How age of initiation of alcohol use influences severity of alcohol consumption: An observation from Nepal

Pranab Dahal

Department of Masters in Public Health, Chulalongkorn Univeristy, Bangkok, Thailand

Abstract

Introduction: With the ever -increasing prevalence of AUD in Nepal, there arises an increasing need to better understand the complexities of factors that influence alcohol use. The objective of this paper is to evaluate the association between several alcohol use characteristics and severity of alcohol use disorder.

Methods: A cross-sectional study was conducted in 8 alcohol and drug rehabilitation centers (residential treatment centers) of Kathmandu, Nepal, involving 225 male patients. The AUDIT test was used to screen patients with AUD. A self-report questionnaire was developed to measure socio-demographic characteristics and alcohol use characteristics (which included age of initiation of alcohol use, previous admission at rehabilitation centers/hospitals for alcohol-related problems, and previous abstinence attempts).

Results: Among the patients screened positive for AUD, 75% were screened to have alcohol dependence while 25% were screened to have harmful use. Thirty- two percent of the patients initiated alcohol use before the age of 18, 90% had previous abstinence attempts and over 50% had previous admission at rehabilitation centers or hospitals due to alcohol-related problems. A statistically significant association was found between the age of initiation of alcohol use and severity of alcohol use disorder where those who initiated alcohol use before the age of 18 were assessed to be more likely to develop severe AUD (alcohol dependence).

Discussion: Early age of initiation of alcohol use is associated more severe AUD later on in life. However, further studies may be needed to consolidate the findings from this study.

Introduction

Alcohol substantially contributes to the global burden of disease. According to studies, 4% of the total mortality and around 5% of disability adjusted life years (DALY) can be attributed to alcohol use [1]. A spectrum of use has been identified in alcohol users; ranging from one-time users, occasional users, regular users, hazardous users, harmful users (harmful use) to those with alcohol dependence (most severe) [2].

AUD (Alcohol Use Disorder) which includes harmful use (alcohol abuse) and alcohol dependence (more severe than harmful use) is considered to be one of the most prevalent mental disorders worldwide [3]. It is a cause of concern not just in high-income countries but also in low and low-middle income countries, with the prevalence of AUD being 9% in Colombia [4], 5% in India [5], 2.5% in Sri Lanka and 18.4% Brazil.

According to WHO(World Health Organization)- Global Status report on alcohol and health-2014, the prevalence of AUD in Nepal is 1.5% which is comparable with the average for the WHO Southeast Asia Region (2.2%). However, other studies conducted in different cities in Nepal have shown different rates of prevalence with wide variations ranging from 7.5 % to 25% [6].

Nepal is not only a multicultural and multi-ethnic country but it has also been observed as being an ambivalent society in terms of alcohol use. The different ethnic groups in the country can be categorized into two broad categories of TAU (Traditional Alcohol Users) and TANU (Traditional alcohol non-users) but with time, traditional sanctions and caste-bound restraints have been slowly disappearing [7].

In Nepal, even as there are legal restrictions in place for children less than 18 years to drink or to be sold/offered alcohol, the law allows the TAU groups to prepare alcohol at home during ceremonies and as all members of the household then consume the alcohol thus prepared. Even children in the household are presented with alcohol and most start consumption while still a minor [8]. In light of such tradition, it would be beneficial to further our understanding of the role of age of initiation of alcohol use and its relationship with alcohol use disorder.

Studies have found links between early initiation of alcohol consumption and heavier alcohol use later on in life [9-12]. National Institute of Alcohol Abuse and Alcoholism

(NIAA) conducted the National Epidemiologic Survey on Alcohol and related conditions (NESARC). In the course of the study, face to face interviews of the sample of 43,093 individuals 18 years and older was conducted. In this study, the prevalence of lifetime dependence in those who initiated alcohol use before the age of 14 years was 47% compared to 9% among those who initiated after the age of 21 years. Even after controlling for confounders such as age, sex, race/ethnicity, marital status, smoking, drug use and family history of alcoholism, those who started alcohol use before the age of 14 were still at elevated hazards of developing lifetime AUD [13].

However, some reviews have indicated that the association between age of initiation of alcohol use and alcohol-related problems (including AUD) in later life may not be causal association and other potential confounders (conduct disorder at school, family history of alcohol use, health, socioeconomic status, emotional control) may also have to be considered before drawing any causal inferences [14].

Likewise, the benefits of previous abstinence attempts and previous admissions at a rehabilitation center or hospitals for alcohol-related problems and its association with future alcohol use remain unclear and scientific evidence is scarce in terms of these two alcohol use characteristics and severity of alcohol use later in life. A greater understanding of the association between the above characteristics and severity of alcohol use remains necessary in order to develop effective and appropriate interventions in regards to alcohol use.

Methodology

This was a descriptive, cross-sectional, institution-based study using the quantitative method. It was conducted in various drug and alcohol rehabilitation and detoxification centers in Kathmandu, Nepal. Eight Rehabilitation centers were randomly selected from a list of registered rehabilitation and detoxification centers in Kathmandu. Ethical approval was received from Nepal Health Research Council (NHRC). The objective of the paper is to make an assessment of several alcohol use characteristics and to evaluate their association with severity of AUD [15].

Subjects

The subjects for this study were individuals admitted in various drug and alcohol rehabilitation centers who endorsed alcohol as either their primary substance of choice or as their secondary substance of choice (used when primary substance not available) and had used alcohol at least once in the previous year (from the day of data collection). Only individuals who were 18 years and above and those who gave informed written consent to participate in the research were included in the study. Patients with clinical conditions which may have rendered them unable to communicate with the researcher and to participate in the study were excluded from the study.

AUDIT (Alcohol Use Disorder Identification Test) scale was used to screen patients for Alcohol Use Disorder. A version translated in the Nepali language was used in the study. It is a simple tool developed by the WHO [16]. Scores of ≥ 8 were used to screen positive for AUD (Scores 8-14 considered as harmful use while Score ≥ 15 considered positive for alcohol dependence) as was used by Saunders, Aasland and colleagues in their study in 1993. For our study, Cronbach's alpha for the AUDIT screening tool was found to be 0.804

A Questionnaire was developed by the researchers to assess the socio-demographic characteristics and alcohol use characteristics of the individuals who screened positive for AUD on the screening test. The questionnaire consisted of 2 Parts:

Part 1: Socio-demographic characteristics: included 7 items: 1) Age, 2) Sex, 3) Marital Status, 4) Ethnic Group, 5) Education, 6) Employment Status, 7) Monthly Income

Part 2: Alcohol Use Characteristics: included 3 items 1) Number of previous abstinence attempts, 2) Age of initiation of alcohol use 3) Number of previous admissions at hospitals/rehabilitation centers for alcohol use [17].

These were the operational definitions employed in the study for the alcohol use characteristics:

Number of previous abstinence attempts: Number of times the respondent has attempted to abstain in the past, periods without alcohol consumption for at least 1 month in duration was considered as an abstinent attempt.

Age of initiation of alcohol use

Grant has defined the age of onset as the "age at which patients first started drinking, not counting small tastes or sips of alcohol" [18]. The Grant (1998) definition for the age of initiation was used in this study.

Number of previous admissions (for alcohol use)

Number of times the patients have been admitted at rehabilitation centers or addiction correctional facilities (including hospitals) before this admission for alcohol-related problems (including AUD).

The questionnaire was a self-report tool. For individuals who could not read, the questions were read out by the researcher as it is on the questionnaire [19].

Simple Random Sampling was used to select the sample population. A list of all the registered rehabilitation centers was computed and each center was considered as a sampling unit. Eight centers were randomly selected from the list. From the 8 rehabilitation centers, 382 individuals consented to participate in the study. 254 individuals among them screened positive for AUD on the AUDIT. Out of the 254, 29 questionnaires were excluded for incomplete answers and unclear answers (tick marks on two numbers on a scale). The remaining 225 were finalized for analysis.

Statistical analysis

Data was entered in MS Excel and analyzed in SPSS version 22 licensed by Chulalongkorn University, Bangkok, Thailand. For descriptive statistics, categorical data was analyzed by frequency and percentage while the continuous data was reported in mean, range and Standard Deviation (S.D).

Inferential analyses were conducted employing Chi-square test and Binary Logistic Regression. P values less than 0.05 were considered statistically significant.

Results

Table 1. *Socio-Demographic characteristics of study participants.*

Characteristics			Patients	
			N	(%)
Age (years)				
18-24			61	-27.1
25-45			123	-54.7
>45			41	-18.2
Range			18-61	
Mean (SD)			33.7 ± 11.2	
Marital Status				
Single			96	-42.7
Married	-49		110	-48.9
Divorced/ Widowed			19	-8.4
Ethnic Group				
Traditional Alcohol Non-Users (TANU)			98	-43.5
Traditional Alcohol Users (TAU)			127	-56.5
Education				
Illiterate			16	-7.1
Can read and write			32	-14.2
Primary School (Grade 1 -4)	34	-15.1	22	-9.8
High School (11 and 12)	51	-22.7		
Middle School (Grade 5-8)			39	-17.3
Secondary School (Grade 9-10)			34	-15.1
High School (11 and 12)				
College level			51	-22.7
			31	-13.8
Occupation				
Unemployed			40	-17.8
Employed			185	-82.2
Monthly Income (NRS)				
Monthly Income (NRS)*				
≤ 20,000			63	-28
>20,000			162	-72

Table 1 shows the socio-demographic and clinical characteristics of the study patients. The mean age of the patients was 33.7 years. All the patients participating in the study were Males. This was because the rehabilitation centers housed all male or all female members and during the process of random selection only all-male centers were selected. Among the total centers present in the Kathmandu only 1 center was a female center and the remaining centers were all male centers.For the 7.1% of patients who were illiterate, questions and answers were read out to them by the staff at the rehabilitation centers, further interpretation was done on the basis of patient's own judgments and explanations were not provided [20].

Table 2. *Alcohol Use Characteristics.*

Characteristics	Patients	
	n=225	(%)
Age of Initiation (years)		
≤18	74	-32
>18	151	-68
Range	Oct-57	
Mean (SD)	20.65	-6.87
Abstinence Attempts (times)		
0	25	-11.1
1	59	-26.2
3-Feb	52	-23.1
≥4	89	-39.6
Range	0 - 50	
Mean (SD)	4.86 (6.35)	
Number of previous admissions (Hospital or Rehabilitation Centers)		
0	101	-44.9
1	52	-23.1
≥2	72	-32

Range	0 - 20
Mean (SD)	1.44 (2.39)

Table 2 shows the distribution of the patients based on the severity of AUD. The much higher percentage of alcohol dependence compared to harmful use was most likely due to the fact that the study was conducted in residential treatment centers and not in the community. In a community sample prevalence of harmful use is likely to be higher than alcohol dependence.

Table 3. Association between Alcohol Use Characteristics and AUD.

Alcohol Use Characteristics	Alcohol Use Disorder				P-value
	Harmful Use		Dependence		
	n	(%)	n	(%)	
Age of initiation					0.011
Less than 18	11	-14.9	63	-85.1	
18 years and above	46	-30.5	105	-69.5	
Previous hospital/ rehabilitation center admission due to alcohol-related causes					0.048
No previous admission	32	-31.7	69	-68.3	
History of previous admission	25	-20.2	99	-79.8	
Previous abstinence attempts					0.028

Table 3 shows the distribution of the patients based on the alcohol use characteristics. Age groups for the age of initiation of alcohol use was divided in consideration of legal restrictions for those less than 18 from drinking alcohol in Nepal. It also shows the association between the severity of alcohol use (harmful use and alcohol dependence) and alcohol use characteristics. On bivariate analysis using the chi-square test, all three alcohol use characteristics (i.e. age of initiation, previous hospital/rehabilitation center admissions and previous abstinence attempts) had a statistically significant association with severity of alcohol use (i.e. harmful use versus alcohol dependence).

On bivariate analysis association between all 3 alcohol use characteristics and severity of alcohol use was found to be statistically significant.

In order to remove the effect of potential confounders (socio-demographic characteristics as illustrated in Table 1), multivariate analysis (binary logistic regression) was conducted. Whereupon, age at the time of initiation of alcohol use retained statistical significance whereas the other two predictor variables lost statistical significance in regards to having an influence on the severity of alcohol use [21].

Patients with AUD who initiated alcohol use before 18 were close to 2.5 times more likely to have alcohol dependence (vs. harmful use) in comparison to those who started at or after 18 and this association was found to have statistical significance. For previous admission and previous abstinence attempts even though those with previous admission or previous abstinence attempts were found to be at lower odds of having alcohol dependence statistically significant association was not observed.

Discussion

This study was a cross-sectional observational study conducted among patients with AUD who were admitted to 8 drug and alcohol rehabilitation centers of Kathmandu, Nepal. Assessments included identifying the socio-demographic and alcohol use characteristics of the patients.

The mean age of initiation of alcohol use in our study was 20.65. This finding was similar to that of another study done among 200 consecutive patients admitted for alcohol-related patients in a tertiary hospital where the mean age was 21.39 whereas the mean age of initiation from yet another study carried from India was 23.9. In all three studies the mean age of initiation was in the early 20s. In our study the youngest age of initiation was 10 years whereas oldest age of initiation was 57 years.

In our study, slightly more than 10% of patients had no previous attempts of abstinence whereas almost 90% had made at least one attempt in the past to abstain from alcohol. This supports the finding from another study conducted in India, where 92% of the subjects had at least 1 abstinent attempt in the past and 60% had multiple attempts. In our study, 62% of the atients had multiple (more than 1) attempts in the past. This finding supports the statement as to why some claim alcoholism to be a chronic relapsing condition [22].

Regarding the association between the age of initiation of alcohol use and the development of alcohol use disorder later in life, our study supports the findings from previous studies which also suggest that the age of initiation of alcohol use is associated with severity of alcohol use. According to one study, individuals who start drinking before the age of 15 experience a significant more incidence of alcohol dependence and harmful use, compared to those who initiate alcohol use at 18 years or older. According to another community-based study conducted among lifetime drinkers, there was a heightened risk of AUD among those who started alcohol use between the ages of 11 and 14 years. Within this age group range, among those whose age of initiation of alcohol was between 11 and 12 years, 13.5% progressed into harmful use (alcohol abuse) and 15.9% progressed onto alcohol dependence

in the next 10 years. Likewise, for those who began drinking at ages 13 and 14, the prevalence of abuse and dependence in 10 years was 13.7% and 9% respectively [23]. In comparison, those individuals who initiated alcohol use at 19 years and older, had a prevalence of abuse and dependence of 2.0% and 1.0%.

Our study is consistent with these studies, although all of our patients were screened as having AUD, the fraction of those with alcohol dependence (compared to harmful use) was higher in those who had initiated alcohol use before the age of 18 as compared to those who had started at or after 18 years. In our study a statistically significant association was found between the age of initiation of alcohol use and severity of alcohol use

There is a dearth of studies examining the association between the other two alcohol use characteristics measured in this study, (number of previous admissions for problems due to alcohol use and number of previous abstinence attempts) with severity of alcohol use disorder. In our study there was a statistically significant association between number of previous admissions as well as previous abstinence attempts and severity of alcohol use disorder in the bivariate analysis but the association did not exist after the accounting for the confounders during multivariate regression analysis.

This is one of the few studies, which was undertaken in Nepal to understand the socio-demographic and alcohol use characteristics of patients who were screened positive for AUD among individuals admitted for alcohol and drug use at various rehabilitation centers in Kathmandu, Nepal. Moreover, there is a limitation of studies which have tried to find association between alcohol use characteristics and alcohol use disorder, not just in Nepal but world over.

However, several limitations did exist and should be noted here. The study was conducted in drug and alcohol rehabilitation centers in Kathmandu, Nepal and the sample may not represent patient population with 'Alcohol Use Disorder' in the community. Also, all the patients in the study were men and the results may not be generalizable to women. The use of self- report questionnaire could have led to response bias and patients were likely to have wither under or over endorsed alcohol use characteristics, as well as the severity of alcohol use disorder.

Recall bias especially in reference to the age of initiation, previous admission and previous abstinence attempts could have been present [24].

More research is needed to substantiate the findings from this study. Longitudinal studies may be required to derive a causal influence of the role of the above mentioned characteristics and their role in determining the severity of AUD [25].

Conclusion

Studies have shown that age of initiation of alcohol use influences not only the development but also the severity of AUD later on in life. In light of such findings there arises a need to better understand the association. Especially in societies where it is culturally acceptable for children to consume alcohol before the legal age of drinking, it becomes imperative to understand the phenomenon better. This is the first study in Nepal that has examined this association and it supports the link between age of initiation of alcohol use and the development of AUD. In the context of rampant use of alcohol by those under the age of 18 in Nepal, the study entails that the government sets more stringent policy in regards to the production and sale of alcohol to minors. However, longitudinal studies maybe needed to further understand the extent of the influence of early initiation of alcohol use on AUD.

References

1. Rehm J, Mathers C, Popova S, et al. J Global burden of disease and injury and economic cost attributable to alcohol use and alcohol-use disorders. The lancet. 2009;373:2223-33.

2. Cargiulo T. Understanding the health impact of alcohol dependence. Oxford University Press. 2007.

3. Rincon-Hoyos HG, Castillo A, Prada SI, et al. Alcohol use disorders and psychiatric diseases in Colombia. Colombia Médica. 2016;47:31-7.

4. SAu A. AUDIT (Alcohol Use Disorders Identification Test) to estimate the pattern and correlates of alcohol consumption among the adult population of West Bengal, India: a community based cross-sectional study. Journal of clinical and diagnostic research: JCDR. 2017;11:01.

5. Katulanda P, Ranasinghe C, Rathnapala A, et al. Prevalence, patterns and correlates of alcohol consumption and its' association with tobacco smoking among Sri Lankan adults: a cross-sectional study. BMC public health. 2014;14:612.

6. Reisdorfer E, Büchele F, Pires ROM, et al. Prevalence and associated factors with alcohol use disorders among adults: a population-based study in southern Brazil. Revista Brasileira de Epidemiologia. 2012;15:582-94.

7. Unit WHOMoSA. Global status report on alcohol and health. World Health Organization. 2014.

8. Luitel NP, Baron EC, Kohrt BA, et al. Prevalence and correlates of depression and alcohol use disorder among adults attending primary health care services in Nepal: a cross sectional study. BMC Health Serv Res. 2018;18:215.

9. Jhingan H, Shyangwa P, Sharma A, et al. Prevalence of alcohol dependence in a town in Nepal as assessed by the CAGE questionnaire. Addiction. 2003;98:339-43.

10. Dhital R, Subedi G, Gurung YB, et al. Alcohol and Drug Use un Nepal. Kathmandu: Child Workers in Nepal Concerned (CWIN). 2001.

11. Parajuli VJ, Macdonald S, Jimba M, et al. Social–contextual factors associated with alcohol use among adolescents of traditional alcohol user and nonuser ethnic groups of Nepal. Journal of ethnicity in substance abuse. 2015;14:151-65.

12. DeWit DJ, Adlaf EM, Offord DR, et al. Age at first alcohol use: a risk factor for the development of alcohol disorders. American Journal of Psychiatry. 2000;157:745-50.

13. Hawkins JD, Graham JW, Maguin E, et al. Exploring the effects of age of alcohol use initiation and psychosocial risk factors on subsequent alcohol misuse. Journal of studies on alcohol. 1997;58:280-90.

14. Hingson RW, Heeren T, Winter MR, et al. Age at drinking onset and alcohol dependence: age at onset, duration, and severity. Archives of pediatrics & adolescent medicine. 2006;160:739-46.

15. Merline AC, O'Malley PM, Schulenberg JE, et al. Substance use among adults 35 years of age: prevalence, adulthood predictors, and impact of adolescent substance use. American Journal of Public Health. 2004;94:96-102.

16. Kuntsche E, Rossow I, Simons Morton B, et al. Not Early Drinking but Early Drunkenness Is a Risk Factor for Problem Behaviors Among Adolescents from 38 E uropean and N orth A merican Countries. Alcoholism: Clinical and experimental research. 2013;37:308-14.

17. Saunders JB, Aasland OG, Babor TF, et al. Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. Addiction. 1993;88:791-804.

18. Grant BF. The impact of a family history of alcoholism on the relationship between age at onset of alcohol use and DSM–IV alcohol dependence: results from the National Longitudinal Alcohol Epidemiologic Survey. Alcohol health and research world. 1998;22:144.

19. Luitel NP, Jordans M, Murphy AJ, et al. Prevalence and patterns of hazardous and harmful alcohol consumption assessed using the AUDIT among Bhutanese refugees in Nepal. Alcohol and alcoholism. 2013;48:349-55.

20. Johnson PR, Banu S, Ashok M, et al. Severity of alcoholism in Indian males: Correlation with age of onset and family history of alcoholism. Indian journal of psychiatry. 2010;52:243.

21. Kadri A, Bhagylaxmi A, Kedia G, et al. Study of socio-demographic profile of substance users attending a de-addiction centre in Ahmedabad city. Indian Journal of Community Medicine. 2003;28:74-6.

22. Leshner AI. Addiction is a brain disease, and it matters. Science. 1997;278:45-7.

23. Volkow ND, Li T-K. Drugs and alcohol: treating and preventing abuse, addiction and their medical consequences. Pharmacology & therapeutics. 2005;108:3-17.

24. Schuckit MA. Alcohol-use disorders. The Lancet. 2009;373:492-501.

25. Dawson DA, Goldstein RB, Patricia Chou S. et al. Age at first drink and the first incidence of adult onset DSM IV alcohol use disorders. Alcoholism: Clinical and Experimental Research. 2008;32:2149-60.

*Correspondence to

Pranab Dahal

Department of Public Health

Chulalongkorn University

Bangkok, Thailand.

E-mail:dahalpranab@gmail.com