Original article / Artykuł oryginalny

Alcohol use disorders among psychiatric patients treated at an university hospital in Ethiopia

Zaburzenia związane z używaniem alkoholu wśród pacjentów psychiatrycznych przebywających na leczeniu w szpitalu uniwersyteckim w Etiopii

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Abstract

Introduction: There is a high incidence of alcohol use disorders (AUD) among patients with mental disorders. This study aimed to assess the rate of alcohol use disorders among psychiatric patients undergoing treatment at the University of Gondar Specialized Hospital in the North West Ethiopia.

Material and methods: A hospital-based cross-sectional study was conducted from December 01, 2017 to February 28, 2018. A 10-item screening tool called the Alcohol Use Disorders

Streszczenie

Wprowadzenie: Zaburzenia związane z używaniem alkoholu (AUD) bardzo często współwystępują z zaburzeniami psychicznymi. Niniejsze badanie miało na celu ocenę wskaźnika występowania zaburzeń związanych z używaniem alkoholu wśród pacjentów psychiatrycznych przebywających na leczeniu w Specjalistycznym Szpitalu Uniwersytetu Gondar w północno-zachodniej Etiopii.

Materiał i metody: Badanie przekrojowe prowadzono w szpitalu od 1 grudnia 2017 r. do 28 lutego 2018 r. Do oceny AUD zastosowano składające się

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Identification Test (AUDIT) was employed to evaluate AUD. Patients were categorised as having alcohol use disorders (AUD) when their score is above 8. Descriptive statistics were conducted for categorical variables. Binary logistic regression analysis was undertaken to determine the correlates of AUD.

Results: Overall, 200 patients were included in the study. The majority of the participants were males (126, 63%) with a mean age of 34.73 ± 10.91. Slightly more than half (105, 52.5%) of them had AUD and more than 30% (63, 31.5%) experienced harmful alcohol use. Binary logistic regression analysis indicated that for each month increase in the duration of the disease, the rate of AUD increases by more than 1.5 times with AOR: 1.577 (1.296-1.663).

Discussion: The study findings revealed that risky alcohol consumption was high among patients with mental health disorders. It was also noted that the prevalence of alcohol use disorder was varied among different psychiatric conditions. Schizophrenia and bipolar affective disorder patients experienced a very large burden of AUD as compared to patient with other mental conditions. However, the small sample size and this single-centre study with its short duration might limit the findings in terms of their reliability (reproducibility) and generalisation.

Conclusions: The prevalence of AUD was high among psychiatric patients in the study setting of North West Ethiopia. The long duration of the mental illness may expose patients to high alcohol consumption risk. Prevention of further consumption and rehabilitation of victims is required to counter disease progression and relapses.

Keywords: AUDIT, Hazardous alcohol use, Psychiatric patients, Ethiopia.

z 10 pozycji narzędzie przesiewowe zwane Testem Identyfikacji Zaburzeń Alkoholowych (AUDIT). Wynik powyżej 8 punktów pozwalał na stwierdzenie zaburzenia związanego z używaniem alkoholu (AUD). Dla zmiennych kategorialnych przeprowadzono statystyki opisowe, a w celu określenia korelatów AUD – analizę binarnej regresji logistycznej.

Wyniki: Ogółem do badania włączono 200 pacjentów. Większość uczestników stanowili mężczyźni (126, 63%), średni wiek wynosił 34,73 ± 10,91 roku. U ponad połowy badanych (105, 52,5%) rozpoznano AUD, a ponad 30% osób (63, 31,5%) piło alkohol w sposób szkodliwy. Analiza binarnej regresji logistycznej wykazała, że z każdym miesiącem trwania choroby wskaźnik AUD zwiększał się ponad 1,5 raza, przy AOR: 1,577 (1,296–1,663).

Omówienie: Jak wykazało badanie, wśród pacjentów z zaburzeniami psychicznymi odsetek osób spożywających alkohol w sposób ryzykowny był wysoki. Zauważono, że rozpowszechnienie AUD zależało od rodzaju zaburzenia psychicznego. Pacjenci z rozpoznaniem schizofrenii i choroby afektywnej dwubiegunowej byli w dużo większym stopniu obciążeni AUD niż osoby z innymi rozpoznaniami. Niewielka liczebność próby, jednoośrodkowy charakter badania i krótki czas trwania może – jak się wydaje – ograniczać jego rzetelność (powtarzalność) i możliwość uogólniania wyników.

Wnioski: Częstość występowania AUD wśród uczestniczących w badaniu pacjentów z zaburzeniami psychicznymi w północno-zachodniej Etiopii była wysoka. Długo trwająca choroba psychiczna narażała pacjentów na duże spożycie alkoholu. Zapobieganie konsumpcji i rehabilitacja są konieczne, aby powstrzymać postęp choroby i jej nawroty.

Słowa kluczowe: AUDIT, używanie alkoholu w sposób niebezpieczny, pacjenci psychiatryczni, Etiopia.

Introduction

Alcohol Use Disorders (AUD) represents the excessive and inappropriate use of alcohol [1]. The World Health Organization (WHO) has recognised AUD as one of the main medical problems [1]. It has a harmful effect on individuals health and wellbeing since it is connected with different disorders, injuries and legal issues [2, 3]. Based on the WHO report, an estimated 3 million deaths (5.3% of all deaths) globally in 2016 were attributed to harmful use of alcohol [4]. Patients with mental disorders are also prone to substance and alcohol use disorders. Psychoactive substance dependence has been one of presumed risk factors for the development of mental disorders [5]. On

the other hand, psychiatric patients may consume alcohol to alleviate some of the symptoms associated with their illness and medication side effects. Continuous use for either recreation or relief purposes can cause alcohol addiction and prolonged dependence. Thus prolonged alcohol intake can alter the brain structure and function and may cause a cognitive impairment which is fertile ground to mental health problems. The relationship between alcohol use disorders and other mental disorders is heterogeneous. The disorders include reciprocal direct causal associations, similar neurobiological basis, shared genetic and environmental causes and shared psychopathological features [6]. There is a high incidence of alcohol use disorders among patients with mental disorders [7]. In one national survey, it was revealed that the prevalence of alcohol use in patients with major depressive disorders (MDD) was found to be twice compared with patients without MDD [8]. Up to 50% of mental health disorder populations show lifetime histories of substance abuse disorders with AUD being one of the main contributors [9]. Hazardous alcohol use tends to worsen the course of mental illnesses like depressive and anxiety disorders. Moreover, patients' treatment outcomes are affected [10-12].

The Alcohol Use Disorder Identification Test (AUDIT) was prepared by the WHO to screen risky and harmful alcohol use [13]. The AUDIT has been found to be a valid tool for AUD and it is widely employed to assess AUD in different healthcare setups [14]. A study participant who scored a total of 8 or more on the AUDIT is categorised as having an AUD, indicators of hazardous and harmful alcohol use as well as possible alcohol dependence. However, more comprehensive interpretation of total score is achieved by determining which question points were scored on since the questionnaire is divided into three parts to measure the alcohol consumption, alcohol dependence and alcohol-related harm [8].

The AUDIT intends to identify patients before they developed a dependence on alcohol by focusing on hazardous alcohol consumption and not to identify alcoholism. The tool uses measures of alcohol use as a "reference standard". However, using only these measures as a diagnostic instrument is inappropriate for alcohol intake. Neither is the frequency of intoxication the sole determinant of harm while other symptoms in addition to self-reports of drinking are important. A comparison of AUDIT scores with diagnostic data showed that AUDIT scores in the range of 8-15 represented a medium level of alcohol problems whereas scores of 16 and above represented a high level of alcohol problems [6].

WHO recommends psychiatric patients and particularly suicidal patients to be screened for AUD [8]. High alcohol consumption is widespread in most parts of Ethiopia but little is known and studied on its consequences in the psychiatric population. The occurrence of a substance use disorder like alcohol drinking among patients with psychiatric conditions was found to be significant in studies conducted in southern and central parts of Ethiopia [15, 16]. Even though those studies highlighted the prevalence of alcohol and substance use disorders among mentally ill patients; there is a limitation of data in larger settings to clearly define the burden on psychiatric patients and to provide directives for public health policy recommendations in Ethiopia. Therefore there was a scarcity of data that assessed alcohol use disorder among psychiatric patients using standard AUDIT questionnaire. This study was designed to disclose the extent of alcohol use in outpatients of the psychiatric clinic of University of Gondar Specialized Hospital in North West Ethiopia.

Material and methods

Study setting and period

The study was conducted at the Psychiatry Unit of University of Gondar Specialized Hospital (UoGSH) from 1 December 2017 to 28 February 2018. The unit contains 15 inpatient beds and a medical outpatient department.

Study design and population

A hospital-based survey was conducted on adult patients who visited the outpatient department of the psychiatry unit. The included patients were those of 18 years and above diagnosed for any mental disorder.

Data collection methods

A clinician-administered version of the AUDIT was utilised [1]. Local alcohol beverages like Areke, Tela and Tej prepared from fermented barley and 'gesho' (Rhamnusprinioides), were

Table I. Sociodemographic characteristics, clinical characteristics and medication prescription patterns of study participants at UoGSH, 2018

Variables	*n* (%)
Sex	
Male	126 (63)
Female	74 (37)
Residence	
Rural	125 (62.5)
Urban	75 (37.5)
Marital status	
Married	120 (60)
Single	69 (34.5)
Widowed and divorced	11 (5.5)
Job	
Farmer	65 (32.5)
Student	34 (17)
Government employee	40 (20)
Unemployed	20 (10)
Merchant	41 (20.5)
Educational status	
Illiterate	37 (18.5)
Primary school	24 (12)
High school	36 (18)
College	59 (29.5)
University	44 (22)
Medical comorbidity	
Epilepsy	10 (5)
Diabetes	5 (2.5)
HIV/AIDS	6 (3)
Asthma	3 (1.5)
Hypertension	4 (2)
Diagnosis	
Schizophrenia	50 (25)
MDD	30 (15)
Bipolar affective disorder	30 (15)
Schizoaffective disorder	27 (13.5)
MDD with psychotic feature	20 (10)
Generalised anxiety disorder	26 (13)
Brief psychosis	11 (5.5)
Duration of the illness	
Below 2 years	137 (68.5)
2 years and above	63 (31.5)
Medications (*n* = 200)	
CPZ plus amitriptyline	44 (22)
CPZ alone	17 (8.5)
Fluoxetine	29 (14.5)
Carbamazepine with haloperidol	22 (11)
Valproic acid with CPZ	19 (9.5)
Haloperidol plus amitriptyline	31 (15.5)
Risperidone plus fluoxetine	26 (13)
Miscellaneous	12 (6)

CPZ – chlorpromazine, MDD – major depressive disorders

first changed from traditional measurements to milliliters based on previous studies in Ethiopia. Then the calculated alcohol was translated into a standard drink by calculating the alcohol mass and volume. Traditionally, different types of equipment like the 'mellekia', 'tasa' and 'brillie' are used while drinking Areke, Tela and Tej respectively. Therefore we measured the volume of each of these receptacles and converted the drinks to milliliters in order to obtain a standard drink. Physicians at the psychiatry unit use the DSM-5 diagnostic instrument to diagnose mental illnesses.

Data quality control technique

Data collectors were trained intensively on the composition of the tool and ethical issues. The tool was pre-tested on 20 psychiatric outpatients to test the suitability of the questionnaire. Part of the questions presented to patients was translated into the local language so as to gain an unbiased response. The filled questionnaire was evaluated for completeness every day by the researchers. The internal consistency of the tool was assessed and showed a Cronbach α value of 0.879. This demonstrated the reliability of the tool in the study patients as shown by higher Cronbach α coefficient.

Data analysis

The data was analysed using Statistical Package for Social Sciences (SPSS) version 20 (SPSS Inc., Cary, NC, USA). Means with standard deviation (± SDs) and percentages (%) were used to describe

Table II. AUD among patients with different mental disorders: chi-square test, UoGSH, 2018

Diagnosis	AUD		χ^2 test	*p*-value
	Yes 105 (52.5%)	No 95 (47.5%)		
Schizophrenia	38 (19)	23 (11.5)	**4.79**	**< 0.01**
MDD	14 (7)	18 (9)		
Bipolar affective disorder	28 (14)	1 (0.5)		
Schizoaffective disorder	12 (6)	22 (11)		
MDD with psychotic feature	7 (3.5)	11 (5.5)		
GAD	6 (3)	20 (10)		

GAD – generalised anxiety disorder, MDD – major depressive disorders

Table III. Chi-square test of AUD among patients with mental disorders who were taking different medications, 2018

Medications	Alcohol use disorders		χ^2 test	*p*-value
	Yes 105 (52.5%)	No 95 (47.5%)		
CPZ plus amitriptyline	20 (10)	24 (12)	**2.93**	**> 0.05**
CPZ alone	9 (4.5)	8 (4)		
Fluoxetine	15 (7.5)	14 (7)		
Carbamazepine with haloperidol	11 (5.5)	11 (5.5)		
Valproic acid with CPZ	10 (5)	9 (4.5)		
Haloperidol plus amitriptyline	17 (8.5)	14 (7)		
Risperidone plus fluoxetine	15 (7.5)	11 (5.5)		
Miscellaneous	8 (4)	4 (2)		

CPZ – chlorpromazine

categorical data, and *p*-values of < 0.05 with a 95% confidence interval were used as cut-off point to test statistical significance. Once patients were classified into two groups based on AUD, binary logistic regression analysis was applied to determine factors affecting the rate of AUD. Factors that were supposed to affect AUD were entered into the regression model.

Ethics approval and consent to participate

Ethical approval was obtained from The Ethics Review Committee of the School of Pharmacy, College of Medicine and Health Sciences, University of Gondar. Written consent was gained from each participant before the actual data collection.

Definitions of key terms

AUD: based on the standard scoring, total AUDIT values of eight and above were classified as AUD, which represents the use of alcohol associated with risk of harm. *Hazardous drinking:* total AUDIT scores of 8-15 reveals hazardous drinking which indicates moderate risk for harm secondary to alcohol consumption. *Harmful drinking:* a value of 16-19 shows drinking with a high risk of harmful alcohol consumption [1].

Results

Overall, 200 subjects participated in the study. The mean age of the respondents was 34.73 ± 10.91. The majority (126, 63%) of the participants were males. Most of the respondents (125, 62.5%) were from rural areas. Schizophrenia was the most common diagnosis (50, 25%) followed by major depressive disorder (MDD) (30, 15%) and bipolar affective disorder (30, 15%). The combination of chlorpromazine (CPZ) and amitriptyline (44, 22%) was the most common regimen prescribed (Table I).

Prevalence of alcohol use disorder and harmful alcohol use

Based on the AUDIT scoring system, slightly more than half (105, 52.5%) of psychiatric patients had AUD while more than thirty percent (63, 31.5%) experienced harmful alcohol use.

Table IV. Determinants of AUD among patients with mental disorders treated at the UoGSH, 2018

Variables	AUD		COR [95% CI]	AOR [95%CI]
	Yes, 105 (52.5%)	No, 95 (47.5%)		
Age (mean ±SD)	33.54 ± 11.46	34.91 ± 12.63	0.981 [0.653-1.010]	1.003 [0.961-1.046]
Sex				
Male	73 (36.5)	53 (26.5)	1.807 [1.114-4.176]	1.712 [0.854-3.435]
Female	32 (16)	42 (21)	1	1
Residence				
Urban	65 (32.5)	60 (10)	0.948 [0.767-2.170]	0.444 [0.141-1.398]
Rural	40 (20)	35 (17.5)	1	1
Marital status				
Married	56 (28)	64 (32)	1	1
Single	44 (22)	25 (12.5)	2.01 [0.109-10.871]	0.547 [0.061-4.902]
Widowed	3 (1.5)	2 (1)	1.714 [0.191-19.512]	1.120 [0.109-11.494]
Divorced	2 (1)	2 (1)	1.142 [1.09-3.339]	0.420 [0.029-6.001]
Education				
Illiterate	18 (9)	19 (9.5)	1	1
Primary school	9 (4.5)	15 (7.5)	0.633 [0.216-1.790]	0.425 [0.079-2.287]
High school	25 (12.5)	11 (5.5)	2.398 [0.951-5.884]	1.260 [0.049-2.366]
College	28 (14)	31 (15.5)	0.953 [0.310-8.415]	1.174 [0.385-3.576]
University	25 (12.5)	19 (9.5)	1.388 [0.524-3.241]	0.69 [0.277-1.715]
Comorbidity				
No	93 (46.5)	79 (39.5)	1.569 [0.581-3.068]	1.467 [0.588-3.656]
Yes	12 (6)	16 (8)	1	1
Duration of the disease (in months)	22.72 ± 11.83	22.17 ± 12.96	1.038 [1.013-1.063]***	1.577 [1.296-1.663]***

****p < 0.001*

χ^2 test indicated that the rate of AUD varied among different diagnosis. Accordingly, patients with schizophrenia 38 (19%) and bipolar affective disorder 28 (14%) experienced a high rate of alcohol use (Table II).

The rate of AUD was found to be similar among patients who were taking different groups of medications (Table III).

Binary logistic regression analysis indicated that for each month increase in the duration of the disease, the rate of AUD increases by more than 1.5 times with AOR: 1.577 (1.296-1.663) (Table IV).

Besides to this, every month increase in the duration of the disease, the rate of alcohol consumption increases nearly 1.4 times with AOR: 1.439 (1.011-1.867). Males were two times more likely to be exposed to harmful alcohol use compared to females with AOR: 2.034 (1.523-4.484) (Table V).

Discussion

Inappropriate alcohol use poses a significant risk to individuals' psychological, social and occupational functioning. It exposes alcohol dependent persons to substance-induced mental disorders. The release of dopamine and subsequent activation of the dopaminergic pathway results in craving and escalation of demand for alcohol [17]. Consequently, patients fail to cut down consumption of drinks containing alcohol. Alcohol consumption superimposed with underline mental disorders tends to worsen the outcome of mental health condition and reduces treatment compliance. Estimation of the incidence of hazardous alcohol consumption might facilitate the gaining of policymakers, clinicians and behavioural therapists' attention [18].

The current study aimed to generate data on the rate of AUD and pertinent associated factors

Table V. Determinants of harmful alcohol use among patients with mental disorders, UoGSH, 2018

Variables	Harmful alcohol use		COR [95% CI]	AOR [95%CI]
	Yes 63 (31.5%)	No 137 (68.5%)		
Age	35.74 ± 10.36	33.58 ± 12.72	0.984 [0.959-1.009]	0.979 [0.931-1.030]
Sex				
Male	47 (23.5)	79 (39.5)	2.156 [1.012-3.229]	2.034 [1.523-4.484] ***
Female	16 (8)	58 (29)	1	1
Residence				
Urban	43 (21.5)	82 (41)	1.442 [0.534-1.682]	0.807 [0.261-2.496]
Rural	20 (10)	55 (27.5)	1	1
Marital status				
Married	32 (16)	88 (44)	1.056 [0.119-6.147]	0.586 [0.046-7.437]
Single	27 (13.5)	42 (21)	1.93 [0.233-13.274]	0.844 [0.059-12.053]
Widowed	3 (1.5)	4 (2)	2.25 [0.067-8.834]	1.024 [0.054-19.589]
Divorced	1 (0.5)	3 (1.5)	1	1
Education				
Illiterate	7 (3.5)	30 (15)	0.622 [0.299-1.733]	0.657 [0.108-4.011]
Primary	4 (2)	20 (10)	0.53 [0.165-1.264]	0.516 [0.083-3.194]
Secondary	20 (10)	16 (8)	3.33 [1.684-4.363]	2.846 [1.913-8.872]
College	20 (10)	39 (19.5)	1.367 [0.313-1.506]	1.393 [0.523-3.707]
University	12 (6)	32 (16)	1	1
Comorbidity				
No	56 (28)	116 (58)	1.448 [0.581-3.068]	1.143 [0.402-3.255]
Yes	7 (3.5)	21 (10.5)	1	1
Duration of the diseases (in months)	23.12 ± 12.43	21.52 ± 13.16	1.385 [1.013-1.963]***	1.439 [1.011-1.867]***

****p < 0.001*

among mentally ill patients on regular clinical visits at the university hospital in North West Ethiopia. It was found that 52.5% of patients (n = 105) had AUD, which is more significant. More than thirty percent of patients experienced harmful alcohol use. Reports on alcohol-related disorders suggested that among people living with HIV in south Ethiopia, hazardous and harmful alcohol use constituted 32.6% and 24.7% respectively [19]. Another study revealed that 17.4% and 27.3% of study subjects suffered from alcohol-related problems in central and eastern Ethiopia respectively, which is relatively low compared to our findings [20, 21]. However, only students and epileptic patients were involved in the studies. A community-based survey among rural dwellers in south Ethiopia showed a 21% rate of AUD. Nonetheless, this later study employed a fast alcohol screening test to assess alcohol consumption [22].

It was noted in this study that the prevalence of alcohol use disorder was varied among different mental health conditions. Schizophrenia and bipolar affective disorder patients experienced a very large burden of AUD compared to other conditions. Based on the pathophysiology of psychotic disorders, the dysregulation of the dopamine pathway remained the most relevant indicator. Alcohol is found to modulate the function of dopamine through augmentation of its release, which leads to substance-induced psychosis [23]. In addition, schizophrenia and bipolar patients are known to expend their resources on luxurious activities including the consumption of strong alcoholic beverages, which finally culminates with the high epidemiologic shift of AUD among the aforementioned patients. Furthermore, the consumption of alcohol for the purpose of temporary relief of insomnia and anxiety were noted in these individuals [24]. Factors like the duration of the disease increased the likelihood of alcohol

consumption among patients with mental disorders. Despite many efforts to control the progression of the disease, the prognosis of mental health problems still remains poor, especially if the condition is a long-standing mental health problem [25].

The present study demonstrated no variation in the rate of alcohol consumption among patients on different medications. A randomised controlled trial of different antipsychotic medications revealed non-superiority in terms of reducing the incidence of alcohol use disorders. However, it is evident that patients on medication had reduced consumption as compared to those who were not medicated [26]. Therefore initiation of any psychiatric medications would conform patients ought to quit substance use despite the type of pharmacotherapy patients are on. However, a cross-sectional study reported that patients who were taking carbamazepine tend to develop AUD more than other individuals [20].

Limitations

In general, the present study revealed the prevalence of risky alcohol consumption among patients with mental health disorders in developing setting. The study was deemed to provide evidence for researchers and policymakers who are working against the escalating threat of AUD. However, conclusions were drawn from a small sample size in a single-centre study and the relatively short study duration might limit our findings in terms of their reliability (reproducibility) and generalisation. Furthermore, it makes it hard to draw casual or temporal associations between alcohol use and mental health disorders.

■ Conclusions

The prevalence of alcohol use disorders was high among mentally ill patients in North West Ethiopia. A long duration of mental illness increases the risk of potentially high alcohol consumption. However, the type of medications did not affect the rate of hazardous alcohol use. Prevention of further consumption and rehabilitation is required to counter disease relapse and progression.

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Conflict of interest/Konflikt interesów

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Ethics/Etyka

The work described in this article has been carried out in accordance with the Code of Ethics of the World Medical Association (Declaration of Helsinki) on medical research involving human subjects, Uniform Requirements for manuscripts submitted to biomedical journals and the ethical principles defined in the Farmington Consensus of 1997.

Treści przedstawione w pracy są zgodne z zasadami Deklaracji Helsińskiej odnoszącymi się do badań z udziałem ludzi, ujednoliconymi wymaganiami dla czasopism biomedycznych oraz z zasadami etycznymi określonymi w Porozumieniu z Farmington w 1997 roku.

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