Research Article

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Correlates of substance use in Northeast States, India

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ABSTRACT

Background: Substance use is an international problem which affects more or less every country in the world. Despite the increased awareness of injurious effects of substance use, India is a one of the countries with high prevalence of tobacco and alcohol use. Evidence suggests the magnitude of substance use is likely to be higher among Northeast who residing in adverse geographical settings. It states that the increased of substance use in developing nations where health and economic system are weakest is of great concern to WHO. Keeping this in background, the present paper is analyzed patterns and correlates of substance use in Northeast states, India.

Methods: Using information from the fourth round of District Level Household Survey (2012-13). The outcome variables included in the study was substance use (smokeless tobacco, smoke and alcohol consumption). Bivariate and multivariate technique used to determine the difference and understand the net effect of predictor variables on the substance use.

Results: The result shows that substance use was significantly high among the young age group of 25-34 years. The prevalence of substance use was high among male as compared to female and substance use is slightly low among more educated person. Substance use was high in Meghalaya and Mizoram as compared to other northeast states. Factors such as age group, social group, sex, education and economic status of household were significantly associated with substance use in Northeast states, India.

Conclusion: We conclude by this study, the prevalence of substance use in northeast was very high and alarming. There are really an important health concerns and they need to be counseled about the ill effect of substance use. Establishment of de-addiction centers or strong referral to de-addiction centers among those consuming alcohol or other substances 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 using substance use. In order to control substance use more effectively, state governments should implement the existing national acts of tobacco and alcohol control at the district level.

Key words: Northeast, Substance use, Smokeless tobacco, Smoke, Alcohol consumption, DLHS-4

INTRODUCTION

Substance use is one of the most common causes of preventable human deaths worldwide; alcohol and tobacco are most commonly used substances throughout the world. India has a huge burden of either licit or legal substance use (tobacco and alcohol) as well as illicit substances. The National Household Survey of Drug Use

in the country was the first systematic effort to document the nation-wide prevalence of drug use. Alcohol (21.4%) was the primary substance used (apart from tobacco) followed by cannabis (3.0%) and opioids (0.7%) among men. The epidemic of substance abuse in young generation has assumed alarming dimensions in India. Changing cultural values, increasing economic stress and dwindling supportive bonds are leading to initiation into

substance use.⁴ World Health Organization (WHO), defines substance abuse as, persistent or sporadic drug use inconsistent with or unrelated to acceptable medical practice.⁵ 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.⁶ Studies conducted in different parts of India suggest prevalence rates of use of alcoholic beverages ranging 23% to 74% among males.

Women constitute over 90% of abstainers, though among tribal group there is substantial number of alcohol users with the prevalence rates ranging between 28 to 48%. Studies from late 1970's and early 1980's found that 12.7% of high school students, 36.6% of university students and 31.6% of non-student young people are using alcohol

beverages. It is also observed that, those who are using alcohol not restricted themselves to single substance use as either alcohol follows the tobacco or tobacco follows the alcohol or any other substance. Smokeless tobacco and smoking is one of the major causes of human deaths due to many medical conditions in the world.

According to WHO estimation, 4.9 million annual deaths are attributed to tobacco use only. This figure expected to rise to 10 million by 2030, out of which 7 million deaths will occur in developing countries, especially China and India. Currently India constitute about one fifth of overall deaths attributed to tobacco use worldwide, more than 8,00,000 people die and 12 million people become ill as a result of tobacco use each year. Deaths attributed to tobacco in India are expected to rise from 1.4 % in 1990 to 13.3 % in 2020. It is estimated that nearly 5,500 adolescents starts using tobacco every day in India. 8

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Table 1: Prevalence of substance use by sex in Northeast states, India.

Substance	Northeast states						
use	Arunanchal	Manipur	Meghalaya	Tripura	Nagaland	Sikkim	Mizoram
	Pradesh						
Smokeless toba	acco						
Men	56.9	65.2	86.7	66.6	64.2	39.3	79.2
Women	33.7	51.7	87.2	65.8	34.5	23.6	77.4
Total	44.7	57.9	87.0	66.2	49.3	30.9	78.3
Smoke							
Men	41.8	50.4	52.3	32.2	35.1	23.4	63.4
Women	7.8	11.4	5.0	4.3	1.4	5.2	21.5
Total	24.1	29.4	23.6	17.8	18.3	13.7	41.8
Alcohol							
Men	65.4	46.7	34.4	26.8	40.0	45.3	32.6
Women	38.0	7.1	2.4	5.5	4.5	26.0	1.9
Total	51.0	25.4	15.0	15.8	22.2	35.1	16.8
Sources: Based	on DLHS-4 (2012	2-13) states rep	ort.				

Table 1 shows the prevalence of substance abuse in northeast states, India. Results shows that smokeless tobacco were very high in Mizoram as compared to others Northeastern states. However alcohol prevalence were higher in Arunanchal Pradesh as compared to others Northestern states.

A limited attempt has been made to understand the prevalence and factors associated with substance use in northeast, states, India.

Thus, the present study is a modest approach in this direction. The paper aims to understand the prevalence, differentials and determinants of substance use in northeast states, India.

METHODS

Study Setting, Survey Data Method and Ethics

Data for this study is taken from the fourth 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, Arunanchal 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 substance use. Substance use measured by asked the questions about person habit for

age 15 year and above (smokeless tobacco, smoke and alcohol consumption, separately. The responses of substance use were mainly in five categories for smoke and alcohol; currently users, occasionally users, ex- user, never user and not known.

A person was considered as substance user (smoke and alcohol) if she were consuming substance (smokeless tobacco, smoke and alcohol) currently or occasionally. The responses of substance use were mainly in eight categories for smokeless tobacco; pan with tobacco, pan without tobacco, gutka/pan masala with tobacco, gutka/pan masala without tobacco only, exchewer, never chewed and not known. The indicator was dichotomized as substance use for smoke and alcohol currently or occasionally users (coded as 1) and ex-user, never user and not known (coded as 0). For smokeless tobacco; ex-chewer, never chewed and not known (coded as 0) and else (coded as 1).

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 in 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, Crisian 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)¹² and the index has been found to correlate highly with income data in developing countries.¹³⁻¹⁴ 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 substance user (DLHS-4 fact sheet) along with variations in socioeconomic status across states, this study included state in the predictor's variables (Sikkim, Arunanchal Pradesh, Nagaland, Manipur, Mizoram, Tripura and Meghalaya).

Analytical approach

To identify levels, differentials and determinants of Substance use, present study used both bivariate and multivariate analyses. Chi-square test is used to determine the difference in proportions of the substance use across selected individual, household and community background characteristics. Binary logistic regression is applied to understand the net effect of predictor variables on the substance use.

We have chosen logistic regression because the response variables in our study are of dichotomous (i.e., binary) nature. Only those predictor variables that are found significant in chi-square test are included in the final binary logistic regression model. The results of logistic regression are presented in the form of estimated oddsratios 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 2 represents the weighted percent distribution of person by selected individual, household and community characteristics. Among the persons, more than one forth (22.4%) were youth between age 15-24 while almost same person were in the age group 25-34 years (23.7%). Almost (12.5%) person were age 60 years and above. Among the person, more than half (52.8%) were male and among them more than half (58.2%) were not working. Majority (58.0%) of the person belongs to christian religion and among them majority (80.5%) of person belong to Scheduled tribes social group. More than two third (67.9%) person belonged to rural areas.

Table 2: Percent distribution of respondent by selected individual, household and community characteristics in northeast states, India, DLHS-4 (2012-13).

Background characteristics	Sample	Weighted proportion	95% CI
Individuals characteristics			
Age			
15-24	31893	22.4	[21.9-23.0]
25-34	34054	23.7	[23.4-24.0]
35-44	27501	19.2	[18.9-19.5]
45-59	31930	22.1	[21.7-22.5]
60 and above	18336	12.5	[11.9-13.2]
Sex	10330	12.5	[11.7 13.2]
Male	67939	47.2	[46.9-52.2]
Female	75805	52.8	[52.6-58.4]
Marital status	75005	32.0	[32.0 30.1]
Never married	35355	25.1	[24.3-28.5]
Currently married	96053	66.3	[65.6-73.7]
Others	12288	8.6	[08.3-09.7]
Education	12200	0.0	[00.5-07.7]
Illiterate	33426	22.3	[21.0-23.7]
Literate and below primary	18329	12.3	[11.8-12.9]
Primary but below middle	23118	15.8	[15.5-16.2]
Middle but below high school	26037	18.3	[17.9-18.7]
High school and above	42449	31.3	[29.6-33.0]
Occupation	42447	51.5	[23.0-33.0]
Not working	82444	58.2	[57.5-58.9]
Working	59932	41.8	[41.1-42.5]
Household characteristics	39932	41.0	[41.1-42.3]
Religion	32799	22.0	[22 2 27 9]
Hindu		23.8	[22.3-27.8]
Christian	84178	58.0	[56.9-65.1]
Others	26691	18.2	[16.8-21.7]
Caste	100621	00.5	[70 0 00 2]
Scheduled tribes	108621	80.5	[78.9-90.3]
Scheduled castes	8133	6.4	[05.7-08.0]
Other backward classes	8631	6.6	[06.1-07.8]
Others	8072	6.5	[05.6- 08.2]
Wealth quintile	20750	10.0	[17.4.00.5]
Poorest	28750	18.9	[17.4-20.5]
Poorer	28749	19.1	[18.2-20.1]
Middle	28750	19.8	[19.2-20.4]
Richer	28749	20.3	[19.4-21.2]
Richest	28749	21.9	[20.1-23.8]
Community characteristics			
Type of locality	10-1-1		
Rural	107474	67.9	[55.6-86.0]
Urban	36273	32.1	[21.8-48.8]
State	10111		50.4 - 00.03
Sikkim	10166	7.0	[06.7-08.0]
Arunanchal Pradesh	36912	25.4	[24.4-29.2]
Nagaland	28914	20.1	[19.3-23.2]
Manipur	23148	16.2	[15.7-18.3]
Mizoram	24030	16.9	[16.3-19.3]
Tripura	6746	4.7	[04.2-05.8]
Meghalaya	13831	9.7	[09.3-11.1]
Total	143747	100.0	
The total may not be equal due to	some missing cases		

Table 3: Weighted percent distribution of respondents by types of substance use by selected individual, household and community characteristics of person in northeast states, India, DLHS-4 (2012-13).

Background			Substance use			
characteristics	Smokeless	Smoke	Alcohol	Any use	All use	n
Individuals characteri	~					
Age	χ2=4298.940***	χ2=2418.607***	χ2=2825.639***	χ2=5357.820***	χ2=1666.398	8***
15-24	44.8	15.5	18.7	51.2	08.5	31893
25-34	63.4	27.2	32.8	72.0	16.9	34054
35-44	65.8	29.9	35.0	74.4	18.1	27501
45-59	62.8	30.5	33.3	72.4	16.6	31930
60 and above	48.8	26.7	24.6	61.1	11.1	18336
Sex	χ2=3114.428***	χ2=3546.657***	χ2=2526.568***	χ2=5313.635***	$\chi 2 = 3265.523$	3***
Male	65.4	44.8	45.7	76.1	27.6	67939
Female	50.8	8.8	14.3	57.9	2.7	75805
Marital status	χ2=1669.130***	χ2=824.137***	χ2=1481.286***	χ2=2832.730***	χ2=638.080	***
Never married	48.9	20.5	22.0	55.1	11.8	35355
Currently married	61.3	28.1	32.4	70.6	16.1	96053
Others	55.9	23.5	25.0	67.9	9.7	12288
Education	χ2=337.522***	χ2=151.276***	χ2=1036.668***	χ2=254.554***	χ2=18.653**	**
Illiterate	54.4	24.7	36.2	68.0	14.3	33426
Literate and below	62.7	29.3	25.8	70.7	14.1	18329
primary	02.7	29.3	23.6	70.7	14.1	10329
Primary but below middle	58.9	26.4	26.7	66.6	14.0	23118
Middle but below high school	58.1	25.2	26.4	64.6	14.6	26037
High school and above	57.5	25.3	28.4	65.1	15.0	42449
Occupation	χ2=3925.848***	χ2=9604.077***	χ2=7795.773***	χ2=5944.205***	χ2=6604.24	1***
Not working	50.7	16.2	20.2	58.3	8.0	82444
Working	67.3	39.2	41.8	77.9	23.4	59932
Household characteris	stics					
Religion	χ2=2339.640***	χ2=311.953***	χ2=4894.674***	χ2=160.431***	χ2=40.055**	**
Hindu	54.9	22.4	31.0	63.9	14.0	32799
Christian	62.5	27.3	23.2	67.7	14.3	84178
Others	46.1	25.2	45.6	66.0	15.7	26691
Caste	χ2=432.777***	χ2=369.592***	$\chi 2=220.353***$	χ2=579.494***	$\chi 2 = 153.391$	***
Scheduled tribes	58.9	27.1	30.3	68.2	14.9	108621
Scheduled castes	55.4	20.9	25.8	62.0	12.6	8133
Other backward classes	48.4	21.1	25.2	58.2	10.6	8631
Others	54.3	21.8	25.8	61.6	13.4	8072
Wealth quintile	χ2=331.073***	χ2=146.932***	χ2=1071.501***	χ2=302.609***	χ2=398.319	
Poorest	59.5	28.9	34.3	69.6	17.2	28750
Poorer	58.8	26.9	31.0	67.3	16.3	28749
Middle	53.3	22.9	30.8	63.6	13.1	28750
Richer	57.1	24.5	27.8	65.4	13.8	28749
Richest	59.7	25.7	22.8	66.8	12.4	28749
Community character		20.7		00.0	12	207.19
Type of locality	χ2=77.377**	χ2=29.173*	χ2=1120.337***	γ2=18.480	χ2=136.221	***
Rural	56.9	26.2	31.9	66.9	15.2	107474
Urban	59.4	24.9	23.3	65.7	12.9	36273
State	γ2=4246.826***	χ2=5347.968***	χ2=3579.568***	γ2=9881.784***	$\chi 2 = 1260.468$	
	۸ــ ۱ــ ۱۵.۵۰۵		35.2	47.9	7.0	10166
12 11111	31.0	13.X				10100
Sikkim	31.0 44.9	13.8				36912
Sikkim Arunanchal Pradesh	44.9	24.2	51.3	63.8	17.5	36912 28914
Sikkim Arunanchal Pradesh Nagaland	44.9 49.4	24.2 18.2	51.3 22.2	63.8 52.8	17.5 12.4	28914
Sikkim Arunanchal Pradesh Nagaland Manipur	44.9 49.4 58.1	24.2 18.2 29.5	51.3 22.2 25.4	63.8 52.8 65.1	17.5 12.4 17.8	28914 23148
Sikkim Arunanchal Pradesh Nagaland Manipur Mizoram	44.9 49.4 58.1 78.4	24.2 18.2 29.5 41.8	51.3 22.2 25.4 16.8	63.8 52.8 65.1 82.4	17.5 12.4 17.8 14.6	28914 23148 24030
Sikkim Arunanchal Pradesh Nagaland Manipur Mizoram Tripura	44.9 49.4 58.1 78.4 66.2	24.2 18.2 29.5 41.8 17.8	51.3 22.2 25.4 16.8 15.9	63.8 52.8 65.1 82.4 70.5	17.5 12.4 17.8 14.6 8.4	28914 23148 24030 6746
Sikkim Arunanchal Pradesh Nagaland Manipur Mizoram	44.9 49.4 58.1 78.4	24.2 18.2 29.5 41.8	51.3 22.2 25.4 16.8	63.8 52.8 65.1 82.4	17.5 12.4 17.8 14.6	28914 23148 24030

Table 4: Binary logistic regression models to examine the effect of individuals household and community characteristics on substance use (smokeless smoke and alcohol) in North-East states, India, DLHS-4 (2012-13).

			Substanc	e use				
Background		Smokeless	S	moke	Al	cohol		
characteristics	Odds ratio	95% CI	Odds ratio	95% CI	Odds ratio	95% CI		
Individuals characteristics								
Age								
15-24 (ref)	1.000		1.000		1.000			
25-34	1.834***	[1.741-1.933]	1.972***	[1.866-2.084]	2.083***	[1.951-2.224]		
35-44	1.845***	[1.718-1.982]	1.984***	[1.852-2.126]	1.977***	[1.839-2.126]		
45-59	1.511***	[1.397-1.635]	1.831***	[1.703-1.968]	1.587***	[1.464-1.720]		
60 and above	0.790***	[0.727-0.858]	1.204***	[1.112-1.302]	0.832***	[0.761-0.911]		
Sex								
Male (ref)	1.000		1.000		1.000			
Female	0.482***	[0.463-0.502]	0.101***	[0.096-0.107]	0.150***	[0.143-0.158]		
Marital status								
Never married (ref)								
Currently married	1.560***	[1.475-1.648]	1.249***	[1.180-1.322]	1.394***	[1.308-1.484]		
Others	1.501***	[1.391-1.619]	1.468***	[1.343-1.604]	1.573***	[1.439-1.721]		
Education								
Illiterate (ref)	1.000		1.000		1.000			
Literate and below primary	0.988	[0.927-1.053]	0.909***	[0.853-0.970]	0.715***	[0.664-0.770]		
Primary but below middle	0.939***	[0.893-0.989]	0.808***	[0.761-0.857]	0.677***	[0.631-0.727]		
Middle but below high school	0.943***	[0.901-0.986]	0.748***	[0.698-0.802]	0.669***	[0.622-0.719]		
High school and above	0.946**	[0.892-1.002]	0.713***	[0.673-0.756]	0.711***	[0.670-0.755]		
Occupation				[L.v.		
Not working (ref)	1.000		1.000		1.000			
Working	1.329***	[1.267-1.394]	1.308***	[1.241-1.379]	1.311***	[1.249-1.376]		
Household characteristics		. ,						
Religion								
Hindu (ref)	1.000		1.000		1.000			
Christian	0.766***	[0.669-0.877]	0.755***	[0.655-0.869]	0.471***	[0.411-0.541]		
Others	0.663***	[0.591-0.744]	0.826***	[0.741-0.922]	0.895*	[0.797-1.006]		
Caste								
Scheduled tribes (ref)	1.000		1.000		1.000			
Scheduled castes	0.848*	[0.719-1.001]	0.657***	[0.571-0.756]	0.420***	[0.363-0.486]		
Other backward classes	0.822***	[0.730-0.927]	0.692***	[0.600-0.798]	0.343***	[0.301-0.390]		
Others	0.912	[0.810-1.028]	0.660***	[0.577-0.755]	0.416***	[0.346-0.500]		
Wealth quintile								
Poorest (ref)	1.000		1.000		1.000			
Poorer	1.063*	[0.996-1.134]	1.006	[0.944-1.073]	0.997	[0.934-1.063]		
Middle	0.944	[0.876-1.017]	0.896***	[0.837-0.959]	0.927**	[0.867-0.991]		
Richer	1.030	[0.953-1.113]	0.923**	[0.851-1.000]	0.940*	[0.881-1.003]		
Richest	0.960	[0.887-1.039]	0.823***	[0.755-0.897]	0.860***	[0.788-0.939]		
Community characteristics								
Type of locality								
Rural (ref)	1.000		1.000		1.000			
Urban	1.006	[0.915-1.105]	0.936**	[0.884-0.990]	0.983	[0.915-1.057]		
State								
Sikkim (ref)	1.000		1.000		1.000			
Arunanchal Pradesh	1.763***	[1.515-2.051]	1.975***	[1.702-2.291]	1.754***	[1.565-1.967]		
Nagaland	2.332***	[1.959-2.776]	1.387***	[1.152-1.671]	0.516***	[0.455-0.584]		
Manipur	3.077***	[2.604-3.636]	3.793***	[3.209-4.483]	0.753***	[0.639-0.889]		
Mizoram	9.543***	[7.768-11.724]	7.020***	[5.777-8.531]	0.333***	[0.287-0.387]		
Tripura	4.403***	[3.532-5.488]	1.460***	[1.179-1.808]	0.297***	[0.241-0.367]		
Meghalaya	21.493***	[09.737-16.602]	2.703***	[2.147-3.402]	0.325***	[0.271-0.389]		

Table 5: Binary logistic regression models to examine the effect of individuals household and community characteristics on substance use (all substance and any substance use) in North-East states, India, DLHS-4 (2012-13).

	Substance use					
Background characteristics	Any substance use		All substance use			
	Odds ratio	95% CI	Odds ratio	95% CI		
Individuals characteristics						
Age						
15-24 (ref)	1.000		1.000			
25-34	2.033***	[1.932-2.139]	1.990***	[1.838-2.155]		
35-44	2.027***	[1.885-2.179]	1.831***	[1.657-2.022]		
45-59	1.690***	[1.557-1.834]	1.398***	[1.265-1.545]		
60 and above	0.925**	[0.850-1.008]	0.717***	[0.647-0.795]		
Sex						
Male (ref)	1.000		1.000			
Female	0.376***	[0.362-0.391]	0.069***	[0.062-0.076]		
Marital status						
Never married (ref)	1.000		1.000			
Currently married	1.703***	[1.611-1.801]	1.209***	[1.133-1.291]		
Others	1.816***	[1.680-1.963]	1.234***	[1.112-1.370]		
Education						
Illiterate (ref)	1.000		1.000			
Literate and below primary	0.930**	[0.870-0.994]	0.788***	[0.726-0.854]		
Primary but below middle	0.869***	[0.824-0.915]	0.724***	[0.668-0.786]		
Middle but below high school	0.836***	[0.786-0.888]	0.733***	[0.684-0.785]		
High school and above	0.874***	[0.825-0.927]	0.690***	[0.639-0.744]		
Occupation		[414-4 417-1]	0.07.0	[0.000 0]		
Not working (ref)	1.000		1.000			
Working	1.410***	[1.340-1.483]	1.338***	[1.255-1.426]		
Household characteristics	1.110	[1.5 10 1.105]	1.550	[1.233 1.120]		
Religion						
Hindu (ref)	1.000		1.000			
Christian Christian	0.595***	[0.527-0.673]	0.697***	[0.595-0.816]		
Others	0.848***	[0.750-0.959]	0.762***	[0.668-0.868]		
Caste	0.040	[0.750-0.959]	0.702	[0.000-0.000]		
Scheduled tribes (ref)	1.000		1.000			
Scheduled castes	0.599***	[0.501-0.716]	0.631***	[0.530-0.751]		
Other backward classes	0.607***	[0.542-0.680]	0.525***	[0.442-0.623]		
Others	0.639***	[0.563-0.726]	0.663***	[0.557-0.788]		
Wealth quintile	0.039***	[0.303-0.720]	0.005****	[0.337-0.788]		
	1 000		1 000			
Poorest (ref)	1.000	[0.007.1.122]	1.000	[0.052.1.007]		
Poorer	1.057	[0.987-1.133]	1.017	[0.952-1.087]		
Middle	0.965	[0.893-1.042]	0.848***	[0.788-0.912]		
Richer	1.029	[0.957-1.108]	0.918**	[0.855-0.986]		
Richest	0.941	[0.870-1.017]	0.870***	[0.795-0.953]		
Community characteristics						
Type of locality	4.000		4.000			
Rural (ref)	1.000	FO 00% 1 0%13	1.000	FO 045 1 1003		
Urban	0.970	[0.895-1.051]	1.024	[0.945-1.108]		
State						
Sikkim (ref)	1.000		1.000			
Arunanchal Pradesh	1.830***	[1.613-2.077]	2.605***	[2.146-3.162]		
Nagaland	1.436***	[1.233-1.671]	1.923***	[1.537-2.407]		
Manipur	2.398***	[2.135-2.694]	3.708***	[2.962-4.643]		
Mizoram	6.950***	[5.806-8.319]	2.390***	[1.895-3.015]		
Tripura	3.023***	[2.472-3.696]	1.187	[0.885-1.591]		
Meghalaya	14.153***	[10.987-18.230]	2.442***	[1.875-3.182]		

Differentials in substance use

To identify the prevalence and differentials of substance use, the study examined bivariate differential of the selected individual, household and community characteristics. Table 3 shows the weighted percentage of substance use by selected individual, household and community characteristics. Results indicate that the younger age groups 25-44 years were consuming more all form of substance use as compared to youth and older age group. Male were consuming more substance as compared to female. Currently married person were consuming more all form of substance use than never married. As expected illiterate person consuming more alcohol as compared to literate person. People who have some disposal income in hand that is the working person consuming more substances as compared to people who were not working. As regards to religion results shows that the person belongs to Christian religion were consuming more smokeless tobacco as compared to Hindu and others religion. However person belongs to others religion were consuming more alcohol than Hindu and Christian. Person belongs to scheduled tribes social group were consuming more substances than others backward class and others social group. Poor people (poorest wealth quintile) were consuming more alcohol as compared to rich (richest wealth quintile). Rural people were consuming more alcohol as compared to their counterpart urban people. Almost half of the person from Arunanchal Pradesh were consuming alcohol, followed by Sikkim (35.2%), Manipur (25.4%). However people from Meghalaya were using more smokeless tobacco as compared to others Northeast states. This study also revealed that Mizoram, the highest prevalence of smoking.

Table 4 presents the results of the logistic regression models to examine the effect of individuals, household and community characteristics on substance use (smokeless tobacco, smoke and alcohol) among Northeast states, India. The results show that age group, social group, sex, education and economic status were significantly associated with substance use in Northeast states, India. Age of the person showed the strongest relationship with substance use. Person with younger age group 25-44 years were 2 times more probability to consume substance use as compared to youth age group 15-24 years. Education of the person also showed the strongest relationship with substance use. With the increases the education, the substance use is decreases. As compared to male, female have less chances to consume substance use. Working person has higher chances to substance use than 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 substances as compared to scheduled tribes social group person.

Determinants of substance

Table 5 presents the results of the logistic regression models to examine the effect of individuals, household and community characteristics on substance use (any substance and all substance) among Northeast states, India. Results indicated that younger person with age group 25-44 years were almost 2 times higher chances to consume any substances and almost similar trends were showing in case of all substances use. Female were less probability to consume substances as compared to male. Finding shows that educated person were less chances to consume substances as compared to illiterate. Working person were more chances to consume substances than not working person. Scheduled caste, others backward caste and others caste were less probability to consume substance as compared to scheduled tribe's caste.

DISCUSSION

This study highlights the prevalence and determinants of substance use (smokeless tobacco, smoke and alcohol) among Northeast, India. Prevalence of substance use was higher among younger age group as compared to youth and older. Similar findings were reported in others studies. 9-10 Results from this study indicated that males are consuming more substances than females. These may relate to their risk taking behavior. Educational status was strongly associated with substance use. Finding of this study shows that the educational status increases substance use decreases which documented in several others studies. 10,11 Results also indicated that the rich person were less chances to consume substances as compared to poor person. Poor or less educated people consume more substances Education emerged as a relatively stronger predictor than economic status of household, both among men and women. It is likely that poor and less educated people are less aware of the health hazards of substance use which indicated in earlier study. 12 There is no significant association was observed between urban and rural residence and substance use. Scheduled tribes castes were more likely to consume substances compared to the obc, and others castes. Compared to christian and others religion, hindu was more likely to consume substances.

CONCLUSION

This study concludes that, the prevalence of substance use among northeast, states was very high. The main reasons for high prevalence of substance use were substance use by younger age group, sex of person, economic status, social group and lower educational status. Younger people are most important group of income of family and society and they are easily influenced by habits and behaviors of substance use. Therefore the information regarding the harmful effect of substance use should be targeted towards younger age group. As smokeless tobacco, smoke and alcohol use is very high among scheduled tribes population,

strengthening of IEC activities among Scheduled tribes regarding substance use and its consequences are necessary to minimize the effect. Government should take up initiative and incorporate the problem and the adverse health effects of substance use. There is also a need to advocate for the replacement of dangerous and harmful effects of substances use. This study recommended that the policy needs to include health education about substance use and its adverse effects, management of substance use incidents, communication among the person, specially who residing in adverse geographical ares in Northeast, India.

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REFERENCES

- Jayram H, Deepak P, Suprakas H, Debasis. Substance abuse among male school students in tribal Block of Pachim Madinapur District, West Bengal, India.
- 2. Murthy P, Saddichha S. Tobacco cessation services in India: recent developments and the need for expansion. Indian J Cancer. 2010;47(Suppl)1:69-74.
- 3. Ray R. The extent, pattern and trends of drug abuse in India: national survey, ministry of social justice and empowerment, government of india and united nations office on drugs and crime, regional office for south asia. 2004.

- 4. Ahmad N, Bano Ru, Agarwal VK, Kalakoti P. Substance Abuse in India. Available at http://www.pravara.com/pmr/pmr-1-4-2.pdf.
- WHO. Lexicon of alcohol and drug terms. WHO, Geneva 1994.
- WHO. Alcohol Policy. Global Status Rep. WHO, Geneva. 2004;1.
- 7. WHO. Reducing risks, promoting healthy life. World Health Rep. WHO, Geneva. 2002.
- 8. Patel DR. Smoking and children. Indian J Pediatr. 1999;66(6):817-24.
- 9. Dhekale DN, Gadekar RD, Kolhe CG. Prevalence of tobacco consumption among adolescents of the tribal areas in Maharashtra. J Clin Diagnostic Res. 2011:5(5):1060-3.
- 10. Kokiwar PR, Jogdand GRS. Substance use among male adolescents in urban slum area of karimnagar district, Andhra Pradesh. Indian J Pub Health. 2011;55:42-5.
- 11. Deswal BS, Jindal AK, Gupta KK. Epidemiology of alcohol use among residents of remote hills of Arunachal Pradesh. Indian J Community Med. 2008;31:88-9.
- 12. Bobak M, Jha P, Nguyen S. Poverty and smoking. In: Jha P, Chaloupka FJ, eds. Tobacco control in developing countries. Oxford: Oxford University Press, 2000.

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