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## Predictors of Treatment Utilization in Major Depression

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### Abstract

Suicide attempters with major depression are at risk for repeat attempts and often do not utilize treatment. Identifying predictors of treatment non-utilization could inform interventions to motivate treatment use and reduce suicide risk in major depression. Two hundred and seventy three participants with a major depressive episode as part of a major depressive disorder or bipolar disorder, were assessed for socio-demographic and clinical characteristics at baseline and again 1 year later to identify predictors of treatment utilization. Treatment utilization rate was high 1 year after initial evaluation (72.5%). Severity of baseline depression, baseline treatment status, and education were associated with treatment utilization at 1 year. Interventions focused on increasing knowledge about depression and treatment efficacy may improve treatment adherence when treating depression.

### Keywords

major depression; psychiatric treatment; suicide attempt; utilization

## INTRODUCTION

A major depressive episode typically requires ongoing treatment for at least 6 months to attempt to secure and maintain remission (Litman, 1996; Ojehagen, Danielsson, & Traskman-Bendz, 1992; Rihmer, 2007). Lack of adherence with psychiatric treatment after a major depressive episode (MDE) is a serious problem that may lead to ongoing depression, relapse or recurrence even after remission of a MDE (Kurz & Moller, 1984; McFarland & Klein, 2005). While many treatments for depression are designed to be brief, for individuals who have a history of a suicide attempt, extended treatment lasting up to at least 1 year may be important for reducing risk of repeat suicidal behavior (Litman, 1996; Ojehagen, Danielsson, & Traskman-Bendz, 1992; Rihmer, 2007). In studies of depressed patients, rates of premature termination from outpatient psychiatric treatment range from approximately 15% to over 50% depending on the length of time of the follow-up assessment and other factors such as type of treatment (Lawrenson, Tyrer, Newson et al., 2000), with the majority falling between 20% and 40% (Lawrenson, Tyrer, Newson et al., 2000; Lenze et al., 2001; McFarland & Klein, 2005). Studies have found that up to 60% of suicide attempters drop out of treatment after just 1 week of outpatient therapy (O'Brien, Holton, Hurren et al., 1987). Even among those attempters who begin treatment, 38% will no longer be attending recommended outpatient treatment a mere 3 months after being hospitalized for a suicide attempt (Monti, Cedereke, & Ojehagen, 2003). Moreover, after 1 year, 73% of attempters may no longer be attending any treatment (Kruee & Hayes, 1988). Oquendo and colleagues (2002) also found that for those still in treatment, the quality of treatment provided was inadequate at reducing depression and suicidal risk. Identifying characteristics associated with participation in ongoing treatment is essential for treatment retention efforts.

At present, knowledge regarding indicators of ongoing treatment utilization is limited. Patient characteristics identified as potential indicators have been shown to be inconsistent in their ability to predict behavior. Socioeconomic status and education have predicted non-utilization in some studies (Blackburn, Bishop, Glen et al., 1981; Last, Thase, Hersen et al., 1985; Meresman, Horowitz, & Bein, 1995), but not in others (Cuijpers, 1998; Oei & Kazmierczak, 1997; Simons, Levine, Lustman et al., 1984). These results can be considered in the context of barriers to treatment. Low levels of education may be reflective of low SES and may be associated with service access barriers such as limited awareness of mental disorders, limited understanding of the mental health system, lack of information, language barriers, and lack of insurance (Sadavoy Meier, Ong et al., 2004; Strug & Mason, 2001).

Certain studies have found greater severity of depression predicts non-utilization (Blackburn, Bishop, Glen et al., 1981; Persons, Burns, & Perloff, 1998). However, this relationship was not found by others (Lenze, Miller, Dew et al., 2001; Persons, Burns, & Perloff, 1998; Simons, Levine, Lustman et al., 1984; Sue, 1977).

Lastly, ethnicity has been cited as a factor determining non-utilization. Several studies have shown that Hispanics are less likely to participate in treatment than their Non-Hispanic Caucasian counterparts (Alonso, Val, & Rapaport, 1997; Marcos & Cancro, 1982; Sánchez-Lacay, Lewis-Fernández, Goetz et al., 2001; Snowden & Cheung, 1990; Sue, 1977; Wagner, Maguen, & Rabkin, 1998), with non-utilization rates two to three times that of Non-Hispanic Caucasians (Alonso, Val, & Rapaport, 1997; Marcos & Cancro, 1982; Wagner, Maguen, & Rabkin, 1998). African-Americans have also been shown to have elevated rates of treatment non-utilization (Angold, Erkanli, Farmer et al., 2002; Breland-Noble, Bell, & Nicolas, 2006; Kazdin, Stolar, & Marciano, 1995; Rowe & Grills, 1993; Song, Sands, & Wong, 2004; Tonigan, 1998). However, other studies were unable to find any ethnic differences in rate of non-utilization in treatment (Flaskerud, 1986; O'Sullivan, Peterson, Cox et al., 1989; Sue, Fujino, Hu et al., 1991). Similarity of economic status among

participants as well as advancements in culturally sensitive practice have been cited as possible reasons for the lack of ethnic differences in some treatment utilization studies.

This study sought to explore what patient characteristics are associated with utilization and non-utilization of ongoing psychiatric treatment. Previously identified risk factors for non-utilization were measured, including clinical (suicide attempt status, treatment status [inpatient/outpatient], and severity of depression) and sociodemographic variables (age, ethnicity, sex, education, marital status). To our knowledge, this is the first study to apply a multivariate approach to examining these factors. We hypothesize that those in treatment 1 year after baseline assessment will differ from those who are not utilizing treatment with respect to the demographic and clinical factors assessed.

## METHOD

### Sample

The sample consisted of 273 individuals with either unipolar depression or bipolar disorder in a current major depressive episode. They were recruited from a sample of 518 inpatients and outpatients recruited to participate in biological studies of depression and suicide at New York State Psychiatric Institute (NYSPI). Participants completed assessments at baseline and again at 1 year. The study was approved by the Institutional Review Board of the New York State Psychiatric Institute and all participants provided written informed consent. It is unknown what the ongoing treatment status was of these patients.

Participants range in age from 18 to 75 years and meet DSM-III-R/DSM-IV criteria for a current Major Depressive Episode (Major Depressive Disorder or Bipolar Disorder) as determined by the Structured Clinical Interview for the DSM-III-R/DSM-IV (SCID-I) (Spitzer, Williams, Gibbon et al., 1990). Exclusion criteria included current substance or alcohol abuse or dependence and any neurological impairment or acute medical conditions. Individuals were studied as outpatients only if they were able to be maintained off medications for biological procedures on an outpatient basis and did not prefer or require hospitalization for study participation.

In order to test for sample bias, the 273 who completed both baseline and 1 year interviews were statistically compared with the group who did not provide 1 year follow-up interviews on the baseline demographic and clinical variables either because the 1 year period had not yet passed or they were not available or willing to participate in the 1 year follow-up assessment. There were no statistically significant differences between the groups.

### Baseline Measures

**Sociodemographic**—Information regarding years of education, ethnicity, and number of prior suicide attempts was gathered with a semi-structured demographic interview and the Columbia Suicide History Form (Oquendo, Halberstam, & Mann, 2003).

**Clinical**—Severity of depression was assessed using the Beck Depression Inventory (BDI) (Beck, Ward, Mendelson et al., 1961). Subjects were also assessed for suicide attempt status at baseline (attempter/non-attempter) using the Columbia Suicide History Form (Oquendo, Halberstam, & Mann, 2003).

### One-Year Assessment Measures

**Clinical**—Subjects were assessed for suicide attempts at 1-year follow-up using the Columbia Suicide History Form (Oquendo, Halberstam, & Mann, 2003).

Subjects were assessed at 1 year for treatment utilization. For the purposes of this study, “treatment” was defined as any type of psychosocial and/or pharmacological treatment regardless of whether patients judged the treatment to be effective or whether it was received continuously from the same provider or initial treatment was terminated and a new course of treatment was initiated later. Psychotherapy of any modality (individual, group, family, couples) or theoretical orientation was included as long as it was provided by a mental health professional. “Non-utilization” was based on self-reports of not having received treatment of any kind between assessment periods or by ending treatment at any point prior to the follow-up assessment with no further treatment provided.

Inpatients were discharged from the hospital with a referral for outpatient treatment, sometimes with the initial visit during hospitalization. Outpatients were provided with 6 months of outpatient treatment by a research psychiatrist following their baseline assessments and referred for treatment in the community after the initial 6 months of treatment.

For inpatients, baseline interviews were administered while subjects were in the hospital. For outpatients, baseline interviews were completed within 2 weeks of study enrollment. Follow-up assessments were conducted at 1 year post-discharge from the index hospitalization or admission to the study via in-person or telephone interviews with a master’s level or above clinical research interviewer. Consensus was ascertained for diagnosis and suicide attempt status via best-consensus estimate. Inter-rater reliability of instruments was maintained at  $>.70$ .

**Statistical Analysis**—The relationships among the baseline and follow-up variables were calculated using the appropriate measures of correlation. There were no statistically significant differences between participants with MDD and those with bipolar disorder on the variables included in this study. Therefore, these groups were combined in the analyses. Additional analyses were conducted comparing inpatients and outpatients and no significant effects were found for any baseline measures. Those participants receiving psychiatric treatment at 1 year (Utilizers) were compared with those who were not in psychiatric treatment (Non-utilizers) on all the variables using *t*-tests and chi-square tests as appropriate. Any variable that was significantly related to treatment non-utilization in the univariate analyses was included in multivariable analysis. A logistic regression analysis was conducted examining the identified sociodemographic and clinical characteristics to determine which, if any, were predictive of treatment utilization status at 1 year. Due to sample size restrictions, ethnicity was limited to comparing Caucasians with Non-Caucasians.

## RESULTS

Overall, the average age of participants was 37.0 years (12.0, SD 11.99). The majority was female ( $n=167$ , 61.2%), Caucasian ( $n=243$ , 89.0%), with at least a High School diploma (total yrs of education 14.7, SD 3.02). Many were unemployed ( $n=101$ , 37%) and about half were unmarried ( $n=140$ , 51.3%). About half had a history of a suicide attempt at the time of initial assessment ( $n=133$ , 48.7%) Approximately 75% ( $n=197$ ) had a diagnosis of Major Depressive Disorder and 25% ( $n=67$ ) had a diagnosis of Bipolar Disorder with a current major depressive episode. Approximately 70% ( $n=190$ ) were inpatients and 30% ( $n=80$ ) were outpatients at study entry.

### Baseline Characteristics and Treatment Utilization

Of the 273 participants, 75 (27.5%) were not utilizing treatment at 1 year, while 198 (72.5%) were. Treatment utilizers (U) and non-utilizers (NU) were compared on the baseline

variables to determine if there were any predictors of ongoing treatment utilization 1 year later (Table 1). The two groups were significantly different at baseline with respect to ethnicity, education, suicide attempt status, severity of depression, and treatment status (inpatient vs. outpatient). Non-utilizers were more frequently non-Caucasian (NU 20% vs. U 7.9%) ( $X^2=8.58$ ,  $df=1$ ,  $p=.003$ ), were more frequently suicide attempters (NU 59% vs. U 45%) (although suicide attempt rate was high in both groups) ( $X^2=4.10$ ,  $df=1$ ,  $p=.043$ ), and had fewer years of education ( $t=2.77$ ,  $df=266$ ,  $p=.115$ ). Those who utilized ongoing treatment were more likely to have been inpatients at the outset (84% of inpatients vs. 47% of outpatients were utilizers) ( $X^2=38.80$ ,  $df=1$ ,  $p<.001$ ) and reported more severe depression at baseline and 1 year ( $t=3.66$ ,  $df=254$ ,  $p<.001$ ). It is noteworthy that non-utilizers reported severe depression at baseline (mean BDI=22.7) but less severe than their counterparts (mean BDI=28.6). Change in BDI score from baseline to follow-up did not differentiate the groups.

### Multivariate Prediction of Utilization at One-Year

A logistic regression examining sociodemographic and clinical characteristics associated with treatment non-utilization at the time of 1 year follow-up assessment was conducted. Variables entered into the regression included: treatment status (inpatient vs. outpatient), severity of depression (baseline BDI), past suicide attempt status (attempter vs. non-attempter), years of education, and ethnicity (Caucasian vs. non-Caucasian). When all variables were included years of education (OR=1.217,  $p<.001$ ), severity of depression (OR=1.035,  $p=.021$ ), and treatment status at baseline (OR=.174,  $p<.001$ ) were predictive of treatment status at 1 year (Table 2). As in the univariate analyses, treatment utilizers were likely to have more education, to have been inpatients at baseline and report more severe depression at baseline. Baseline suicide attempt status (OR=.731,  $p=.346$ ) and ethnicity (OR=1.344,  $p=.541$ ) were not predictive of treatment utilization at one year (see Table 2) once severity of depression and patient status were included in the model. It is of note, however, that baseline suicide attempt status was significant in the univariate analyses it may not have been retained in the multivariate analyses due to its association with treatment status and severity of depression. Of the attempters, 111 (79.9%) were inpatients, whereas of the non-attempters 79 (60.3%) were inpatients. In addition, the average severity of depression as measured by the BDI for attempters was 29.04 (SD±11.30), while the average severity of depression for non-attempters 23.69 (SD±12.19). In sum, attempters were more likely to have been inpatients ( $X^2=12.235$ ,  $df=1$ ,  $p<.001$ ) and to report more severe depression ( $t=4.513$ ,  $df=435$ ,  $p<.001$ ) than non-attempters.

## DISCUSSION

The majority of patients reported being in some form of psychiatric treatment at the 1 year follow-up assessment. Our findings suggest severity of depression, treatment status, and years of education are important indicators regarding utilization of ongoing treatment in a sample of patients diagnosed with a major depressive episode. These findings may provide clinicians with a manner of identifying patients that may be at risk for treatment non-utilization and for whom additional procedures for encouraging adherence to treatment might be helpful. It may be that we had such a high treatment utilization rate in our sample because they were treatment seeking at entry to the study. It may also be that over the course of the year, individuals left treatment and then returned. We do not know if individuals in treatment at 1 year were in continuous treatment for one episode or multiple treatments and/or multiple episodes. Future research examining continuity of treatment is important.

Our findings suggest that those with severe depression are more likely to stay in treatment than those with less impairing depression. In general, a significant proportion of individuals with depression will not seek and/or receive adequate treatment for their illness (Oquendo, Halberstam, & Mann, 2002; Blanco, Laje, Olfson et al., 2002; Bland, Newman, & Orn,



1997; Kessler, Merikangas, & Wang, 2007; Williams, Gonzales, Neighbors et al., 2007). For those who seek treatment, there is often a long delay in initiating treatment, averaging 6 years (Hasin, Goodwin, Stinson et al., 2005; Kessler, Olfson, & Berglund, 1998; Wang, Berglund, Olfson et al., 2005; Wang, Berglund, Olfson et al., 2004). Perhaps those who are less incapacitated may become disengaged more easily or minimize their problem. Stigma regarding mental illness, lack of knowledge regarding illness management, and perceived low self-efficacy are associated with poor treatment adherence among depressed individuals (Bollini, Tibaldi, Testa et al., 2004; Dobson & Kendall, 1993; Lingam & Scott, 2002; Sajatovic, Davies, & Hrouda, 2004; Sirey, Bruce, Alexopoulos et al., 2001). In the current study, many patients remained significantly depressed at 1-year. Engagement efforts could target these issues. Educating outpatients about the benefits of continued treatment may increase ongoing treatment utilization and minimize lingering depression.

Consistent with earlier research, although most of our participants were high school graduates, we found that those with more education were more likely to remain in treatment relative to those who had less education (Blackburn, Bishop, Glen et al., 1981; Kalichman, Ramachandran, & Catz, 1999; Last, Thase, Hersen et al., 1995; Vega & Rumbaut, 1991). Our assessment of ethnicity did not serve as a predictor of ongoing treatment utilization. Given the limited approach we utilized to assess ethnicity, it is likely that more in-depth study of the impact of culture and ethnicity on treatment utilization is needed. Educational and cultural differences may present barriers to services including limited awareness of mental disorders and the mental health system, language barriers and lack of insurance (Fiscella, Franks, Doescher et al., 2002; Sadavoy, Meier, Ong et al., 2004; Snowden, 2003; Strug & Mason, 2001; Vega & Rumbaut, 1991; Wells, Golding, Hough et al., 1988). Many have highlighted the need for culturally sensitive and competent services that take into account provider and patient characteristics (Alegria, Takeuchi, Canino et al., 2004; Comas-Diaz & Griffith, 1988; Jenkins, 1985; Padilla & Salgado De Snyder, 1985; Ruiz, 2002; Snowden, 2003; Woodward, Dwinell, & Arons, 1992). For example, Oquendo et al. (2004) (Oquendo, Lizardi, Greenwald et al., 2004) and others have found that rates of lifetime suicide attempt and major depression vary according to subgroups of Latinos (Kessler, Borges, & Walters, 1999; Ungemack & Guarnaccia, 1998), emphasizing the need to consider individual cultural patient characteristics.

Inpatients were more likely to participate in ongoing treatment than outpatients even though they did not differ on severity of depression at 1 year follow-up. Therefore, this difference cannot be attributed to greater impairment of illness at 1 year. Perhaps hospitalization for depression and the intensive treatment milieu serve to emphasize the importance of ongoing treatment. Our findings suggest that lack of ongoing treatment utilization in outpatients is a major concern and emphasize the need to improve treatment engagement among individuals with depression. Strategies for increasing the likelihood of outpatient treatment adherence include providing patients with information regarding their diagnosis, including the outpatient treatment team in discussions during the hospitalization, and teaching basic strategies for managing daily living activities and for seeking help (Anderson, 2007; Bonsack, Pfister, & Conus, 2006; Hansson, Bodlund, & Chotai, 2008; Tay, 2007). Some inpatients in our study were able to begin outpatient treatment while hospitalized which may have facilitated outpatient treatment adherence.

Lastly, suicide attempt history differentiated treatment utilizers and non-utilizers in the univariate analysis but was not predictive of treatment non-utilization in the multivariate analysis once education, baseline severity of depression and patient status were considered. Prior research demonstrates that suicide attempters have certain maladaptive cognitive characteristics such as rigidity and poor problem solving and coping skills (Jollant, Bellivier, Leboyer et al., 2005; Pollock & Williams, 1998; Rotherman-Borus, Piacentini, Miller et al.,

1994). These cognitive impairments decrease an individual's ability to regulate affect and manage interpersonal problems (Brent, Holder, Kolko et al., 1997; Van der Sande, Buskens, Allart et al., 1997). They also tend to have a negative attributional style, including negative views of themselves and of their future (Pollock & Williams, 1998). Suicidal individuals, therefore, have difficulty generating solutions when faced with emotional problems (Pollock & Williams, 1998). Thus, it was expected that attempters would be less likely to participate in treatment than non-attempters. In this study there was a high rate of suicide attempts in both groups, which could limit variability and the ability to detect an effect in the multivariate analyses. We found that other variables we included in the multivariate model are associated with suicide attempts and therefore were likely to have accounted for variance that attempt status might have contributed. Given the increased risk for future suicidal behavior among past suicide attempters, suicidal behavior must be monitored closely along with depression severity. Attempters' poor problem solving and limited cognitive flexibility (Keilp, Sackeim, Brodsky et al., 2001) may lead them to lose sight of the need for ongoing treatment.

### Limitations

Only patients with mood disorders interested in participating in intensive research were included in this study, perhaps restricting the generalizability to patients with other psychiatric diagnoses and those not interested in participating in research. Our assessment of treatment utilization is limited since we were unable to determine treatment patterns and number and type of treatment during the 1-year follow-up period. For those who were not in treatment at 1 year, we did not have data addressing reason for termination. Additionally, this sample included severely depressed patients and a group with a high rate of previous suicide attempts and this might make it difficult to detect differences between attempters and non-attempters. Inpatients may have been more likely to adhere to treatment as they were more willing to come into the hospital for the initial phases of treatment and often required hospitalization while outpatients did not. This may present a selection bias between inpatients and outpatients which would suggest that the patient status effect was an artifact of this bias. Furthermore, only individuals who were available for follow-up at 1 year were included and there may be a bias toward individuals who continued with treatment. Finally, it would be beneficial to be able to compare more specific ethnic groups and to have an evaluation of SES and potential barriers to treatment adherence.

### CONCLUSION

Ongoing treatment utilization in outpatient settings is a widespread problem, particularly among depressed patients and suicide attempters (King, 1997; Krulee & Hayes; Monti, Cedereke, & Ojehagen, 2003; O'Brien, Holton, Hurren et al., 1987). To date, research has been unable to provide clinicians with consistent predictors that can be used to identify patients at risk of treatment non-utilization. Given the advancements that have been made in recent years in the effectiveness of outpatient treatments for depression and suicidality, if patients remain in treatment there is a better likelihood that they will improve, and that recurrence of depression and suicidal behavior may be avoided. The findings of our study suggest that outpatients with less education, less impairment and less depression are at greater risk of treatment non-utilization despite significant depression. Rather than focusing interventions on modifying patient characteristics, these findings suggest that clinicians need to modify what they are doing to engage and maintain their clients in treatment. Interventions that reduce stigma and increase information and knowledge about depression and treatment efficacy and removal of barriers to treatment are likely to improve treatment adherence when treating depression.

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**TABLE 1**

Sociodemographic and Clinical Characteristics of Those Utilizing and Those not Utilizing in Treatment at 1 Year

	Non-utilizers N=75 (27.5%) Mean (SD)	Utilizers N=198 (72.5%) Mean (SD)	t-Test (df)	p
Age	39.61 (13.4)	37.05 (11.4)	-1.58 (271)	.115
Education	14.36 (2.7)	15.42 (2.8)	2.77 (266)	.006
Severity of Depression (BDI): Baseline	22.69 (11.3)	28.55 (11.5)	3.66 (254)	>.001
Severity of Depression (BDI): 1-year	24.48 (10.35)	28.43 (11.87)	2.545 (251)	.012
	% (n)	% (n)	X <sup>2</sup> (df)	p
Sex				
Female	56.0 (42)	63.1 (125)	1.165 (1)	.280
Male	44.0 (33)	36.9 (73)		
Ethnicity				
Caucasian	80.0 (60)	92.4 (183)	8.584 (1)	.003
Non-Caucasian	20.0 (15)	7.6 (15)		
Marital Status				
Married	50.7 (38)	48.0 (95)	.157 (1)	.692
Other	49.3 (37)	52.0 (103)		
Education				
Less than High School	9.3 (7)	4.5 (9)	8.403 (3)	.038
High School	22.7 (17)	11.6 (23)		
Some College	25.3 (19)	32.3 (64)		
College or More	42.7 (32)	51.5 (102)		
Employment Status				
Employed	57.3 (43)	65.2 (129)	1.426 (1)	.232
Unemployed	42.7 (32)	34.8 (69)		
Treatment Status				
Inpatient	41.7 (30)	80.8 (160)	38.8 (1)	>.001
Outpatient	58.3 (42)	19.2 (38)		
Attempt Status				
Non-attempter	41.3 (31)	55.1 (109)	4.097 (1)	.043
Attempter	58.7 (44)	44.9 (89)		

**TABLE 2**

Logistic Regression Model Predicting Treatment Non-Utilization at 1-Year from Socio- Demographic and Clinical Variables

	Odds ratio	95% Confidence interval	<i>p</i>
Total Years of Education	1.217	1.079–1.373	.001
Ethnicity (Caucasian vs. non-Caucasian)	1.344	.521–3.468	.541
Subjective Baseline Severity of Depression (BDI)	1.035	1.005–1.065	.021
Baseline Attempt Status (Attempter vs. Non-Attempter)	.731	.381–1.402	.346
Treatment Status (Inpatient vs Outpatient Status)	.174	.088–.342	>.001

*Note.* Wald=48.59, ( $df=1$ ),  $p<.001$ .