

Depression Care in a Chronically Ill Medicare Population

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Introduction:

Major depressive disorder (MDD) is a prevalent and disabling illness that commonly co-occurs with other medical illnesses, especially among older adults [1] . As the population continues to age, the number of older adults with multiple medical conditions is also increasing. Sixty-five percent of Medicare beneficiaries have more than 1 chronic medical condition with this subgroup accounting for the majority of Medicare costs [2, 3]. MDD in the medically ill older adult has been shown to be associated with a higher risk of physical disability, increased health care utilization, and higher medical costs [4-7]. Despite the high burden of depression in the medically ill older adult population and the availability of evidence based psychosocial and pharmacological treatments[8], this disorder often remains both under recognized and undertreated [9] [10, 11].

In recent years, a number of care management programs have been developed [12]. These Medicare Advantage programs have been charged by the Centers for Medicare and Medicaid Services (CMS) to coordinate the care of high risk and high cost Medicare beneficiaries with multiple medical conditions. However, these programs were not necessarily designed to target and manage behavioral health issues. Since depression is a potentially treatable condition, it is important to examine the quality of care for depression in this population. Findings will inform care management programs and identify potential interventions to support members in engaging and adhering to the prescribed plan of care. To date, few studies are available which examine the quality of depression care for members participating in care management programs. The

purpose of this study is to describe the rates of depression treatment among Medicare beneficiaries diagnosed with depression and the correlates of receiving such care in a chronic condition care management program.

Methods:

Study setting and participants:

Humana Cares is an integrated care management program that provides telephonic and in person support for chronically ill Medicare Advantage members. Humana Cares currently provides complex care management for over 160,000 members in various Medicare Advantage plans nationally in all 50 states. The holistic model of care is multi-disciplinary and the 1,300 care managers are registered nurses (RNs), advanced registered nurse practitioners (ARNPs), behavioral health specialists, or social workers. The study sample includes Humana Cares members enrolled from November 2008 to January 2010 (n=5,898) who have an initial depressive disorder diagnosis (ICD-9 codes: 296.2, 296.3, 296.90, 300.4, 309.28, 311) and who have 180 days of available data following a depression diagnosis. This study was approved by the institutional review board at the University of Washington, Seattle.

Measurements:

Two outcome indicators were created to measure depression care: 1) *Any depression care* and 2) *Receipt of at least 90 days of antidepressants or at least 2 specialty mental health visits (among members receiving any depression care)*. *Any depression care* was defined as the receipt of at least one antidepressant prescription or having had at least one specialty mental health visit (based on Current Procedure

Terminology codes) within 180 days following the initial depression diagnosis. We also examined the receipt of a minimal course of depression treatment based on the Healthcare Effectiveness Data and Information Set (HEDIS) antidepressant management measure of a minimum of 90 days of treatment with an antidepressant medication [13] or at least two specialty mental health visits within 180 days of depression diagnosis.

A broad definition for antidepressants was used for this study which included newer classes such as serotonin reuptake inhibitors as well as those from older classes such as tricyclic antidepressants to reflect real world prescribing practices. The following antidepressants were included in this study: amitriptyline, nortriptyline, imipramine, doxepin, clomipramine, desipramine, amoxapine, maprotiline, serzone, trazodone, bupropion, mirtazapine, fluoxetine, paroxetine, sertraline, fluvoxamine, citalopram, escitalopram, duloxetine, and venlafaxine. The day supply of an antidepressant was calculated using the fill dates from claims data for these medications.

Member level factors include age, gender, hierarchical condition category (HCC) score, insurance type, and region of country. The HCC was introduced by the Center for Medicare and Medicaid Services as a risk adjustment method to adjust capitation payments to private Medicare plans. The HCC model takes into account demographic and diagnostic codes (based on ICD-9) to generate a summary risk score for patients [14, 15]. HCC was used to adjust for medical complexity of patients in this analysis. Psychiatric comorbidities were based on ICD-9 diagnostic codes in claims diagnoses and included the following: dementia (290), bipolar disorder (296.0, 296.1, 296.4-8), schizophrenia (295.0-9), and substance use disorders (291-292, 303-305).

Statistical analyses:

Data were analyzed using STATA version 11. The sample consisted of 5,898 members who had 180 days of data following a depression diagnosis. Three age groups were created: those less than 65 years old, those 65 years old and older, and those 75 years and older (the “old-old” group was compared to those aged 65-74). People who qualify for Medicare before age 65 comprise of a distinctly different sample than those who are eligible to enroll in Medicare upon reaching age 65 (e.g. younger Medicare beneficiaries are more likely to be dual eligible). Descriptive analysis was performed comparing depressed individuals from these two age groups. Student’s t-test was used to compare the means of continuous variables, whereas chi-squared analysis was used for categorical variables. Multivariable analyses using logistic regression were used to describe the association between demographic (age and gender), clinical (hierarchical conditional categories, dual eligibility, and psychiatric diagnoses), and geographic factors (regions as defined by Humana Cares markets) and the receipt of depression care.

Results:

Table 1 summarizes the demographic and clinical characteristics of depressed participants who are less than 65 years old and 65 years old or older. The mean age of the younger and older age groups was 54.5 (± 7.9) and 77.0 (± 7.6), respectively. The majority of participants in both groups were female (64% for the young and 65% for the old). Participants in the younger group were less likely to have dementia, but more likely to have schizophrenia, bipolar disorder, substance use disorders, and dual

eligibility than those in the older group. The younger group also had significantly lower medical comorbidity as measured by HCC scores.

Table 2 summarizes the proportion of participants receiving *any depression care* as well as those receiving *at least 90 days of antidepressants or two specialty visits* in the two age groups. Overall, 67% of the sample received *any depression care*. Among participants receiving depression care, 70% received *at least 90 days of antidepressants and/or two specialty visits*.

Antidepressant Treatment:

Table 3 shows the multivariable analyses for the correlates of receiving an antidepressant prescription and the receipt of at least 90 days of an antidepressant for each age group. In both age groups, female gender, higher HCC, and dual eligibility are associated with increased likelihood of receiving an antidepressant.

In the younger group, compared to those living in the South, living in the West was associated with a higher likelihood of receiving an antidepressant prescription. In the older group, a dementia diagnosis was also associated with a higher likelihood of receiving an antidepressant prescription. In the older group, among those having received an antidepressant prescription, female gender was also associated with receiving at least 90 days of an antidepressant, while those living in the Northeast (compared to those living in the South) and those with a substance use disorder were less likely to receive at least 90 days of an antidepressant.

Specialty Mental Health Visits:

Table 4 shows the multivariable analyses for the correlates of having had at least one specialty mental health visit and of having at least two specialty mental health visits. In the younger group, those living in the Midwest and West (compared to those living in the South), and those having a diagnosis of dementia, schizophrenia, or bipolar disorder were more likely to have at least one specialty visit. Among those who receive at least one specialty visit in the younger group, female gender and a diagnosis of bipolar disorder were independently associated with a higher likelihood of having at least two visits, while higher HCC scores were associated with a lower likelihood of receiving two or more specialty visits.

In the older age group, the old-old, females, and those with dual eligibility were less likely to have at least one specialty visit. Compared to those living in the South, those living in the Midwest were more likely to have at least one specialty health visit. Having a psychiatric diagnosis (dementia, schizophrenia, or bipolar disorder) was associated with having at least one specialty visit. Among patients having had at least one specialty visit, all of the psychiatric diagnoses were also associated with having at least two specialty visits. Of note, unlike patients with comorbid psychiatric illnesses, patients with substance use disorders in both age groups were not more likely to receive specialty care.

Discussion:

The overall rate of depression treatment that was provided in the first 180 days after a depression diagnosis to this group of Medicare Advantage members in a commercial disease management program was two-thirds (67%). Among those

receiving any depression care in the two age groups, approximately two-thirds (70%) received at least 90 days of antidepressants and/or at least two specialty visits. Rates of any depression treatment were slightly higher in the younger age group (72% in the young group compared with 65% in the old group). An earlier study of older fee-for-service Medicare beneficiaries also found a rate of depression treatment to be about two-thirds for those diagnosed with depression [9]. Since this previous study used relatively more lenient criteria for depression care (antidepressant prescriptions and psychotherapy visits were counted if they occurred in the calendar year in which the depression diagnosis was documented), our study indicates that rates of depression treatment in this population may actually be higher than those seen in fee-for-service Medicare populations. This may be attributed to national trends of increasing rates of depression treatment[16] or to the fact that the population in our study was more severely medically ill.

Only a quarter (23.4%) of the entire sample had a specialty visit in the 180 days following a depression diagnosis. Among those having had a specialty visit, only about half (55%) had two or more visits. The general preference of seeking mental health treatment in primary care over specialty care is consistent with past studies [17]. However, for those who have attended appointments in specialty care, the number of specialty visits actually received may be unlikely in itself to result in remission of depressive symptoms since more intensive contacts are required for effective depression treatment [18].

Some factors may contribute to the rate of depression treatment among our Medicare beneficiaries compared with Medicare cohorts from previous studies. For

example, in this highly medically complex patient population, chronic medical illnesses may ‘crowd out’ PCPs’ concerns related to behavioral health issues [19]. Also, it can be challenging for care management programs to reach prescribing primary care providers who could change medication prescriptions or encourage more active use of specialty mental health care for patients who are not improving as expected.

There are several factors associated with depression care in this population treated in a care management program that are worth highlighting: gender, age, region, medical comorbidities, psychiatric comorbidities, and substance use disorders. In general, depressed women in our sample were more likely to receive depression care than men. This finding is consistent with other studies of older adults [20] and may be related to females experiencing less stigma from the diagnosis of depressive disorders. In addition, women may be more likely than their male counterparts to present with affective symptoms that may influence PCPs’ treatment practices. However, among those in the older age group, female gender was associated with a lower likelihood of receiving at least 1 specialty visit.

Patients 75 and older were less likely to receive specialty mental health care than those aged 65-74. This disparity in depression treatment between the old and old-old persists despite previous calls for improved depression care in late-life [21]. Our study also showed that among the younger group, controlling for other factors, those with higher medical comorbidities were less likely to have 2 or more specialty visits. The finding that patients with chronic medical conditions are less likely to receive psychotherapy has been highlighted in another study [22]. It has been hypothesized that these chronically ill patients may have developed a stronger relationship with their

primary care providers (PCPs), resulting in higher rates of antidepressant prescribing by their PCPs and less referral to mental health specialties. Our finding that the more medically ill in either age group were more likely to receive an antidepressant prescription supports this hypothesis.

Compared to the respective age group living in the South, the younger age group living in the West was more likely to receive an antidepressant, while the older subjects living in the Northeast were less likely to receive at least 90 days of antidepressants. The younger age group residing in the Midwest and West were more likely to receive at least 1 specialty visit, while older participants living in the Midwest were more likely to receive at least 1 specialty visit. These regional variations may reflect patient preferences, prescribing and referral preferences among PCPs, and differences in the availability of specialty services.

In the older age group, patients with dementia were more likely to receive an antidepressant prescription, while those with a substance use disorder were less likely to receive a minimum of 90 days of an antidepressant. Comorbid psychiatric disorders (dementia, schizophrenia, and bipolar disorder) were associated with at least 1 specialty visit in both age groups and associated with 2 or more specialty visits in the older age group. This general association is likely to be due to the management of the comorbid psychiatric disorder in specialty settings. However, it is not possible to rule out reverse causality in a cross sectional analysis (i.e. specialty visits result in high levels of psychiatric diagnoses). In contrast, a pattern of suboptimal depression care emerges for those with substance use disorders in which these patients *are not* more likely to receive specialty care. Furthermore, among older depressed patients receiving an

antidepressant, this group is less likely to have at least 90 days of antidepressant treatment.

Our findings suggest a number of opportunities for improving the quality of depression care for chronically ill Medicare beneficiaries. For instance, care managers leading the multidisciplinary team can assist patients with depressive disorders by providing health support and education with the goal of both increasing patient empowerment and self-care management. Care managers could also assist by helping members identify barriers to care and through care coordination and referrals and increasing their access to adequate depression treatment. Care managers may also support PCPs' efforts to treat depression by monitoring members' depressive symptoms and engaging PCPs when depressive symptoms are not improving. In this model of stepped care, patients who are not improving would then either have an escalation in the intensity of their treatment (e.g. increased dosage of antidepressant) or a treatment change (referral to specialty care). A focus on quality improvement may also have potential for improving the quality of depression care in this population. A recent study has shown that a depression focused care management program was able to shorten the time to depression improvement by approximately 50% by using pay for performance incentives [23].

The major strengths of this study include the nationally representativeness of the sample as well as the large sample size. Our study also has several limitations. The study is limited by its observational nature as well as limitations inherent in using claims data. Another limitation is that patients may have had a depressive disorder prior to program enrollment (which would not be captured in our analysis) and may either have

had their depression adequately treated or be in remission. Although we have information on antidepressant prescription fills, we do not have information on patient adherence to these medications. We were also unable to measure patient, provider, and health services factors that may influence the receipt of depression care.

Conclusion:

Two-thirds of the depressed patients in this Medicare Advantage population received any depression care with approximately two-thirds of these patients receiving at least 90 days of an antidepressant and/or at least two specialty mental health visits. The old-old and older females are less likely to receive depression care. Although the presence of psychiatric disorders is associated with depression care, the presence of substance use disorders is not associated with depression care. Further studies are needed to examine the effects of quality improvement efforts in the context of care management programs for older adults.

Table 1: characteristics of sample with depression diagnosis (%(n) or mean±SD)

Sociodemographic characteristics	< 65 y.o. (n=1,727)	≥ 65 y.o. (n=4,171)	Statistical test (df)
age (sd)	54.5±7.9	77.0±7.6	100 (5,896), p<0.0001
age %			
≥75 y.o.	n/a	58.5 (2441)	-
gender (F) %	64.0 (1105)	65.3 (2722)	0.87 (1), p=0.35
Hierarchical conditional categories (sd)	2.1±1.7	2.2±1.6	2.9 (5,892), p=0.003
Dual eligible %	30.7 (530)	18.3 (765)	108.7 (1), p<0.001
Region %			41.1 (3), p<0.001
Northeast	3.13 (54)	3.7 (154)	-
Midwest	21.0 (363)	27.7 (1154)	-
South	68.4 (1181)	59.6 (2484)	-
West	7.5 (129)	9.1 (379)	-
Psychiatric Diagnoses			
Dementia %	8.9 (154)	31.1 (1299)	324.9 (1), p<0.001
Schizophrenia %	6.4 (111)	1.4 (57)	113 (1), p<0.001
Bipolar disorder %	19.0 (328)	4.9 (204)	295.9 (1), p<0.001
Substance use disorder %	38.2 (660)	16.4 (684)	330.4 (1), p<0.001

Table 2: Rates of depression care stratified by age groups (%(n))

Any Depression Care	Total (n=5898)	< 65 y.o. (n=1727)	≥ 65 y.o. (n=4171)
Received antidepressant prescription	58.1 (3426)	61.0 (1053)	56.9 (2373)
≥1 specialty mental health visit	23.4 (1378)	32.1 (554)	19.7 (824)
Antidepressant prescription and/or ≥1 specialty mental health visit	67.3 (3970)	72.4 (1250)	65.2 (2720)
Minimal Course of Depression Care^a		< 65 y.o.	≥ 65 y.o.
90 days of antidepressant treatment ^b	69.6 (2386)	72.9 (768)	68.2 (1618)
≥2 specialty mental health visits ^c	55.0 (758)	66.8 (370)	47.1 (388)
90 days of antidepressant prescription and/or ≥2 specialty mental health visits ^d	69.8 (2771)	75.4 (943)	67.2 (1828)

a) Minimal course of depression care was calculated only for participants who received any depression care. b) Rates of antidepressant treatment for those having an antidepressant prescription c) Rates of specialty mental health visits for those having had at least one specialty mental health visit d) Rates of depression care among those having had at least one specialty mental health visit and/or antidepressant prescription

Table 3: Multiple logistic regression models for the correlates of receiving antidepressant prescription within 180 days after depression diagnosis

	<65 y.o.: received antidepressant	<65 y.o.: received ≥ 90 days of antidepressant ^b	≥65 y.o.: received antidepressant	≥65 y.o.: received ≥ 90 days of antidepressant ^b
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Demographics				
Age				
≥65 y.o.	n/a	n/a	ref.	ref.
≥75 y.o.	n/a	n/a	0.91 (0.79-1.03)	0.96 (0.79-1.15)
gender (F)	1.48 (1.21-1.83) ^a	1.17 (0.87-1.57)	1.19 (1.04-1.35) ^a	1.22 (1.02-1.47) ^a
Hierarchical conditional categories				
Dual eligible	1.07 (1.01-1.14) ^a	1.04 (0.96-1.13)	1.07 (1.03-1.11) ^a	1.00 (0.95-1.06)
Region				
South	ref.	ref.	ref.	ref.
Northeast	0.76 (0.44-1.32)	1.14 (0.47-2.73)	0.92 (0.66-1.29)	0.54 (0.34-0.85) ^a
Midwest	1.26 (0.98-1.62)	1.14 (0.81-1.61)	1.00 (0.86-1.15)	0.95 (0.78-1.17)
West	1.53 (1.03-2.27) ^a	1.07 (0.65-1.77)	0.95 (0.76-1.19)	0.84 (0.62-1.14)
Psychiatric Diagnoses				
Dementia	0.84 (0.59-1.17)	1.00 (0.61-1.64)	1.36 (1.18-1.56) ^a	1.14 (0.94-1.38)
Schizophrenia	0.80 (0.52-1.22)	0.96 (0.53-1.75)	1.16 (0.67-2.03)	0.70 (0.35-1.39)
Bipolar disorder	1.30 (0.99-1.71)	1.23 (0.85-1.78)	1.11 (0.83-1.49)	1.11 (0.74-1.66)
Substance use disorder	1.08 (0.87-1.33)	1.06 (0.80-1.42)	1.01 (0.85-1.20)	0.72 (0.57-0.91) ^a

^a p<0.05

^b Among participants having had an antidepressant prescription

Table 4: Multiple logistic regression models for the correlates of receiving specialty mental health visits within 180 days after depression diagnosis

	<65 y.o.: received ≥ 1 specialty mental health visit	<65 y.o.: received ≥ 2 specialty mental health visits ^b		≥65 y.o.: ≥ 1 specialty mental health visit	≥65 y.o.: ≥ 2 specialty mental health visits ^b
	OR (95% CI)	OR (95% CI)		OR (95% CI)	OR (95% CI)
Demographics					
Age					
≥65 y.o.	n/a	n/a		ref.	ref.
≥75 y.o.	n/a	n/a		0.81 (0.68-0.96) ^a	0.88 (0.65-1.18)
gender (F)	1.00 (0.79-1.27)	1.53 (1.04-2.25) ^a		0.84 (0.71-0.99) ^a	1.04 (0.78-1.39)
Hierarchical conditional category	0.95 (0.88-1.01)	0.86 (0.76-0.96) ^a		1.04 (0.99-1.09)	0.93 (0.86-1.02)
Dual eligible	0.83 (0.65-1.07)	1.16 (0.76-1.76)		0.67 (0.54-0.85) ^a	0.96 (0.64-1.45)
Region					
South	ref.	ref.		ref.	ref.
Northeast	1.75 (0.96-3.18)	1.85 (0.65-5.30)		1.26 (0.84-1.90)	1.79 (0.86-3.70)
Midwest	1.36 (1.04-1.78) ^a	1.22 (0.77-1.95)		1.42 (1.19-1.70) ^a	1.04 (0.76-1.41)
West	1.55 (1.03-2.33) ^a	0.70 (0.37-1.32)		0.80 (0.57-1.06)	0.95 (0.54-1.66)
Psychiatric Diagnoses					
Dementia	1.49 (1.03-2.16) ^a	0.69 (0.39-1.22)		2.07 (1.75-2.45) ^a	1.39 (1.04-1.86) ^a
Schizophrenia	4.90 (2.99-8.03) ^a	1.30 (0.73-2.32)		2.98 (1.70-5.24) ^a	2.82 (1.21-6.58) ^a
Bipolar disorder	4.47 (3.40-5.88) ^a	2.92 (1.89-4.51) ^a		4.44 (3.30-5.98) ^a	2.14 (1.38-3.32) ^a
Substance use disorder	1.18 (0.93-1.48)	0.72 (0.49-1.06)		1.10 (0.89-1.37)	0.99 (0.69-1.43)

^a p<0.05

^b Among participants having had at least one specialty visit

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