Mental Health Status of Home Care Elderly in Michigan

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Abstract

This study describes the mental health status of community-living frail elders in Michigan and identifies subgroups who are vulnerable to mental health problems. We analyzed the baseline assessment data collected from older adults admitted to two community-based long-term care programs in Michigan (N = 18,939). Results show that 40.5% of the sample have recognized mental disorders, 39.6% use psychotropic medications, 24.5% have probable depression, and 1.4% have self-injury thoughts or attempts. Frail elders who are white, younger, and female--as well as those who experience more pain, disease burden, cognitive impairment and IADL limitations--are more prone to psychological distress. Mental health care is greatly needed by community-living frail elders.

Key words: depression, psychological distress, community-based long-term care, frail elders, MDS-HC

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This study has two purposes: (1) to describe the mental health status of frail elders living at home in Michigan, and (2) to identify subgroups, by sociodemographic and clinical characteristics, who are more likely to experience mental health problems. Community-living frail elders are an under-studied population, partly because they are difficult to access and interview. Among the few studies that have examined mental health in this population, Bruce et al. (2002) report that 13.5% of their elderly home care sample have major depression, a rate twice as high as in elderly primary care patients. Ell and colleagues (2005) estimate that 10% of elderly home care patients have clinically significant depression, 8.5% have probable or definite major depression, and 4% have suicidal ideation. Prior studies, however, are limited in that their analyzed sample may be biased because of high refusal rates (e.g., 39% in Bruce et al. and 23% in Ell et al.). Additionally, they have relied on a single measure, such as a clinical diagnosis of depression or self-report of depressive symptoms, to assess mental health. In this study, several indicators--including recognized mental disorders, psychotropic use, depressive symptoms, and self-injury thoughts and attempts--are used to depict a broader picture of the mental health status of community-living frail elders.

Sociodemographic characteristics--including age, gender, race, education, and marital status--have been found to be associated with mental health in community-living elderly persons (Cairney & Krause, 2005; Hybels & Blazer, 2003). Clinical characteristics--such as functional disability, comorbidity, cognitive limitation, and pain--are strong correlates of depression in various elderly populations (Bruce et al., 2002; Lyness, Niculescu, Tu, Reynolds, & Caine,

2006). Because of differences in clinical characteristics by sociodemographic characteristics, it is necessary to control for the others when examining the correlation of each with mental health.

METHODS

Data and Sample

Data for this study were collected from newly admitted elderly participants (age 65+) of two community-based long-term care programs in Michigan: Medicaid Waiver and Care Management, between 1998 and 2003 (N =18,939). Both programs aim to support adults at risk of nursing home placement to remain in the community by providing them supportive services, such as homemaking, meal delivery, and personal emergency response system. Waiver was limited to low-income individuals and Care Management was for people aged 60 or older. The two programs used the same assessment instrument (the standardized Minimum Data Set for Home Care, MDS-HC, plus some questions added by the Michigan Department of Community Health). All eligible applicants to the two programs received a comprehensive in-person assessment, conducted by a nurse and a social worker, using the MDS-HC. Assessment data were sent to a central database via scanning.

Variables and Measures

Mental health status—including four sets of measures (Table 2):

(a) Recognized mental disorders. The MDS-HC recorded diseases diagnosed by doctors that required treatments or symptom management, including diagnoses of depression, manic depression, anxiety disorder, and schizophrenia.

(b) Psychotropic medications. The MDS-HC recorded whether the respondents took antidepressant, antianxiety, and antipsychotic drugs, respectively, in the week before.

(c) Depressive symptoms. This was measured by an adapted version of the MDS Depression Rating Scale (Burrows, Morris, Simon, Hirdes, & Phillips, 2000). The scale consisted of six items; each was rated from 0 "not exhibited in last 30 days" to 2 "exhibited daily" (Cronbach's alpha = .74). According to Burrows et al. (2000), a score of 3 or above on the scale indicates probable depression.

(d) Self-injury. This was measured by three variables: (1) self-injurious attempts in the past year; (2) suicide attempts in the past year; (3) self-injury thoughts, defined as considering self-injurious behavior, in the past month. All were coded dichotomously (yes or no).

Sociodemographic characteristics—including gender, race, age, education, marital status, type of community long-term care programs, and health insurance (Table 1). Gender was coded dichotomously. Race had three categories: White, Black, and other. Age was measured in chronological years. Education had four categories: completed 8th grade or below, 9th through 11th grades, high school graduate, and bachelor's degree or more. Marital status also had four categories: married, widowed, separated/divorced, and never married. Type of program referred to whether the respondent was admitted to Waiver or Care Management, which can be used as a proxy of income. Almost all respondents (99%) had Medicare. Medicaid and private insurance, both coded as receiving versus not, were used to indicate health insurance.

Clinical characteristics—including functional disability, disease burden, cognitive impairment, and pain (Table 1). Functional disability was measured by limitations in activities of daily living (ADL: mobility in bed, transferring, locomotion in home, dressing, eating, toilet use, personal hygiene) and limitations in instrumental activities of daily living (IADL: meal preparation, housekeeping, managing finances, managing medications, phone use, shopping, and transportation). Disease burden was indicated by a count of chronic conditions out of 29

(excluding mental disorders). Cognitive impairment and pain was assessed by the Cognitive

Performance Scale and the pain scale for MDS, respectively (Fries, Simon, Morris, Foldstrom, &

Bookstein, 2001; Morris, Fries, Mehr, Hawes, & Phillips, 1994).

Data Analysis

We used descriptive statistics to assess prevalence of recognized mental disorders,

psychotropic use, depressive symptoms, and self-injury in the sample. Then we conducted

multivariate logistic regression to identify the sociodemographic and clinical correlates of the

mental health measures. Most study variables had missing data. We undertook multiple

imputation using the NORM program (Schafer, 1999). Three imputed data sets were analyzed

separately. The final estimates and standard errors were calculated using formulas that combine

results from the three analyses (Schafer & Olsen, 1998).

RESULTS

Sociodemographic and Clinical Characteristics

About 70.6% of the sample were female (Table 1). Whites were the largest ethnic

category (81.2%), followed by Blacks (18.0%). Respondents averaged 79 years old. Most were

educated at below the high-school level (52.9%). A majority was widowed (53.2%), followed by

married (32.3%). About 39.3% lived alone; the others lived with spouses (30.1%), children

(20.4%), or others (10.2%). More than half (53.8%) were admitted to Care Management. About

35.7% had Medicaid; a minority (13.4%) had private insurance from employers, unions, or self-

purchase.

The sample had relatively severe disability, with 3 ADL and 6 IADL limitations on

average. The majority (56.9%) were cognitively intact; about one-third (34.1%) had mild to

moderate cognitive impairment. On average, they had 5.3 chronic conditions. The majority (68.8%) reported experiencing pain, with 25.1% having intense pain daily.

Mental Health Status

About 40.5% of the sample had recognized mental disorders, with depression (32.9%) being the most prevalent, followed by anxiety disorder (18.8%), manic depression (0.8%), and schizophrenia (0.6%) (Table 2). About 39.6% of the sample used psychotropic medications; most took antidepressants (26.9%), followed by antianxiety (17.4%) and antipsychotic (5.8%) drugs.

The mean score on the Depression Rating Scale was 1.55. Using a score of 3 on the scale as the cutoff point (Burrows et al., 2000), 24.5% of the sample was classified as having probable depression. Overall, about 1.4% of the sample had self-injurious thoughts or attempts—0.4% had self-injurious attempts and 0.3% had suicide attempts in the past year; 1.2% had considered injuring themselves in the previous month.

Sociodemographic and Clinical Correlates of Mental Health Status

In the multivariate logistic regression analyses, we examined the predictors of recognized depression and anxiety disorders, each of the three types of psychotropic drugs, probable depression as measured by the Depression Rating Scale, and any self-injury thoughts or attempts (Table 3).

Being White (vs. Black) and younger increased the odds of having mental health problems indicated by all measures. Being female and married (vs. never married) increased the likelihood of having recognized depression and anxiety, taking antidepressant and antianxiety medications, and having probable depression. However, women were less likely than men to have self-injury attempts or thoughts; widowed elders were less likely than those married to use

antidepressant and antipsychotic medications. Education increased the likelihood of having recognized depression and taking antidepressant and antipsychotic medications, but college degree holders were less likely than the least educated to have recognized anxiety. Medicaid recipients were more likely to have recognized anxiety, but less likely to have probable depression. Older persons with private insurance were more likely to use antianxiety drugs. Those admitted to Care Management were more likely than Waiver enrollees to use antidepressant and antipsychotic medications.

Higher levels of cognitive impairment, disease burden, and pain were associated with a greater likelihood of having recognized depression and anxiety, using antidepressant and antianxiety drugs, and having probable depression. Cognitive impairment increased the odds of taking antipsychotic medication; pain increased the odds of having self-injury thoughts or attempts. IADL limitations increased the likelihood of having recognized depression, taking antidepressant and antipsychotic drugs, and having probable depression. However, ADL limitations decreased the odds of having recognized anxiety.

DISCUSSION

Given the dearth of information about the mental health of community-living frail elders, this study makes an important contribution by revealing their vulnerability to mental health problems. The high rates of recognized mental disorders (40.5%) and psychotropic use (39.6%) in the sample warrant heightened attention. These figures very clearly indicate the great need for mental health care by community-living frail elders. Prior research has suggested that physical and mental health are closely related, and that depression is related to more health service use among older adults (Katz, 1996; Unutzer et al., 1997). It seems imperative that mental health

interventions be a component of community-based long-term care programs, which may also be cost-effective.

Our findings about sociodemographic and clinical correlates of frail elders' mental health, for the most part, corroborate previous research (Bruce et al., 2002; Hybels & Blazer, 2003; Ell et al., 2005; Lyness et al., 2006). Cognitive impairment, pain, IADL limitations and disease burden are strong correlates of mental health. These findings suggest that if resources are limited and mental health services have to target those most in need, the most vulnerable segment of the frail elderly population should be given a top priority. Frail elders who are younger, white and female should also be given more attention in relation to their mental health. The findings concerning race, however, should be interpreted cautiously. While they suggest that Blacks may be more resilient to stress in later life (Kubzansky, Berkman, & Seeman, 2000), it is possible that the measures in the MDS-HC are inadequate in assessing the mental health of Black elders (Neighbors, Jackson, Campbell, & Williams, 1989). The relative mental health advantages of never married elders may be due to selection effect, in that frail elders with poor mental health are less likely to remain in the community when they have no spouse nor children.

Methodological strengths of this study include a large sample and multiple measures to assess mental health of frail elders. The prevalence rates of mental health problems from the imputed sample are similar to those using valid data, suggesting that the missing-data mechanism might be random (Little & Rubin, 2002). The study's limitations include its sample and measures. Our sample of frail elders does not represent those who do not seek publicly funded services, nor home care elderly in other states. Our assessment of mental health is based on measures available in the MDS-HC (Michigan version). The use of multiple measures of mental

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health in this study has helped to compensate for the potential shortcomings of any single

measure.

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Table 1. Sociodemographic and Clinical Characteristics of the Sample

	N (%)[1]	Mean (SD)	Missing N (%[2])	Imputed Sample (N = 18,939) N (%) / M (SD)
Sociodemographic Characteristics				
Gender			52 (.3)	
Male	5542 (29.3)			5560 (29.4)
Female	13345 (70.7)			13379 (70.6)
Race			315 (1.7)	
White	15130 (81.2)			15379 (81.2)
Black	3351 (18.0)			3417 (18.0)
Other	143 (0.8)			143 (0.8)
Age (range = 65-106)		79.26 (7.64)	0	79.26 (7.64)
65-74	5515 (29.1)			5515 (29.1)
75-84	8553 (45.2)			8553 (45.2)
85+	4871 (25.7)			4871 (25.7)
Education			469 (2.5)	
≤ 8th grade	5282 (28.6)			5415 (28.6)
9th-11th grades	4482 (24.3)			4600 (24.3)
High school graduate	7883 (42.7)			8093 (42.7)
College degree or more	823 (4.4)			831 (4.4)
Marital status			210 (1.1)	
Married	6046 (32.3)			6104 (32.2)
Widowed	9954 (53.2)			10078 (53.2)
Separated/divorced	2050 (10.9)			2076 (11.0)
Never married	679 (3.6)			681 (3.6)
Living arrangements			603 (3.2)	
Alone	7233 (39.4)			7426 (39.3)
With spouse	5520 (30.1)			5698 (30.1)
With child	3716 (20.3)			3867 (20.4)
With others	1867 (10.2)			1948 (10.2)
Program			0	
Medicaid Waiver	8753 (46.2)			8753 (46.2)
Care Management	10186 (53.8)			10186 (53.8)

Medicaid			820 (4.3)	
Yes	6450 (35.6)			6769 (35.7)
No	11669 (64.4)			12170 (64.3)
Private insurance			858 (4.5)	
Yes	2415 (13.3)			2533 (13.4)
No	15666 (86.7)			16406 (86.6)
Clinical Characteristics				
ADL limitations (range = 0-7)		3.03 (2.54)	2058 (10.9)	3.03 (2.51)
0-1 ADL	6452 (38.2)			7019 (37.1)
2-4 ADL	4377 (25.9)			5296 (27.9)
5-7 ADL	6052 (35.9)			6624 (35.0)
IADL limitations (range = 0-7)		5.95 (1.21)	1635 (8.6)	5.94 (1.20)
0-3 IADL	507 (2.9)			537 (2.8)
4-5 IADL	4581 (26.5)			5173 (27.3)
6-7 IADL	12216 (70.6)			13229 (69.9)
Cognitive impairment (range = 0-6)		1.47 (1.52)	221 (1.2)	1.47 (1.52)
Cognitively intact	10666 (57.0)			10774 (56.9)
Mild to moderate impairment	6369 (34.0)			6463 (34.1)
Severe impairment	1683 (9.0)			1702 (9.0)
Disease burden (range = 0-29)		5.27 (2.45)	261 (1.4)	5.27 (2.45)
0 to 2 diseases	2178 (11.6)			2214 (11.7)
3 to 6 diseases	11278 (60.4)			11425 (60.3)
7 to 17 diseases	5222 (28.0)			5300 (28.0)
Pain (range = 0-3)		1.42 (1.17)	318 (1.7)	1.41 (1.17)
No pain	5840 (31.4)			5914 (31.2)
Pain less than daily	3907 (21.0)			4006 (21.2)
Pain daily, not intense	4176 (22.4)			4267 (22.5)
Pain daily and intense	4698 (25.2)			4752 (25.1)

[1] Ns are number of participants with the characteristics; percentages are based on number of participants for whom data are available.
[2] Percentage of the total sample.

Table 2. Mental Health Status of the Sample

	N (%)[1]	Missing N (%[2])	Imputed Sample (N = 18,939) N (%)
Recognized mental disorders			
Depression	5849 (33.4)	1415 (7.5)	6239 (32.9)
Manic depression	154 (0.9)	1321 (7.0)	154 (0.8)
Anxiety	3315 (18.7)	1240 (6.5)	3558 (18.8)
Schizophrenia	118 (0.7)	1677 (8.9)	118 (0.6)
Any mental disorders	7222 (41.2)	1396 (7.4)	7668 (40.5)
Psychotropic medications			
Antidepressant	4843 (26.8)	880 (4.6)	5104 (26.9)
Antianxiety	3133 (17.3)	849 (4.5)	3300 (17.4)
Antipsychotic	1059 (5.9)	936 (4.9)	1097 (5.8)
Any psychotropic medications	7203 (39.7)	781 (4.1)	7490 (39.6)
Depressive symptoms		693 (3.7)	
Depression Rating Scale (range = 0-12)	M = 1.54; SD = 2.09		M = 1.55; SD = 2.08
Probable depression	4375 (24.0)		4630 (24.5)
Self-injury			
Self-Injurious attempts past 12 months	74 (0.4)	722 (3.8)	74 (0.4)
Suicide attempts past 12 months	39 (0.2)	733 (3.9)	50 (0.3)
Self-injurious thoughts past 30 days	225 (1.3)	1525 (8.1)	227 (1.2)
Any self-injurious thoughts or attempts	266 (1.6)	1851 (9.8)	266 (1.4)

[1] Ns are number of participants with the characteristics; percentages are based on number of participants for whom data are available.
[2] Percentage of the total sample

Table 3. Multivariate Logistic Regression Analyses of Sociodemographic and Clinical Correlates of Mental Health Status (N = 18,939)

	Recognized Depression	Recognized Anxiety	Anti-depressant	Antianxiety	Antipsychotic	Probable depression	Self-injury thoughts or attempts
	OR (95% CI)[1]	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Female[a]	*1.249* *(1.152, 1.355)*	*1.634* *(1.484, 1.800)*	*1.392* *(1.284, 1.509)*	*1.443* *(1.307, 1.594)*	1.112 (.959, 1.289)	*1.195* *(1.091, 1.309)*	**0.741** **(.562, .098)**
Black[b]	*0.344* *(.308, .385)*	*0.334* *(.292, .384)*	*0.352* *(.314, .395)*	*0.494* *(.436, .561)*	**0.811** **(.676, .975)**	*0.448* *(.402, .499)*	*0.400* *(.252, .633)*
Other race[b]	0.715 (.494, 1.035)	0.716 (.456, 1.125)	**0.553** **(.365, 0837)**	0.714 (.449, 1.143)	1.144 (.614, 2.133)	0.907 (.618, 1.331)	0.748 (.183, 3.053)
Age	*0.959* *(.955, .963)*	*0.968* *(.962, .974)*	*0.955* *(.949, .961)*	*0.969* *(.963, .975)*	*0.971* *(.961, .981)*	*0.968* *(.962, .974)*	*0.962* *(.945, .979)*
9th-11th grades[c]	**1.108** **(1.004, 1.223)**	1.038 (.927, 1.162)	**1.129** **(1.023, 1.246)**	1.080 (.967, 1.207)	**1.221** **(1.016, 1.471)**	0.989 (.894, 1.094)	1.202 (.854, 1.690)
High school[c]	**1.124** **(1.029, 1.227)**	.942 (.850, 1.043)	*1.216* *(1.117, 1.325)*	0.978 (.888, 1.078)	1.127 (.960, 1.324)	0.946 (.869, 1.030)	1.060 (0.773, 1.454)
College degree[c]	1.148 (.972, 1.355)	**0.731** **(.591, .904)**	**1.245** **(1.048, 1.481)**	0.831 (.676, 1.022)	1.081 (.777, 1.504)	0.915 (.764, 1.096)	1.117 (.621, 2.011)
Widowed[d]	1.007 (.924, 1.098)	.911 (.828, 1.003)	**0.916** **(.843, .996)**	0.920 (.834, 1.015)	**0.833** **(.710, .976)**	0.946 (.865, 1.035)	0.854 (.632, 1.155)
Divorced[d]	0.977 (.871, 1.097)	0.938 (.820, 1.073)	1.025 (.905, 1.161)	0.918 (.801, 1.053)	1.064 (.845, 1.341)	1.034 (.913, 1.172)	0.835 (.548, 1.274)
Never married[d]	*0.656* *(.542, .796)*	**0.725** **(.568, .926)**	**0.718** **(.587, .878)**	**0.742** **(.582, .945)**	0.859 (.583, 1.266)	*0.682* *(.550, .847)*	0.780 (.389, 1.565)

Waiver[e]	0.936 (.852, 1.028)	1.019 (.938, 1.107)	*0.844 (.783, .910)*	0.952 (.875, 1.036)	**0.792 (.685, .916)**	0.956 (.882, 1.037)	0.776 (.591, 1.020)
Medicaid[f]	1.045 (.970, 1.127)	**1.130 (1.032, 1.238)**	0.929 (.860, .1.005)	1.055 (.966, 1.153)	1.006 (.864, 1.170)	**0.899 (.824, .981)**	1.293 (.962, 1.740)
Private insurance[g]	1.047 (.942, 1.164)	1.101 (.987, 1.229)	1.037 (.936, 1.150)	**1.145 (1.017, 1.289)**	0.893 (.703, 1.134)	0.939 (.848, 1.040)	0.892 (.616, 1.292)
ADL limitations	0.984 (.969, 1.000)	*0.955 (.937, .973)*	1.012 (.994, 1.031)	1.005 (.985, 1.026)	0.986 (.954, 1.019)	1.003 (.987, 1.021)	0.965 (.907, 1.026)
IADL limitations	*1.117 (1.078, 1.157)*	1.002 (.963, 1.043)	*1.127 (1.086, 1.170)*	0.998 (.957, 1.041)	*1.384 (1.259, 1.522)*	*1.077 (1.034, 1.122)*	1.085 (.933, 1.263)
Cognitive impairment	*1.069 (1.044, 1.095)*	*1.080 (1.048, 1.113)*	*1.075 (1.048, 1.103)*	*1.046 (1.016, 1.078)*	*1.536 (1.470, 1.605)*	*1.257 (1.225, 1.290)*	1.092 (.995, 1.198)
Disease burden	*1.111 (1.096, 1.127)*	*1.093 (1.074, 1.112)*	*1.068 (1.053, 1.083)*	*1.038 (1.022, 1.055)*	0.975 (.949, 1.001)	*1.040 (1.025, 1.055)*	1.004 (.955, 1.055)
Pain	*1.175 (1.142, 1.209)*	*1.190 (1.148, 1.233)*	*1.144 (1.110, 1.179)*	*1.227 (1.187, 1.269)*	1.027 (.967, 1.091)	*1.186 (1.148, 1.226)*	**1.148 (1.030, 1.280)**

[1] OR = Odds Ratios; CI = Confidence Intervals.

[2] Reference category for a: male; b: White; c: 8th grade or less; d: married; e: Care Management; f: no Medicaid; g: no private insurance.

[3] Bolded figures are statistically significant at p < .05; bolded and italic figures are statistically significant at p < .001.