



OPEN Medication non-adherence and its predictors among patients with bipolar disorder in Northwest Ethiopia

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While pharmacotherapy is the primary approach for treating patients with bipolar disorder, non-adherence is the most common barrier preventing these patients from achieving optimal medication effectiveness. This study aimed to assess medication non-adherence and its predictors among patients with bipolar disorder in Northwest Ethiopia. A hospital-based cross-sectional study was conducted among 404 patients with bipolar disorder in Northwest Ethiopia from January to March 2024. Study participants were enrolled using systematic random sampling. Medication non-adherence was measured using the Medication Adherence Rating Scale (MARS). Data were entered and analyzed using Epi-data version 4.6.0 and SPSS version 26, respectively. A multivariable logistic regression model was fitted to identify predictors of medication non-adherence. Variables with a P-value < 0.05 at a 95% confidence interval were considered statistically significant. The prevalence of medication non-adherence was 39.9%. Number of admissions (AOR = 2.83, 95% CI 1.21, 6.59), suicidal attempts (AOR = 2.75, 95% CI 1.14, 6.63), current substance use (AOR = 2.09, 95% CI 1.13, 3.85) and social support (AOR = 3.57, 95% CI 1.08, 11.81) were statistically significant predictors of medication non-adherence. In this study, more than one-third of the respondents were found to be non-adherent. Participants with frequent admissions, suicidal attempts, current substance use and poor social support require prompt screening and critical follow-up to improve medication adherence.

Keywords Bipolar disorder, Medication non-adherence, Predictors, Cross-sectional, Northwest Ethiopia

Abbreviations

AOR	Adjusted odds ratio
AP	Antipsychotic
ASSIST	Alcohol Smoking and Substance Involvement Screening Test
BD	Bipolar disorder
CI	Confidence interval
COR	Crude odds ratio
FHCSH	Felege-Hiwot Comprehensive Specialized Hospital
MARS	Medication Adherence Rating Scale
OR	Odds ratio
OSSS-3	Oslo Social Support Scale-3
TGCSH	Tibebe-Ghion Comprehensive Specialized Hospital
SD	Standard deviation
SPSS	Statistical Package for Social Sciences
WHO	World Health Organization

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Bipolar disorder (BD) is a prevalent and frequently severe mood disorder that impacts various aspects of patients' lives¹. BD is a prevalent condition, affecting 1–3% of the population, and is characterized by episodes of depression and mania. It has a fluctuating course, often marked by recurrent episodes and, in some cases, residual symptoms². The disorder is frequently associated with high rates of co-morbidity, suicide, and functional impairment, making it a significant cause of disability and contributing to economic and social burdens^{3,4}. Pharmacotherapy is the primary treatment approach for patients with BD. However, non-adherence to medication is the most common barrier to achieving optimal effectiveness. Ensuring adherence to medication is crucial for managing this type of severe mental illness⁵.

Substantial evidence indicates that non-adherence to BD medications exacerbates symptoms and is linked to lower rates of remission and recovery, as well as higher rates of recurrence, relapse, and hospitalization. Additionally, non-adherence is associated with other psychological issues, including suicide attempts, completed suicides, and early mortality⁶. Moreover, non-adherence in individuals with BD leads to increased use of healthcare services and higher mental health care costs⁷.

The prevalence of medication non-adherence has been estimated to range from 20 to 60%, with a median rate of 40%⁸. Previous literature indicated that Male gender, unmarried and less educated patients⁹, decreased likelihood of achieving remission and recovery as well as increased risk of relapse, recurrence, hospitalization and suicide attempts¹⁰, history of psychotic symptoms¹¹, substance use, co-morbid illness¹², being stigmatized, negative attitude towards treatment, poor social support^{13,14}, poly-therapy and medication related side effect¹⁵ were associated with medication non-adherence.

Poor adherence to medical treatment is a significant challenge in effectively caring for individuals with chronic mental illnesses. Many individuals with BD discontinue their medications at some point during treatment, which presents a common challenge for patients, caregivers, and healthcare professionals. Identifying the predictors of medication non-adherence is crucial for developing effective strategies to improve adherence levels and treatment outcomes for individuals with BD. To our knowledge, no study has specifically examined the extent of medication non-adherence among individuals with BD in Northwest Ethiopia. Therefore, this study aimed to assess the prevalence of medication non-adherence and its predictors among individuals with BD at comprehensive hospitals in Northwest Ethiopia.

Materials and methods

Study setting, period and design

A hospital-based cross-sectional study was conducted at Felege-Hiwot Comprehensive Specialized Hospital (FHCSH) and Tibebe-Ghion Comprehensive Specialized Hospital (TGCSH) from January to March 2024. The psychiatry department at FHCSH offers mental health services through an inpatient unit with 17 beds and four outpatient departments, serving approximately 19,200 clients annually, or around 1,600 clients per month. TGCSH offers mental health services through four outpatient departments, an emergency room, and two inpatient units with a total capacity of 13 beds. According to the monthly report from the psychiatry unit, TGCSH serves approximately 4,864 outpatient clients annually, averaging 405 clients per month¹⁶.

Population, inclusion and exclusion criteria

The source population for the study consisted of all adults with BD who were regularly followed at the psychiatric outpatient clinics of the selected comprehensive specialized hospitals in Northwest Ethiopia. The study population included all adults with BD who attended the outpatient departments of FHCSH and TGCSH during the study period. Participants were required to be 18 years or older, capable of responding to oral questions (as demonstrated by scoring 3 out of 3 on the insight assessment tool), receiving medication for their illness, and having had at least one prior visits. Individuals with incomplete medical records were excluded from the study.

Sample size determination

The sample size was calculated using a single population proportion formula as follows:

$$n = \frac{(Z\alpha/2)^2 \times p(1-p)}{d^2}$$

Where, n is the desired sample size Z is the typical normal distribution set at 1.96 (which corresponds to 95% CI), the p-value signifies that positive prevalence was utilized in calculating the optimal sample size, and d is the degree of accuracy 0.05 required (a marginal error is 0.05). As the current study was conducted in multicenter facility, to get better representative sample, we used proportion as 50% in sample size calculation. Therefore,

$$n = \frac{(1.96)^2 \times 0.5(1-0.5)}{0.05^2} = 384$$

Thus, by adding 10% non-response rate, the final calculated sample size was 422.

Sampling technique and procedure

The total number of patients on follow-up within three months was obtained from the patients' registration documents to allocate samples proportionally within study areas. After proportional allocation, a systematic random sampling technique was used to select the study participants. The sampling fraction (k) was calculated by dividing the total number of patients with BD within three months in the study area by the total sample size; (1160/422 gives 2.7 ≈ 3). On average, there were 815 individuals with BD at FHCSH and 345 at TGCSH. Therefore, the proportional allocation of sample size was 296 for FHCSH and 126 for TGCSH. The starting point was selected randomly from 1 to 3. Then, participants were interviewed, and concurrently, relevant data was reviewed from medical charts for every third patient until the requirement for a sample was fulfilled.

Study variables

Medication non-adherence was the main outcome variable. The predictor variables included the respondents' sociodemographic characteristics (i.e. age, marital status, occupation and health insurance), clinical and substance related variables (i.e. duration of illness, duration of treatment, number of admissions, suicidal ideation, suicidal attempt, history of psychotic symptoms, co-morbid illness, lifetime substance use, and current substance use), and social support.

Operational definitions

Medication non-adherence

According to the Medication Adherence Rating Scale (MARS), a score of less than 6 out of 10 items indicates non-adherence, while a score of 6 or higher denotes adherence¹⁷.

Current substance use

Using any of the following substances; alcohol, khat, or cigarettes for non-medical purposes within the past 3 months, as determined by the Alcohol, Smoking, and Substance Involvement Screening Tool (ASSIST)¹⁸.

Life time use

Using at least one of any specific substance: alcohol, khat and cigarette for nonmedical purpose at least once in a lifetime according to ASSIST¹⁸.

Social support

According to the Oslo Social Support Scale (OSSS-3), which has a range from 3 to 14, individuals with scores between 3 and 8 are classified as having poor social support, those with scores between 9 and 11 are considered to have moderate social support, and those scoring between 12 and 14 are classified as having strong social support¹⁹.

Data collection instrument and procedures and quality control

A structured questionnaire, adapted from previous literature¹³ and modified to fit the study area's context and the socio-demographic characteristics of the participants, was used. The questionnaire was translated into the local Amharic language and then back-translated into English to ensure consistency. The data collected through patient interview includes sociodemographic characteristics, substance use, social support and medication non-adherence. The patients' mood state was assessed clinically by psychiatric nurses. The participants' medical charts were used to fill in clinical and medication related variables, such as duration of illness, duration of treatment, number of admissions, history of suicidal ideation, suicidal attempt, history of psychotic symptoms, presence of medical co-morbid illness, history of medication discontinuation and current treatment regimen.

The data collection tool consisted of five sections. The first section included the sociodemographic characteristics of the participants, such as sex, age, marital status, residence, religion, education level, occupation, and health insurance. The second section covered clinical and medication-related characteristics, including the type of BD, current mood status, duration of illness, duration of treatment, number of admissions, suicidal ideation, suicide attempts, history of psychotic symptoms, family history of mental illness, presence of medical co-morbid illness, history of medication discontinuation, and current treatment regimen.

The third section of the questionnaire included a substance use assessment tool. The ASSIST tool, developed and validated by the World Health Organization (WHO)¹⁸ was used to briefly screen for the use of psychoactive substances. The fourth section assessed social support using the OSSS-3. Scores on the OSSS-3 range from 3 to 14, with 3–8 indicating poor social support, 9–11 suggesting moderate social support, and 12–14 signifying strong social support¹⁹. The fifth section included a tool for measuring adherence: the MARS, a ten-item yes/no self-report questionnaire, used to evaluate medication non-adherence²⁰. This scale has previously been applied to measure adherence in the Psychological Prevention of Relapse in Psychosis experiment²¹.

Data collection was carried out by three psychiatric nurses at FHCSH and two psychiatric nurses at TGCSH. To ensure data quality, the principal investigator provided one day of training to the data collectors at each study site. A pretest was conducted among 22 individuals with BD, representing 5% of the study population, at the outpatient department of Dessie Comprehensive Specialized Hospital. This pretest aimed to identify potential issues with the data collection tool and to assess the consistency of the questionnaire. The internal consistency of the ASSIST, OSSS-3, and MARS tools was assessed, yielding Cronbach's alpha values of 0.74, 0.79, and 0.83, respectively, indicating acceptable reliability.

Data processing and analysis

The collected data were cleaned, coded, and entered into Epi Data 4.6.0 and analyzed using Statistical Package for Social Sciences (SPSS) version 26. In descriptive analysis, the mean with Standard Deviation (SD), frequency, and percentages were used to check the distribution of the data. Bivariable and multivariable binary logistic regression analysis were employed to identify predictors of medication non-adherence. The model fitness was tested, and the Hosmer and Lemeshow test result was 0.778. Variables with a P-value < 0.25 in the univariable analysis were further analyzed in the multivariable analysis. The Odds Ratio (OR) with a 95% confidence interval was computed for each variable, and the corresponding P-value was used to assess the strength of the association. A P-value of < 0.05 was used as the cut-off for the level of significance of the association between medication non-adherence and the predictor variables.

Result

Sociodemographic characteristics among peoples with bipolar disorder

Of the 422 individuals approached, 404 eligible participants were included in the study, resulting in a response rate of 95.73%. The non-response rate was 4.27%, primarily due to some patients failing to complete the interview and incomplete medical records. More than half of participants (54.0%) were female, with an average age of 31.05 ± 9.79 years. Less than half (43.8%) of patients were married, and over half (59.7%) lived in urban areas. About one-fourth of the respondents (25.5%) had completed secondary school education, and 25.0% were unemployed. Additionally, more than half (56.9%) of the participants did not have health insurance (Table 1).

Clinical and substance related characteristics among peoples with bipolar disorder

Regarding clinical-related variables, nearly three-fourths (71.5%) of individuals were diagnosed with BD I, and around half (47.5%) were in the euthymic phase. Nearly half of the respondents had an illness duration (46.5%) and treatment duration (43.3%) between one and five years. One-third (35.1%) of participants had been hospitalized at least once, and nearly one-third (30.4%) had experienced suicidal ideation. Approximately one-eighth (12.9%) had attempted suicide, and almost half (48.5%) had a history of psychotic symptoms. Close to one-fourth (23.5%) of participants had a family history of mental illness, and 17.3% had a medical co-morbid illness. The majority (57.7%) of respondents had used substances at some point in their lives, and more than one-fourth (29.7%) were current substance users. More than one-third (41.1%) of respondents reported having poor social support (Table 2).

Medication related characteristics among peoples with bipolar disorders

In this study, the prevalence of medication non-adherence was 39.9% (95% CI 34.9, 45.0). Around three-fourths (74.0%) of participants took mood stabilizing agents with antipsychotics and nearly half (48.8%) of participants had a history of medication discontinuation (Table 3).

Predictors of medication non-adherence among peoples with bipolar disorder

Multiple logistic regression analysis identified frequent hospital admissions, a history of suicide attempts, current substance use, and poor social support as predictors of medication non-adherence. Participants with three or more admissions were 2.83 times more likely to be non-adherent compared to those with no previous admissions (AOR = 2.83, 95% CI 1.21, 6.59). Similarly, individuals with a history of suicide attempts were 2.75

Variables	Categories	Frequency (percentage)	Mean ± SD
Sex	Male	186 (46.0)	
	Female	218 (54.0)	
Age	18–24	86 (21.3)	31.05 ± 9.79
	25–34	153 (37.9)	
	35–44	79 (19.6)	
	45–54	58 (14.4)	
	≥ 55	28 (6.9)	
Marital status	Single	165 (40.8)	
	Married	177 (43.8)	
	Divorced	46 (11.4)	
	Widowed	16 (4.0)	
Residence	Urban	241 (59.7)	
	Rural	163 (40.3)	
Religion	Orthodox	343 (84.9)	
	Muslim	51 (12.6)	
	Protestant/Catholic	10 (2.5)	
Educational level	No formal education	99 (24.5)	
	Primary (1–8 grades)	91 (22.5)	
	Secondary (9–12 grade)	104 (25.7)	
	College and above	110 (27.2)	
Occupation	Government employee	62 (15.3)	
	Private employee	74 (18.3)	
	Farmer	64 (15.8)	
	Unemployed	101 (25.0)	
	Student	47 (11.6)	
	Housewife	56 (13.9)	
Health insurance	Yes	174 (43.1)	
	No	230 (56.9)	

Table 1. Sociodemographic characteristics among patients with bipolar disorder (n = 404).

Variables	Categories	Frequency (percentage)
Type of BD	BD-I	289 (71.5)
	BD-I with psychotic feature	73 (18.1)
	BD – II	42 (10.4)
Current mood status	Euthymic phase	192 (47.5)
	Manic phase	127 (31.4)
	Depressive phase	85 (21.1)
Duration of the illness	< 1 year	59 (14.6)
	1–5 year	188 (46.5)
	5–10 year	112 (27.7)
	> 10 year	45 (11.1)
Duration of Treatment	< 1 year	102 (25.2)
	1–5 year	175 (43.3)
	5–10 year	93 (23.0)
	> 10 year	34 (8.4)
Number of admissions	None	126 (31.2)
	One	142 (35.1)
	Two	91 (22.5)
	≥ Three	45 (11.1)
Suicidal ideation	Yes	123 (30.4)
	No	281 (69.6)
Suicidal attempt	Yes	52 (12.9)
	No	352 (87.1)
History of psychotic symptoms	Yes	196 (48.5)
	No	208 (51.5)
Family history of mental illness	Yes	95 (23.5)
	No	309 (76.5)
Medical co-morbid illness	Yes	70 (17.3)
	No	334 (82.7)
Lifetime substance use	Yes	233 (57.7)
	No	171 (42.3)
Current substance use	Yes	120 (29.7)
	No	284 (70.3)
Social support	Poor	166 (41.1)
	Moderate	219 (54.2)
	Strong	19 (4.7)

Table 2. Clinical and substance related characteristics among patients with bipolar disorder ($n = 404$). *BD* bipolar disorder.

Variables	Categories	Frequency (percentage)
Medication non-adherence	Yes	161 (39.9)
	No	243 (60.1)
Medication discontinuation	Yes	197 (48.8)
	No	207 (51.2)
Current treatment regimen	MS + AP	299 (74.0)
	AP only	25 (6.2)
	MS only	32 (7.9)
	MS + AP + AD	23 (5.7)
	MS + AD	18 (4.4)
	AP + AD	7 (1.7)

Table 3. Medication related characteristics among patients with bipolar disorder ($n = 404$). *AP* antipsychotics, *AD* anti-depressant, *MS* mood stabilizer.

Variables	Categories	Med. non adherence		95% CI		P-value
		Yes	No	COR	AOR	
Age	≥ 55	12	16	0.99 (0.42, 2.35)	0.68 (0.23, 1.98)	0.487
	45–54	18	40	0.59 (0.29, 1.20)	0.54 (0.22, 1.28)	0.166
	35–44	32	47	0.90 (0.48, 1.67)	0.88 (0.41, 1.88)	0.751
	25–34	62	91	0.91 (0.52, 1.54)	0.55 (0.27, 1.08)	0.085
	18–24	37	49	1	1	
Marital status	Unmarried	98	129	1.37 (0.91, 2.06)	1.29 (0.79, 2.13)	0.303
	Married	63	114	1	1	
Occupation	Private	36	38	1.72 (0.86, 3.44)	1.76 (0.75, 4.11)	0.186
	Farmer	25	39	1.16 (0.56, 2.40)	1.40 (0.57, 3.41)	0.456
	Unemployed	35	66	0.96 (0.49, 1.87)	1.05 (0.47, 2.34)	0.897
	Student	17	30	1.03 (0.46, 2.27)	0.78 (0.29, 2.09)	0.630
	Housewife	26	30	1.57 (0.75, 3.30)	1.62 (0.64, 4.10)	0.304
	Government employee	22	40	1	1	
Health insurance	No	77	97	1.38 (0.92, 2.06)	1.36 (0.82, 2.24)	0.222
	Yes	84	146	1	1	
Duration of illness	> 10 year	24	21	2.95 (1.30, 6.53)	3.29 (0.94, 11.43)	0.061
	5–10 year	42	70	1.12 (0.58, 2.18)	2.15 (0.69, 6.71)	0.186
	1–5	73	115	1.23 (0.67, 2.28)	1.78 (0.76, 4.12)	0.179
	< 1 year	22	37	1	1	
Duration of treatment	> 10 year	19	15	1.73 (0.79, 3.80)	0.94 (0.25, 3.47)	0.936
	5–10 year	33	60	0.75 (0.42, 1.34)	0.67 (0.21, 1.84)	0.397
	1–5	66	109	0.83 (0.50, 1.36)	0.61 (0.32, 1.25)	0.180
	< 1 year	43	59	1	1	
Number of previous admissions	≥ Three	26	19	2.26 (1.12, 4.56)	2.83 (1.21, 6.59)*	0.016
	Two	32	59	0.67 (0.38, 1.18)	0.62 (0.31, 1.24)	0.183
	One	50	92	0.74 (0.45, 1.22)	0.78 (0.42, 1.42)	0.425
	None	53	73	1	1	
Suicidal ideation	Yes	55	68	1.33 (0.86, 2.05)	0.87 (0.45, 1.67)	0.676
	No	106	175	1	1	
Suicidal attempt	Yes	26	26	2.10 (1.16, 3.78)	2.75 (1.14, 6.63)*	0.024
	No	135	217	1	1	
History of psychotic symptoms	Yes	69	127	1.53 (1.02, 2.28)	1.59 (0.97, 2.61)	0.063
	No	92	116	1	1	
Co-morbid illness	Yes	34	36	2.18 (1.29, 3.68)	1.66 (0.86, 3.19)	0.129
	No	127	207	1	1	
Lifetime substance use	Yes	99	134	1.29 (0.89, 1.94)	0.97 (0.54, 1.75)	0.937
	No	62	109	1	1	
Current substance use	Yes	54	66	1.99 (1.29, 3.08)	2.09 (1.13, 3.85)*	0.019
	No	107	177	1	1	
Social support	Poor	108	58	4.07 (1.74, 11.74)	3.57 (1.08, 11.81)*	0.037
	Moderate	47	172	0.57 (0.21, 1.60)	0.43 (0.13, 1.43)	0.170
	Strong	6	13	1	1	

Table 4. Bivariable and multivariable logistic regression for medication non-adherence and its predictors among patients with bipolar disorder ($n = 404$). * $P < 0.05$, AOR adjusted odds ratio, CI confidence interval, COR crude odds ratio, bold figures; statistically significant variables.

times more likely to be non-adherent than those without a history of suicide attempts (AOR = 2.75, 95% CI 1.14, 6.63). Those who currently use substances were 2.09 times more likely to be non-adherent compared to those without substance use (AOR = 2.09, 95% CI 1.13, 3.85). Additionally, individuals with poor social support were 3.57 times more likely to be non-adherent than those with strong social support (AOR = 3.57, 95% CI 1.08, 11.81) (Table 4).

Discussion

Patients with BD frequently fail to adhere to their prescribed medication regimens²². This study aimed to assess medication non-adherence and its predictors among individuals with BD and found that 39.9% of respondents were non-adherent. The identified predictors included frequent hospital admissions, a history of suicide attempts, current substance use, and poor social support.

In this study, the prevalence of medication non-adherence among patients with BD was 39.9% (95% CI 34.9, 45.0) which is comparable with previous evidences 41.2%²³ and 44.0%²⁴. However this study was lower than study conducted in Ethiopia (51.2%)¹³, Nigeria (54.2%)¹⁵, India (60.6%)²⁵, Brazil (63.0%)²⁶, and Turkey (70.6%)²⁷. The discrepancy could be attributed to differences in sociodemographic factors, cultural backgrounds, and economic disparities. Differences in healthcare systems, clinical settings, and treatment approaches could also play a role. Furthermore, methodological variation, specifically the use of different adherence assessment tools, such as the Morisky Medication Adherence Scale (MMAS) versus the MARS, may account for this variation. Additionally, diverse inclusion criteria such as requiring participants to have been on medication for at least six months¹⁵, restricting the sample to patients under 65 years of age, and using a convenience sampling method²⁶ may also contribute to these differences. This finding indicates that suitable interventions, such as the implementation of structured and continuous counseling programs focused on medication adherence, should be introduced to improve patients' adherence levels.

Sociodemographic variables showed no association with medication non-adherence, which aligns with previous findings²⁸. However, other studies have identified links between medication non-adherence and factors such as younger age⁸, unmarried status⁹, and unemployment¹³. These differences may stem from variations in demographic data.

In this study, participants who were frequently hospitalized were more likely to be non-adherent compared to those who had not been previously admitted. This finding aligns with earlier studies^{8,10,11,29}. A possible explanation is that hospitalization is linked to increased disease severity, resistance to medical treatment, and drug-related side effects³⁰, all of which may impact medication adherence.

Regarding suicide attempts, individuals with a history of attempting suicide were more likely to be non-adherent to medication than those without such a history. This finding is consistent with previous evidence¹⁰. Past suicide attempts may be connected to a long-term pattern of non-adherence to medication. Considering the history of self-harm among individuals with BD, the evident lack of effective biological treatments for BD is particularly concerning. Non-adherent individuals with BD likely represent a group at higher risk for future suicide attempts³¹. Therefore, this group of patients requires close monitoring and a comprehensive treatment approach to enhance adherence.

Respondents who currently use substances were more likely to be non-adherent to their medication than those who do not use substances. This finding aligns with previous studies^{1,12,13,32–34}. A possible reason is that certain substances can negatively affect a person's mental state, causing cognitive impairments and unpleasant withdrawal symptoms. Additionally, substance use can have long-term social and clinical consequences beyond the immediate physical effects. For instance, substance users are more likely to develop tardive dyskinesia and report more extrapyramidal symptoms compared to those who abstain from drugs or alcohol. Furthermore, substance use can lead to social rejection and homelessness, or a lack of family support, both of which can contribute to prescription non-adherence³⁵. Regarding specific khat use, it can negatively affect a person's internal state, leading to heightened cognitive issues, uncomfortable withdrawal symptoms, a greater risk of social isolation, and, ultimately, reduced social support¹³. Consequently, individuals who use psychoactive substances need psychological support to help them withdraw from these substances and adhere to their medications.

Likewise, participants with poor social support were more likely to be non-adherent to their medication compared to those with strong social support. This finding is consistent with various studies^{14,36}. A possible reason for this is that having social support, such as people who can remind or assist with taking medication on time or monitor medication usage, may positively influence adherence behavior¹³. Hence, treatment strategies should include enhancing social support to improve medication adherence.

Strength and limitation of the study

This study is the first of its kind in Northwest Ethiopia, specifically targeting patients with BD, and features a relatively larger sample size across multiple centers, enhancing its potential for generalization. However, self-reported adherence rates often overestimate actual adherence levels, which may be influenced by participants' honesty. Additionally, the assessment of substance use could be affected by social desirability bias. The study did not use an objective rating scale to measure suicidality. Furthermore, due to the limitations of a cross-sectional design, it was not possible to determine if there was a causal relationship between the predictors and the outcome variable.

Conclusion and recommendation

In this study, over one-third of the respondents were found to be non-adherent to their medication. Participants with frequent hospital admissions, a history of suicide attempts, current substance use, and poor social support require prompt screening and careful follow-up to improve adherence. Regular screening for substance use and providing counseling for cessation should be implemented. Future research should explore the causal relationship between medication non-adherence and its potential determinants.

Data availability

The datasets used and analyzed during the current study are available from the corresponding author upon reasonable request.

Received: 2 August 2024; Accepted: 2 January 2025

Published online: 07 January 2025

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Acknowledgements

The authors acknowledge Bahir Dar University and the study participants.

Author contributions

FBT and SAW wrote the protocol, designed the study, facilitated data collection, analyzed the data, and drafted the manuscript. EAM and TKZ participated in the facilitation of the data collection, analysis and revised the manuscript. AKS and EAB were involved in the interpretation of the results and critical review part. All authors reviewed the manuscript.

Declarations

Competing interests

The authors declare no competing interests.

Ethics statement

The study received ethical approval from the institutional review board at the College of Medicine and Health Sciences, Bahir Dar University, under protocol number 857/2023. Written informed consent was obtained from all participants. Measures were taken to protect participants' privacy, and personal identifiers were not included in the collected data. The study adhered to the principles outlined in the Declaration of Helsinki.

Additional information

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