Alcohol use among school-going adolescent boys and girls in an industrial town of Assam, India

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ABSTRACT

Background: Some people in Northeast India prepare rice-based alcoholic drinks in the household. People use these drinks in religious and social functions, and these are taken even in the presence of parents and elders. Easy access to illicit substances in industrial towns and lack of social inhibition for intake of homemade alcohol might increase the vulnerability of youth to these habits.

Objective: To estimate the prevalence of alcoholic drink user among school-going adolescent students in an industrial town of Assam.

Materials and Methods: A cross-sectional survey was designed to collect the data using a predesigned questionnaire. Personal interview was conducted to collect the data about pattern of alcohol use, type of alcoholic drinks they use, duration, and information about parents and peer. Data were analyzed using Epi-info 17 and Statistical Package for Social Sciences-17.0 (Chicago, USA, SPSS Inc.).

Results: About 36% out of 1285 students have tasted/used homemade alcoholic drinks (HADs) and 12.3% used commercially available alcoholic drinks (CADs). Significantly higher numbers (P < 0.001) of adolescent students (≥15 years) used CAD in comparison to children (<15 years). However, the number of younger students was higher in using HAD. Minimum age at first experience of CAD was 7 years and that of HAD was 4 years; the duration varied from 1 to 8 years and 1–15 years, respectively. Parent’s behavior of taking tobacco and/or alcohol influenced the habit of their children. Father’s habit was found to be associated with male offspring’s habit of taking CAD. About 16% of the students used one or more substances along with alcohol.

Conclusion: High percentage of adolescents in the industrial town of Assam use alcoholic drinks with a male preponderance. They taste alcoholic drinks at a very young age. Parent’s indulgence in taking tobacco, alcohol, or both was found to influence higher intake by their offspring.

Key words: Adolescent behavior, homemade alcohol, industrial town, substance use

INTRODUCTION

Alcohol abuse is a major public health problem across the globe. Globally, about 50% of population takes alcohol and about 20% smokes tobacco. Besides alcohol and tobacco, cannabis, heroin, cocaine, sedatives, and various stimulants are used across the globe. In India, various forms of addictive substances such as tobacco, alcohol, cannabis, opium, and opiates⁴ and cough syrups are abused orally and some are used parentally. Tobacco and alcohol abuse are very high in some of the states of Northeast India.⁵ Adolescence being the
formative period of life, boys and girls start the habit under peer pressure, household influence, parental influence, and by dint of inquisitive mind and experimentation. In many parts of India, including northeast, alcoholic drinks are prepared in households taking rice as main ingredient or other available ingredients by fermentation while some people use these alcoholic drinks in religious and social functions. Further, homemade alcoholic drinks (HADs) are used in front of parents and elders in social functions without inhibition. As such, in most cases, adolescent boys and girls get the taste of alcoholic drinks in the early part of life. They continue in tolerable doses; later, some of them shift to commercially available alcoholic drinks (CADs), and gradually, they become habitual drinker or addicts.

Substance abuse is reported to be more in industrial towns. Especially, easy access to illicit substances, available pocket money, and other factors make youth and adolescent boys and girls vulnerable to these habits. Most of the employees of the industry along with their family stay within the township. Alcoholic drinks are available with many commercial outlets as well as HADs prepared from rice are also available in and around the township. Not much data are available on the status of substance abuse among the youth in Assam, especially in industrial town where population is supposed to be more vulnerable. Since substance abuse starts in adolescence and youth, the present study has been planned to bring out a status report on substance abuse among the school- and college-going students of the township. The study was also aimed to bring out the factors of vulnerability of the youth for alcohol abuse and will have great importance for public health planning.

MATERIALS AND METHODS

Study site, sampling design, and sampling
An industrial town of Assam was selected purposively to study the prevalence and pattern of substance abuse among adolescent school-college-going students. The town has well-planed housing colonies for the employees of the industry, dealing with hydrocarbon exploration, processing, storage, and transportation. The town has full-fledged educational facilities and other civic amenities.

A cross-sectional study was designed to collect the data from school-college-going adolescent boys and girls in and around the township. Operational feasibility and permission of the school authority were the prime factors for the inclusion of classes/schools. Efforts were made to cover all the schools and have near equal representation of both sexes. Schools-colleges were visited several times for seeking permission of the head of the institute, awareness generation for proper data collection. Awareness lectures for students were delivered by the investigators. Students were explained the procedure of filling the questionnaire. A question-answer session was also kept after the deliberation to clarify the queries of the students. After the awareness lecture, a self-answered common performa was introduced among the students. Students were apprised about the anonymity and unlinked nature of the survey. All students with positive history of any substance intake were interviewed separately by the investigators for filling the main questionnaire. Individual data were collected in an anonymous format.

A total of 20 schools and colleges (>95%) were covered on the basis of operational feasibility and with full consent from the head of the respective institutes. Consent of each student was taken before interview.

Preparation and validation of questionnaire
The questionnaire was designed to elicit demographic information without disclosing the identity. In the questionnaire, habit of substance abuse (ever use), type of substance used, age at first experience of alcoholic drinks, duration and frequency of intake, peer pressure for starting alcohol, parental education, and habit, etc., were recorded. Questions were also framed to get the information about availability of pocket money for correlating with substance abuse. The questionnaire was pretested for completeness and compliance among 20 students of the study area before the actual study. Partial modification was done after analyzing the pretest result. Since the educational institutes were located in Assamese-speaking area and the medium of instruction of most of the schools was Assamese or English, the questionnaire was prepared in bilingual format (Assamese and English). Of course, help of an interpreter was taken for exclusive Hindi- and Bengali-speaking students.

Working definitions

Alcohol user
All students who used an alcoholic drink (CADs or HADs) even for a very short duration in the past were included as a user.

Habit of alcohol use
Date of the first use of alcoholic drink, continuation, or cessation (till date of interview) afterward was recorded. Although attempts were made to record the frequency, the dose could not be analyzed due to variation in types of drinks and difference in size of drinks. Parent, peer information, and availability of pocket money were recorded as per the declaration of students.

Data collection
During the process of data collection, permission was taken from the school authority and teachers. Students in groups were explained about the purpose of the study, confidentiality, and anonymity of the data. Ascent was taken from every student before interview. Students were allowed to fill up a preliminary questionnaire for habit of
any substance abuse. If any of them answers in affirmative, they were interviewed (with their consent/ascent) in isolation (one-to-one) by the investigators. Students were also counseled for quitting the habit after the interview. More than 95% of schools in and around the township were covered having students of Class IX to XII. All the approached school/colleges were very cooperative and refusal rate among students was nil.

Data analysis
Age- and sex-wise analyses were carried out using frequency distribution table. Students were also segregated into two groups according to the location (urban and rural) of schools for analysis. For analysis, Epi-info 17 and Statistical Package for Social Sciences (SPSS-17.0, Epi Info TM 3.5.4 (CDC, Atlanta)) was used to determine frequency distribution and association with different risk factors.

RESULTS
Out of 20 schools/colleges, 14 were located within the township and 6 outside the township, in rural areas. A total of 1285 students were included in the study.

Several CADs such as beer, wine, rum, vodka, brandy, whiskey, and gin were available over the counter in the study area. HADs (mostly rice based), known by various names such as Has (Hans), laopani, Apong, Haria (Handia), Jou, Lal, and Sai-mod, and distilled beverages, locally known as sulai, were also available in and around the study area. Besides individual use, CADs were used by the people in social parties. The cost of CAD was found to be a limiting factor for its general use. On the other hand, HADs were used in religious functions, local festivals, and social gathering. Since these are relatively cheaper, it is mostly used by common men.

Among the alcoholic drink user, 36% used locally prepared HADs at least once and about 12.3% used CADs. However, some students used both the types of alcoholic drinks. Although significantly higher number (P < 0.001) of adolescents (≥15 years) used CADs in comparison to the children (<15 years), younger students reported use more of locally prepared (homemade) alcohol than the older ones. Although the use of locally prepared rice beer was similar in both sexes, male preponderance was observed in the use of CADs (P < 0.001) [Table 1]. Statistically significant (P < 0.0001) higher proportion of students from rural school used locally prepared (homemade) alcoholic drinks than the students of urban school [Table 2]. Among the CADs, most of the students drink beer (8.2%) followed by vodka (3.7%), wine (3%), and rum (1.8%) [Table 3].

Minimum age of initiation to CAD for the students was 7 years, and the duration of drinking habit ranged from 1 to 8 years with a mean of 2.18 years. However, for HAD, the age at initiation was as low as 4 years and the duration ranged from 1 to 15 years with a mean of 4.48 years [Table 4].

Parents’ education and occupational status are shown in Table 5. Parents and peer behavior influence the young mind for their habit of substance use. Father’s or mother’s habit of taking tobacco, alcohol, or both was found to be influencing the habit of their children. Similarly, close friend’s habit of substance use or peer pressure influenced the adolescent boys and girls to take alcoholic drinks [Table 6]. Multiple regression analysis showed that father’s habit of taking alcohol, tobacco, or both was associated with male child’s habit of taking CAD [Table 7]. Although paternal habit of substance use influenced the adolescents in initiating to drinks, mother’s habit was found to have maximum influence for the use of HAD [Table 8].

Multiple substances use among adolescents was found to be high. Among the substance users, about 16% had the habit of taking one or more substances along with alcohol [Table 9]. In the present study (though low in number), participants gave history of sharing alcoholic drinks or tobacco with parents.

A subsample (n = 586) of students was asked about pocket money. However, no statistically significant difference in the habit of taking alcoholic drinks and availability of pocket money could be found.

| Table 1: Age- and sex-wise distribution of alcohol user among adolescent boys and girls |
|-----------------------------|------------------------|-----------------------------|-----------------------------|-----------------------------|
| Age in years | Total number of students | Number of male students | Number of female students |
|               | Interviewed | Used alcohol | Interviewed | Used HAD | Used CAD | Used HAD + CAD | Interviewed | Used HAD | Used CAD | Used HAD + CAD |
| 12            | 1           | 1            | 0            | 0        | 0        | 0            | 1           | 1        | 0        | 0            |
| 13            | 26          | 8            | 4            | 0        | 0        | 1            | 22          | 4        | 1        | 1            |
| 14            | 245         | 100          | 122          | 44       | 1        | 9            | 123         | 46       | 3        | 4            |
| 15            | 296         | 119          | 153          | 53       | 1        | 11           | 143         | 56       | 0        | 7            |
| 16            | 277         | 124          | 152          | 27       | 16       | 12           | 125         | 42       | 1        | 8            |
| 17            | 297         | 108          | 158          | 24       | 18       | 35           | 139         | 29       | 1        | 7            |
| 18            | 128         | 47           | 66           | 11       | 6        | 9            | 62          | 12       | 2        | 4            |
| 19            | 11          | 3            | 3            | 1        | 0        | 0            | 8           | 2        | 0        | 0            |
| 20            | 4           | 2            | 4            | 2        | 0        | 0            | 0           | 0        | 0        | 0            |
| Total         | 1285        | 512          | 662          | 162      | 42       | 77           | 623         | 192      | 8        | 31           |

*CADs – Commercially available alcoholic drinks such as beer, rum, whiskey, brandy, and vodka; **HADs – Homemade alcoholic drinks such as rice beer, haria, and hash; P < 0.0001
DISCUSSION

Prevalence of ever user of alcoholic drinks among school-going children was found to be high in the present study (36% used HAD at least once and 12.3% used CAD). A study among students of Delhi in the similar age group showed a prevalence of 30.1% among boys. Of course, the prevalence among college students (mean age 21 ± 1.15 years) of Ludhiana, Punjab, was found to be 31.9%. Prevalence of alcoholics among general population in Jalandhar, Punjab, and Chandigarh was recorded as 45.9% and 27.7%, respectively. Higher prevalence in present study was perhaps due to inclusion of HADs in the list of alcoholic drinks. The present study among others also includes students of tea garden workers from the schools located around the township. A study conducted during 2006 in Dibrugarh District recorded age-adjusted prevalence of alcohol use as 59.2% among them and 30% among roadside restaurant workers. Prevalence among general population in India was reported to vary from 21.4% to 45.9% in a large-scale study.

In this part of northeastern region of India, some people prepare rice beer at home. HADs are also available in local weekly markets. Further, HADs are used in some social functions or religious discourse. In the social or religious functions, family members and elders share HADs in the same gathering. This type of community behavior perhaps removes the social inhibition and results in high prevalence of alcohol use among adolescents. Easy availability of alcoholic drinks was also recorded as a common factor, influencing alcohol use habit among about 47% of college going students of North India.

About 12.3% of students had the habit of drinking CADs. However, some of them use both types (CAD and HAD) of alcoholic drinks. Availability of CAD in different outlets (over the counter) in industrial towns might have contributed to higher intake of such drinks by adolescents who already had the taste of homemade alcohols. Alcohol drinking habit initiated at younger age tends to continue with age and many choose to switch over to commercially available alcohols. In the present study, most preferred drinks among CADs were beer (8.2%) followed by vodka (3.7%). This is much lower than the findings recorded elsewhere, where preferred drinks were recorded to be higher, namely, beer 47.3%, whiskey 37.9%, wine 5.9%, rum 5.3%, vodka 3%, and gin 0.6%. Perhaps, the difference is due to the age groups studied in both series. Sexwise analysis showed male preponderance in use of CADs (P < 0.001). Similar findings have been recorded in other parts of India. However, gender difference was not obvious with HADs. The present study showed that the age at first experience with alcoholic drinks was much lower than any other records across the country. Age at initiation to alcoholic drink was recorded from recall of the students and in most of the cases, and it is the first experience of tasting alcoholic drinks and not regular drinking.

A study in Arunachal Pradesh recorded minimum age at initiation as 12.4 years and about 75% of alcohol users started the habit below 10 years. Studies conducted elsewhere in other parts of India also recorded higher age at initiation (Ludhiana was 18.7 and 19.2 years in male and female, respectively) to CADs. However, about 8.8% of college students in North India started using alcohol below the age of 10 years. The difference in age at initiation of tasting alcoholic drinks and not regular drinking.
initiation among different studies may be due to the target population (present study specifically targeted school-going adolescents) and inclusion of HADs. HADs were easily available and used in some of the social and religious functions in the area. This might have contributed to lower age at initiation.

Although we could not find any correlation between students’ behavior with that of parents’ education and occupational status, parents and peer behavior were found to influence the habit of students. Father’s and mother’s habit of taking tobacco, alcohol, or both were found to have influenced alcohol intake by their children. Similarly, close friend’s substance use behavior or peer pressure influenced the habit of students. It has been reported that affordability

| Table 5: Parents’ education and occupational status of study population |
|---------------------------------------------------------------|
| **Father** | **Mother** |
| Education | | |
| Illiterate | 106 | Illiterate | 216 |
| School | 638 | School | 649 |
| College and above | 500 | College and above | 385 |
| No information | 41 | No information | 35 |
| Occupation | | |
| Wage earner | 247 | Homemaker | 1014 |
| Employed | 654 | Wage earner | 68 |
| Self employed | 316 | Employed | 158 |
| No information | 68 | No information | 45 |

| Table 6: Parents and peer influence on alcohol use habit of children |
|---------------------------------------------------------------|
| **Risk factors** | **Categories** | **Alcohol use habit of children** | **Univariate (OR)** | **95% CI** | **χ² (P)** |
| | | No | Yes | Lower | Upper |
| Father’s habit | Nonuser (n=276) | 197 (71.4) | 79 (28.6) | 1 | 48.76 (<0.001)* |
| | Tobacco (n=253) | 182 (71.9) | 71 (28.1) | 0.97 | 0.67 | 1.424 |
| | Alcohol (n=133) | 81 (60.9) | 52 (39.1) | 1.60 | 1.04 | 2.474 |
| | Alcohol + tobacco (n=611) | 308 (50.4) | 303 (49.6) | 2.45 | 1.81 | 3.33 |
| Mother’s habit | Nonuser (n=661) | 466 (70.5) | 195 (29.5) | 1 | 87.49 (<0.001)* |
| | Tobacco (n=322) | 191 (59.3) | 131 (40.7) | 1.64 | 1.24 | 2.16 |
| | Alcohol (n=55) | 25 (45.5) | 30 (54.5) | 2.87 | 1.64 | 5.00 |
| | Alcohol + tobacco (n=234) | 86 (36.8) | 148 (63.2) | 4.11 | 3.00 | 5.63 |
| Close friend use substance | No (n=866) | 581 (67.1) | 285 (32.9) | 1 | 51.4 (<0.001) |
| | Yes (n=397) | 182 (45.8) | 215 (54.2) | 2.41 | 1.889 | 3.071 |
| Close friend forces to take substance | No (n=1180) | 739 (62.6) | 441 (37.4) | 1 | 34.51 (<0.001) |
| | Yes (n=92) | 29 (31.5) | 63 (68.5) | 3.64 | 2.309 | 5.740 |

*Chi-square for trend. OR – Odds ratio; CI – Confidence interval

| Table 7: Multiple regression analysis for risk factors associated with habit of taking commercially available alcohol by children |
|---------------------------------------------------------------|
| **Risk factors** | **Category** | **n** | **Frequency (%)** | **Crude OR** | **Adjusted OR** | **95% CI** | **χ² (P)** |
| | | | | | | | | |
| Location | Urban | 901 | 121 (13.4) | 0.69 | 0.706 | 0.454 | 1.098 | 3.6 (0.06) |
| | Rural | 384 | 37 (9.6) | 1 | Reference |
| Age (years) | ≤15 | 568 | 39 (6.9) | 2.69 | 2.226 | 1.475 | 3.357 | 27.8 (0.00) |
| | >15 | 717 | 119 (16.6) | 2.69 | 2.226 | 1.475 | 3.357 |
| Sex | Female | 623 | 39 (6.3) | 3.28 | 2.701 | 1.782 | 4.094 | 40.8 (0.00) |
| | Male | 662 | 119 (18.0) | 3.28 | 2.701 | 1.782 | 4.094 |
| Close friend takes any substance | No | 866 | 62 (7.2) | 1 | 60.2 (0.00) |
| | Yes | 397 | 89 (22.4) | 3.74 | 2.348 | 1.580 | 3.488 |
| Close friend forces | No | 1180 | 123 (10.4) | 1 | 43.4 (0.00) |
| | Yes | 92 | 31 (33.7) | 4.36 | 2.064 | 1.199 | 3.551 |
| Father’s habit | No | 276 | 22 (8.0) | 1 | Reference |
| | Takes alcohol | 133 | 20 (15.0) | 2.043 | 1.689 | 0.832 | 3.430 |
| | Takes tobacco | 253 | 21 (8.3) | 1.045 | 1.024 | 0.521 | 2.015 |
| | Takes both | 611 | 92 (15.1) | 2.047 | 2.374 | 1.372 | 4.110 |
| Mother’s habit | No | 661 | 86 (13.0) | 1 | 10.3 (0.016) |
| | Takes alcohol | 55 | 13 (23.6) | 2.069 | 2.000 | 0.967 | 4.138 |
| | Takes tobacco | 322 | 29 (9.0) | 0.662 | 0.672 | 0.410 | 1.103 |
| | Takes both | 234 | 27 (11.5) | 0.872 | 0.809 | 0.474 | 1.380 |

OR – Odds ratio; CI – Confidence interval
and peer influence were common factors influencing alcohol use among college-going students of North India. Peer pressure was reported to be responsible for about 45.6% of substance user (including alcohol) among North Indian college students. Parents’ indifference about the habit of their children influences the substance use habit of their offspring. It was reported that parents of 12% of students in Ludhiana were aware of their drinking habit. Although pocket money was shown as a significant factor contributing for increased alcohol intake, the present study could not establish the link.

Multiple regression analysis showed that father’s habit of taking alcohol, tobacco, or both was highly associated with male child’s habit of taking CAD. Perhaps, a male child tries to imitate his father. However, mother’s habit of substance use was found to be associated with children’s habit of using HAD. Household preparation of alcoholic drinks has been emphasized as one of the factors for the children’s habit of HAD. Most of the time, mother is associated with the preparation of HADs and its use in social function. Her indulgence in substance use perhaps removes the guilt from the young mind. Multiple substances use by adolescents was another significant finding of the study. About 50% of study subjects in Arunachal Pradesh and 54.7% in Dibrugarh District were recorded to be using multiple substances in earlier studies. In Dibrugarh District, earlier investigators found 32% of participants using alcohol and 27.4% of youth using both tobacco and alcohol.

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### Conflicts of interest

There are no conflicts of interest.

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