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Correlates of attitudes towards mood stabilizers in individuals with bipolar disorder

Ching-Wen Chang^a, Martha Sajatovic^b, and Curtis Tatsuoka^c

^aMandel School of Applied Social Sciences, Case Western Reserve University, Cleveland, OH, USA

^bDepartment of Psychiatry and Neurological Outcomes Center, Case Western Reserve University, Cleveland, OH, USA

^cDepartment of Neurology, Case Western Reserve University, Cleveland, OH, USA

Abstract

Objectives—Attitudes towards medication are believed to be important for medication adherence and social factors are believed to have effects on attitudes. Only a limited literature has focused on how attitudes to medication may correlate with social factors relevant to medication adherence among individuals with bipolar disorder (BPD). This secondary analysis of baseline data from a longitudinal study examined the relationships between attitudes towards mood stabilizers and psychosocial variables.

Methods—Community mental health clinic patients (n = 122) were assessed on the outcome variable of medication attitudes as measured by the Attitudes towards Mood Stabilizers (AMSQ). Independent variables included education as well as standardized measures of psychiatric symptom severity, alcohol and drug problem severity, health locus of control (the belief that one's health is self-determined versus determined by factors outside of one's own control), and by psychosocial support. A hierarchical multiple regression model evaluated the relationship between AMSQ and these variables.

Results—More positive medication attitudes were seen in individuals with higher levels of social support and in those who held stronger belief that their health outcomes are determined by others, such as family or clinicians. Education, symptom severity, alcohol problem severity and drug problem severity were not significant attitudinal correlates.

Conclusions—Attitudes towards mood stabilizers are correlated with both the support a person receives from others in their social network as well as how much a person believes others can influence his or her health. Clinicians need to be aware of the importance of the social environment as it relates to medication attitudes and more research is needed on how treatment attitudes may actually translate into medication adherence behavior.

Corresponding author: Ching-Wen Chang, MSW, Doctoral Program, Mandel School of Applied Social Sciences, Case Western Reserve University, 10900 Euclid Avenue, Cleveland, OH, 44106-7164, USA, Fax: 216-368-5197, cxc480@case.edu.

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Keywords

attitudes towards mood stabilizers; bipolar disorder; compliance; medication adherence

Although mood stabilizers are considered effective treatments for bipolar disorder (BPD), non-adherence is common. Lingam and Scott (1) reported that non-adherence rates range from 20–60%, with a median of 41% for individuals with BPD. Non-adherent individuals with BPD tend to have more manic relapses, lower quality of life, and higher suicide risk compared to adherent individuals (2, 3). Non-adherence can also cause more psychiatric hospitalizations and increase treatment costs (4–6).

Medication non-adherence in BPD is associated with a number of demographic, clinical, therapeutic, and belief/attitudinal factors. Being young, non-white, and having less education are associated with non-adherence (7–9), as are more severe psychiatric symptoms and substance use (8, 10). In terms of treatment factors, individuals with medication side effects, greater duration of being prescribed mood stabilizers, and less positive therapeutic alliance are less likely to be adherent (10–12). With respect to belief and attitudinal factors, those with more negative attitudes towards medications and denial of illness severity have a greater risk for non-adherence (10, 13).

Attitudes towards mood stabilizers are highly relevant to medication adherence (14, 15). In a study of people with BPD, Scott and Pope (11) found that non-adherence to mood stabilizers was related to negative medication attitudes. Conversely, Dharmendra and Eagles (16) found that positive attitudes towards lithium were associated with higher serum lithium levels and continuity in taking lithium. While many clinicians focus on side effects as a major concern when considering adherence (17), research in BPD notes that medication attitudes appear to be better predictors of adherence than side effects (11).

Psychological research suggests that attitudes are formed, maintained or changed within a social context (18, 19) and previous studies of people with severe mental illness note that attitudes towards psychiatric treatment are related to social relationships as well as health locus of control—how much a person believes that their health outcomes are self-determined versus determined by the influence or actions of other such as family, friends or care providers (20, 21). However, published data on the relationship between psychosocial factors and medication attitudes among individuals with BPD is limited (15, 16).

Since attitudes seem to play an important role in medication adherence generally, we conducted a secondary analysis from a dataset of patients with BPD in treatment on how attitudes towards mood stabilizers might correlate with social support and with health locus of control. A better understanding of how psychosocial variables relate to medication treatment attitudes in BPD could potentially inform future adherence enhancement strategies as well as helping to develop the next wave of research on determinants of treatment adherence in people with BPD.

Methods

Design and specific procedures

This was a secondary analysis of the baseline data from an NIH-funded longitudinal study of community dwelling persons with BPD and examining the relationship between illness behavior and symptoms, gender, health locus of control, psychosocial supports, and treatment adherence (K23 MH065599-01, PI: MS). A hundred and forty individuals with BPD were recruited from a community mental health clinic (CMHC) in Cleveland, OH, USA. Inclusion criteria were: (i) a clinical diagnosis of BPD past or current (DSM-IV code 296.00–296.06, 296.80–296.89) confirmed by the Mini-International Neuropsychiatric Interview (MINI) (22), (ii) BPD for at least two years, (iii) mood stabilizer prescribed for 6 months, and (iv) being able to participate in interviews. Data were collected through structured interviews by trained interviewers. This study was approved by the local Institutional Review Board (IRB) and all participants provided written informed consent.

Measures

Outcome variable (adherence attitudes)—Our analysis outcome variable, attitudes towards medications, was assessed by the Attitudes towards Mood Stabilizers Questionnaire (AMSQ). The AMSQ is a modification of the Lithium Attitudes Questionnaire (23) which evaluates an individual's attitudes towards taking mood stabilizing medication. The AMSQ has 19 items grouped into seven subscales: (i) opposition to prophylaxis, (ii) denial of therapeutic effectiveness, (iii) fear of adverse effects, (iv) difficulty with medication routines, (v) denial of illness severity, (vi) negative attitudes towards drugs in general, and (vii) lack of information about mood stabilizers. The total score was used for the analysis. Higher scores indicate more negative attitude towards taking mood stabilizers.

Control variables—Informed by the literature reporting that medication attitudes are related to psychiatric symptoms and to substance abuse in people with severe mental illness (20, 24), the clinical variables of psychiatric symptom severity, alcohol problem severity and drug problem severity were selected as covariates. Severity of psychiatric symptoms was evaluated using the Brief Psychiatric Rating Scale (BPRS) (25). This widely used, 18-item scale measures major psychotic and non-psychotic symptoms in individuals with major psychiatric disorders (26). The response for each item is coded ranging from 1 = not present to 7 = extremely severe. If an item is not assessed, it is coded 0. Higher scores indicate more severe psychiatric symptoms. Alcohol problem severity and drug problem severity were rated by trained interviewers using the alcohol and drug use/abuse portions of the Addiction Severity Index (27). Using a 0–9 severity continuum, higher scores indicate more severe alcohol or drug problems.

Psychosocial variables—Psychosocial variables used in this analysis were a standardized measure of health locus of control and a standardized measure of perceived social support. The health locus of control instrument was the Multidimensional Health Locus of Control Scale/MHLC (28) which conceptualizes locus of control as being internal (self-determined) versus external (determined by something outside of the person's control). External control factors are further divided into those that are externally influenced by others

in the person's social network such as family, friends or clinicians vs. external as influenced by chance or luck. These MHLC concepts are operationalized using three subscales in the instrument (i) Internal Health Locus of Control (IHLC), (ii) External Health Locus of Control–Powerful Others (EHLC-PO), (iii) Chance of Health Locus of Control (CHLC). Each subscale comprises six items, with scoring for each item ranging from 1 = strongly disagree to 6 = strongly agree. A higher score on IHLC indicates a stronger belief that a person's health is under his/her own control while a higher score on EHLC-PO indicates a stronger belief that a person's health is determined by others, such as health professionals, family members or friends. A higher score on CHLC indicates a stronger belief that the individual feels that their health is influenced by luck, fate, or chance.

Psychosocial support was evaluated by using the Interpersonal Support Evaluation List (ISEL) (29), a 40-item questionnaire that measures a person's perceptions of resources provided by others in their social environment. Examples of question are, "*When I need suggestion on how to deal with a personal problem, I know someone I can turn to*" and, "*If I were sick, I could easily find someone to help me with my daily chores*". The ISEL has four subscales that include: (i) tangible support, (ii) belonging support, (iii) self-esteem support, and (iv) appraisal support. Scoring for each ISEL item uses a 4-point continuum ranging from 0 = definitely false to 3 = definitely true. A total or sum score were used for this analysis with higher scores indicating greater perceived psychosocial support.

Analysis plan

Participants with missing values in any of the study variables were omitted from the analysis, leaving a final sample of 122. Independent *t*-tests and chi-square analyses found no significant differences in characteristics (gender, age, ethnicity, marital status, education, occupational status, duration of illness and life time number of mental health hospitalization) between those retained versus excluded from the analysis ($p = 0.05$).

Univariate and bivariate analyses were first conducted to assess preliminary sample characteristics. Potential correlates for preliminary analyses included four psychosocial variables (the three health locus of control dimensions and psychosocial support), three clinical variables (psychiatric symptom severity, alcohol problem severity and drug problem severity) and two demographic variables (gender and education). Results of univariate and bivariate analyses confirmed the assumption of normality for continuous variables and no multicollinearity. Bivariate correlation analyses also identified variables for the final model. Variables not correlated to the outcome variable at an alpha level of 0.05 (gender, IHLC and CHLC) were excluded from the multiple regression analysis. A hierarchical multiple regression analysis, with demographic and clinical variables in the first block and psychosocial variables in the second/final block was performed to investigate the relationship between medication attitudes and psychosocial variables. For the hierarchical regression, an alpha level of .05 indicated statistical significance for each block and correlate. The results of post-hoc power analyses using IBM SPSS Sample Power 3 software indicated that with the given sample size of 122, $R^2 = 0.20$ and alpha level of 0.05, the analysis for the final model with six variables had 99% power. With four variables

already in the first model and two additional variables being added to the final model, there was 91% power to detect an increment of $R^2 = 0.09$.

Results

Means, standard deviations, ranges and Cronbach's α s for study variables are presented in Table 1. Results of the hierarchical multiple regression analysis showed that demographic variables (education), and clinical variables (psychiatric symptoms, severity of alcohol and drug problems) together explained 11% of variance in medication attitudes; $F(4,117) = 3.73$, $p = 0.01$. As noted in Table 2, in the first block, psychiatric symptom severity was the only significant correlate.

Adding EHLC-PO and ISEL in the second/final block significantly explained an additional 9% of variance in medication attitudes ($p = 0.01$). All independent variables in the final block together significantly explained 20% of variance in attitudes toward mood stabilizers; $F(6,115) = 4.87$, $p = 0.001$. In this model, EHLC-PO and ISEL were significant correlates of attitudes. Higher EHLC-PO ($B = -0.14$) and higher ISEL ($B = -0.03$) were associated with lower AMSQ after adjusting for other variables. EHLC-PO (standardized coefficient = -0.21) was a stronger correlate of attitudes compared to ISEL (standardized coefficient = -0.20) but strength of the relationship with medication attitudes for these two correlates were almost identical based on the comparison of standardized coefficients.

Discussions

This analysis evaluated the relationships between attitudes towards mood stabilizers and psychosocial correlates, specifically perceived social support and health locus of control, among CMHC-treated individuals with BPD. The major finding was that more positive attitudes towards medication were seen in those with higher levels of social support and those who felt that their health was highly influenced by important people in their social setting. Education, psychiatric symptom severity and alcohol and drug problem severity were not associated with medication attitudes after adjusting for other variables in our statistical model. Our findings on the relationship between medication attitudes and how a person with BPD experiences and perceives their social environment are generally in line with findings of previous studies on people with severe mental illness (20, 21).

The finding that medication attitudes are related to both psychosocial support and health locus of control underscore the importance of social connectivity on health beliefs. How a person's friends or family members view medication could also characterize how the person with the illness thinks about medication. Others have noted the relevance of social networks for internalizing health attitudes and shared norms around health behaviors (30–32). Our finding also suggests that clinicians working with patients with BPD might consider how much the patient feels influenced by others around them in order to incorporate the patient's specific needs and treatment expectations into treatment planning.

Knowing the importance of the social environment to medication attitudes, clinicians have the opportunity to themselves become an influential factor in how their patients think about BPD medication treatments. The trusted clinician advisor is perceived by patients with BPD

as an asset, and can help patient to make wise health decisions (33). A unique feature of BPD is the cyclical nature of mood symptoms. This can be a challenge for both families and clinicians in that active influence from informal caregivers or professional providers might be needed to help with adherence in manic or depressive phases but may be less needed (or welcomed) for individuals in a euthymic or ‘well’ phase. Working with patients and families to create a support system that can be increased during symptomatic episodes and decreased during euthymic episodes might promote self-management and capitalize on social connectedness.

While not assessed in our study, the potential influence of an extended social network offered in rapidly expanding social media environments may be a future consideration for clinical care and adherence research, particularly with younger patients. It has been reported that YouTube reaches more US adults aged 18–34 years than any cable television network (34) and the effects of media to impact mental health attitudes is documented (35). For clinicians, partnering with caring and influential members of the patient’s in-person support network could facilitate long-term adherence, support positive aspects of social media influence, and possibly mitigate the negative effects of less helpful social media influences.

A previous analysis by these investigators involving the same study sample found that higher external health locus of control (EHLC-PO) was associated with lower levels of adherence behavior (36). Yet, our finding suggests that higher EHLC-PO is associated with positive medication attitudes. Perhaps the apparent incongruity of the findings occurred because adherence behavior in the previous study was assessed using a dichotomous measure (adherence versus non-adherence) and medication attitudes were assessed on a continuum. Alternatively, other clinical factors could be responsible for the apparent disconnect between positive medication attitudes and poor actual adherence behavior. For example, persons with cognitive problems or those who have not established consistent medication-taking routines might be likely to forget or skip taking a pill or tablet in spite of wanting to stay on track with medication. Although it is important to acknowledge the relationship between medication attitudes and a person’s social environment, how attitudes actually translate into behavior is complex and deserves further study.

This analysis had limitations. First, our sample size was relatively small. While BPRS was significantly related to AMSQ in our statistical Model 1, this variable became insignificant in the final model after adding psychosocial support and EHLC-PO ($p = 0.07$). Given that the p -value of BPRS was close to the significant level and the sample size in our study was relatively small, lack of statistical power due to addition of new explanatory variables could be a possible explanation for the change of the relationship between AMSQ and BPRS. Future studies with a greater sample size would be needed to investigate the relationship between medication attitudes and severity of psychiatric symptoms in the population with BPD.

Second, this was a cross-sectional analysis, which limits any causal inferences. Future studies with a longitudinal design to assess causality are needed. Additionally, the psychosocial correlates used in our analysis were limited and other possible important covariates, such as insight into illness (13), were omitted. Finally, because the patients were

recruited from a CMCH and had an illness duration averaging 22.5 years, findings may only apply to CMHC patients and those with BPD of longer duration. Future studies investigating the correlates of attitudes towards medication for individuals with BPD should include participants from different service settings and with newly diagnosed BPD.

Conclusions

Among people with BPD, attitudes towards mood stabilizers are correlated with social support and with how much a person feels that others influence his or her health. Consideration of psychosocial correlates should be incorporated into clinical care planning and into future intervention development.

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Table 1

Means, standard deviations (SD), possible ranges, observed ranges, and Cronbach's α s for study variables and participants' characteristics (n = 122)

Variables	Mean (SD)/n (%)	Possible range	Observed range	Cronbach's α
Dependent variable				
AMSQ, mean (SD)	4.7 (4.0)	0–19	0–17	0.83
Independent variables				
Gender, female, n (%)	61 (50)			
Education, years, mean (SD)	13.6 (2.7)		3–20	
BPRS score, mean (SD)	42.9 (9.2)	0–126	25–67	0.67
Alcohol problem severity, mean (SD)	1.7 (3.0)	0–9	0–9	
Drug problem severity, mean (SD)	2.5 (3.3)	0–9	0–8	
IHLC score, mean (SD)	23.8 (5.5)	6–36	10–36	0.55
EHLC-PO score, mean (SD)	20.5 (6.1)	6–36	6–32	0.61
CHLC score, mean (SD)	19.1 (6.2)	6–36	6–36	0.60
ISEL score, mean (SD)	70.8 (23.5)	0–120	12–117	0.94
Participants' characteristics				
Age, years, mean (SD)	42.6 (11.4)		19–71	
Race, n (%)				
White, not Hispanic origin	68 (56)			
African American	24 (20)			
Hispanic	1 (1)			
Asian or Pacific Islander	1 (1)			
Other	28 (23)			
Marital status, n (%) ^a				
Single	59 (48)			
Married	12 (10)			
Divorced/separated	45 (37)			
Widowed	5 (4)			
Occupational status, n (%) ^b	25 (21)			
Duration of illness, years, mean (SD)	22.5 (11.6)		2–48	
Lifetime no. of psychiatric or substance use disorder hospitalizations, n (%) ^a				
None	24 (20)			
1–5	60 (49)			
6–10	25 (21)			
More than 10	12 (10)			

AMSQ = attitudes towards mood stabilizers; BPRS = Brief Psychiatric Rating Scale; IHLC = Internal Health Locus of Control; EHLC-PO = External Health Locus of Control–Powerful Others; CHLC = Chance of Health Locus of Control; ISEL = Interpersonal Support Evaluation List.

^aSample size differ as noted based on availability of complete data.

^bBeing employed, homemaker, or student.

Table 2
Summary of hierarchical multiple regression analysis for correlates of negative attitudes towards mood stabilizers (n = 122)

	Model 1				Model 2			
	B	SE B	Standardized coefficients	B	SE B	Standardized coefficients	B	Standardized coefficients
Intercept	2.68	2.71		8.26 ^b	3.04			
Education, years	-0.16	0.13	-0.11	-0.14	0.13	-0.09		
Brief Psychiatric Rating Scale	0.08 ^a	0.04	0.19	0.07	0.04	0.17		
Alcohol problem severity	0.15	0.15	0.12	0.16	0.14	0.12		
Drug problem severity	0.13	0.14	0.11	0.06	0.13	0.05		
EHLC-PO	-	-	-	-0.14 ^a	0.06	-0.21		
Interpersonal Support Evaluation List	-	-	-	-0.03 ^a	0.02	-0.20		
<i>R</i> ²	0.11 ^b				0.20 ^c			
<i>R</i> ²					0.09 ^b			

EHLC-PO = External Health Locus of Control–Powerful Others.

^a p 0.05;
^b p 0.01;
^c p 0.001.