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Characteristics Associated with Inpatient Versus Outpatient Status in Older Adults with Bipolar Disorder

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Abstract

Objectives—This is an exploratory analysis of ambulatory and inpatient services utilization by older persons with type I bipolar disorder experiencing elevated mood. The association between type of treatment setting and the person's characteristics is explored within a framework that focuses upon predisposing, enhancing, and need characteristics.

Method—Baseline assessments were conducted with the first 51 inpatients and 49 outpatients 60 years of age and older, meeting criteria for type I bipolar disorder, manic, hypomanic, or mixed episode enrolled in the geriatric bipolar disorder study (GERI-BD) study. We compared participants recruited from inpatient versus outpatient settings in regard to the patients' predisposing, enabling, and need characteristics.

Results—Being treated in an inpatient rather than an outpatient setting was associated with the predisposing characteristic of being non-Hispanic caucasian (odds ratio [OR]: 0.1; $P = .005$) and past history of treatment with first-generation antipsychotics (OR: 6.5; $P < .001$), and the need characteristic reflected in having psychotic symptoms present in the current episode (OR: 126.08; $P < .001$).

Conclusion—Ethnicity, past pharmacologic treatment, and current symptom severity are closely associated with treatment in inpatient settings. Clinicians and researchers should investigate

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whether closer monitoring of persons with well-validated predisposing and need characteristics can lead to their being treated in less costly but equally effective ambulatory rather than inpatient settings.

Keywords

bipolar disorder; geriatric; hospitalization; mania

Introduction

Bipolar disorder (BD) is a common psychiatric illness, characterized by recurrent cycles of mood episodes with symptoms ranging from depression to mania. Although BD is a common diagnosis in young adults, the number of elderly patients with BD in the United States is increasing significantly, mostly due to the aging of the population as a whole. A community-based study found the prevalence of BD in the elderly individuals to approximate 0.5%.¹ However, 5% to 19% of elderly patients presenting for treatment of mood disorder have BD.² Moreover, an analysis of the Veterans Health Administration database revealed that one fourth of the patients with BD are 60 years and older.³

In a study of elderly patients' utilization of emergency services, older patients diagnosed with a cognitive disorder, psychotic disorder, or BD were more likely to be admitted for inpatient care than those having substance use, depressive, or anxiety disorders.⁴ In this study, 67% (N = 64) of elderly patients with BD presenting to the emergency service required psychiatric inpatient care.

While practice guidelines for treating patients with BD are well established,⁵ they lack clear recommendations for initiating inpatient versus outpatient care during an acute episode. It is generally accepted that admission to an inpatient unit is indicated for persons who (1) pose a serious threat of harm to self or others, (2) are severely ill and have inadequate social support, (3) have complicated psychiatric or medical problems, or (4) have not responded to prior outpatient treatments.⁵ However, while such guidelines detail pharmacological interventions, they are not age specific.

Given persisting ambiguities regarding the optimal setting and manner in which to treat older persons with BD, it is informative to consider previously developed models of health care utilization. One such framework refined by Andersen and Newman⁶ focuses on the following 3 characteristics found to affect overall health services utilization in the community. Predisposing characteristics are the preexisting conditions that may increase an individual's susceptibility to illness. They include demographic variables (eg, age, sex, and marital status), social structure (eg, education, occupation, minority status, ethnicity, family size, religion, and residential mobility), and health beliefs (eg, values concerning health and illness, knowledge about the disease, and attitude toward health services). Enabling factors pertain to either the individual or his or her family, and include income, health insurance, and access to regular health services. Enabling characteristics also include influences present in the larger community, such as the price of health services, region of country, urban–rural character, and ratios of population to health personnel and facilities. Need characteristics pertain to the patient's history of prior illnesses and his or her perception of the present illness level (eg, severity of disability, range of symptoms, diagnostic stigma or general health state), or a health professional's assessment of these elements (symptoms and diagnoses). Andersen and Newman⁶ determined that illness level had relatively high importance for predicting hospitalization; family resources and demographics, as well as past illness, had medium importance; and social structure, beliefs, and community resources were of relatively low importance.

Little is known about predisposing, enabling, and need characteristics associated with treatment setting selection (outpatient or inpatient) for older patients with BD. Understanding current practices and patient characteristics that are related to hospital admission versus ambulatory care potentially can provide clinicians with a general guideline for selecting a cost-effective treatment setting for older patients experiencing BD. Thus, as part of the National Institute of Mental Health–funded geriatric bipolar disorder study (GERI-BD)⁷ clinical trial, we explored selected predisposing, enabling, and need characteristics in a sample of older persons experiencing type I BD with mood elevation, who were recruited in inpatient and outpatient settings. Of particular interest was the degree to which persons recruited in inpatient and outpatient settings would differ on the research measures assessing the characteristic of clinical need.

Methods

The present analysis is based on the baseline assessment of the first 100 patients enrolled in the GERI-BD continuing 9-week, randomized, double-blind, controlled trial, which compares the tolerability and efficacy of pharmacotherapy with lithium or valproate for late-life mania. The study was conducted at 6 academic medical centers in the United States and included university, Veterans Administration, and public hospitals. Study participants were enrolled from both inpatient and outpatient settings. They were aged 60 years and older with type I BD, mania, mixed-manic episode or hypomania, as confirmed by the Structured Clinical Interview for Diagnosis (SCID).⁸ In addition, participants reported manic symptoms of at least moderate severity, as defined by a Young Mania Rating Scale (YMRS) score of 18 or greater.⁹ Individuals were excluded from the clinical trial if they had chronic psychotic conditions (schizophrenia, schizoaffective disorder, delusional disorders); contraindications to or intolerance of either lithium or valproate, or a history of nonresponsiveness to adequate treatment with these mood stabilizers; active substance dependence; mood disorders caused by a general medical condition or treatment; rapid cycling; a diagnosis of dementia; inability to communicate in English; significant sensory impairments; recent history of cardiovascular event or stroke; or a high risk of suicide. There was no cutoff score on any depression-rating scale with regard to study-entry eligibility.

Assessments and Instruments

In addition to the diagnostic assessment (SCID and assessment of manic symptoms with the YMRS), depressive symptoms were evaluated with the 24-item GRID version of the Hamilton Depression Rating Scale (HAM-D)¹⁰ and the Montgomery Asberg Depression Rating Scale (MADRS¹¹). Other collected data included demographic characteristics, use of a health aide or live-in help, history of past suicide attempts, age of illness onset, medical comorbidity (Cumulative Illness Rating Scale–Geriatric version [CIRS-G]¹²), cognitive status (Mini Mental State Examination [MMSE]¹³), and global psychopathology (Clinical Global Impressions-BD¹⁴). The full assessment battery is described in greater detail elsewhere.⁷

Following the model of Andersen and Newman,⁶ we compared the predisposing-, enabling- and need-factor measures available for the patients recruited in participating inpatient or outpatient settings. Predisposing characteristics included age, gender, minority status, marital status, level of education, living arrangement, past illness course (number of lifetime episodes, age of first illness, age of first manic episode, duration of illness, and history of comorbid illnesses including psychosis, anxiety, or substance abuse/dependence), medication history, past suicide attempts, and disability as reflected by the World Health Organization Disability Assessment Schedule (WHO-DAS)^{15,16}; enabling characteristics were type of medical insurance and Duke Social Support Index¹⁷; and need factors were

severity of acute symptoms (YMRS, HAM-D, and MADRS scores), presence of psychotic symptoms, and the CIRS-G.

Statistical Analysis

Statistical analyses were performed using SAS software Version 9.2. (SAS Institute, Inc, Cary, North Carolina). Descriptive analyses used baseline measures for all participants and were stratified by treatment setting (inpatient and outpatient). Comparisons of the 2 study groups were performed using chi-square analyses or Fisher exact tests for dichotomous variables and Student *t* tests with comparisons of mean scores for continuous variables. Given the exploratory nature of this study, the family-wise error rate was neither modified nor adjusted. In addition, a logistic regression model was constructed to examine the effect of independent variables identified by $\alpha < .20$ in univariate analyses.

Results

In addition to the 100 participants who were randomized, 51 participants were consented but not randomized, and 742 participants were screened but not consented. Many of the screens were conducted over the telephone. Females represented only 40% of the total number of participants but half of the recruited sample ($\chi^2 = 6.59$; $df = 2$; $P = .04$). Minority status did not differ between the participants who were screened (22.1%), consented but not randomized (25.5%) and those who were randomized (21%; $\chi^2 = 0.55$; $df = 2$; $P = .76$). Similarly there was no difference between screened, unrandomized, and randomized participants when it came to the setting where participants were approached ($\chi^2 = 5.46$; $df = 2$; $P = .07$). Thus, the randomized sample analyzed for this study appears to be demographically comparable to the larger population of individuals being treated at the inpatient and outpatient settings sampled.

Tables 1 to 3 summarize baseline predisposing, enabling and need characteristics collected for the study sample. As the tables indicate, the study's initial sample of 100 patients was divided almost equally between participants recruited in inpatient (51%) and outpatient (49%) settings.

Predisposing Characteristics

Significant differences between the 2 groups pertained to minority status, age at illness onset, duration of illness, history of psychotic symptoms, and medication history (Table 1). More specifically, minority patients were less likely than non-Hispanic caucasians to be recruited in an inpatient setting (11.8% vs 30.6%, $\chi^2 = 5.35$, $P = .02$). Additionally, they had a shorter duration of illness ($\bar{X} = 30.3$, standard deviation [SD] 18.22 years) compared to those recruited from an outpatient setting ($\bar{X} = 37.3$, SD = 14.57 years; $t = 2.07$; $df = 94$; $P = .041$). Participants' minority status did not differ between the 6 sites (Fisher exact $P = .275$).

As for medication history, which possibly reflects the severity of past illness episodes, significantly more participants recruited from inpatient than outpatient settings previously had been prescribed mood stabilizers and antipsychotics. We further analyzed prior medication history in relation to patients' minority status and the treatment setting from which they had been recruited. We found that significantly more non-Hispanic caucasian than minority patients recruited from inpatient setting had been previously prescribed mood stabilizers (84.1% vs 40%; Fisher exact $P = .05$). The same medication pattern was observed among patients recruited from outpatient settings; significantly more non-Hispanic caucasians than minority outpatients had been previously prescribed mood stabilizers

(70.6% vs 40.0%; $\chi^2 = 4.1$; $df = 1$; $P = .04$). Minority status was not related to previous treatment with antipsychotics in either inpatient or ambulatory settings (data not shown).

Enabling Characteristics

The available measures of this characteristic, that is scores on the 4 subscales of the Duke Social Support Index and types of insurance coverage, did not differ between the inpatient and outpatient groups (Table 2).

Need Characteristics

Participants recruited from inpatient units were more severely ill than outpatients as is reflected by their significantly higher baseline manic symptomatology; YMRS score $\bar{X} = 28.1$, $SD = 7.27$ versus $\bar{X} = 24.6$, $SD = 5.67$ (Table 3). The presence of psychotic symptoms also differed in the 2 groups: more than half (56.9%) of the participants recruited from inpatient unit presented with these symptoms while only a small minority (12.2%) of those from outpatient settings did so ($\chi^2 = 21.87$; $df = 1$; $P < .01$). The presence of psychotic symptoms among the participants did not differ between the 6 sites (Fisher Exact $P = .425$). The 2 groups did not differ in regard to other need factors, including baseline HAM-D-17, MADRS, MMSE, or CIRS-G scores.

Type of mood episode (manic or mixed) did not differ between the 2 groups although hypomania did. Only 5.9% of the participants from the inpatient units presented with a hypomanic episode, whereas 20.4% of the outpatients did so (Fisher exact $P = .039$).

Regression Model

Logistic regression analysis was used to predict inpatient status. The stepwise multivariate model included only variables with bivariate correlations $P < .20$, and it was built starting with the need characteristic followed by predisposing, and finally enabling characteristics. As can be seen in Table 4, the resulting overall model which was corrected for site differences was significant for predicting recruitment from hospital compared to ambulatory settings, ($\chi^2(3) = 46.157$, $P < .001$). Independent, significant predictors of psychiatric hospitalization include current episode with psychosis (odds ratio [OR]: 16.08; $P < .0001$), history of treatment with first-generation antipsychotics (OR: 6.54; $P < .001$), and minority status (OR: 0.11; $P = .005$). The percentage concordance of predicted probabilities and observed responses for this model is 85.3%.

Discussion

In keeping with Andersen and Newman's⁶ generic model positing 3 variables that influence the utilization of health care resources, we assessed the association between a variety of predisposing, enabling, and need measures and inpatient or outpatient treatment setting in a sample of older patients with type I BD presenting with elevated mood. Our main findings were that the presence of psychotic symptoms increased the likelihood of being recruited from an inpatient setting approximately 12-fold and having been treated previously with first-generation antipsychotics by 5-fold. Minority patients were 6 times less likely to be recruited from an inpatient setting.

As would be expected, clinical need exerted a major influence on the setting in which older persons were treated. Participants presenting with relatively milder hypomania were more likely to be treated in the outpatient setting, while more severely ill patients presenting with psychotic symptoms and higher YMRS scores were more likely to be treated in inpatient units (Table 3).

It is of interest that severity of depressive symptoms was not related to treatment setting. However, this finding should be interpreted cautiously since the presence and severity of depressive symptoms in the total sample was fairly low. The prevalence of mixed episodes was only 17%, and the mean HAM-D-17 and MADRS scores indicated an overall mild level of depressive symptoms.

Also somewhat surprising is the finding that comorbid anxiety and the history of substance-abuse disorders are not related to the setting in which BD is treated (Table 3). Similarly surprising is our finding that burden of physical illnesses, as measured by the CIRS-G score, also failed to distinguish inpatients from outpatients.¹⁸ This is somewhat inconsistent with Perron et al's¹⁹ finding that adults experiencing BD and 1 or more general medical conditions evidence greater disability compared to those not experiencing such a condition. However, the fact that medically unstable patients were excluded from the study possibly affected this finding.

Turning to the manner in which predisposing characteristics other than medication history influence the utilization of health care, we found only 4 of 22 such measures significantly related to the setting within which elderly study participants were being treated for BD (Table 1). Perhaps the most clinically pertinent of these 4 significant measures is past medication history. While inpatients and outpatients did not differ with regard to prior prescriptions of benzodiazepines and antidepressants, significantly more inpatients than outpatients previously had been prescribed mood stabilizers and first- or second-generation antipsychotics. While not necessarily predicting current psychiatric need, this treatment history may portend the patient's susceptibility to future severe mood episodes.

Our finding that significantly more non-Hispanic caucasians, from both inpatient and outpatient settings were previously prescribed mood stabilizers is consistent with the literature. Several studies have already reported disparities in the use of mood stabilizers for minority participants, mostly African Americans compared to non-Hispanic caucasians.²⁰⁻²² Future studies should consider whether symptom severity among those diagnosed with BD differs across racial and ethnic groups, or whether clinicians are more likely to prescribe mood stabilizers to non-Hispanic caucasians than to minority patients.

The second predisposing variable distinguishing this study's inpatient and outpatients recruits is minority status. Non-Hispanic caucasians were recruited significantly more often than minority patients in inpatient settings. It is unlikely that this finding stems from differences in symptom severity since we controlled for this variable (data not shown). Other studies have shown that older minority and nonminority patients with mental disorders utilize health services differently. These differences possibly reflect unique cultural values, and distinct perceptions of such caregiving institutions as psychiatric hospitals.²³⁻²⁶

The age at onset for first affective illness (Table 1) differs significantly for outpatient and inpatient recruits (31.2 vs 38.7 years). However, the age of first manic episode and number of lifetime episodes is not significantly different for this sample, due to relatively large sample variances (Table 1). Pending future analyses based upon the full cohort of patients recruited for the GERI-BD clinical trial, we speculate that persons with an earlier onset of a mood disorder (ie, a longer duration of experiencing the mood disorder) may constitute a cohort of patients who have learned to access ambulatory resources earlier in a clinical episode and thereby to prevent an impending hospitalization.

Also warranting further research is our unexpected finding that functional status as measured by the WHODAS total score and its 6 subscales did not differ significantly between inpatients and outpatients (Table 1). Inpatients would be expected to score lower

than outpatients on the WHODAS social and physical functioning subscales, but this was not the case. We note that degree of disability fluctuates over time, and the WHODAS assesses functioning on but a single occasion regarding the limited period of the past 21 days. Thus, continuing rather than single assessments of this predisposing factor might yield different findings when comparing the functional status of bipolar inpatients and outpatients. It is also conceivable that a latent profile analysis of the type suggested by Perron et al²⁷ would create classifications of functional status and impairment profiles more pertinent to the treatment of patients with BD relative to the information emanating from the WHODAS subscales.

It is important to consider that most of the study's older patients have Medicare coverage and thus can access outpatient or inpatient services as clinically indicated. An analysis of the relationship between type of insurance and locus of care in younger bipolar patients might well yield different findings. Finally, a broader and more definite conclusion regarding the impact of enabling characteristics on the utilization of psychiatric services by elderly persons with BD can only be drawn after investigating additional variables, for example distance between the patient's residence and the mental health center.

A number of methodological limitations need to be considered when interpreting these preliminary findings. We are presenting a secondary analysis of data from a larger treatment study, but our analyses include only the initial 100 patients recruited at several sites. Thus, we may lack adequate statistical power to detect the differences between the 2 patient groups with regard to predisposing, enabling, and need characteristics affecting service utilization. Equally importantly, generalizability of these results is constrained by the fact that they were derived from older patients who fulfilled the inclusion/exclusion criteria of the GERI-BD randomized clinical trial rather than all older persons receiving inpatient or outpatient treatment for BD. Finally, the need characteristic as defined within the Andersen and Newman⁶ model comprises both patient-perceived need and provider-evaluated need. We lacked data about the former type of need. Some patient perceptions, therefore, may well have differed from those of clinicians and resulted in their selecting less intensive care in outpatient rather than inpatient facilities.

Conclusion

Selected demographic and clinical characteristics influence choice of treatment setting for older persons experiencing BD. Thus, individuals with a history of full-blown mania or psychotic symptoms require the additional support available in inpatient rather than community-based settings if they experience mood deterioration, need factors, that is severe manic symptoms and presence of psychosis, seem to affect treatment setting. The other univariate findings regarding predisposing, enabling, and need characteristics, as well as the logistic regression model, thus, potentially can guide clinicians in the design and administration of services most suited to the needs of elderly persons experiencing BD.

Our study highlights the relative impact of multiple patient characteristics affecting the choice of bipolar treatment setting. Prospective studies designed to include all rather than only some features of Andersen and Newman's model would have more impact in determining specific aspects of treatment setting selection for the elderly patients with BD than more narrowly conceived planning strategies. Residential mobility, participants' values concerning health and illnesses, attitude toward health services, and knowledge about disease are examples of predisposing variables that researchers can include in future studies. Similarly, the impact of additional enabling measures such as ratios of health facilities to populations, price of health services, urban-rural character, as well as need characteristics such as a participant's perception of his or her illness as it pertains to symptom severity,

disability, and diagnosis can also be studied. Such studies potentially can identify areas where clinicians can intervene to reduce the need for inpatient hospitalizations. Finally, policy makers can focus resources on such areas/variables that are responsive to changes in a patient's circumstance in order to reduce the costs associated with inpatient hospitalizations.

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Table 1

Profile of Elderly Individuals With Type I Bipolar Disorder by Treatment Setting

Predisposing Factors	Range	N = 100 All	N = 51 (51%) Inpatient	N = 49 (49%) Outpatient	Statistic
Demographic					
Age mean(SD)	60-84	68.9 (7.13)	68.9 (7.15)	69.0 (7.19)	$t = -0.11$; $df = 98$; $P = .91$
Gender, N (%)					
Female		50 (50.0)	26 (51.0)	24 (49.0)	$\chi^2 = 0.04$; $df = 1$; $P = .84$
Male		50 (50.0)	25 (49.0)	25 (51.0)	
Education, years, mean (SD)	5-25	13.4 (3.12)	13.1 (2.83)	13.7 (3.4)	$t = -0.82$; $df = 97$; $P = .42$
Race/ethnicity, N (%)					
Caucasian non-Hispanic		79 (79.0)	45 (88.2)	34 (69.4)	$\chi^2 = 5.35$; $df = 1$; $P = .02$
Minority		21 (21.0)	6 (11.8)	15 (30.6)	
Social structure					
Marital status					
Married		37 (37.0)	21 (41.2)	16 (32.7)	$\chi^2 = 0.78$; $df = 1$; $P = .38$
Not married		63 (63.0)	30 (58.9)	33 (67.3)	
Living alone, N (%)		49 (49.0)	26 (51.0)	23 (46.9)	$\chi^2 = 0.16$; $df = 1$; $P = .69$
Functioning WHODAS-II					
Getting around	2-10	4.5 (2.32)	4.1 (2.25)	5.0 (2.34)	$t = -1.81$; $df = 93$; $P = .07$
Life activities	1-5	2.1 (1.32)	2.1 (1.35)	2.1 (1.3)	$t = -0.02$; $df = 94$; $P = .98$
Understand/communicate	2-8	3.9 (1.6)	3.7 (1.48)	4.1 (1.71)	$t = -1.26$; $df = 94$; $P = .21$
Participation in society	2-10	4.5 (2.14)	4.2 (2.01)	4.8 (2.25)	$t = -1.34$; $df = 94$; $P = .18$
Self-care	2-8	2.8 (1.5)	2.8 (1.45)	2.9 (1.56)	$t = -0.18$; $df = 94$; $P = .86$
Getting along with people	2-8	3.2 (1.72)	3.1 (1.65)	3.3 (1.8)	$t = -0.61$; $df = 93$; $P = .54$
WHODAS total	12-45.8	23.0 (8.6)	21.8 (8.23)	24.1 (8.9)	$t = -1.31$; $df = 93$; $P = .19$
Past illness					
# Lifetime episodes, including current	1-200	13.2 (24.09)	11.9 (30.21)	14.5 (14.84)	$t = -0.52$; $df = 95$; $P = .60$
Age of first manic episode	9-82	43.3 (20.68)	46.4 (21.4)	39.9 (19.57)	$t = 1.54$; $df = 93$; $P = .13$
Age of onset first illness episode	9-81	35.1 (18.47)	38.7 (20.63)	31.2 (15.04)	$t = 2.03$; $df = 94$; $P = .045$
Duration of illness in years	0-66	33.7 (16.86)	30.3 (18.22)	37.3 (14.57)	$t = 2.07$; $df = 94$; $P = .041$
Patients with 1 or more previous suicide attempts, N (%)		16 (16.0)	7 (13.7)	9 (18.4)	$\chi^2 = 0.4$; $df = 1$; $P = .53$

Predisposing Factors	Range	N = 100 All	N = 51 (51%) Inpatient	N = 49 (49%) Outpatient	Statistic
# of previous suicide attempts	0-4	0.2 (0.6)	0.2 (0.42)	0.3 (0.74)	$t = -1.08$; $df = 98$; $P = .28$
History of anxiety, N (%)		28 (28.0)	23.5 (12)	32.7 (16)	$\chi^2 = 1.03$; $df = 1$; $P = .31$
History of psychotic symptoms N(%)		36 (36.0)	58.8 (30)	12.2 (6)	$\chi^2 = 23.53$; $df = 1$; $P < .01$
History of substance A/D d/o		38 (38.0)	21(41.2)	17 (34.7)	$\chi^2 = 0.45$; $df = 1$; $P = .50$
Medication history					
Medication history not present, N (%)		2 (2.0)	2 (3.9)	0 (0.0)	
Medication class, N (%) (out of 98)					
Mood stabilizer		69 (70.4)	39 (79.6)	30 (61.2)	$\chi^2 = 3.97$; $df = 1$; $P = .046$
Antipsychotic		65 (66.3)	40 (81.6)	25 (51)	$\chi^2 = 10.28$; $df = 1$; $P < .01$
Benzodiazepines		61 (62.2)	34 (69.4)	27 (55.1)	$\chi^2 = 2.13$; $df = 1$; $P = .15$
Antidepressants		66 (67.3)	33 (67.3)	33 (67.3)	$\chi^2 = 0.0$; $df = 1$; $P = 1.00$
First-generation antipsychotic		60 (61.2)	39 (79.6)	21 (42.9)	$\chi^2 = 13.93$; $df = 1$; $P < .01$
Second-generation antipsychotic		37 (37.8)	27 (55.1)	10 (20.4)	$\chi^2 = 12.55$; $df = 1$; $P < .01$

Abbreviations: WHODAS: World Health Organization Disability Assessment Schedule Version II; SD, standard deviation; A/D, abuse/dependence; d/o, disorder.

Table 2

Enabling Factors in Relation to Treatment Setting

Enabling Factors	Range	N = 100 All	N = 51 (51%) Inpatient	N = 49 (49%) Outpatient	Statistic
DSSI (Duke Social Support Index)					
Instrumental support	0-12	7.7 (3.36)	7.9 (3.51)	7.5 (3.21)	$t = 0.61$; $df = 97$; $P = .54$
Social interaction	0-13	6.5 (3.31)	5.9 (3.76)	7.1 (2.68)	$t = -1.74$; $df = 97$; $P = .09$
Social network	0-14	6.4 (4.24)	6.4 (4.19)	6.3 (4.35)	$t = 0.15$; $df = 98$; $P = .88$
Subjective support	8-21	16.9 (3.44)	16.9 (3.53)	17.0 (3.39)	$t = -0.17$; $df = 97$; $P = .86$
Medical insurance ^a					
No insurance		9 (9.0)	6 (11.8)	3 (6.1)	Fisher exact $P = .488$
Private insurance		29 (29.0)	14 (27.5)	15 (30.6)	$\chi^2 = 0.12$; $df = 1$; $P = .73$
Medicare		64 (64.0)	30 (58.8)	34 (69.4)	$\chi^2 = 1.21$; $df = 1$; $P = .27$
Medicaid		6 (6.0)	3 (5.9)	3 (6.1)	Fisher exact $P = 1.000$
Other government sponsored		10 (10.0)	7 (13.7)	3 (6.1)	Fisher exact $P = .319$

^aInsurance groupings are not mutually exclusive.

Table 3
Need Factors in Relation to Treatment Setting Evaluated Need (At time of Randomization)

Need Factors	Range	N = 100 All	N = 51 (51%) Inpatient	N = 49 (49%) Outpatient	Statistic
YMRS	18-47	26.4 (6.73)	28.1 (7.27)	24.6 (5.67)	$t = 2.65$; $df = 98$; $P < .01$
HAMD-17	0-30	9.6 (6.81)	9.8 (6.86)	9.3 (6.82)	$t = 0.35$; $df = 98$; $P = .73$
MADRS	0-35	10.8 (8.13)	10.3 (7.32)	11.4 (8.93)	$t = -0.7$; $df = 98$; $P = .49$
MMSE	20-30	27.4 (2.46)	27.1 (2.53)	27.7 (2.37)	$t = -1.21$; $df = 98$; $P = .23$
CIRS-G	2-21	8.5 (3.85)	9.0 (4.13)	8.0 (3.51)	$t = 1.29$; $df = 96$; $P = .20$
Framingham 10-year risk	2.4-73.8	15.9 (13.82)	16.8 (13.27)	14.9 (14.45)	$t = 0.69$; $df = 96$; $P = .49$
Current episode					
Manic		70 (70.0)	40 (78.4)	30 (61.2)	$\chi^2 = 3.52$; $df = 1$; $P = .06$
Mixed		17 (17.0)	8 (15.7)	9 (18.4)	$\chi^2 = 0.13$; $df = 1$; $P = .72$
Hypomanic		13 (13.0)	3 (5.9)	10 (20.4)	Fisher exact $P = .04$
Current psychotic Sx (N, %)		35 (35.0)	29 (56.9)	6 (12.2)	$\chi^2 = 21.87$; $df = 1$; $P < .01$

Abbreviations: YMRS, Young Mania Rating Scale; HAMD-17, 17-item Hamilton Depression Rating Scale; MADRS, Montgomery Asberg Depression Rating Scale; MMSE, Mini Mental State Examination; CIRS-G, Cumulative Illness Rating Scale-Geriatric version; sx, symptoms; Psych, psychiatric; A/D, abuse/dependence; d/o, disorder.

Table 4Logistic Regression Analysis Predicting Inpatient Status^a

Variable	B	SE B	Odds Ratio	(95% CI)	P
Constant	-2.1807	0.750			.036
Presence of psychotic symptoms in current episode	2.778	0.708	16.079	(4.015-64.383)	<.001
History of first-generation antipsychotic medication use	1.878	0.593	6.542	(2.045-20.923)	<.001
Minority status	-2.175	0.774	0.114	(0.025-0.518)	.005

Abbreviations: SE, standard error; CI, confidence interval.

^a $\chi^2 = 46.157$, $df = 3$, $P < .001$. Corrected for site differences.