Published in final edited form as:

Int J Geriatr Psychiatry. 2009 January ; 24(1): 33–40. doi:10.1002/gps.2064.

Elders with First Psychiatric Hospitalization for Depression

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Abstract

Objective—Little is known about the first psychiatric hospitalization episode of older adults with depression. The purpose of this study is to describe the proportion and characteristics of first-time inpatients admitted for late-life depression.

Methods—Guided by the Network Episode Model and the Andersen model, this study identifies and compares the characteristics of depressed older adults with ($N = 108$) and those without ($N = 77$) prior psychiatric hospitalization, upon admission into the geropsychiatric unit, using logistic regression. Data on a lifetime history of inpatient psychiatric treatment, clinical characteristics, demographics, social resources, and psychosocial/medical service use were obtained from patients' medical records and self-reports.

Results—Compared with patients who had prior psychiatric admission, first-time inpatients were associated with having (1) late-onset depression (OR = 14.99); (2) no lifetime psychotic symptoms (OR = 0.21); (3) lower scores on the Brief Psychiatric Rating Scale (BPRS) at admission (OR = 0.96); (4) higher numbers of doctors seen (OR = 1.46); and (5) lower use of senior centers 6 months prior to the admission (OR = 0.12).

Conclusions—Depressed older adults' prior psychiatric inpatient service utilization is closely related to their past and current psychiatric needs. Also, the two groups show significant differences in health and social service use prior to the psychiatric hospitalization. However, severity of depression at admission was not different.

Keywords

First psychiatric hospitalization; Depression; Service utilization

Little is known about the first psychiatric hospitalization episodes of elderly with late-life depression. The literature reflects very little about their clinical characteristics, prior psychiatric treatment, and other factors that might explain their late-life hospitalization for depression. In the light of this gap, this study describes the characteristics of older adults admitted for the first time to a geropsychiatric unit for late-life depression. Using a sample of depressed elders from a geropsychiatric unit, this study compares older first-admission inpatients that have major depression and their counterparts that have prior admissions on demographics, clinical characteristics, and prior medical/psychosocial service use. Previous research on first-time psychiatric hospitalizations has focused on treatment outcomes, such

as readmission (Craig et al., 2000; Gupta et al., 1997; Huff, 2000; Kobayashi and Kato, 2004; Strakowski et al., 1998; Wan and Ozcan, 1991), suicide (Erlangsen et al., 2006), and relapse (Naz et al., 2007). But most studies of first-time users have not focused exclusively on older adults with major depression (Burke, Roccaforte, and Wengel, 1988; Craig et al., 2000; Sohler et al., 2004).

This study is guided by two service utilization theories: the Network Episode Model (NEM) and the Andersen model. The NEM postulates that patients go through different care paths even when they have similar mental health conditions (Pescosolido and Boyer, 1999). Also, the NEM posits that an individual's service use decision-making process is a "social process" that is embedded in the individual's social networks and the treatment system (12, p. 455). Accordingly, this study will examine prior medical and psychosocial service use among depressed older adults in the months preceding their psychiatric hospitalization. Further, the study will examine social resources (which include the number of people in the participant's social network and the level of connectedness he or she feels to it) that may be related to the person's psychiatric admission history. The Andersen model (Aday and Andersen, 1998) will also be used to help us understand the factors associated with first psychiatric hospitalization.

Related to the study purposes, we address the following research questions:

1. What is the past history of psychiatric inpatient service use among depressed older adults admitted to an inpatient geropsychiatric unit?
2. What are the characteristics of older first-admission inpatients with major depression in comparison to those with prior admissions?
3. What (a) predisposing and enabling characteristics, (b) lifetime psychiatric illness factors, and (c) current medical and psychiatric needs are associated with first psychiatric admission among older adults hospitalized with depression?
4. What medical and psychosocial service use in the six months preceding their psychiatric hospitalization is related to first psychiatric admission among older adults hospitalized with depression?

Methods

Sample and Data Collection

The data for this study came from the "Service Use of Depressive Elders after Acute Care," which was funded by a grant from the National Institute of Mental Health (R01MH56208) (Choi, Morrow-Howell, and Proctor, 2006; Proctor et al., 2003). The study was approved by the IRB at the Washington University School of Medicine. To be eligible for the study, the older adult had to (1) be admitted to the geropsychiatric unit of the study hospital for treatment of depression, and (2) be discharged to a community setting, since one of the major goals of the parent study was to examine community-based post hospitalization service use and adequacy of outcomes among depressed older adults. During the recruitment period (March 1997-August 1999), the medical director of the unit, a geropsychiatrist, screened all 568 consecutive admissions, of which 199 met the study criteria and agreed to participate in the parent study. In this study, the index hospitalization is defined as the patient's admission to the geropsychiatric unit in the study hospital during the recruitment period.

This study relied on a number of data sources: self-reports; hospital records; and service use records. Valid medical releases were obtained to retrieve records, which were available for 185 older patients; these constituted our final sample. Participants' medical records were

obtained from various service providers identified by the participants. To get the records, we first asked participants to report the name and location of each provider (psychiatrist, physician, home health agency, hospital, nursing home, and pharmacy) that they had used in the 6 months before the index hospitalization. Then, a team of research assistants contacted these providers to obtain the records. Upon receipt of provider records, the research assistants reviewed them to identify other service providers that had not been reported by the participant. The new providers were contacted for their records, and this process was repeated until there were no more unidentified services indicated in the records (Rozario, Morrow-Howell, and Proactor, 2004).

Measures

History of inpatient psychiatric treatment: First hospitalization—Participants' history of inpatient psychiatric care was obtained from the review of hospital and service records, which focused on any evidence of psychiatric admission history. We reviewed notations by the attending psychiatrist, the primary care physician, psychiatric nurses, and/or the hospital social worker, as well as other written records, such as physician notes, consultant letters, and medical bills. If we saw any evidence of previous psychiatric admissions, the participant was considered to have a prior psychiatric hospitalization. Past psychiatric hospitalizations were not limited to treatment for depression.

On the other hand, statements like "This is the first psychiatric hospitalization" or "The person has never been diagnosed with psychiatric disease" were used as evidence of first psychiatric hospitalization. All participants were thus classified into one of the two groups: those with prior psychiatric hospitalization (i.e., *prior psychiatric hospitalization* group) and those without prior psychiatric hospitalization (i.e., *first psychiatric hospitalization* group).

Factors associated with first psychiatric hospitalization

Predisposing and enabling factors: Table 1 presents information on the predisposing characteristics: age, gender, race, marital status, and education. Homeownership was included as a proxy measure for lifetime income (Freiman, Cunningham, and Cornelius, 1993). This information was obtained in the self-report interview during the index hospitalization. Social resources were assessed with the OARS Social Resources Rating Scale (Barker et al., 1994).

Past psychiatric needs: To assess past psychiatric needs, we used two dichotomous variables: past psychotic symptoms (yes/no) and history of bipolar disorder (yes/no), which were assessed by the admitting geropsychiatrist. Additionally, based on the estimated age at onset of mood disorder assessed by a psychiatrist, patients were divided into two groups: late onset and early onset, with the cutoff age of 60 (Colenda et al., 1991; Kumar et al., 1999; Mandelli et al., 2007; Reynolds et al., 1998).

Current psychiatric needs: To measure the severity of the current psychiatric needs, we used a number of standardized measures: the Geriatric Depression Scale (GDS) (Yesavage, Brink, and Rose, 1983), the Brief Psychiatric Rating Scale (BPRS) (Hay, Hay, and Klein, 1999), and the Mini-Mental Status Exam (MMSE) (Folstein, Folstein, and McHugh, 1975). The participant's psychosocial functioning was assessed using the Global Assessment of Functioning (GAF) (Spitzer, 1996). All standardized instruments were administered at admission by the study hospital's unit staff. Finally, information on the length of stay for the index hospitalization was extracted from the participants' hospital records.

Current physical needs: The research nurse calculated the Cumulative Illness Rating Scale for the geriatric population (CIRS-G) to assess the number of chronic illnesses of the

participants from their hospital records (Miller et al., 1992). The level of physical functioning was measured using the OARS functional assessment of 13 activities of daily living (ADLs) and instrumental activities of daily living (IADLs) at admission: taking medications, transferring, walking, toileting, bathing, grooming, dressing, eating, meal preparation, shopping, money management, traveling, and housekeeping (Duke University Center for the Study of Aging and Human Development, 1978).

Service use before the index hospitalization (preceding 6 months): We examined the medical and psychosocial services used prior to the index hospitalization (yes/no). Medical services included physician, hospital admission, ER, home health care nurse, occupational or physical therapy, day treatment center, and pharmacy. Psychosocial services included adult day center, senior center, caseworker, and counselor (social worker or psychologist).

Missing Data

The extent of missing data was minimal; the onset of depression ($n = 19$), the GDS at admission ($n = 8$), and homeownership ($n = 7$). All missing values were imputed using a hot-decking procedure (Katz, Read, and Banks, 1998).

Analyses

Univariate analyses were used to describe the characteristics of participants and their prior medical/psychosocial service use. To identify factors related to first psychiatric hospitalization (i.e., *prior vs. first psychiatric hospitalization*), t tests, chi-square tests, and Fisher's exact tests were conducted as appropriate. The significant independent variables ($p < .1$) were then selected and tested in the final logistic regression model with first psychiatric hospitalization (yes = 1) as the dependent variable.

Results

Of the 185 participants, between ages 60 and 98, 77 (41.6%) were in the *first psychiatric hospitalization* group and 108 (58.4%) were in the *prior psychiatric hospitalization* group. Table 1 summarizes the participants' predisposing, enabling, needs, and prior service use characteristics. Bivariately, in comparison with the *prior psychiatric hospitalization* group, respondents in the *first psychiatric hospitalization* group were more likely to have a late-onset of depression ($p < .0001$); were less likely to report past psychotic symptoms ($p < .0001$) or a lifetime bipolar disorder ($p = .0002$); scored lower on the BPRS ($p = .016$); had lower levels of social resources ($p = .015$); had seen more physicians in the 6 months prior to the index hospitalization ($p = .014$); and were less likely to use a senior center ($p = .027$). However, the severity of depression at admission was not different between the two groups.

When these bivariately significant variables were tested in the logistic regression model (Table 2), some predisposing, current/past psychiatric needs, and prior service use factors remained significant. Participants with late-onset mood disorder were 15 times more likely to be in the *first psychiatric hospitalization* group in terms of odds. Also, first timers were less likely to have past psychotic symptoms (OR = 0.21) than those in the *prior psychiatric hospitalization* group. Similarly, older patients in the *first psychiatric hospitalization* group had lower psychiatric symptoms on the BPRS at admission (OR = 0.96). In addition, compared with patients with less than a high school diploma or with postsecondary education, high school graduates were more likely to be in the *first psychiatric hospitalization* group (OR = 0.25 and 0.29, respectively). The two groups were also different in their service utilization prior to the index hospitalization. Those in the *first psychiatric hospitalization* group reported seeing a higher number of doctors 6 months prior to the index hospitalization (OR = 1.46). However, participants in the *prior psychiatric hospitalization*

group were 8.5 times more likely to have used a senior center than their counterparts before the index hospitalization.

Discussion and Conclusion

Major findings of this study can be summarized as follows; (1) about 40% of admissions to the geropsychiatric unit for depression consisted of first-admission patients during the study period, (2) compared to people with prior psychiatric hospitalizations, first timers were more likely to be late onset without current and past psychiatric symptoms, and (3) first timers had seen more physicians than their counterparts in the 6 months before the index admission.

First, this study underscores that undetected, and thus untreated, depression in older adults can develop into full-blown depression requiring inpatient care. The significant portion of all admissions to the geropsychiatric unit for treatment of depression consisted of first admissions, and the mean age of those in the *first psychiatric hospitalization* group was 77. Thus, service providers for older adults in diverse settings should incorporate depression detection in their assessment repertoire so that they can adequately intervene, even though it is often very challenging due to competing demands (Munson et al., 2007). Also, given high mortality and morbidity rates associated with geriatric depression, more efforts should be put into prevention and research to tackle depression among high-risk older adults (Whyte and Rovner, 2006).

The high prevalence of both subsyndromal and full-blown major depression has been documented among older adults (Delano-Wood and Abeles, 2005; Proctor, Morrow-Howell, and Choi, 2006). Even though many effective treatments for geriatric depression are available, older adults underutilize mental health treatments for depression (Crabb and Hunsley, 2006; Cuijpers, Straten, and Smit, 2006; Delano-Wood and Abeles, 2005; Mandelli et al., 2007). This study indicates that only 13% of first timers used counseling services in the 6 months prior to the index admission.

Also, additional analysis of the current study data (not shown; details are available upon request) indicates that 35 of the 77 first timers (45.5%) had never had prescribed psychiatric drugs, diagnosis of psychiatric diseases, or psychiatric outpatient treatments before the index hospitalization even though the two groups were not different in terms of the current and lifetime clinical characteristics. Instead, those 35 individuals without any previous psychiatric treatment were less likely to own a home ($\chi^2(1)=5.17$, $p=.02$) and more likely to be African American (Fisher's exact test, $p=.04$). Thus, among this group of vulnerable older adults, their first mental health treatment was delivered through the inpatient setting, the most expensive and intense form of psychiatric care.

Additionally, even with the high rates of older first-admitted psychiatric inpatients for depression, little is known about the relationship between the anxiety level associated with their first psychiatric hospitalization and their age at admission. Hospitalization, especially first psychiatric admission, involves high levels of distress among patients and family members (Möller-Leimkühler, 2005; Paparrigopoulos et al., 2006). However, stress would be much higher among older, first-admitted psychiatric patients than among older inpatients with prior psychiatric admissions or younger first timers.

Second, the results indicate that older depressed patients' history of psychiatric inpatient care corresponds with their current and prior psychiatric needs, as the Andersen model suggests, rather than reflecting different service use paths for a given illness. Namely, first timers had not used psychiatric inpatient care before the index hospitalization because they had not needed such service, not because they had chosen to seek different types of providers when they were younger. In this study, about 90% of all older first-admission patients were late

onset. Nevertheless, further research is necessary to assess the delay in seeking treatment for the current episode of depression among people in the *first psychiatric hospitalization* group. Studies have shown that a longer period between a first episode of illness and first psychiatric admission (i.e., the duration of an untreated illness) is related to a longer period to remission (Craig et al., 2000; Naz et al., 2007). According to Kessler, Olfson, and Berglund (1998), individuals with earlier onset of psychiatric disorders were more likely than those with later onset to contact their mental health providers sooner. Also, people with early onset of psychiatric disorders are likely to be more familiar with the mental health service delivery system.

Third, as discussed previously, the NEM was not supported when the lifetime service use history and course of illness were considered. However, considering the period immediately before the index hospitalization, the results indicate different service use paths between the two groups, thus partially supporting the NEM. In this study, older adults in the *first psychiatric hospitalization* group had had more contact with healthcare providers before the index hospitalization, although the two groups were not different in their levels of chronic illnesses and functional impairments at admission. First timers might have seen more physicians to supplement their mental health service needs prior to their first psychiatric hospitalization (i.e., alternative use of physicians for psychiatric symptoms) for reasons such as lack of familiarity with mental health treatments and stigma. This may also be explained with the NEM framework, which emphasizes that people go through different pathways to a formal mental health service during the course of an illness (Pescosolido and Boyer, 1999). However, our data do not enable us to compare service needs during the six months prior to the index hospitalization between the two groups.

Our findings differ from previous studies that show the connection between a person's primary social network and the timing of his or her first psychiatric hospitalization. As such we found no support for the hypothesis that the help-seeking process is embedded within a social context (Carpentier and White, 2002), even though the level of social resources was significant bivariately. In addition, higher participation rates in senior centers among those with prior psychiatric hospitalization might reflect the importance of these centers in monitoring older adults with depression.

A future study, replicating this study with a comparison group consisting of people with different psychiatric diagnoses or in different age groups (Mandelli et al., 2007), would help further our understanding of first-admitted older patients with depression. Connecting this study to existing literature, it would be beneficial to examine the prognosis of depression and service use configurations during the postacute period among late-life, first-admission patients. Among younger adults, first admissions are related to lower readmission rates and better prognoses (Paparrigopoulos et al., 2006).

Caution should be taken regarding the sources and availability of data. Regarding the use of hospital and medical records to identify past inpatient psychiatric treatment, these records may not be comprehensive in capturing all the information on prior hospitalizations and may in fact undercount this phenomenon in our sample. Also, studies suggest probable errors in self-reported lifetime recalls of psychiatric illnesses (Kessing, 2006; Simon and VonKorff, 1995). Additionally, information on service use in the 6 months prior the current hospitalization was also collected via retrospective self-report. Finally, we do not know whether depression was the primary diagnosis for the participants' previous inpatient service use.

Notwithstanding these limitations, this study contributes to the literature by depicting the proportion and the characteristics of older first-admission patients with depression. This

study also incorporates a longitudinal service use component by examining service use paths in the period before depressed patients had received their first inpatient care. Additionally, contrary to many studies that include only first timers, this study also included a comparison group that had received prior psychiatric inpatient.

Acknowledgments

This study was conducted through the Center for Mental Health Services Research, George Warren Brown School of Social Work, Washington University, and was supported by the National Institute of Mental Health (#1RO1MH56208).

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Table 1
Factors associated with psychiatric admission history: Univariate characteristics [*M*(*SD*) or %] and bivariate test results (*t* test or chi-square test) (*N* = 185)

	All	Psychiatric admission history		Test statistics	df	p
		First hospitalization (n = 77)	Prior hospitalization (n = 108)			
Predisposing						
Age	76.10(7.14)	77.12(7.49)	75.37(8.04)	t = 1.65	183	.101
Male	20.19	35.06	25.0	χ ² = 2.20	1	.138
African American	14.59	12.99	15.74	χ ² = 0.27	1	.601
Married	41.08	41.56	40.74	χ ² = 0.01	1	.911
Education				χ ² = 6.01	2	.049
Less than high school	40.54	33.77	45.37			
High school diploma	27.03	36.36	20.37			
More than high school	32.43	29.87	34.26			
Enabling						
Homeownership (= yes)	69.19	70.13	68.52	χ ² = 0.05	1	.815
Social Resource Rating Scale ^a	2.98(1.18)	2.73 (1.13)	3.16(1.19)	t = -2.47	184	.018
Past psychiatric needs						
Late onset (= yes)	60.54	89.61	39.81	χ ² = 46.66	1	<.0001
Past psychotic symptoms (= yes)	17.3	3.90	26.85	χ ² = 16.56	1	<.0001
Lifetime bipolar disorder (= yes)	11.89	1.30	19.44	χ ² = 14.13	1	.0002
Current psychiatric needs						
GDS at admission ^a	17.07(6.94)	16.22 (6.44)	17.68(7.24)	t = -1.41	183	.160
BPRS at admission ^a	42.57(11.43)	40.17 (10.31)	44.28(11.92)	t = -2.44	183	.016
GAF at admission ^b	31.33(6.24)	31.58 (7.25)	31.15(5.43)	t = 0.45	134	.656
MMSE at admission ^b	23.44(4.83)	23.21 (4.56)	23.61(5.03)	t = -0.56	183	.577
Length of stay (days)	18.22(11.88)	16.69 (11.53)	19.31(12.06)	t = -1.48	183	.140
Current Physical Needs						
CIRS-G total ^a	9.71(3.28)	9.99(3.44)	9.51(3.16)	t = 0.98	183	.330
No. of dependency needs in ADLs and IADLs	4.64(3.44)	4.60 (3.55)	4.68 (3.38)	t = -0.15	183	.879

	All	Psychiatric admission history		Test statistics	df	p
		First hospitalization (n = 77)	Prior hospitalization (n = 108)			
Medical service use (= yes)						
Medical hospital admission ^c	37.84	40.26	36.11	$\chi^2 = 0.33$	1	.566
ER other than previous hospitalization	25.95	24.68	6.85	$\chi^2 = 0.11$	1	.739
Home health care nurse/aide	31.89	5.97	36.11	$\chi^2 = 2.22$	1	.145
Occupational or physical therapist	15.68	16.88	14.81	$\chi^2 = 0.15$	1	.703
Day treatment center	3.78	2.60	4.63	Fisher's	-	.701
Pharmacist or pharmacy	97.84	98.70	97.22	Fisher's	-	.642
Any other care providers	24.32	24.68	24.07	$\chi^2 = 0.01$	1	.925
Physician	68.11	72.73	64.81	$\chi^2 = 1.30$	1	.255
Number of physicians seen	1.19(1.19)	1.46(1.36)	1.00(1.01)	t = 2.48	133	.014
Psychosocial service use (= yes)						
Day care center	3.24	2.60	3.70	Fisher's	-	1.000
Senior center	12.97	6.49	17.59	$\chi^2 = 4.90$	1	.027
Caseworker	4.32	3.90	4.63	Fisher's	-	1.000
Counseling (social worker or psychologist)	12.97	12.99	12.96	$\chi^2 = 0.00$	1	.996

^a Lower scores indicate better status.

^b Higher scores indicate better status.

^c A 12-month observation period was used.

Logistic regression of history of inpatient psychiatric treatment (first hospitalization = 1) on predisposing, past and current psychiatric needs, enabling, and prior service use variables ($N = 185$)^a

Table 2

Variable	b	OR	95% CI	Wald χ^2	P
Intercept	3.38				
Predisposing					
Age	-0.03	0.97	0.91-1.03	1.68	.196
Education					
Less than high school	-1.40	0.25	0.09-0.70	6.86	.009
More than high school	-1.23	0.29	0.01-0.89	4.69	.030
High school diploma (reference)					
Past/current psychiatric needs					
Late onset (= yes)	2.71	14.99	5.01-44.90	23.41	<.0001
Past psychotic symptoms (= yes)	-1.57	0.21	0.05-0.89	4.51	.039
Lifetime bipolar disorder (= yes)	-2.05	0.13	0.01-1.24	3.14	.076
BPRS at admission ^b	-0.04	0.96	0.93-0.998	4.37	.037
Enabling					
Social Resource Rating Scale ^b	-0.14	0.87	0.62-1.22	0.64	.425
Prior service use (6 months)					
Number of doctors	0.38	1.46	1.05-2.03	4.95	.026
Senior center	-2.14	0.12	0.03-0.47	9.04	.003
Model χ^2			91.60 ($p < .0001$)		
df			10		
Pseudo R^2			0.391		
c			0.878		
Tolerance values			0.61-0.98		

^aReference group consists of participants with prior inpatient psychiatric treatment.

^bLower scores indicate better status.