

# Alcohol Use and Alcohol Use Disorders in Bangladesh

GOURAB DEWAN<sup>1,\*</sup>, FAZLE RABBI CHOWDHURY<sup>2</sup><sup>1</sup>Consultant of Medicine, Rangamati General Hospital, Rangamati, Bangladesh<sup>2</sup>Junior Consultant, Department of Medicine, Sylhet M.A.G. Osmani Medical College, Sylhet, Bangladesh

## Abstract

**Background:** This review was performed to evaluate the trend of alcohol use, characteristics of consumers, alcohol use disorders and toxic alcohol intoxications in Bangladesh. In addition, sources and sales figures of alcoholic beverages, and number of legal permits issued for alcohol consumption are reported and analyzed.

**Methods:** A narrative search was performed on available medical literature in online medical databases including Medline, Embase, Google Scholar and Bangladesh Journal online (Banglajol) to obtain articles related to alcohol use and related disorders in Bangladesh. Governmental legislations and reports related to alcohol use were also collected and reviewed. The main estimates are based on the data reported during 2006 to 2011.

**Results:** Estimated frequency of alcohol users in general population of Bangladesh is about 1.9% (CI 1.7-2.1). Prevalence of alcohol consumption is 3.6% (CI 3.3-4.1) among men and 0.3% (CI 0.2-0.5) among women. The majority of alcohol consumers are within 25 to 44 years of age (76.3%). Total number of alcohol use permits has increased by 49.0% during 2006 to 2011. In total, 80637 permits have been issued up to 2011, and therefore it can be estimated that 79/100,000 people are legal alcohol consumers in Bangladesh. The estimate of alcohol use prevalence (1.9%) is approximately 24 times higher than estimated legal consumers (0.08%). There is a growing trend over alcohol use in Bangladesh, as alcohol per capital consumption has increased by about 100 times during 1973 to 2010. Heavy episodic drinking has been reported in 20.2% (CI 16.3-24.8) of Bangladeshi drinkers. Alcohol dependence was estimated to be 0.7% in general population.

**Conclusion:** Alcohol use is on the rise in Bangladesh and it is particularly higher among some specific populations. Targeted intervention programs may help stop this increasing trend.

**Keywords:** Alcohol Drinking; Alcohol-Related Disorders; Bangladesh; Epidemiology

**How to cite this article:** Dewan G, Chowdhury FR. Alcohol Use and Alcohol Use Disorders in Bangladesh. *Asia Pac J Med Toxicol* 2015;4:83-90.

## INTRODUCTION

Alcohol consumption poses serious threat to human health and is responsible for causing more than 200 diseases (1,2). Alcohol consumption results in 3.3 million deaths per year worldwide (1,2). Of all deaths worldwide, 5.9% are due to alcohol use, a figure higher than deaths from human immunodeficiency virus infection (2.8%) and tuberculosis (1.7%) (1). According to World Health Organization (WHO), it is among main four modifiable risk factors for non-communicable diseases (3).

Bangladesh is a country with diverse ethnic, cultural and religious background. Although it is generally agreed that alcohol use and related problems are low due to religious or social backgrounds, there is no legal barrier to restrict alcohol use for some specific groups in this country (4-6). The population of Bangladesh consists of Bengali communities and tribal ethnic groups (indigenous people). Majority of them are followers of Islam and remainders are Hindu, Buddhist and Christian (7).

According to a report on health status in Bangladesh, alcohol consumption was estimated to be greatly lower than the global average and western countries (3). However, to the

best of our knowledge, no systematic epidemiologic assessment of alcohol use and its adverse effects on Bangladeshi population has been performed, so far. Nonetheless, there have been infrequent epidemiologic studies on the pattern of alcohol drinking and mass catastrophic outbreaks following methanol ingestion from this country (8,9). The present review aims to establish an estimate of alcohol users, longitudinal trend in alcohol consumption behavior, population at risk, and alcohol use disorders (AUDs) in Bangladesh.

## METHODS

### Data sources

A narrative search was performed on available medical literature in online medical databases including Medline, Embase, Google Scholar and Bangladesh Journal online (Banglajol) to obtain articles related to alcohol use and related disorders in Bangladesh. Banglajol (<http://www.banglajol.info/>) is an online database of Bangladeshi scientific journals covering various disciplines. Search terms included "BANGLADESH", "ALCOHOL USE", "ETHANOL", "METHANOL", "POISONING", "CHRONIC LIVER DISEASE", "ALCOHOLIC HEPATITIS", "ALCOHOL

\*Correspondence to: Gourab Dewan; FCPS. Consultant of Medicine, Rangamati General Hospital, Rangamati, Postal code: 4500, Bangladesh.  
Tel: +88 0171 259 9770, E-mail: [gourab.dewan@yahoo.com](mailto:gourab.dewan@yahoo.com)  
Received 6 January 2015; Accepted 4 June 2015

RELATED DISORDERS", and "ALCOHOL USE DISORDERS". Governmental legislations related to alcohol use were also collected and reviewed. Yearly reports of Department of Narcotics Control (DNC) of Government of Bangladesh (<http://www.dnc.gov.bd/index.html>) and periodic publications of WHO on world alcohol consumption trend were analyzed for evaluation of longitudinal trends (4-6,10-12). For population estimate, report of national census in 2011 was taken into account (7).

#### *Data analysis*

Reports on alcohol production and sale, as well as the number of permits issued for alcohol consumption in different years were reviewed and compared with each other to determine changes in trend. Estimate of alcohol consumers in Bangladesh was done from pooled data obtained from community surveys. Longitudinal trend in drinking characteristics of consumers such as approximate amount of the alcohol used in one occasion and binge drinking was obtained from WHO reports (in the 2004, 2011 and 2014) and national survey in 2009. Socio-demographic characteristics of the consumers including gender, age, place of residence (urban vs. rural) were also assessed. Results are expressed with percentage or frequency in 100,000 per population as appropriate. Estimates were made for population aged over 15 years unless indicated (10). According to recent reports, sixty-eight percent of total population of Bangladesh (~151,000,000), which means approximately 102,680,000 persons, are people aged 15 years and over (10). Statistical analysis was done with SPSS statistical software version 20 (IBM Corp., Armonk, NY, USA).

## **RESULTS**

### *Historic background*

Bangladesh has never been an alcohol consuming country, but history of alcohol use in this region dates to very distant past. Indigenous people of this country consume alcohol as part of their culture (4-6). During the reign of the Mughal dynasty (1526-1857 AD) in this region, a special tax was levied on alcoholic beverage production (4-6). The British regime (1858-1947 AD) introduced "Bhati khana" in each district for controlling production and trade of domestic liquor (4-6). Right to run a "Bhati khana", which was a local distillery, used to be sold through auction. In 1938, first industrial-scale distillery of the country called "Carew and Company" was established by British merchants in Darshana of Chuadanga district and now it is owned by the Government of Bangladesh (4-6). This company produces alcoholic beverages under two categories officially known as "foreign liquor" and "country liquor". Brands like whisky, gin, brandy, rum and vodka are categorized as "foreign liquor" and remaining brands are called country or domestic liquor. After 1984, four private distilleries and in 2009, the only brewery of the country called "Crown Beverage" have been established in Bangladesh (4-6).

### *Social background*

Cultural and religious determinants have great impact on alcohol consumption among different classes of Bangladeshis. Considerable proportion of indigenous population in Rajshahi (northwest), Sylhet (northeast) and

Chittagong (southeast) divisions consume alcohol for social recreation, ritual and religious purposes (4-6). Alcohol consumption in some working classes like workers in morgue, boot makers and tea factory laborers is reported to be higher (4-6). This is probably due to deprivation from good education, and socioeconomic and medical insecurity in these working classes that often makes them seek refuge in alcohol. Nonetheless, it has been reported that among people with higher income, alcoholic drinking is also popular and is considered as a sign of "modernity" or "westernized life style" (4-6). Islam, Buddhism and some denominations of Christianity prohibit alcohol consumption (13,14). In contrast, there is no absolute religious ban on alcohol consumption in Hinduism (13).

### *Alcohol and government policies in Bangladesh*

According to the "Intoxicant Control Act" of Bangladesh (1990), alcohol means spirit or liquor of whatever kind (wine, beer), or any liquid containing more than 0.5% alcohol (15). Specific license is required for establishing a distillery or brewery, possession, storage and consumption of alcohol (15). Consumption of alcohol is illegal unless for: a) Muslim citizens who receive a permission for alcohol use on a health ground from either a civil surgeon (head of government district health authority) or an associate professor (and higher) of medicine, b) sewage cleaners, morgue workers, coolie (day laborer) in a tea estate, boot makers and indigenous people residing in Rangamati, Khagrachari and Bandarban district (collectively known as Chittagong hill tracts or CHT), c) international tourists and businessmen who consume alcohol in a licensed bar, and d) non-Muslim citizens (with permit) (15). However, the act does not specify the health conditions for which a Muslim may be allowed to use alcohol and the decision rests on the authorized physician. Furthermore, because of multiethnic background of Bangladesh and to avoid interfering with old traditions and local culture, use of alcoholic beverages was announced as permissible for indigenous people after an amendment to this act in 2001. Therefore, there is partial ban on alcohol use. It is interesting that only the Muslim citizens are punishable under this act and others are not (4-6). There is no minimum age limit for drinking alcohol (3).

### *Sources of alcoholic beverages in Bangladesh*

At present, there are 109 licensed bars and 254 licensed vendors for selling alcoholic beverages (216 for domestic and 38 for foreign liquor) in Bangladesh (4-6). No estimate of homemade or smuggled illegal alcoholic beverages can be made; but during 2010 to 2012, totally 389391 liters of illegally smuggled and homemade alcoholic beverages were seized (4-6).

### *Types of liquor available*

Different types of beverages with varying alcohol content, available in different parts of Bangladesh, are summarized in table 1 (6,16-18). All brands of Carew and company contain 42.8% ethanol (16). In 2011, estimated price of domestic beverages was around 80-120 Tk (.\$1.0-1.5 US) per 500 mL bottle. Foreign liquor, on the other hand, was about 150-350 Tk (.\$2-4.5 US) per peg of average quality and beer (both domestic and imported) was 250 Tk (.\$3.2 US) per can (5). Per capita income in Bangladesh was \$751 US in the same time-frame (5).

**Table 1.** Alcohol content of different liquors available in Bangladesh

Liquor	Ingredient(s)	Alcohol content (% v/v)	Reference number
<b>Industrially produced</b>			
Country liquor	Molasses	42.8	6,16
Foreign liquor (Fine brandy)	Molasses	42.8	6,16
Toddy (domestic)	Date juice	5-10	6
Beer (domestic)	Molt and hop	4-8	6,16
Spirit (domestic)	Molasses	81.6	6,16
<b>Homemade brews</b>			
Tari	Date juice + Rice + Buds of unknown herbs	2.9	16
Arrack	Date juice	50-60	16,17
Raw cholai	Date Juice	14.5	16
Mixed cholai	Date juice	5.8	16
Chubichi	Rice	4.3	16
Pochani	Rice	13	16
Ekchuani	Rice	30-40	18
Dochuani	Rice	37.7	16,18

*Rising alcohol demand in Bangladesh*

During 2006 to the beginning of 2011, a total of 28166985 liters of proof alcohol were produced in Bangladesh which means an average of 5633397 liters per year (4-6). Among different formulations, country liquor constituted 48.9% and foreign liquor 10.8%. The rest included absolute alcohol, rectified spirit and denatured spirit. There was growing use of both foreign and domestic liquors. During the mentioned period total market supply of domestic and foreign liquor has increased by 1155335 proof liter, which means 41.6% increment. Sale of beer increased by 21.2% during 2009 to 2012 (4-6).

In the same period, individual legal permits for domestic liquor use increased by 46.9% and for foreign liquor by 61.6% (4-6). Total number of alcohol use permits increased by 49.0% (12.2% per year on average). In total, 80637 permits have been issued up to 2011, and therefore it can be estimated that 79/100,000 people are legal alcohol consumers in Bangladesh. Nonetheless, this indicator was 53/100,000 population in 2006. The number of permits issued in the years 2006 and 2011 based on Bangladesh divisions (administrative divisions of Bangladesh) are shown in table 2 (4-6). As can be seen, the highest number of alcohol use permits was issued in Dhaka and Sylhet divisions, while the highest number of legal consumers per 100,000 population in 2010-11 was observed in Sylhet division (284/100,000 people). Comparing the years 2006 and 2011, the greatest increase in number of issued permits occurred in Barisal division (520.4%). It is worth mentioning that individual permits for domestic and foreign liquor were issued within 30 days of application at fees of 80 and 2000

Bangladeshi Taka (Tk), equal to \$1.0 US and \$25.6 US, respectively (6).

*Prevalence of alcohol use in Bangladesh*

Three WHO reports during 2004 to 2014 showed the frequency of life time abstainers in Bangladesh were relatively stable (94% to 98.1%) (10-12). Prevalence of alcohol use (alcohol drinking in the preceding 12 months) in Bangladesh was studied in various small and large-scale studies (19-29). The sample size varied from 100 to 9275 subjects. Sampling method varied from representative, multistage cluster, simple random to purposive sampling (19-29). Except two; all of these studies were done either among substance abusers or specifically targeted groups vulnerable to substance abuse (21-29). Therefore they may not represent the general population. Accordingly, from the only two available large scale community surveys comprising 17275 persons above 25 years of age; estimated frequency of alcohol users in general population of Bangladesh is about 1.9% (CI 1.7-2.1) (19,20). However, in certain professions or population clusters such as vehicle drivers with 24.2% (CI 20.2-28.7), sex workers with 17.9% (CI 14.2-22.3), substance abusers with 11.1% (CI 9.6-12.8), street (homeless) children (11-18 years old) with 9% (CI 6.1-10.3) and university students with 7.1% (CI 5.5-9.1), alcohol use was estimated to be higher (21-29). There are roughly 4.6 million drug abusers in Bangladesh (4-6). Therefore, about 510,600 alcohol abusers likely exist among drug addicts. Our estimate of alcohol use prevalence in Bangladesh (1.9%) is approximately 24 times higher than estimated legal consumers (0.08%).

*Demographics of alcohol consumers*

In two large-scale community surveys among Bengali population, 333 alcoholics were identified among 17275 respondents and only 11 of them (3.3%) were women (19,20). In this respect, it can be said that prevalence of alcohol consumption in Bangladesh is 3.6% (CI 3.3-4.1) among men and 0.3% (CI 0.2-0.5) among women (19,20). However, among Santal and Oraon indigenous communities in northwest Bangladesh female consumers are estimated to be much higher (~34.0%) (17,30). Regarding the age of

**Table 2.** Yearly rise in permits issued for alcohol use (15+ population)

Divisions	Number of issued permits		Percent increment	Permits/100,000 people in 2010-11
	2006-07	2010-11		
Dhaka	14127	19624	38.9	80
Sylhet	14271	19355	35.6	284
Chittagong	7917	13385	69.1	70
Rajshahi	5971	9883	65.5	81
Khulna	6674	9816	47.1	96
Rangpur	2743	4176	52.2	41
Mymensingh	2260	3455	52.9	46
Barisal	152	943	520.4	17
Total	54115	80637	49.0	79

alcohol consumers in Bangladesh (Figure 1), the majority are within 25 to 44 years of age (76.3%) (19).

*Alcohol per capita consumption*

WHO and Food and Agricultural Organization reports in 2004, 2011 and 2014 have shown an increasing trend in alcohol per capita consumption (APC) in Bangladesh (Table 3) (10-12). During 1973 to 2010, APC has increased by about 100 times in general population. According to the 2005 and 2010 estimates, although APC has not changed significantly among total population of Bangladesh, doubling of APC among drinkers was recorded (10,11).

*Alcohol use disorders*

Binge drinking or heavy episodic drinking has been reported in 20.2% (CI 16.3-24.8) of Bangladeshi drinkers and the majority of them (72.4%) were found to be within 25-44 age group (19,20). Estimates of binge drinkers during the past decade are shown in table 4. According to 2014 WHO report; alcohol dependence in Bangladesh was estimated to be 0.7% in general population (10).

*Toxic alcohol ingestions*

According to epidemiologic studies on poisonings in Bangladesh (8,9,31-34), total of 635 deaths due to alcohol overdose and toxic alcohol ingestion have been reported since 1990s. Illegal homemade beverages came to attention after mass poisoning outbreaks of methanol happened in different parts of the country. Methanol has been used as cheap sweetener adulterant to illegally made alcoholic beverages. Moreover, it can be unwantedly produced during uncontrolled distillery process (35,36). Nineteen incidents of methanol mass poisoning were reported during 1998 to 2014 in Bangladesh (8,9). During the same period 273 deaths were reported from methanol toxicity (8,9,31-33). Case fatality rate estimated to be 71.4% (CI 62.5-78.9) for methanol intoxication (8,31). The other highly toxic alcohol, diethylene glycol, was responsible for 363 deaths during the period of 1990 to 1995 and the year 2009 (34).

*Alcohol rehabilitation settings in Bangladesh*

The first substance abuse rehabilitation center in the country called Central Drug Addiction Treatment Center

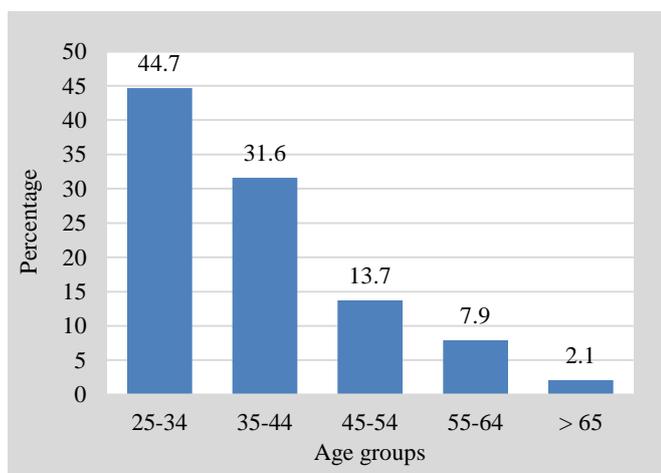
(CTC) was established in Tejgaon of capital Dhaka in 1988 (4). Four drug addiction treatment centers with total of 55 beds are currently run by the government (4). For alcohol abuse, they provide two-week detoxification and six-month rehabilitation program and regular psychiatric assessments (4). During 2007 to 2011; 12291 patients (with abuse of different substances) were treated in these centers (4-6). Apart from these governmental centers, 68 licensed private drug addiction treatment centers are now running across the country (4). During 2009 to 2011, out of 2020 admissions in different detoxification clinics, 4.5% of patients had alcohol dependence problems (6,22,25).

*Alcohol-related morbidities*

Critical organ damages due to chronic toxicity of alcohol drinking such as chronic liver disease (CLD) and hepatocellular carcinoma have been observed in different extents in Bangladesh (18,37,38). Long-term effects on liver was studied among indigenous people of CHT with history of consumption of more than 60 g alcohol in each sitting over 10 years (18). CLD was detected in 14%, fatty liver in 10% and hepatitis in 10% of people (18). In comparison to global data, causative or contributory effect of alcohol in different diseases among Bangladeshi population is much lower except for ischemic heart disease (Table 5) (37-51). However the differences need to be interpreted with caution as the majority of native data are based on limited number of subjects. Alcohol related physical injuries from accident or violence are other consequences of alcohol abuse. Among 2967 reported cases of car accident during 1998 to 2009, only in 4 cases alcohol was reported as a contributory factor (39). This figure is rather misleading. Because there is no instrument available to measure blood alcohol level on accident sites for police in Bangladesh (39).

**DISCUSSION**

In this paper, the status of alcohol use and alcohol use disorders in Bangladesh was explored. Possible target population for group specific intervention and unexplored



**Figure 1.** Age-specific frequency distribution (%) of alcohol users in alcohol drinking population of Bangladesh (no data was available from people aged 15-24)

**Table 3.** Increasing trend of alcohol per capita consumption in Bangladesh (15+ population)

Year	Alcohol per capita consumption (Liters of pure alcohol)	Reference number
1973	<0.002*	12
1985	<0.003*	
1989	<0.004*	
1992	<0.007*	
1993	0.004*	
2001	<0.004*	
2005	0.17*	11
	4.5**	
2010	0.2*	10
	9**	

\* Data on total population

\*\* Data among drinkers only

**Table 4.** Binge drinking behavior among Bangladeshi drinkers

Year	Sample size	Among total population (%)			Among drinkers only (%)			Reference Number
		M	F	T	M	F	T	
2004*	5508	0.5	<0.1	0.3	-	-	-	12
2005**	8000	0.1	<0.0	<0.1	4.2	<0.0	4.1	20
2009**	9275	1.2	0.08	0.6	28.4	2.1	30.5	19
2010***	Estimate	0.1	<0.1	<0.1	1.9	1.1	1.8	10

M: male, F: female, T: total, one standard drink: 10 g alcohol

\* Defined by consumption of  $\geq 5$  standard drink at least once in a week in a single occasion

\*\* Defined by consumption of  $\geq 5$  standard drink/day (male) OR  $\geq 4$  standard drink/day (female) in the preceding 30 days

\*\*\* Defined by consumption of  $\geq 60$  g alcohol in at least one occasion in the preceding 30 days

**Table 5.** Morbidities related to alcohol use in Bangladeshi population compared with global data (as applicable)

Disease	Proportion of total cases in which alcohol was causative or risk factor		Reference number	
	Global data (%)	Bangladesh data (%)	Global data	Bangladesh data
Hepatocellular carcinoma	25	6.2	13	37
Chronic liver disease	32	0.8	13	38
Road accidents	20	0.1	13	39
Stroke	10	10.5	13	40,41
Ischemic heart disease	2	38.7	13	42
Acute poisoning with other substances	18	2.2	13	43
Liver abscess (pyogenic)	74.5*	79.7	48	44
Hepatitis	20	3.6	49	45
Hypertension	29.2	1.5	50	46
Multidrug-resistant tuberculosis	20*	5.5	51	47

\* Data based on limited number of studies (may not be representative of the globe)

areas relating to alcohol use/abuse were also identified for future research. Estimated prevalence of alcohol consumers in general population of Bangladesh is low (1.9%). It corresponds to the observation that alcohol consumption is low in developing countries and particularly in South East Asia Region (SEAR) of WHO (10). The results were also consistent with low prevalence of alcohol use in countries with Muslim majority (10,52). However, we found that the alcohol consumption in Bangladesh is on the rise. Increase in domestic production, increased number of permits issued for drinking and massive amount of seizures of illegal liquor suggest that actual amount of alcohol use may be much higher than the official reports (6). Higher prevalence of alcohol use among the university students, truck drivers, sex workers, substance abusers, homeless children, indigenous people, and in families with positive history for alcohol drinking (17,26-30), implies the need to formulate cost effective prevention programs for specific society groups and clusters.

Neighboring countries of Bangladesh have shown much higher prevalence of alcohol use. In India for example national prevalence was reported to be 21.4%; with regional variations observed in Mumbai (18.8%), Gujrat (7%) and

Arunachal Pradesh (75%) (53,54). Similarly regional variations exist in Bangladesh. In this review, we found considerable difference between number of legal consumers (0.08%) and current estimate of alcohol users (~24 times). This is probably due to the fact that many consumers purchase alcoholic drinks from illegal vendors and are still unaccounted for. Moreover, comprehensive official report on alcohol use in Bangladesh is not provided by health authorities. In this respect, 100% of the estimate of alcohol consumption in Bangladesh in 2014 WHO report is based on unrecorded consumptions (52). Compared with Nepal (84.4%), Maldives (80.1%), Bhutan (78.5%), India (74.2%) and Sri Lanka (69.1%), the number of lifetime alcohol abstainers is higher in Bangladesh (98.1%) (10,52). According to recent report by WHO on alcohol and health, estimated APC across the globe, in SEAR region and Bangladesh was 6.2, 3.5 and 0.2 liter, respectively (10,52). This proves the limited consumption of alcohol in Bangladesh compared with other parts of the world and its neighboring countries. However, this fact should not be forgotten that in reality within past four decades, APC has increased about 100 times in Bangladesh, a dilemma which reveals itself with higher number of morbidities in the near future.

According to 2011 report by Department of Narcotics Control of Bangladesh, male and female drinkers consume 3.7 and 2 standard drink (1 standard drink = 10 g ethanol) per sitting in Bangladesh (5). The statistics of binge drinking varied considerably in the past decade, 2004 to 2014, (1.8%-30.5%) and it has been on the rise (10-12,19,20). Current estimate of binge drinkers (20.2%) is greater than the estimated global value of 16% as well as that for Bangladesh by WHO (1.8%) (10). This difference may be due to the difference in study methodology and background characteristics of sample populations, whereas the figure reported by WHO (2010) is based on regression model estimate (10). Of most concern is that binge drinking is high among young male consumers, which commonly results in acute overdose and physical injuries (10). Major proportion (42.1%) of alcohol consumers in Bangladesh are young adults and early middle aged persons (19). Among them, 7.1% are university students (12,24). Among Indian university students prevalence was shown to be 32.6% (13).

Complete socio-demographic profile of alcohol abusers in the context of Bangladesh still remains undetermined. From the published surveys it can be inferred that young male, urban residents, working in certain professions (as mentioned above) are more commonly involved with alcohol drinking (19,24,26-29). In rural setting, nuclear family, low socioeconomic class, familial predisposition, unemployment and marital status were the risk factors for increase in alcohol drinking similar to Indian studies findings (17,55). In some rural areas, as high as 93.9% consumers reported positive drinking habit among their senior family members (17). In urban setting, peer pressure, unemployment, influences of western culture, marital and love affair problems were effective factors for alcohol drinking (6). Alcohol is the fourth preferred illicit substance in Bangladesh whereas in India it ranks second only to tobacco (56). Alcohol dependence and its impact on psychology of abuser have not been fully studied in Bangladesh. This is probably due to the fact that alcohol drinkers seldom report their problems to alcohol rehabilitation centers in Bangladesh (6,21-23,57).

Cases of toxic alcohol intoxication were reported from all over the country, but they were more observed in southern part of Bangladesh (8,32,33,58). While 7.1% of hospital admissions in the country are due to poisonings (59), alcohol intoxication accounts for 0.08% of admissions. Alcohol intoxications are similarly limited in Iran (36); however, they are significantly higher in Russia as they constitute 12.8% of poisoning-related admissions (60). While in Bangladesh, the majority of methanol poisonings occur after consumption of methanol-contaminated alcoholic drinks; in Russia, the majority are due to consumption of surrogate alcohols (8,60).

In the year 2010-11, among 1576 admissions to CTC in Bangladesh, only 18 (1.1%) alcohol dependents were treated (6). In Chandigarh (north India); however, during a period of 30 years (1978-2008) 52.7% of admissions were for alcohol dependence (61). This is probably due the fact that alcohol consumption is much higher in India compared with Bangladesh. The other reason might be that due to legal bans on alcohol use, Bangladeshi people facing problems with alcohol consumption are may be either reluctant to attend

rehabilitation clinics or their problem simply goes unnoticed.

## LIMITATIONS

Generalization of the estimated statistics for alcohol use and related disorders for whole Bangladesh needs to be considered cautiously as there are difference in methodology of various studies (especially case definition) carried out in this country which therefore limits our present estimate. Absence of quantitative data from major traditional alcohol consumers of indigenous communities from CHT and scarce national data sources are another limitations. Hence, it can be said that alcohol related problems are relatively unexplored in Bangladesh requiring attention and organized studies.

## CONCLUSION

This epidemiological review on alcohol use and related disorders, first of this kind in Bangladeshi perspective, offers a baseline estimate. Although alcohol consumption is still limited in Bangladesh, it shows an increasing trend. Major part of the population is still life time abstainer which is encouraging. Targeted intervention among high-risk population to encourage them to consume alcohol within a safe limit or to quit drinking will be an effective measure. Future efforts should be focused on evaluating the magnitude of causative or contributory effects of alcohol use among native population.

**Conflict of interest:** None to be declared.

**Funding and support:** None.

## REFERENCES

1. Afshari R. International Health Problems Related to Alcohol Abuse. *Asia Pac J Med Toxicol* 2014(Suppl);3:S1. [Abstract]
2. Rehm J, Baliunas D, Borges GL, Graham K, Irving H, Kehoe T, et al. The relation between different dimensions of alcohol consumption and burden of disease: an overview. *Addiction* 2010;105:817-43.
3. Nahar N, Wu B, Kandarina BJI, Kinsman J. The INTREC Bangladesh Country Report 2012. World Health Organization: INDEPTH Training and Research Centres of Excellence (INTREC); 2012.
4. Department of narcotics control (DNC), Ministry of Home Affairs, Government of Bangladesh. Annual Drug Report of Bangladesh, 2012. Dhaka, Bangladesh: DNC; 2012. (In Bengali)
5. Department of narcotics control (DNC), Ministry of Home Affairs, Government of Bangladesh. Annual Drug Report of Bangladesh, 2011. Dhaka, Bangladesh: DNC; 2011.
6. Department of Narcotics Control (DNC), Ministry of Home Affairs. Annual Drug Report of Bangladesh, 2010. Dhaka, Bangladesh: DNC; 2010.
7. Bangladesh Bureau of Statistics (BBS), Statistics and Informatics Division (SID), Ministry of Planning. Bangladesh Population and Housing Census 2011: Vol 4 (socio-economic and demographic report). Dhaka, Bangladesh: BBS; 2012.
8. Chowdhury FR, Bari MS, Alam J. Epidemiological Profile of Methanol Poisoning in Bangladesh (2008-2014) and Clinical Experience of a Single Outbreak. *Asia Pac J Med Toxicol* 2014;3(Suppl):S6. [Abstract]
9. El-Saharty S, Ahsan KZ, Koehlmoos TLP, Engelgau MM. Tackling Non-communicable Diseases in Bangladesh: Now Is the Time. Washington, DC: The World Bank; 2013.

10. World Health Organization (WHO). Global status report on alcohol and health. 2014 ed. Geneva, Switzerland: WHO Press; 2014.
11. World Health Organization (WHO). Global status report on alcohol and health. 2011 ed. Geneva, Switzerland: WHO Press; 2011.
12. World Health Organization (WHO). Global status report on alcohol and health. 2004 ed. Geneva, Switzerland: WHO Press; 2004.
13. Das SK, Balakrishnan V, Vasudevan DM. Alcohol: Its health and social impact in India. *Natl Med J India* 2006; 19:94-9.
14. Gentry KL. *God Gave Wine: What the Bible Says About Alcohol*. Lincoln, CA, USA. Oakdown Books; 2001.
15. Department of Narcotics Control (DNC). Intoxicant Control Act 1990, Bangladesh (Amendment up to 2004) [Internet]. (In Bengali) 2004 [cited 2014 Sep 28]. Available from: [http://www.dnc.gov.bd/Rules/Narcotics%20Control%20Act-1990\(Amendment%20upto%202004\).pdf](http://www.dnc.gov.bd/Rules/Narcotics%20Control%20Act-1990(Amendment%20upto%202004).pdf)
16. Islam NM, Ferdous N, Nesha K, Rasker JJ. Alcoholic Beverages in Bangladesh-How Much We Know? *Fam Med Med Sci Res* 2014;3:123.
17. Uddin ME. Gender and arrack drinking among Muslim, Hindu, Santal, and Oraon communities in north-western villages of Bangladesh. *Int Q Community Health Educ* 2007-2008; 28:73-89.
18. Biswas S, Paul S, Syeed A, Mahbub MS, Khan MAI, Gupta RD, et al. Spectrum of Alcoholic Liver Disease in Tribal Alcoholics of Chittagong Hill Tracts of Bangladesh. *J Med (Bangladesh)* 2011; 12:7-11.
19. Bangladesh Society of Medicine, Ministry of Health & Family Welfare, World Health Organization Country Office for Bangladesh. Non-communicable disease risk factor survey, Bangladesh 2010. Dhaka, Bangladesh: WHO Library Cataloguing-in-Publication data; 2011.
20. Huu Bich T, Thi Quynh Nga P, Ngoc Quang L, Van Minh H, Ng N, Juvekar S, et al. Patterns of alcohol consumption in diverse rural populations in the Asian region. *Glob Health Action* 2009;28-34.
21. Hossain KJ, Karim MR, Karim AMMN, Kamal MM. Sex-habit and Sexually Transmitted Infection (STIs) Among The Drug Abusers Undergoing Detoxification. *J Med (Bangladesh)* 2013; 14:5-10.
22. Hakim M, Ahmad M, Naher S, Ali M, Ahmed MU. Character and High Risk Behaviour of Drug Addicts for Spreading Hepatitis B and HIV Infection in a Selected Area of Dhaka City. *J Armed Forces Med Coll Bangladesh* 2013;9:35-42.
23. Chowdhury SH, Rahman MS, Islam MA, Tabassum R, Kamal AHMKM, Al-Azad MAS, et al. Deliberate Self-Harm in Substance Use Disorder Patients-A Study at Tertiary Level Hospitals in Bangladesh. *J Armed Forces Med Coll Bangladesh* 2013;9:63-74.
24. Akhter J. Prevalence of Substance Abuse among Female Residential Students of Dhaka University. *ASA Univ Rev* 2012;6:115-27.
25. Roy J, Morshed NM, Qusar MMAS, Nahar JS, Miah MAS, Shah MA. Personality Traits of Substance Users in Bangladesh. *Bangabandhu Sheikh Mujib Med Univ J* 2010;3:76-81.
26. Mohsena M, Lahiry S, Haque M, Chowdhury Q. Health Indicators among Commercial Sex Workers of Doulotdia Brothel, Bangladesh. *J Comilla Med Coll Teach Assoc* 2003;5:87-90.
27. Khan IK. Socio-economic profile of sex workers of Chittagong (Report No.: 11). Dhaka, Bangladesh: Centre for Policy Dialogue, Bangladesh; 2000.
28. Gibney L, Saquib N, Macaluso M, Hasan KN, Aziz MM, Khan AY, et al. STD in Bangladesh's trucking industry: prevalence and risk factors. *Sex Transm Infect* 2002; 78:31-6.
29. Mahmud I, Ahsan KZ, Claeson M. Glue sniffing and other risky practices among street children in urban Bangladesh (Report No. 704301). Washington, DC: The World Bank; 2011.
30. Fatema K, Islam N, Ali L. Cardiovascular risk factors among Santal population in Bangladesh. *J Epidemiol Community Health* 2011;65:A 453.
31. Amin MR, Basher A, Chowdhury FR, Faiz MA. Methanol Poisoning in Bangladesh- A Deadly Case Series. In: *Proceedings of the 12th Scientific Congress of Asia Pacific Association of Medical Toxicology*; 2013 Nov 21-23; Dubai, UAE; 2013. p. 42.
32. Bari MS, Chakraborty SR, Alam MMJ, Qayyum JA, Hassan N, Chowdhury FR. Four-Year Study on Acute Poisoning Cases Admitted to a Tertiary Hospital in Bangladesh: Emerging Trend of Poisoning in Commuters. *Asia Pac J Med Toxicol* 2014;3:152-6.
33. Mondal RN, Rani M, Mohammad N, Islam MM, Haque MA, Nasreen F. demographic characteristics and pattern of acute poisoning in Rangpur medical college hospital. *Bangladesh J Med* 2012;23:62-6.
34. Hanif M, Mobarak MR, Ronan A, Rahman D, Donovan JJ, Bennis ML. Fatal renal failure caused by diethylene glycol in paracetamol elixir: the Bangladesh epidemic. *BMJ* 1995;311:88-91.
35. Brent J. Methanol Poisoning and the Role of Fomepizole. In: Afshari R, Monzavi SM, editors. *Afshari's Clinical Toxicology and Poisoning Emergency Care*. 2nd ed. Mashhad: Mashhad University of Medical Sciences Publication; 2012. p.364-9.
36. Eghbali H, Mostafazadeh B, Ghorbani M, Behnoush B. Neurologic Complications of Methanol Poisoning: A Clinicoepidemiological Report from Poisoning Treatment Centers in Tehran, Iran. *Asia Pac J Med Toxicol* 2015;4:47-50.
37. Khan M, Haq SA, Ahmed N, Matin MA. Etiology and Clinical Profile of Hepatocellular Carcinoma in Bangladesh. *Bangladesh Med Res Coun Bull* 1997;23:16-24.
38. Rahman S, Ahmed MF, Alam MJ, Debnath CR, Hoque MI, Hussain MM, et al. Distribution of Liver Disease in Bangladesh: A Cross-country Study. *Eurasia J Hepato-Gastroenterol* 2014;4:25-30.
39. Ahsan HM, Raihan MA, Rahman M. A study on car involvement in road traffic accidents in Bangladesh. In: *Proceedings of 4th Annual Paper Meeting and 1st Civil Engineering Congress*; 2011 Dec 22-24; Dhaka, Bangladesh; 2011. p.191-8.
40. Hossain MM. Demographic profile of stroke patients attended at CRP, Bangladesh [BSc Thesis]. Dhaka, Bangladesh: Department of Physiotherapy, University of Dhaka; 2013.
41. Miah MNA, Azhar MA, Rahman A, Halder D, Akteruzzaman M, Kundu NC. Risk Factors of Stroke in Young and Old Age Group Admitted in a Tertiary Level Hospital, Dhaka - A Comparative Study. *Bangladesh J Neurosci* 2011;27:94-100.
42. Sultana R, Anisuzzaman SM, Begum AA, Chowdhury SS, Akter T, Chowdhury FUA. Risk factors for ischemic heart disorder patients: Outcome of a survey conducted in Dhaka city, Bangladesh. *Int Curr Pharm J* 2012;1:68-70.
43. Chowdhury FR, Rahman AU, Mohammed FR, Chowdhury A, Ahasan HAMN, Bakar MA. Acute poisoning in southern part of Bangladesh – The case load is decreasing. *Bangladesh Med Res Coun Bull* 2011;37:61-5.
44. Islam QT, Ekram ARMS, Ahmed MI, Alim MA, Ahad MA,

- Haque MA, et al. Pyogenic Liver Abscess and Indigenous Alcohol. *TAJ* 2005;18:21-4.
45. Parvin MN, Uddin R, Chowdhury SA. Hepatitis in Bangladesh: Pattern and treatment Options. *J App Pharm Sci* 2011;6:118-21.
  46. Siddique MA, Sultan MAU, Haque KMHSS, Zaman MM, Ahmed CM, Rahim MA, et al. Clustering of metabolic factors among the patients with essential hypertension. *Bangladesh Med Res Counc Bull* 2008;34:71-5.
  47. Afroz S, Flora MS. Relationship between substance abuse and multidrug-resistant tuberculosis. *Ibrahim Med Coll J* 2012;6:50-4.
  48. Raja CS, Karthick P. Role of alcoholism in liver abscess. *Int J Res Med Sci* 2014;2:1313-9.
  49. Basra S, Anand BS. Definition, epidemiology and magnitude of alcoholic hepatitis. *World J Hepatol* 2011;3:108-13.
  50. Briasoulis A, Agarwal V, Messerli FH. Alcohol Consumption and the Risk of Hypertension in Men and Women: A Systematic Review and Meta-Analysis. *J Clin Hypertens (Greenwich)* 2012;4:792-8.
  51. Zetola NM, Modongo C, Kip EC, Gross R, Bisson GP, Collman RG. Alcohol use and abuse among patients with multidrug-resistant tuberculosis in Botswana. *Int J Tuberc Lung Dis* 2012;16:1529-34.
  52. Monzavi SM, Afshari R, Rehman N. Alcohol Related Disorders in Asia Pacific Region: Prevalence, Health Consequences and Impacts on the Nations. *Asia Pac J Med Toxicol* 2015;4:1-8.
  53. Ray R. The Extent, Pattern and Trends of Drug Abuse in India: National Survey. New Delhi, India: Ministry of Social Justice and Empowerment, Government of India and United Nations Office on Drugs and Crime; 2004.
  54. Gupta PC, Saxena S, Pednekar MS, Maulik PK. Alcohol consumption among middle-aged and elderly men: a community study from western India. *Alcohol & Alcoholism* 2003; 38:327-31.
  55. Sarkar AP, Sen S, Mondal S, Singh OP, Chakraborty A, Swaika B. A study on socio-demographic characteristics of alcoholics attending the de-addiction center at Burdwan medical college and hospital in West Bengal. *Indian J Public Health* 2013; 57:33-5.
  56. Murthy P, Manjunatha N, Subodh BN, Chand PK, Benegal V. Substance use and addiction research in India. *Indian J Psychiatry* 2010; 52(Suppl):189-99.
  57. Maehira Y, Chowdhury EI, Reza M, Drahozal R, Gayen TK, Masud I, et al. Factors associated with relapse into drug use among male and female attendees of a three-month drug detoxification-rehabilitation programme in Dhaka, Bangladesh: a prospective cohort study. *Harm Reduct J* 2013;10:14.
  58. Amin MR, Awwal A, Sattar MA, Hasan R, Islam R, Jalil MA, et al. Pilot survey on cases of poisoning and its outcome in different category of hospitals in Bangladesh. *J Med (Bangladesh)* 2009; 10(Suppl):15-7.
  59. Dewan G. Analysis of Recent Situation of Pesticide Poisoning in Bangladesh: Is There a Proper Estimate? *Asia Pac J Med Toxicol* 2014;3:76-83.
  60. Brusin KM, Nekhoroshkov RO. A 13-Year Retrospective Study on Toxic Alcohol Poisoning in Middle Urals, Russia. *Asia Pac J Med Toxicol* 2015;4:43-6.
  61. Basu D, Aggarwal M, Das PP, Mattoo SK, Kulhara P, Varma VK. Changing pattern of substance abuse in patients attending a de-addiction centre in north India (1978-2008). *Indian J Med Res* 2012;135:830-6.