Published in final edited form as:

Psychiatr Serv. 2015 July 1; 66(7): 727–733. doi:10.1176/appi.ps.201400246.

Assessing the Relationship between Physical Illness and Mental Health Service Use and Expenditures among Older Adults from Racial/Ethnic Minority Groups

Daniel E Jimenez,

University of Miami Center on Aging - Department of Psychiatry, Miami, Florida

Benjamin Cook,

Harvard Medical School - Psychiatry, Cambridge, Massachusetts

Giyeon Kim,

University of Alabama - Psychology/Center for Mental Health and Aging, Box 870315,
Tuscaloosa, Alabama 35487

Charles F. Reynolds,

University of Pittsburgh - School of Medicine, Psychiatry, 3811 O'Hara Street BT 758, Pittsburgh,
Pennsylvania 15213

Margarita Alegria,

Cambridge Health Alliance - Center for Multicultural Mental Health Research, 120 Beacon St. 4th
Floor, Somerville, Massachusetts 02143

Sarah Coe-Odess, and

Swarthmore College, Swarthmore, Pennsylvania

Stephen J. Bartels

Dartmouth-Hitchcock Medical Center - Department of Psychiatry, One Medical Center Drive HB
7770, Lebanon, New Hampshire 03756-0001

Daniel E Jimenez: dej18@med.miami.edu

Abstract

Objective—The association of physical illness and mental health service use in older adults from racial/ethnic minority groups is an important area of study given the mental and physical health disparities and the low use of mental health services in this population. The purpose of this study is to describe the impact of comorbid physical illness on mental health service use and expenditures in older adults; and to evaluate disparities in mental health service use and expenditures among a racially/ethnically diverse sample of older adults with and without comorbid physical illness.

Methods—Data were obtained from the Medical Expenditure Panel Survey (years 2004–2011). The sample included 1563 whites, 519 African-Americans, and 642 Latinos and (N=2,724) aged 65+ with probable mental illness. Using two-part generalized linear models, we estimated and compared mental health service use among those with and without a comorbid physical illness.

Results—Mental health service use was greater for older adults with comorbid physical illness compared to those without a comorbid physical illness. Once mental health services were

accessed, no differences in mental health expenditures were found. Comorbid physical illness increased the likelihood of mental health service use in older whites and Latinos. However, the presence of a comorbidity did not impact racial/ethnic disparities in mental health service use.

Conclusions—This study highlighted the important role of comorbid physical illness as a potential contributor to using mental health services and suggests intervention strategies to enhance engagement in mental health services by older adults from racial/ethnic minority groups.

Keywords

comorbidities; mental health service use; disparities; older adults

The impact of mental illness on medical illness outcomes in older adulthood, in general, has been well-documented (1–5). However, an equally important question pertains to the patterns of mental health treatment in older adults from racial/ethnic minority groups who have comorbid medical illness. The association of physical illness and mental health service use in this group of older adults is an important area of study given the mental and physical health disparities and the overall low use of specialty mental health services in this population (6–10).

Previous studies have shown a positive association between physical illness and mental health service use and expenditures (11–13). Sambamoorthi and colleagues (11) found that Medicaid beneficiaries, who were diagnosed as depressed with comorbid diabetes, had significantly higher rates of antidepressant treatment than among depression-diagnosed patients who did not have diabetes. Similarly, Cook and colleagues (12) found that comorbid physical health conditions increased the likelihood of initiation of mental health services for those in need of care. The increased use of mental health services means a greater financial burden incurred. Psychiatric patients with comorbid physical illness have significantly greater mental health expenditures than patients without a comorbid physical illness (13).

Cook and colleagues (12) also examined the contribution of comorbidities to racial/ethnic disparities in mental health service use. They found that racial/ethnic disparities in access to mental healthcare were smaller among those with comorbidities than disparities among those without comorbidities. Although this study did not specifically focus on older adults, the sample did include adults aged 65+, which suggests that the presence of a comorbidity may predict increased engagement in mental health services among older adults from racial/ethnic minority groups. In addition, there may be an association between comorbid medical illness and reduced racial/ethnic disparities in mental health service use. Prior research has highlighted racial/ethnic disparities in mental health expenditures (6,14). However, these studies did not specifically address the relationship between comorbid physical illness and disparities in mental health expenditures.

IOM Definition of Disparities and Comorbidities

According to the Institute of Medicine (IOM), disparities in healthcare are racial or ethnic differences in the quality of healthcare that are not due to clinical needs, preferences, and appropriateness of interventions (15). To apply this conceptual model, researchers adjust for

differences due to clinical appropriateness and need, and preferences, but not differences due to other factors such as the operation of healthcare systems, and legal and regulatory climate discrimination. The IOM definition states that if the presence of a comorbidity affects use only through need for care, then comorbidities should be adjusted for in disparities analyses. However, Cook and colleagues (12) found evidence that comorbidities were indicators of greater exposure to the healthcare system. In the current study, we follow this framework and allow differences in rates of comorbidities to enter into the disparities predictions as a system level variable.

The purpose of this study is twofold. First, we assess the relationship between a comorbid physical illness and mental health service use and expenditures in older adults. Second, we evaluate disparities in mental health service use and expenditures among a racially/ethnically diverse sample of older adults with and without comorbid physical illness. The following hypotheses are tested: 1) mental health service use will be greater among mentally ill older adults with a comorbid physical illness compared to mentally ill older adults without a comorbid physical illness; and 2) the presence of a comorbid physical condition will be associated with reduced racial/ethnic disparities in mental health service use.

METHODS

Study Population

The data are drawn from the Medical Expenditure Panel Survey (MEPS), a nationally representative sample of the non-institutionalized civilian population of the United States. We combined six two-year longitudinal panels (Panels 9–14), corresponding to calendar years 2004–2011. Approximately 15% of our weighted sample was missing on one or more variables. Our final sample included 2,724 older (65+) adults (1,563 whites, 519 African-Americans, and 642 Latinos). To account for differential missingness by race/ethnicity, we reweighted the included individuals to represent their propensity to be like individuals with missing values (16,17) with probable mental health need.

The MEPS is an annual survey of approximately 15,000 households that has been conducted since 1996. It produces annual estimates and behavioral and economic analyses of health care use, expenditures, insurance coverage, sources of payment, access to care, and health care quality. Data are collected in 5 different rounds of Computer Assisted Personal Interviews that cumulatively cover a consecutive 2 year period. Annual estimates are based on data from 3 separate interviews for each sample person. Self-reported information is subsequently verified and completed by the Agency for Healthcare Research and Quality (AHRQ). Records provided by hospitals, health maintenance organizations, office-based providers, home care agencies, and pharmacies are reviewed by staff trained to abstract the core data elements for each provider type. Individual respondent information on expenditures provided in the Household Component of the MEPS are always replaced by provider information as the provider information is considered to be more complete and less prone to reporting errors. Trained staff resolved other discrepancies at their discretion (18).

The MEPS contains household-reported diagnosis information for every individual reported to have a health care visit, pharmaceutical fill, or limitation of activity. Any time a

respondent mentions that a visit, fill, or activity limitation has occurred, the surveyor follows up by asking the name of the illness linked to that event or limitation. The response is then translated into an ICD-9 code and reported in the MEPS. For our purposes, we consider mental healthcare to be all reported events and activity limitations that are specifically linked to ICD-9 codes related to mood, anxiety, psychotic, substance use, personality, behavioral and developmental disorders (291, 292, or 295–314) (19). This method is shown to have strong sensitivity (88%) to provider reports of treatment for mental health and substance abuse disorders (20). All study methods and protocols were approved by the Institutional Review Board of Cambridge Health Alliance.

Dependent Variables

Dependent variables were a dichotomized measure of any mental health service use and a continuous measure of mental health expenditures, conditional on having a mental health service use. Mental health service use was defined as engaging in specialty mental health care (psychiatrist, psychologist, counselor, or social worker), general medical provider care (primary care physician), emergency room visits, or inpatient hospitalization for mental health or substance abuse conditions. We considered a visit to primary care, the emergency room, or an inpatient stay to be a mental health care visit if the treatment was recorded to be for a disorder covered by the ICD-9 codes listed above. Mental health expenditures were measured by summing all direct payments for mental health care provided, including out-of-pocket payments and payments by private insurance, Medicaid, Medicare and other sources. Only those who engaged in mental health services were factored into the expenditures analyses.

Independent Variables

Racial/ethnic categories (white, African-American, and Latino) were based on U.S. Census definitions. Participants with mental health need were defined as a score greater than 12 on the Kessler 6 Scale (K6;21) (indicating nonspecific psychological distress); or score greater than 2 on the PHQ-2 (22) (indicating probable depressive disorder). Participants with a comorbid physical illness were defined as those with mental health need plus one or more of ten priority chronic health illnesses (diabetes, asthma, stroke, emphysema, arthritis, coronary heart disease, angina, myocardial infarction, other heart disease, and obesity). We also included income, education, health insurance, participation in an HMO, region of the country, employment status, and residence in a metropolitan statistical area (MSA).

Statistical Analyses

We estimated racial/ethnic and comorbidity differences in mental health service use and expenditures that are not due to differences in severity of illness for mental health care using a four step process. First, we estimated a regression model of any mental health care (logistic regression for dichotomous dependent variables and generalized linear models - log link and gamma distribution for the variance – for continuous dependent variables), adjusting for all independent variables described above. Second, we transformed distributions of need variables described above to be equal across racial/ethnic groups using a rank and replace method (23,24). Third, we estimated a prediction of the rate or mean of the dependent variable of interest for each comorbidity and racial/ethnic group by

use were observed between older African-Americans *with* a comorbid physical illness and older African-Americans *without* a comorbid physical illness (21% vs. 16%).

The difference in mental health service use between whites *with* a comorbid physical illness compared to whites *without* a comorbid physical illness (10%) was not significantly different than the difference in mental health service use between African-Americans *with* and *without* a comorbid physical illness (5%). The difference in mental health service use between whites *with* a comorbid physical illness compared to whites *without* a comorbid physical illness (10%) was not significantly different than the difference in mental health service use between Latinos *with* and *without* a comorbid physical illness (18%). These results indicate that the presence of a comorbidity was not significantly associated with a reduction in racial/ethnic disparities in mental health service use. Among those who engaged in mental health services, no significant disparities were found in mental health expenditures.

Regression Model Results

As displayed in Table 4, after adjustment for all (both need and system-level) covariates, women, those with a self-rated mental health of fair or poor, and those who experienced any work limitations were more likely to use mental health services. With regard to mental health expenditures, being a college graduate was predictive of increased mental health expenditures.

DISCUSSION

Our results highlight the significant impact that a comorbid physical illness has on the use of mental health services by older adults. Our hypothesis that mentally ill older adults with a comorbid physical illness would have greater mental health service use was supported. We also found that expenditures, given engagement in mental health treatment, were not greater among comorbid older adults compared to older adults without a comorbidity. These latter results provide preliminary evidence that mental health services for older adults are being provided equally to the elderly whether or not they have a comorbid physical health condition, if they have accessed the mental healthcare system.

Consistent with previous studies (11–13), we found that older adults with a comorbid physical illness used mental health services at a greater rate than those without a comorbid physical illness. The exposure hypothesis may help explain these results. It states that if physicians spend more time with specific patients due to the care needed to treat comorbid physical health conditions, then the likelihood of seeking mental healthcare for those in need of such care will also improve (11–13). In the present context, older adults with a chronic physical illness may have seen their physicians more frequently, and this exposure to the healthcare system may have made it more likely that their mental health needs were recognized and treated.

In contrast to the Cook and colleagues study (12), we did not find that the presence of a comorbid physical condition was significantly associated with reduced racial/ethnic disparities in mental health service use. Significant racial/ethnic disparities persist regardless

of comorbidity category, and Latinos and African-Americans without a comorbidity had especially low rates of mental health service use. Many elderly from racial/ethnic minority groups view traditional mental health services as highly stigmatizing (26–28). Additionally, available mental health treatments may not match the preferences, values, and beliefs of older racial/ethnic minorities which can lead to the decision to not access mental health treatment (29,30). For Latinos and African-Americans, the lack of a comorbid physical illness may also be limiting their exposure to the healthcare system. This lack of exposure, combined with the high stigma and differing mental health beliefs may be contributing to the especially low rates of mental health service use among Latinos and African-Americans without a comorbidity. These results underscore the need for interventions that promote greater access to mental health services among older adults from racial/ethnic minority groups and specifically designed to address their beliefs and stigma towards traditional mental health services. Effective approaches to this challenge are likely to involve using non-traditional means that are acceptable and scalable in this population.

One such strategy is the use of health promotion interventions. Health promotion interventions (e.g. getting adequate nutrition, increasing physical activity) are behaviorally activating, bring mental health benefits to older adults faced with health-related challenges (31–33), and may be more desirable than medications (29). The emphasis on treating mental health problems through health and wellness techniques could also appeal to older adults from racial/ethnic minority groups as non-stigmatizing and culturally acceptable alternatives to traditional mental health services (31).

Overall, the rates of accessing mental healthcare services are extremely low in this sample of older adults with mental health need. As with the general population, more effort should go towards encouraging access to mental health services and integrating mental healthcare with more often used primary care. The integrated focus of physical and mental health may help to circumvent the lower rates of engagement in mental health services by older adults (34,35).

The study findings should be interpreted in the context of the limitations in our data. First, the lack of significant findings may be a result of small sample size. Although the MEPS has sufficient numbers of racial/ethnic minority cases to estimate mental health service disparities with precision, the subset we created of older adults (65+) with probable mental health need was small and limited our ability to make definitive conclusions. Second, we interpreted a psychotropic medication prescription to be mental health treatment. This assumption could have led to false positives since some psychotropic medications could be used to treat non-psychiatric conditions (36,37). Third, mental health need was determined by two brief screening measures of mental illness, not by structured diagnostic measures or measures of symptom severity. This has the potential of causing a misrepresentation of the population in need of mental health care. However, these measures have good sensitivity and specificity to diagnosis of mental disorders and nonspecific psychological distress. Fourth, due to sample size limitations, we were unable to do a sub-analysis by type of mental health services (e.g. primary care vs. specialty mental health). Given that older adults from racial/ethnic minority groups tend to seek mental health services in different settings (6), having one broad mental health service use variable may mask important differences.

Despite the aforementioned limitations, our results suggest potential directions for further inquiry. For example, mental health symptom severity measures (i.e. PHQ-9, BDI, etc.) as well as physiological measures (i.e. fasting blood glucose) could be added to track patient progress. This would help determine if the comorbid participants who are receiving increased mental health services are improving compared to those comorbid participants who have not engaged in mental health services. Expanding the mental health services variable to include informal emotional support provided by family members would provide insight into the various types of mental health services that older racial/ethnic minority services are accessing.

In conclusion, this study highlighted the important role of comorbid physical illness as a potential contributor to the use of mental health services and suggests intervention strategies to enhance engagement of mental health services in older adults from racial/ethnic minority groups. Interventions designed to treat mental health problems using physical health and wellness techniques could be an effective, culturally acceptable strategy to engage racial/ethnic minority elderly in mental health services. Such targeted health promotion interventions hold the potential to positively impact mental health service use in a population that experiences a greater burden of social and medical disadvantages.

Acknowledgments

This research was supported by grants K23 MH098025, R01 MH091042, and P30 MH90333 from the National Institute of Mental Health and K01 AG045342 from the National Institute on Aging.

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Table 1

Health status and sociodemographic characteristics of sample (Age 65+ with and without comorbid physical illness; N=2,724).¹

		Comorbid (N=2,446)	Non-Comorbid (n=278)
Race/Ethnicity²			
White		57%	59%
African-American		19%	16%
Latino		23%	25%
MH Status			
MH Component of SF-12 [^]		35.8	36.9
PHQ-2 Score [^]		4	3.8 ^{**}
K-6 Score [^]		12.5	11 ^{**}
Self-rated MH ²	Excellent	8%	10%
	Very Good	17%	21%
	Good	35%	33%
	Fair	29%	24%
	Poor	12%	12%
Health Status			
PH Component of SF-12 [^]		30.4	38.5 ^{**}
Self-Rated Physical Health ²	Excellent	4%	14% ^{**}
	Very Good	12%	25% ^{**}
	Good	26%	31%
	Fair	34%	20% ^{**}
	Poor	24%	11% ^{**}
Any work limitation		88%	69% ^{**}
Sex			
Male		40%	43%
Female		60%	57%
Age			
60–74		45%	49%
age 75+		55%	51%
Marital Status			
Married		48%	49%
Single		52%	51%
SES			
% Federal Poverty Level (FPL)	<FPL	16%	13%
	100–124% FPL	11%	9%
	125–199% FPL	25%	24%

		Comorbid (N=2,446)	Non-Comorbid (n=278)
	200–399% FPL	30%	33%
	400%+ FPL	18%	21%
Education ²	<High School (HS)	41%	44%
	HS Grad	34%	32%
	Any College	14%	16%
	College Grad	12%	8%
Health Insurance [‡]	Medicaid	22%	13% **
	Medicare	99%	98%
	Uninsured	0%	2% *
Region ²	Northeast	18%	15%
	Midwest	20%	19%
	South	42%	41%
	West	19%	26% *
Urbanicity	Live in MSA	76%	80%

Data: Panels 9–14 (2004–2011) Medical Expenditure Panel Survey

¹ Percents are weighted.

² Percentages may not equal 100% due to rounding.

[^] Data from K6, PHQ-2, and SF-12 reflect mean scores, not percentages

* Groups significantly different at the $\alpha < .05$ level

** Groups significantly different at the $\alpha < .01$ level

[‡] Enrollment in Medicare and Medicaid was not mutually exclusive

Table 2

Predicted probabilities of mental health service use and expenditures among older adults with and without comorbid physical illness.

	Service Use ^a (N=2,724)		Mental Health Expenditures ^b (n=969)	
	Estimate	SE	Estimate	SE
Comorbid	40%	1%	\$ 1163.02	\$ 95.10
Noncomorbid	28%	4%	\$ 1101.11	\$ 397.27
Comorbid – Noncomorbid ^c	12% *	4%	\$ 61.91	\$ 409.66

Data: Panels 9–14 (2004–2011) MEPS

*
p<.05

^aService Use: defined as engaging in outpatient care, prescription drug care, specialty mental health care (psychiatrist, psychologist, counselor, or social worker) or general medical provider care (primary care medical doctor) for mental health or substance abuse issues.

^b Among individuals who engaged in mental health services.

^c Difference in service use and expenditures estimates between comorbid and noncomorbid sample.

Table 3

Comparison of mental health service use and expenditures of white, African-American, and Latino (65+) sample with and without comorbid physical illness.

	Service Use ^a						Mental Health Expenditures ^b					
	White (n=1,563)		African-American (n=519)		Latino (n=642)		White (n=669)		African-American (n=107)		Latino (n=193)	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Comorbid	44%	2%	21%	3%	34%	3%	\$ 1100.98	\$ 86.81	\$ 1179.19	\$ 281.74	\$ 1601.82	\$ 271.68
Noncomorbid	34 %	5%	16%	7%	16%	6%	\$ 859.00	\$ 144.48	\$ 3400.79	\$ 2864.48	\$ 2266.32	\$ 1796.47
Comorbid – Noncomorbid ^c	10% [†]	5%	5%	8%	18% [†]	6%	\$ 241.98	\$ 168.45	\$ -2,221.60	\$ 2,878.30	\$ -664.50	\$ 1,816.90

Data: Panels 9–14 (2004–2011) MEPS

Numbers in bold represent significant disparities at p<.05 level

[†] Significant within ethnic group difference at p<.05 level

^a Service Use: defined as engaging in outpatient care, prescription drug care, specialty mental health care (psychiatrist, psychologist, counselor, or social worker) or general medical provider care (primary care medical doctor) for mental health or substance abuse issues.

^b Among individuals who engaged in mental health services.

^c Difference in service use and expenditures estimates between comorbid and noncomorbid sample.

Table 4

Coefficient estimates from logistic regression models of mental health service use among older adults with comorbid physical illness.

		Service Use (N=2,724)		\$ Expenditures (n=969)	
		Coeff	SE	Coeff	SE
Race/Ethnicity	African-American	-1.1	.66	1.4	.85
	Latino	-.91	.50	.99	.97
Health Status	PH Comorbidity	.41	.24	.05	.21
Interactions	African-American Comorbidity	-.06	.70	-1.4	.88
	Latino Comorbidity	.51	.51	-.57	1.13
MH Status	MH Component of SF-12	-.04**	.01	-.01	.01
	PHQ-2 Score	.05	.05	.05	.08
	K-6 Score	-.01	.02	-.01	.02
Self-rated MH	Very Good	.33	.26	.13	.33
	Good	.38	.24	-.02	.33
	Fair	.86**	.24	-.02	.32
	Poor	.83**	.26	.19	.33
Other Health Status	PH Component of SF-12	.01	.01	-.01	.01
Self-Rated Physical Health	Very Good	-.05	.36	.03	.37
	Good	-.02	.31	.46	.31
	Fair	.04	.32	.32	.33
	Poor	.10	.32	.49	.34
	Any work limitation	.35*	.17	.16	.17
Other Covariates	Female	.47**	.15	.11	.17
	age 75	-.55**	.12	-.06	.18
	Married	-.09	.14	-.23	.14
	100–124% FPL	-.09	.19	.06	.33
	125–199% FPL	.11	.17	.07	.20
	200–399% FPL	.25	.18	-.10	.22
	400%+ FPL	-.08	.21	.22	.22

		Service Use (N=2,724)		\$ Expenditures (n=969)	
		Coeff	SE	Coeff	SE
Education	HS Grad	.02	.16	-.05	.18
	Any College	.34	.19	.38	.20
	College Grad	.20	.23	.76**	.24
Health Insurance	Medicaid	.02	.18	.19	.21
	Medicare	-.11	.51	-.70	1.30
	Uninsured	-.98	1.3	-.66	1.31
Region	Midwest	.29	.20	-.14	.26
	South	.01	.18	-.30	.20
	West	.20	.20	-.15	.25
Urbanicity	Live in MSA	.04	.14	-.31	.19
Constant	_cons	-.71	.91	7.7***	1.70

Data: Panels 9–14 (2004–2011) Medical Expenditure Panel Survey

* p<.05;

** p<.01;

*** p<.001