3.0 ± 2.4	2.6 ± 2.2	2.8 ± 2.5	$t = 2.21$ $p = 0.05$	$t = 0.54$ $p = 0.73$	$t = 0.82$ $p = 0.56$	$t = 0.41$ $p = 0.77$
ADL functional disability (mean ± s.d.)	2.4 ± 2.0	2.1 ± 1.7	2.0 ± 1.9	1.6 ± 1.3	1.8 ± 1.7	$t = 2.19$ $p = 0.05$	$t = 0.27$ $p = 0.64$	$t = 2.63$ $p = 0.04$	$t = 0.35$ $p = 0.72$
Cognitive functioning Errors on recall/orientation (mean ± s.d.)	1.7 ± 1.9	2.5 ± 2.1	1.5 ± 1.7	1.2 ± 1.5	1.6 ± 1.9	$t = 0.79$ $p = 0.61$	$t = 2.34$ $p = 0.05$	$t = 2.37$ $p = 0.05$	$t = 0.18$ $p = 0.69$

Table 3

Results from Logistic Regression Models

Group Comparison Variable	Odds ratio	95% CI	χ^2	*P*
Group 1 vs. Group 4				
High School education	1.87	1.01–2.99	1.17	0.043
Medical conditions	1.26	1.03–1.29	1.52	0.038
Self-maintenance disability	1.34	1.09–1.46	4.93	0.026
Group 1 vs. Group 3				
Cognitive functioning	1.21	1.00–1.37	5.28	0.014
Group 1 vs. Group 4				
Medical conditions	1.12	1.01–1.30	1.64	0.045
Group 1 vs. Group 3				
Living alone	0.43	0.11–0.68	3.71	0.042