

Original Research Article

Prevalence and correlates of alcohol consumption in Northeast states, India (evidence from district levels household survey: 2012-13)

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ABSTRACT

Background: Despite the increased awareness of adverse effects of alcohol consumption, India is a one of the countries with high prevalence of alcohol use. The third round of National Family Health Survey (2005-06) estimated that 32% men consume alcohol. Evidence suggests the magnitude of alcohol use is likely to be higher among Northeast who residing in adverse geographical settings. The objective of the study was to analyzed prevalence and determinants of alcohol use in Northeast states, India.

Methods: The study using data from the fourth round of District Level Household Survey (2012-13). The outcome variables included in the study was alcohol consumption. The study used bivariate and multivariate to determine the prevalence, differentials and determinants of alcohol consumption.

Results: The result shows that alcohol consumption was significantly high among the young age group of 25-34 years. The prevalence of alcohol consumption was high among male as compared to female and alcohol consumption is slightly low among more educated person. Alcohol consumption was high in Meghalaya and Mizoram as compared to other Northeast states.

Conclusions: We conclude by this study that, the prevalence of alcohol consumption in Northeast was very high and alarming. There are really an important health concerns and they need to be counselled about the ill effect of alcohol consumption. Establishment of de-addiction centers or strong referral to de-addiction centers among those consuming alcohol is a might be a novel step for well-being of Northeast people. Government specially, Doctors and media should play their roles and spread information regarding harmful effects of alcohol consumption.

Keywords: Alcohol consumption, DLHS-4, Northeast

INTRODUCTION

Alcohol consumption is one of the major public-health problems in both developed and developing countries.¹ It is acknowledged that countries which had low alcohol consumption levels are now witnessing an increasing consumption pattern.² WHO estimates for the South East Asian countries indicate that one-fourth to one-third of male population drink alcohol with increasing trends

among women.^{3,4} WHO, estimates that there are about 2 billion people worldwide consuming alcohol beverages and 76.3 million are diagnosed with alcohol related disorders in 1990. Alcohol consumption causes 3.2 % of overall human deaths, globally and worldwide 5 % of all human deaths were in the age group of 5 to 29 attributed to alcohol use.⁵ In India, the estimated numbers of alcohol users in 2005 were 62.5 million, with 17.4% of them (10.6 million) being dependent users and 20–30%

of hospital admissions are due to alcohol-related problems.^{6,7} Few studies have documented the pattern and profile of alcohol use and its impact in hospital- and population-based settings.^{8,9} Abuse of alcohol is one of the main killers of young men in India today. The mean age of respondents at the initiation of alcohol consumption has decreased from 23.36 years in 1950-1960 to 19.45 years in 1980-1990.¹⁰ Due to its large population, India has become the third largest market for alcoholic beverages in the world. Despite having a large proportion of lifetime abstainers (89.6%), per-capita consumption of alcohol in India has increased by 106.7% over 1970-1996.¹⁰ Changing social norms, urbanization, increased availability, high-intensity mass marketing, and relaxation of overseas trade rules, along with the poor level of awareness, have contributed to increased alcohol-use.^{10,11}

A limited attempts have been made to understand the prevalence and factors associated with alcohol consumption in northeast, states, India. Thus, the present study is a modest approach in this direction. The paper aims to understand the prevalence and determinants of alcohol consumption in Northeast states, India.

METHODS

Data for this study is taken from the forth round of the District Level Household Survey (DLHS-4) conducted during 2012-13. DLHS-4 adopted a multi-stage stratified systematic sampling design. Study utilized pooled data for the states namely Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura and Meghalaya. Assam state was not included in the final analytic samples due to unavailable data.

Outcome measurements

The outcome variable was alcohol consumption. Alcohol consumption was measured by asked the questions to the respondent about alcohol consumption. The responses of alcohol consumption were mainly in five categories given below.

- Currently users
- Occasionally users
- Ex- user
- Never user
- Not known

A person was considered as alcohol user if s/he were consuming alcohol currently or occasionally. The indicator was dichotomized as alcohol use currently or occasionally users (coded as 1) and ex-user, never user and not known (coded as 0).

Defining predictor variables

Important socioeconomic and demographic predictors such as age of person, sex of the person, education of

person, occupation of person, religion, social group, wealth quintile, type of residence and state were included as predictor variables in the present study. Further socioeconomic and demographic variables divided into three categories namely individual, household and community characteristics.

Individual characteristics included in the analysis were age of person was measured as a continuous variable and categorized into five categories: age group 15-24 years, age group 25-34 years, age group 35-44 years, age group 45-59 and age group 60 and above years. Sex of person as male and female. Education of person were grouped into four categories: illiterate and below primary, primary but below middle, middle but below high school and high school and above. Occupation of the person was categorized into two categories: Not working and working.

Household characteristics included in the analysis were religion grouped into three categories: Hindu, Cristian and Others. Identification of the social group was categorized into four categories: Scheduled Tribes (STs), Scheduled Castes (SCs), other backward class and other (General). Similarly, Household wealth index was also calculated from the standard set of assets owned by the household, which included ownership of consumer items and dwelling characteristics. Individuals were ranked on the basis of their household scores and divided into different quintiles, each representing 20 percent of the score, between 1 (poorest) and 5 (wealthiest) and the index has been found to correlate highly with income data in developing countries.¹²⁻¹⁴ However wealth index was categorized into the five categories: poorest, poorer, middle, richer, and richest.

Community characteristics included in analysis were place of residence as rural and urban. Since a significant state-level difference found in alcohol user (DLHS-4 fact sheet) along with variations in socioeconomic status across states, this study included state in the predictor's variables (Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura and Meghalaya).

Analytical approach

To identify the prevalence, differentials and determinants of alcohol consumption, present study used both bivariate and multivariate analyses. Chi-square test is used to determine the difference in proportions of the alcohol consumption across selected individual, household and community background characteristics. Binary logistic regression is applied to understand the net effect of predictor variables on the alcohol consumption. The results of logistic regression are presented in the form of estimated odds-ratios with 95% CI. The whole analysis was performed using STATA version 13.0 to take into account the survey design (i.e. sampling weights with clustering and strata).

Ethical statement: The study is based on data available in public domain, therefore no ethical issue is involved.

RESULTS

Background characteristics of the women

Table 1 represents the weighted percent distribution of person by selected individual, household and community characteristics. Among the persons, more than one fifth (males 21.23% and females 23.54%) were youth between age 15-24 while almost same person were in the age group 25-34 years (male 21.87% and female 25.38%). Almost 14.86% males and 10.45% females were age 60 years and above. As regards to education, results indicated that the more than one fourth (27.35%) female were illiterate as compared to 16.72% male only. Almost 61.42 males were working as compared to 24.23% females only.

Differentials in alcohol consumption

To identify the prevalence and differentials of alcohol consumption, the study examined bivariate differential of the selected individual, household and community characteristics. Table 2 shows the prevalence of alcohol consumption by selected individual, household and community characteristics of person among northeast states, India. As expected male were more consuming alcohol as compared to female. More than two fifth (45.7%) male were consuming alcohol compared to 14.3% female only. Those consuming alcohol, among them young person (male and female) younger age group (25-44 years) were consuming more alcohol as compared to youth age group (15-24 years) and older age group (60 and above years). There is not much difference found in alcohol consumption among marital status of person. As expected illiterate were consuming more alcohol as compared to those who were completed their education high school and above. More than two fifth working person were consuming alcohol as compared to only one

forth non working person. Person belongs to other than Hindu and Christian religion were consuming more alcohol. Scheduled tribes were taking more alcohol as compared to others Backward class and others social group. Rural people were consuming more alcohol as compared to their counterpart urban people. Almost half of the person from Arunachal Pradesh were consuming alcohol, followed by Sikkim, Manipur.

Alcohol consumption by age and sex

Figure 1 gives the details about alcohol consumption by age and sex. Results shows that younger male 25-44 were consume alcohol more as compared to youth and older person. Same trends were showing in case of female alcohol users. As compared to female, male were very consuming more alcohol all the age group.

Determinants of alcohol consumption

Table 3 demonstrates the results of the logistic regression analyses of the alcohol consumption for male and female separately. Findings shows that age group, social group, sex, education and economic status were found to be main correlates of alcohol consumption in Northeast states, India. Age of the person showed the strongest relationship with alcohol consumption. The results shows that chances of alcohol consumption were higher among younger age group (25-44 years) as compared to youth age group 15-24 years. Education of the person also showed the strongest relationship with alcohol consumption. With the increases the education, the alcohol consumption is decreases. That is, the person with high school and above education were less likely to consume alcohol as compared to person with illiterate. Odds of alcohol consumption with working person were more as compared to person with not working. The results of logistic regression analysis showed that person belongs to Scheduled Caste, Others Backward Caste, and Others social group were less likely to consume alcohol as compared to Scheduled tribes social group person.

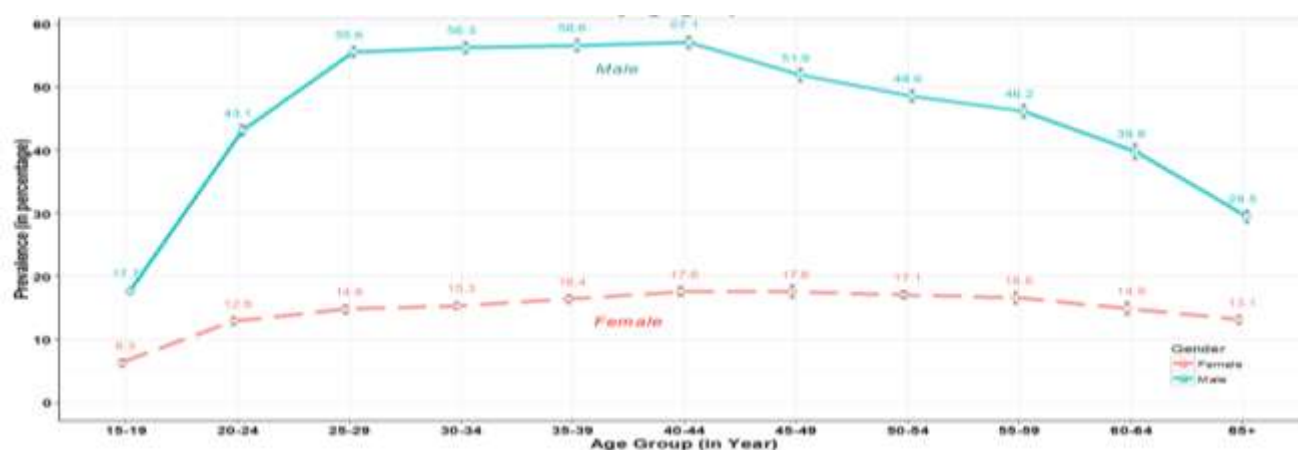


Figure 1: Prevalence of alcohol use among male and female by age group in Northeast states.

Table 1: Percent distribution of respondent by selected individual, household and community characteristics, DLHS-4 (2012-13), in Northeast states, India.

Background characteristics	Male		Female		Total	
	Sample	Weighted proportion	Sample	Weighted proportion	Sample	Weighted proportion
Individuals characteristics						
Age						
15-24	14266	21.2	17626	23.5	31893	22.4
25-34	14793	21.9	19261	25.4	34054	23.7
35-44	12850	19.0	14650	19.4	27501	19.2
45-59	15725	23.1	16205	21.3	31930	22.1
60 and above	10288	14.9	8048	10.5	18336	12.5
Marital status						
Never married	18757	28.1	16596	22.5	35355	25.1
Currently married	45514	66.6	50539	66.0	96053	66.3
Others	3641	5.3	8647	11.5	12288	8.6
Education						
Illiterate	11854	16.7	21572	27.4	33426	22.3
Literate and below primary	8487	12.0	9842	12.6	18329	12.3
Primary but below middle	11088	16.0	12029	15.7	23118	15.8
Middle but below high school	13239	19.5	12797	17.1	26037	18.3
High school and above	23117	35.7	19332	27.3	42449	31.3
Occupation						
Not working	25643	38.6	56800	75.8	82444	58.2
Working	41630	61.4	18301	24.2	59932	41.8
Household characteristics						
Religion						
Hindu	15538	23.9	17261	23.6	32799	23.8
Christian	39662	57.7	44513	58.3	84178	58.0
Others	12700	18.4	13991	18.1	26691	18.2
Caste						
Scheduled tribes	51237	80.4	57382	80.7	108621	80.5
Scheduled castes	3871	6.6	4262	6.3	8133	6.4
Other backward classes	4069	6.6	4562	6.6	8631	6.6
Others	3801	6.5	4271	6.4	8072	6.5
Wealth quintile						
Poorest	13843	19.3	14907	18.5	28750	18.9
Poorer	13769	19.4	14980	18.9	28749	19.1
Middle	13587	19.8	15163	19.8	28750	19.8
Richer	13485	20.1	15263	20.4	28749	20.3
Richest	13255	21.3	15492	22.4	28749	21.9
Community characteristics						
Type of locality						
Rural	51108	68.5	56365	67.4	107474	67.9
Urban	16831	31.5	19440	32.6	36273	32.1
State						
Sikkim	4760	6.9	5406	7.0	10166	7.0
Arunachal Pradesh	17642	25.8	19270	25.1	36912	25.4
Nagaland	14456	21.3	14458	19.1	28914	20.1
Manipur	10676	15.8	12472	16.5	23148	16.2
Mizoram	11719	17.3	12309	16.5	24030	16.9
Tripura	3260	4.8	3486	4.6	6746	4.7
Meghalaya	5426	8.0	8404	11.1	13831	9.7
Total	67939	100.0	75805	100.0	143747	100.0

Note: All 'n' are weighted. Total may not be equal due to some missing cases.

Table 2: Prevalence of alcohol consumption by selected individual, household and community characteristics of person in northeast states, India. DLHS-4 (2012-13).

Background characteristics	Alcohol Consumption			
	Male		Female	
Individuals characteristics	Yes	95% C.I	Yes	95% C.I
Age	$\chi^2=3455.059$	$p\text{-value}=0.000$	$\chi^2=441.230$	$p\text{-value}=0.000$
15-24	29.7	[28.7-30.8]	9.8	[9.2-10.5]
25-34	55.9	[54.7-57.2]	15.0	[14.1-15.9]
35-44	56.3	[54.8-57.7]	16.4	[15.3-17.7]
45-59	50.3	[48.8-51.7]	16.9	[15.7-18.0]
60 and above	33.1	[31.3-35.0]	13.7	[12.5-15.1]
Marital status	$\chi^2=1456.907$	$p\text{-value}=0.000$	$\chi^2=647.832$	$p\text{-value}=0.000$
Never married	34.2	[33.3-35.2]	8.3	[7.7-9.0]
Currently married	50.6	[49.5-51.8]	15.9	[15.0-16.9]
Others	45.0	[42.6-47.3]	16.8	[15.6-18.1]
Education	$\chi^2=482.837$	$p\text{-value}=0.000$	$\chi^2=3080.330$	$p\text{-value}=0.000$
Illiterate	55.1	[53.4-56.8]	25.8	[24.4-27.3]
Literate and below primary	43.6	[41.8-45.4]	10.6	[9.6-11.8]
Primary but below middle	43.5	[41.9-45.2]	11.2	[10.5-12.0]
Middle but below high school	43.3	[41.9-44.8]	9.1	[8.4-9.9]
High school and above	44.5	[43.5-45.5]	9.6	[8.9-10.4]
Occupation	$\chi^2=1871.803$	$p\text{-value}=0.000$	$\chi^2=217.869$	$p\text{-value}=0.000$
Not working	35.3	[34.4-36.3]	13.3	[12.5-14.1]
Working	52.4	[51.1-53.7]	17.7	[16.4-19.1]
Household characteristics				
Religion	$\chi^2=1421.434$	$p\text{-value}=0.000$	$\chi^2=5374.723$	$p\text{-value}=0.000$
Hindu	48.2	[46.3-50.0]	15.5	[13.9-17.3]
Christian	40.4	[39.3-41.5]	8.0	[7.3-8.7]
Others	59.3	[57.3-61.4]	33.1	[31.1-35.1]
Caste	$\chi^2=99.887$	$p\text{-value}=0.000$	$\chi^2=242.344$	$p\text{-value}=0.000$
Scheduled tribes	46.6	[45.6-47.7]	15.7	[15.0-16.5]
Scheduled castes	42.3	[39.3-45.4]	10.5	[8.8-12.5]
Other backward classes	39.7	[36.9-42.6]	12.2	[10.6-14.1]
Others	44.4	[41.2-47.7]	9.2	[7.5-11.3]
Wealth quintile	$\chi^2=346.436$	$p\text{-value}=0.000$	$\chi^2=887.255$	$p\text{-value}=0.000$
Poorest	50.3	[48.6-51.9]	19.3	[17.8-20.9]
Poorer	47.7	[46.0-49.4]	15.7	[14.6-16.9]
Middle	46.7	[45.5-47.9]	16.6	[15.7-17.5]
Richer	44.8	[43.4-46.2]	12.8	[11.9-13.9]
Richest	39.8	[38.4-41.1]	8.4	[7.5-9.3]
Community characteristics				
Type of locality	$\chi^2=306.373$	$p\text{-value}=0.000$	$\chi^2=342.235$	$p\text{-value}=0.000$
Rural	48.0	[46.7-49.3]	17.3	[16.3-18.3]
Urban	40.8	[39.6-41.9]	8.2	[6.9-9.7]
State	$\chi^2=4519.985$	$p\text{-value}=0.000$	$\chi^2=2825.639$	$p\text{-value}=0.000$
Sikkim	45.5	[43.4-47.5]	26.1	[24.3-27.9]
Arunachal Pradesh	65.6	[64.1-67.0]	38.2	[36.5-40.1]
Nagaland	40.0	[37.9-42.2]	4.5	[3.8-5.3]
Manipur	46.9	[44.2-49.6]	7.1	[5.6-9.1]
Mizoram	32.7	[31.2-34.2]	1.9	[1.6-2.4]
Tripura	26.9	[23.7-30.2]	5.5	[4.0-7.7]
Meghalaya	34.6	[31.4-37.8]	2.5	[1.9-3.2]
Total	45.7	[44.7-46.7]	14.3	[13.5-15.1]

Table 3: Estimated effects and significance levels of selected individual, household and community characteristics on alcohol consumption in Northeast, India, DLHS-4 (2012-13).

Background characteristics	Alcohol consumption			
	Male		Female	
Individuals characteristics	Odds Ratio	95% C.I	Odds Ratio	95% C.I
Age				
15-24 (<i>ref</i>)	1.00		1.00	
25-34	2.414***	[2.229-2.613]	1.485***	[1.350-1.633]
35-44	2.113***	[1.914-2.333]	1.593***	[1.428-1.776]
45-59	1.546***	[1.392-1.717]	1.546***	[1.373-1.740]
60 and above	0.764***	[0.681-0.857]	1.215**	[1.026-1.439]
Marital status				
Never married (<i>ref</i>)	1.00		1.00	
Currently married	1.379***	[1.295-1.468]	1.451***	[1.277-1.649]
Others	1.435***	[1.271-1.621]	1.618***	[1.394-1.878]
Education				
Illiterate (<i>ref</i>)	1.00		1.00	
Literate and below primary	0.820***	[0.755-0.890]	0.849***	[0.753-0.956]
Primary but below middle	0.768***	[0.707-0.833]	0.735***	[0.660-0.819]
Middle but below high school	0.781***	[0.727-0.840]	0.625***	[0.552-0.708]
High school and above	0.793***	[0.741-0.849]	0.700***	[0.628-0.779]
Occupation				
Not working (<i>ref</i>)	1.00		1.00	
Working	1.368***	[1.294-1.446]	1.219***	[1.109-1.340]
Household characteristics				
Religion				
Hindu (<i>ref</i>)	1.00		1.00	
Christian	0.506***	[0.447-0.572]	0.484***	[0.403-0.581]
Others	0.840***	[0.748-0.943]	0.951***	[0.821-1.101]
Caste				
Scheduled tribes (<i>ref</i>)	1.00		1.00	
Scheduled castes	0.496***	[0.431-0.571]	0.361***	[0.294-0.444]
Other backward classes	0.409***	[0.351-0.477]	0.328***	[0.277-0.389]
Others	0.540***	[0.458-0.636]	0.313***	[0.238-0.412]
Wealth quintile				
Poorest (<i>ref</i>)	1.00		1.00	
Poorer	0.985	[0.922-1.051]	0.957	[0.860-1.065]
Middle	0.912***	[0.852-0.977]	0.870***	[0.786-0.963]
Richer	0.923**	[0.862-0.988]	0.842***	[0.748-0.948]
Richest	0.853***	[0.785-0.926]	0.676***	[0.593-0.771]
Community characteristics				
Type of locality				
Rural (<i>ref</i>)	1.00		1.00	
Urban	0.999	[0.928-1.075]	0.862*	[0.737-1.009]
State				
Sikkim (<i>ref</i>)	1.00		1.00	
Arunachal Pradesh	2.118***	[1.852-2.423]	1.398***	[1.259-1.553]
Nagaland	1.022	[0.885-1.182]	0.151***	[0.123-0.185]
Manipur	1.375***	[1.161-1.630]	0.339***	[0.261-0.441]
Mizoram	0.649***	[0.557-0.756]	0.065***	[0.050-0.085]
Tripura	0.448***	[0.368-0.545]	0.196***	[0.139-0.277]
Meghalaya	0.720***	[0.585-0.887]	0.066***	[0.049-0.089]

Levels of significance: *p<0.10; **p<0.05; ***p<0.01.

DISCUSSION

The present study has comprehensively demonstrated the prevalence, pattern and correlates of alcohol consumption in Northeast States, India. The problem of alcohol consumption in India has widely attracted the attention of the public, policy-makers, researchers, and workers. Finding from this study indicated that the age of person is significant predictor of alcohol consumption. This study found that the younger age group (25-44 years) were consuming alcohol more as compared to youth and older which highlighted in previous studies.¹² As documented in several others studies educational status of person was associated with alcohol consumption which indicated in this study also.^{13,14} It is observed from this study that as educational status increases alcohol consumption decreases. The overall prevalence of alcohol use among male was found high as compared to female. Similar results showing in several previous studies.^{13,15} Apart from age, and place of residence, other factors such as caste, education and standard of living also independently influence alcohol use in India which highlighted in earlier studies.¹⁶

CONCLUSION

This study concludes that alcohol consumption was associated with age, education, religion caste, income strata and place of residence. This study supported the perception that alcohol use is a problem which requires concerted efforts by all the stakeholders, policy maker, planner involved in harmful effect of alcohol so that this problem can be fully addressed. The school is also being an essential part in a student's life where an effective and healthy life-style can be learned and promote. Apart from these efforts those who have engaged in alcohol research particularly, police officials, department of health and social development, department of justice, department of economic development, department of foreign affairs, religious leaders, traditional leaders, as well as political structures also played a important role in control the alcohol use, specially among people who residing in adverse geographically area. There are really an important health concerns and they need to be counselled about the ill effect of alcohol consumption. Establishment of de-addiction centers or strong referral to de-addiction centers among those consuming alcohol is a might be a novel step for well-being of Northeast people. Government specially, Doctors and media should play their roles and spread information regarding harmful effects of alcohol consumption.

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