Prevalence and correlates of alcohol use disorders among bipolar patients at Amanuel Mental Specialized Hospital, Addis Ababa (Ethiopia): A cross-sectional institution based study

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Abstract

At this time, alcohol use is increasing in African countries. The prevalence of alcohol use disorders (AUDs) remains unknown in patients with psychiatric disorders. This study aimed to assess the prevalence of AUDs among individuals with bipolar disorder in the outpatient department at Amanuel Mental Specialized Hospital. An institution-based cross sectional study was conducted among 412 bipolar patients attending the outpatient department at Amanuel Mental Specialized Hospital from May – July 2015.Participants were selected using a systematic random sampling technique. Semi-structured questionnaires were used to collect socio-demographic and clinical data. Alcohol use disorder was measured using the Alcohol Use Disorders Identification Test (AUDIT-10). Binary logistic regression analysis was performed. The prevalence of alcohol use disorder was found to be 24.5%. Those affected were predominantly female (58.5%). Being18-29 years of age(AOR=3.86, 95% CI: 1.34, 11.29), being 30-44 years of age (AOR=4.99, 95%CI: 1.85, 13.46), being unable to read and write (AOR=5.58, 95%CI: 2.026, 13.650), having a secondary education (AOR=3.198, 95%CI: 1.149, 8.906), being a farmer (AOR=4.54, 95%CI: 1.67, 12.32), being employed by the government (AOR=3.53, 95%CI: 1.36, 4.15), being a day labourer (AOR=3.5, 95%CI: 1.14, 10.77), use of other substances during past 12 months (AOR=2.06, 95%CI: 1.06, 3.99), having a family history of alcohol use (AOR=2.18, 95%CI: 1.29, 3.68), having discontinued medication (AOR=2.78, 95%CI: 1.52, 5.07), having suicidal thoughts (AOR=4.56, 95%CI: 2.43, 8.54), and having attempted suicide (AOR=5.67, 95%CI: 3.27, 9.81) were statistically significant to alcohol use disorder using multivariate logistic analysis. The prevalence of co-morbid alcohol use disorder was high. This finding suggests that screening for risky alcohol use should be integrated into routine hospital outpatient care. Further, preventive measures against alcohol use disorder should be established.

Introduction

Bipolar disorder (BD) and alcohol use disorder (AUD) are independently a common cause of significant psychopathology in the general population. Co-morbidity of AUD in BD can reach 45%.[1] Globally BD affects approximately 1% of the population and a leading worldwide cause of disability, morbidity and mortality.[2-4] Bipolar disorder and alcohol use disorders are among the top ten causes of disability due to health-related conditions in all countries, as well as in Low and middle income countries, represent a total of 19.1 % of all disability related to health conditions.[5] Alcohol consumption is an important contributor to the global burden of disease, responsible for 4% of disability-adjusted life years and 3.2% of deaths; problematic alcohol use is associated with economic disadvantage in both resource rich and resource poor countries.[6,7]

Epidemiological studies have identified point prevalence for alcohol disorders in the general population of 3% to 12%.[8] Alcohol use disorder including both abuse and dependence, are estimated to affect between 13.5% and 30.3% of the adult US population and Bipolar disorder is commonly associated with alcohol use disorder 56% of bipolar patients.[9,10] Bipolar patients were found to be over six times more likely than the general population to suffer from alcohol or other psychoactive disorders.[11] Similarly, bipolar disorder also the most common non-substance related Axis I condition in patients with alcohol or substance use disorders.[12] Several studies reported an association between alcoholism and mood disorder, bipolar disorder represents a significant public health problem, which often goes undiagnosed and untreated for lengthy periods.[13,14] Alcohol is the substance most often abused by bipolar disorder patients, followed by cannabis, amphetamines, and cocaine.[15] Moderate alcohol consumption in bipolar disorder is associated with more severe manic symptoms compared to abstinence and to poorer social and familial adjustment and increased health care use.[16]

So far, co morbidity is associated with higher rates of specific negative outcomes which can complicate diagnosis and treatment,[17] severe financial problems from poor money management, unstable housing and homelessness, medication noncompliance, relapse (more frequent mood episodes) and re hospitalization, higher treatment costs; violence, legal problems, and incarceration; medical co morbidity, depression and suicide; family burden and high rates of sexually transmitted diseases.[18] In addition to this, mental disorders

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Contributions: DW carried out the manuscript from its conception, analysis and interpretation of data and drafted the manuscript. WG participated in the data analysis and interpretation of data, commented and drafted the manuscript for publication. HS participated in data analysis and review of the manuscript. BB participated in data analysis and review of the manuscript. All authors read and approved the final manuscript.

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and their symptoms are risk factors for AUDs and problematic alcohol use is associated with the risk of serious consequences such as cardiovascular disease, unintentional injuries and AUDs.[19,20]

However, people with bipolar disorder are most commonly use alcohol other than other psychoactive substance. The reason is because of their reckless behavior of the illness and they use as symptom relief when they are in a depressive episode. Alcohol use is also may be involved in precipitating an episode of illness and so on. Despite all this there is a lack of published studies conducted in assessing the prevalence of alcohol use disorders among patients who has been diagnosed bipolar disorder in Ethiopia. Thus the aim of this study was to assess the prevalence and factors associated with alcohol use disorder among bipolar patients.

Materials and Methods

Study area, period and population

An institution based cross-sectional study design was used. The study was conducted from May–July 2015 at Amanuel Mental Specialized Hospital (AMSH). AMSH was established in 1930 and is situated in Addis Ababa, the capital city of Ethiopia. It is the only mental health hospital in the country. The hospital has a total of 300 beds of which 277 are for inpatients and 23 are Emergency beds. There is also a large outpatient service, with around 115,000 visiting the outpatients department each year.

The participants of this study were individuals with bipolar disorder receiving follow-up care at the outpatient department of Amanuel Mental Health Specialized Hospital which was diagnosed with DSM-IV. Single population proportion formula (with the assumption of 5% margin of error, 95% confidence level and 50% proportion) was used to calculate sample size; and it was found to be 423 (including 10% non response rate). The total number of patients who visited the hospital for the last 12 months were taken from patient records and then the average number of patients per day calculated. Participants were selected by systematic random sampling technique. The study was initially approved by the ethical review board of the University of Gondar and Amanuel Mental Specialized Hospital. Written informed consent was sought for each participant who voluntary and fulfilled the inclusion criteria. All individuals with a clinical diagnosis of bipolar disorder coming for follow up with an age greater than or equal to 18 years were included. Individuals with bipolar disorder who were unable to speak, hear and have no insight were excluded from the study.

Instrument

A structured questionnaire was employed to collect socio-demographic characteristics and clinical information. For the assessment of alcohol use disorder in bipolar patients Alcohol Use Disorder Identification Test (AUDIT) is used. The AUDIT is a 10 item screening instrument developed by WHO collaborative study conducted in six countries: Australia, Kenya, Bulgaria, Norway, Mexico and the USA. It is designed to screen for a range of drinking problems and in particular for hazardous and harmful consumption.[21] The AUDIT has been used in a variety of international community and primary health care setting, including many Africa countries. This 10 item questionnaire is brief, easily administered, and is highly reliable and valid in bipolar disorder.[22] The data collection tool used to evaluate the AUDs; 10 item questions from AUDIT. Items are scored 0-4, giving a total range between 0 (no problems) and 40 (severe problems) and the items covers three domains; excessive alcohol intake, dependence and problems related to drinking. Study of the utility of the AUDIT in people with Bipolar disorder, reported that a cut off score of 8 or more produced the highest level of correct classification (89%) estimated by the composite international diagnostic interview (CIDI) for current alcohol use disorder, with sensitivity of 80% and specificity of 86%.[21]

The questionnaires were translated into Amharic (local language) by an Amharic speaking linguist. The back translation was performed by mental health specialist in English and then a consensus version was developed in a group discussion by involving the research team. This was compared with the original version, and confirmed to be satisfactory for use. The questionnaires were tested on 5% sample patients to make it easier for the participants to understand and complete. AUDIT score of 1–7 social drinking, 8–15 "hazardous drinking", 16-19 "harmful drinking" and a score of 20 or above probable alcohol dependence.[23] Social support was measured using Oslo Social Support scale: Has social support: Scoring of 9-14 during Oslo-3 Social Support Scale (OSS-3). Has no social support: Scoring of 3-8 using Oslo-3 Social Support Scale (OSS-3). In addition, we asked one question in the presence of medical illness with bipolar patients.

Ethics approval and consent to participate

The study proposal was initially approved by the ethical review board of the University of Gondar and Amanuel Mental Specialized Hospital. A formal letter of permission obtained, we submitted to the respective outpatient department. The information about the study was given to the participants. Written informed consent was sought for each participant who voluntary and fulfilled the inclusion criteria. Only anonymous data collected in private rooms.

Data collection and analysis

Data were collected by face-to-face interview using pretested, structured questionnaire with the Amharic version of the source-demographic, clinical factors, and AUDIT questionnaires. EPI info version 3.5.3 statistical software and SPSS windows version 20 program were used for analysis. Descriptive statistics (frequencies, tables, percentages, means and standard deviation) were used for the socio demographic and clinical variables, including individual's response AUDIT. Binary logistic regression and odds ratio with 95% confidence interval were used to identify the independently associated factors with alcohol use disorder. Statistical significance was accepted at the 5% level ($P<0.05$).

Results

A total of 412 participants participated in this study with a 97% response rate.

Socio demographics' and clinical characteristics of participants

The majority of the participants were women 241 (58.5%). Among the participants, 42.2% were in the age range of 30-44. Concerning educational status 141 (34.2%) were secondary education, 218 (60.2%) were Orthodox in religion and 128 (31.1%) were Divorced. One hundred and thirty-six (33%) of the participants were Amhara by Ethnicity. Out of 412 participants, 126 (30.6%) were jobless and 364 (88.3%) were living with family (Table 1).

Factors associated with alcohol use disorder

During bivariate analysis variables like sex, age groups, educational levels, occupation, and use of other substances other than alcohol in the past 12 months, family history of alcohol use, medication discontinuation, suicidal thought and suicidal attempt were factors associated with alcohol use disorder. On the other point of view marital status, shelter, social support, duration of mental illness, hospitalization was not associated with alcohol use disorders and

excluded from further analysis. From the multivariate analysis; age groups 18-29 (AOR=3.86, CI: 1.34, 11.29), age group 30-44 (AOR=4.99, CI: 1.85, 13.46), divorced and widowed (AOR=0.06, CI: 0.01, 0.35) educational status: unable to read and write (AOR=5.25, CI: 2.02, 13.65), secondary education (AOR=3.19, CI: 1.14, 8.90), occupation: government employed (AOR=3.53, CI: 1.36, 4.15), farmer (AOR=4.54, CI: 1.67,12.32), daily laborer (AOR=3.5, CI: 1.14, 10.72), Other substances in the past 12 months (AOR=2.06,CI 1.06,3.99), family history of alcohol use (AOR=2.18, CI: 1.29,3.68), medication discontinuation (AOR=2.78, CI: 1.52, 5.07), Suicidal thought (AOR=4.56,CI: 2.43, 8.54), suicidal attempt (AOR=5.67, CI: 3.27, 9.81) were factors statistically significant with alcohol use disorder at P-value <0.05 (Table 2).

Discussion

The aim of this study was to assess the prevalence and associated factors of alcohol use disorder among patients with bipolar disorder at Amanuel Mental Specialized Hospital. In this study, the prevalence of alcohol use disorder was 24.5%. This result (24.5%) is lower than the study carried out in South Africa 34.8%,[24] in USA 44.7%,[25] Epidemiological catchment area study in USA 46.2%.[26] This variation may be due to using different diagnostic criteria or different rating scales in diagnosing alcohol use disorders, its geographical situation, cultural setting, economic status and population being studied, the study design, study period and the assessment of tools used.

In contrast, it is higher than the study done in Borana Ethiopia 1.6%,[27] Tanzania 5.7%,[28] Brazil 18.4%.29 The possible explanations for the variation may be due to use of different tools, use of different cutoff points, geographical areas and cultures of the study subject study done in Tanzania at urban population, study in south Brazil also on general population which may lower the prevalence of alcohol use disorder, In Ethiopia this high prevalence difference it may be due to the availability of home-made brewed alcohol like Tej, Arakie and Tella were easily accessible with the cost patients could afford and co morbidity in bipolar patients is more common.

Regarding the associated factors, there was a statistically significant association between age groups 18-29 years were more than three times (AOR=3.8, 95%CI: 1.34,11.29) and 30-44 years and four times (AOR=4.9, 95%CI: 1.85,13.46) odds of alcohol use disorder as compared to those

Table 1. Distribution of participants by their socio-demographic and clinical characteristics at Amanuel Mental Specialized Hospital, 2015 (n=412).

Variable	Number	%
Age		
18-29	159	38.6
30-44	174	42.2
≥45	79	19.2
Sex		
Male	171	41.5
Female	241	58.5
Marital status		
Single	12	2.9
Married	17	4.1
Separated	35	8.5
Divorced	120	31.1
Widowed	220	53.4
Religion		
Orthodox	218	52.9
Muslim	105	25.5
Protestant	54	13.1
Catholic	12	2.9
Others	13	5.6
Ethnicity		
Amhara	136	33.0
Oromo	131	31.8
Tigre	92	22.3
Gurage	21	5.1
Others	32	7.8
Educational status		
Unable read &write	51	12.4
Primary	148	35.9
Secondary	141	34.2
Diploma & above	72	17.5
Job/occupation		
Government employed	63	15.3
Merchant	51	12.4
Student	42	10.2
Farmer	36	8.7
Day Labor	28	6.8
Housewife	66	16.0
Jobless	126	30.6
Income		
≤400	171	41.5
401-700	39	9.5
701-1200	117	41.5
≥1201	85	20.6
Living circumstance		
With family	364	88.3
Alone	43	10.4
Others	5	1.2
Shelter		
Yes, I do have	310	75.2
Now I am homeless	102	24.8
Substance use In the past 12 months		
Yes	319	77.5
No	93	22.5
Family history of alcohol use		
Yes	156	37.8
No	256	62.2
Medication Discontinuation		
Yes	147	35.6
No	265	64.4
Previous Hospitalization		
Yes	100	24.3
No	312	75.7
Suicidal thought		
Yes	102	25
No	309	75
Suicidal attempt		
Yes	102	24.7
No	310	75.3

patients who were on age group ≥ 45 years of age. These results were consistent with the previous study done in USA.[2] Possible reasons in bipolar disorder the onset of illness early 20's and above, by nature the reckless behavior leads to expose to use alcohol and their use as symptom relief when they are in depression episode, and their psychological problem and alcohol use also may involved in precipitated an episode of illness might be the reason.

Those patients with occupational status being farmer four times (AOR=4.54, 95%CI: 1.67,12.32) odds of alcohol use disorder as compared to unemployed. Government employed (AOR=3.5, 95%CI: 1.36, 4.15) and daily laborer (AOR=3.5, 95%CI: 1.14, 10.72) were more than three and four times odds of alcohol use disorder as compared to unemployed and this finding consistent with other literature.[18] This may be due to the fact that those individuals who have income (who have got money) may bought alcohol easily, and enjoy themselves by taking it.

Those patients who cannot read and write had more than five times (AOR=5.25, 95%CI: 2.02, 13.65) odds of having alcohol use disorder as compared to diploma and above participants even though literature associated with those who have lower educational level.[15] Because they don't have awareness about harm full consequences of alcohol in spite of their educational background.

Those who used other substances in the past twelve months other than alcohol were two times more likely (AOR=2,95 %CI: 1.06-3.99) odds of having alcohol use disorder as compared to no other substances use in the past 12 months.[13] This is due to the impulsiveness of the bipolar disorder by itself in addition to alcohol use.

Those patients who have family history of alcohol use were two times more likely

Table 2. Factors associated with Alcohol use disorder (bivariate and multivariate) analysis, at AMSH, 2015.

Explanatory variables	Alcohol use disorder, Yes (%) / No (%)	COR (95%CI)	AOR (95%CI)	P value
Age				
18-29	60 (37.2) / 101 (62.8)	3.36 (0.90,4.12)	3.86 (1.34,11.29)	0.012**
30-44	29 (16.9) / 142 (83.1)	1.16 (1.71,7.47)	4.99 (1.85,13.46)	0.001***
≥45	12 (15) / 68 (85)	1	1	
Sex				
Male	55 (32.1) / 116 (67.9)	2 (1.27,3.16)	0.8 (0.43,1.50)	0.50
Female	46 (19) / 195 (81)	1	1	
Marital status				
Married	8 (66.6) / 4 (33.4)	1	1	0.73
Single	14 (87.5) / 2 (12.5)	0.3 (0.62,23.55)	0.66 (0.64,6.90)	0.002*
Divorced & Widowed	79 (20.5) / 305 (79.5)	7.7 (0.03,0.44)	0.06 (0.01,0.35)	
Educational status				
Unable read &write	11 (21.5) / 40 (78.5)	0.9 (1.84,11.07)	5.25 (2.02,13.65)	0.001***
Primary	38 (25.6) / 110 (74.4)	1.12 (1.09,5.32)	4.18 (1.46,12.00)	0.008*
Secondary	35 (24.8) / 106 (75.2)	1.06 (1.00,4.94)	3.19 (1.14,8.90)	0.026*
Diploma & above	17 (23.6) / 55 (76.4)	1	1	
Job/occupation				
Government employed	14 (22.2) / 49 (77.8)	0.8 (1.66,7.12)	3.53 (1.36,4.15)	0.009*
Merchant	10 (19.6) / 41 (80.4)	0.7 (1.47,6.95)	2.01 (0.75,5.42)	0.164
Student	15 (35.7) / 27 (64.3)	1.5 (2.39,11.71)	2.39 (0.85,6.71)	0.099
Farmer	12 (33.3) / 24 (66.7)	1.35 (2.04,10.61)	4.54(1.67,12.32)	0.003*
Day Labor	9 (32.1) / 19 (67.9)	1.3 (1.41,8.99)	3.50 (1.14,10.72)	0.028*
Housewife	7 (10.6) / 59 (89.4)	0.3 (1.23,3.2)	4 (5.21,7.23)	0.997
Jobless	34 (26.9) / 92 (73.1)	1	1	
Social support				
High social support (9-14)	77 (25.3) / 227 (74.7)	1.2 (0.70,2.00)	3 (4.3,8.32)	0.519
Low social support (3-8)	24 (22.2) / 84 (77.8)	1	1	
Substance use in the past 12 months				
Yes	70 (21.9) / 249 (78.1)	0.56 (1.28,3.49)	2.06 (1.06,3.99)	0.032*
No	31 (33.3) / 62 (66.7)	1	1	
Family history of alcohol use				
No	60 (23.4) / 196 (76.6)	1	1	0.001***
Yes	41 (26.2) / 115 (73.8)	1.17 (1.41,3.51)	2.18 (1.29,3.68)	
Medication discontinuation				
No	40 (15) / 225 (85)	1	1	0.001***
Yes	61 (41.4) / 86 (58.6)	4 (2.07,5.26)	2.78 (1.52,5.07)	
Suicidal thought				
No	0 (0) / 309 (100)	1	1	0.000***
Yes	102 (99) /1 (1)	0.0003 (2.75,7.30)	4.56 (2.43,8.54)	
Suicidal attempt				
No	7 (2.2) / 303 (97.8)	1	1	0.000***
Yes	94 (96) / 8 (4)	0.002 (0.001,0.006)	5.67 (3.27,9.81)	

Note: significant at P< 0.05*, significant at P<0.01**, significant at P<0.001***.

(AOR=2.18, 95%CI: 1.29, 3.68) odds of having alcohol use disorder as compared to no family history of alcohol use.[11,16] This is due to both the bipolar and AUDs have both biological/heredity effect, the overlap between alcohol use problems and other psychiatric problems could indicate similar etiological factors in the development of such problems.

Those patients who had difficulties of adherence to their antipsychotic and mood stabilizer had around two times (AOR=2.78, 95%CI: 1.52, 5.07) odds of having an alcohol use disorder than adherent individuals. The possible reason may be those patients who had difficulties of adherence to their antipsychotics and mood stabilizer may result in break through relapse that may lead an individual to develop Bipolar disorder leads to alcohol use disorder and have no insight about the consequence of the disease.

Those patients who had suicidal thought and attempt were four and five times (AOR=4.56, 95%CI: 2.43, 8.54) and (AOR=5.67 95%CI: 3.27, 9.81) odds of having alcohol use disorder than those who have no suicidal thought and attempt respectively.[10] The results of the current study are similar to co-morbidity studies in the developed countries and indicate that individuals with bipolar disorder are significantly more likely to suffer from a range of other psychiatric problems like alcohol use. Overlap between alcohol use problems and other psychiatric problems could indicate similar causative factors in the development of such problems. This is due to the Nature of the disease that during their depressive episode they become hopelessness and worthlessness and the alcohol uses more worsen and becomes suicidal.

Limitations of the study

This study has some important limitations that should be kept in mind when interpreting the results. First, the cross-sectional nature of the study design does not confirm definitive cause and effect relationship. Second the symptom similarity of bipolar disorder and the effect of alcohol use disorder. In addition, some of the independent variables like suicidal thought, suicide attempt, and duration of illness and family history of alcohol use rely on patient's past history that might have recalled bias. Finally, some variables were assessed with single questions, for example, the difficulties of adherence to their antipsychotic and mood stabilizer that may lead some patients to respond inappropriately.

Conclusions

Overall, the prevalence of alcohol use disorder was found to be high. Age, educational status, occupational status, family history of alcohol use, Non adherence, Suicidal thought, Suicidal attempt was associated independently with alcohol use disorder in bipolar patients. These findings add important evidence in the existing few studies in Ethiopia and other developing countries on the behavioral aspect of an individual with bipolar disorder. Awareness creation through health education about alcohol use disorder, consequence and its early management, are suggested. Additional researches with qualitative and quantitative study methods are also suggested, in order to explore the relationship of socio-demographic and alcohol use on bipolar disorder.

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