

## ORIGINAL ARTICLE

### Prevalence and correlates of alcohol abuse among school going adolescents in a hilly district of Himalayan region in India

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#### ABSTRACT:

**Background:** According to UNDCP World drug report, the problem of alcohol abuse in adolescence is fast assuming alarming proportions in both developed and developing nations. Kullu district of Himachal Pradesh has regularly been in media headlines for extensive abuse of alcohol because of easy access and lack of social inhibition for intake of alcohol that might increase the vulnerability of youth to these habits. **Objective:** The study was conducted to estimate the prevalence of alcoholic user among school going adolescents and provide an essential source of information about alcohol abuse and its correlates in this Himalayan region. **Materials and Methods:** This was a descriptive school-based cross-sectional study conducted among students (13-19 years) studying in classes 7th to 12<sup>th</sup> designed to collect the data using an anonymous, pre tested, self-administered questionnaire. Multi stage cluster random design and PPS sampling methodology was adopted. A sample of 3000 students both from rural and urban areas studying in 20 government and private senior secondary schools was selected. Statistical analysis was done by entering the data in SPSS Version 16. **Results:** The ultimate response rate was 98.5 %. Out of the total of 2864 participants, 518 (18.09 %; 95%CI-16.69 % to 19.55%) had indulged in alcohol abuse at least once in their lifetime. Prevalence of current and regular users was 38.22% (95%CI -42.56 % to 64.02%) and 5.02% (95% CI- 3.30% to 7.27%) respectively. Mean age of first experience was 15.91 years. Among participants prevalence of alcohol abusers was highest for those studying in a government schools in rural area and those who belongs to nuclear families. The logistic regression model revealed that alcohol abuse among friends, family members, staying away from homes, males and older age group of 16-19 years were the factors found to be positively associated with substance abuse. **Conclusion:** The study has brought out a high prevalence of alcohol abuse among the students. It signifies scaling up of IEC activities and life skill education focused on school going adolescents is imperative.

**Key words:** Alcohol abuse, prevalence, school going adolescents.

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## INTRODUCTION

Alcohol abuse poses a significant threat to health, social and economic fabric of families, communities across the globe.<sup>1</sup> Globally, about 50% of population takes alcohol.<sup>2</sup> Country specific data from Global burden of disease study 2010 shows that alcohol attributes to 3.52% of all deaths in India.<sup>3</sup>

Adolescence being the formative period of life, boys and girls start this habit under peer pressure, household influence, parental influence, and by dint of inquisitive mind and experimentation. In many parts of India, alcoholic drinks 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 and gradually, they become habitual drinker or addicts. Easy access, available pocket money, and other factors make youth and adolescent boys and girls vulnerable to this habits.<sup>4</sup>

In recent past, Kullu district of Himachal Pradesh has regularly been in media headlines for extensive alcohol abuse.<sup>5</sup> However, no data is available to assess the magnitude of this problem and associated risk factors in kullu district, where population is supposed to be more vulnerable. Policy and prevention strategies against alcohol abuse as a serious public health problem should rely on accurate data.

Hence the present study was planned with the following objectives:

1. To estimate the prevalence of alcohol abuse among school going adolescents (aged 13-19 yrs) in Kullu district of Himachal Pradesh.
2. To determine the association of socio demographic and other risk factors with alcohol abuse among the study subjects.

## MATERIALS AND METHODS

This school based cross-sectional study was carried out by using research methodology in Kullu district of Himachal Pradesh in India from 1<sup>st</sup> October 2015 to 30<sup>th</sup> September 2016. Study site, sampling design, and sampling of district kullu was selected purposively to study the prevalence and pattern of alcohol abuse among school going adolescent students. The study population consisted of rural and urban school going adolescents of 13-19 years of age studying in classes 7<sup>th</sup> to 12<sup>th</sup> in senior secondary schools of this district. Considering the prevalence of substance abuse to be 25% and precision to be  $\pm 10\%$  at 95% confidence interval by using the formula  $(1.96)^2 pq / L^2$  where p = Prevalence of Substance Abuse, q= 100-P and L=precision, the sample size estimated was 1485 after taking into account 20% of non-compliance rate. Being a multi stage cluster sampling study design, a design effect of 2.0 has been taken. Therefore the final sample size calculated was 2970. Taking the round off, 3000 study subjects were included for study purpose.

Multi stage stratified cluster sampling was used to draw representative sample of study population from the study area. In the first stage, out of four administrative blocks of district Kullu, one block that is, Kullu was selected by simple random sampling. In the second stage, all the schools of this block were stratified as per rural/urban and government/private schools strata. Further, the class wise strength of each class was obtained from the office of Director Education of district Kullu and the offices of the Principals of the respective private schools and enlisted thereof. Schools (Primary sampling units) were selected by probability proportionate to size cluster sampling procedure to select proportionate number of students from each stratum. There were 45 senior secondary schools in Kullu block out of which 20 schools were chosen by PPS as outlined above.

In the third stage, equal number of students (i.e. 150 students) was selected from each school. Individual classes (Secondary sampling units) of the selected school were selected by simple random sampling method. In the fourth stage, from the classes thus selected all the students (elementary sampling units) were included in the study. In case a class had more than 50 students, forms were filled by entire class and later 50 forms were selected randomly. In case a class has less than 50 students, the next higher class/class section was also taken.

All ethical permissions were taken before conducting this study. Schools were visited several times for seeking permission of the head of the institute, awareness generation for proper data collection. The date and time of the survey was finalized in consultation with the Principals of the various schools so as to cause minimal disruption in the school activities. Written informed consent was taken from parents and assent was taken from students before administering the questionnaires.

Data collection was started after adapting and pre testing questionnaires. These questionnaires were translated and retranslated to Hindi and English language for self administration. On the day of the survey, the questionnaire was administered to all eligible and consenting students. The students were assured of complete anonymity, unlinked nature and confidentiality of the survey. Honesty of responses was also emphasized in the instructions. The questionnaire was administered to all the students of the class in one session. Proper sitting space among the students was ensured so as to avoid inter personal communication.

The study was conducted under the guidance of the researcher who gave a brief introduction regarding the objectives and relevance of the study. Students were taken through the questionnaire, question wise, clearing the students' queries simultaneously if any. It was thus ensured that all respondents understood each and every question and completed the questionnaire timely. After completion; questionnaires were collected simultaneously from all students in a box kept in the class.

A brief presentation/discussion regarding the effects of substance abuse was undertaken by the investigator in the class/ school as per local arrangements with the principal of the concerned school after filling of the questionnaire and students were also counseled for quitting the habit.

To estimate the prevalence of alcohol abuse following operational definitions were considered:

### 1. Ever User:

Someone who had consumed alcohol irrespective of frequency or time (does not include a few sips of alcohol).

### 2. Regular user:

Someone who had consumed alcohol three or more times in a week.

### 3. Current User:

Someone who had consumed alcohol in the past one month.

Data was entered in Microsoft Excel. Analysis was done by using SPSS 16. Descriptive statistics, frequency percentages were determined for categorical variables. Means and standard deviations were calculated for quantitative variables. Odds ratio (OR) and 95% confidence interval (95% CI) were calculated for each categorical variable. For categorical variables chi square/chi square for trend test were applied as tests of association. All those variables found to be statistically significant on univariate analysis were included for multivariate analysis using logistic

regression. A p value of less than 0.05 was considered as statistically significant.

**RESULTS**

Due to non compliance rate of 5%, 2864 students could be included in the study. The mean age of participants in the study was 15.51years±1.61years. The mean age for male participants was 15.60± 1.62years, while that for female participants was 15.43± 1.60years. There was near equal distribution of males and females in the study population. It was observed that majority of the students were studying in Government schools (79.5%) and residing in rural area

(69.3%). It was found that only 25.3% of fathers and 16.4% of mothers of the study participants were graduates or above. Nearly 14.1% (in case of father) and 17.2% (in case of mother) participants denied having information about their parents’ education status. Most of the participants were staying with their parents (88.3%) and were able to spend quality time with them inform of talking about daily activities (33.5%), watching television together (21.1%) and having at least a meal together (28.8%). (Table 1)

**Table 1:** Socio demographic profile of respondents

Socio demographic profile		N=2864 (%)
Age	13-15yr	1393(48.6)
	16-19yr	1471(51.4)
Gender	Male	1424 (49.7)
	Female	1440 (50.3)
Type of School	Government	2276(79.5)
	Private	588(20.5)
Area of School	Urban	878(30.7)
	Rural	1986(69.3)
Education level of Father	Post graduate	261(9.1)
	Graduate	464(16.2)
	High School	1257(43.9)
	Primary education	477(16.7)
	Don't know	405(14.1)
Education level of Mother	Post graduate	132(4.6)
	Graduate	338(11.8)
	High School	994(34.7)
	Primary education	906(31.6)
	Don't know	494(17.2)
Type of family	Joint	996(34.8)
	Nuclear	1868(65.2)
Current place of stay	With parents	2530(88.3)
	Hostel	64(2.2)
	Friends	63(2.2)
	Siblings	79(2.8)
	Relatives	97(3.4)
	Alone	31(1.1)
Time spent with parents	Talk about daily activities	960(33.5)
	Watch television together	603(21.1)
	Have at least one meal together	824(28.8)
	Fighting	43(1.5)
	Parents are too busy	96(3.4)
	No time spent	338(11.8)

The prevalence of ever users was found to be 18.09% (n= 518). Means, Out of the total of 2864 participants, 518 (18.09 %; 95% CI-16.69 % to19.55%) had indulged in alcohol abuse at least once in their lifetime. Among 518 ever users, there were 198 (38.22%; 95% CI- 42.56 to 64.02) were current users; among current users there were 26 (5.02%; 95% CI -3.30% to 7.27%) were regular users. (Table 2)

**Table 2:** Prevalence of Alcohol among study participants (N=2864).

Type of substance	Ever user N (%) (95% C.I.)	Current User among Ever user (95% C.I.)	Regular user among Ever user (95% C.I.)
Alcohol	518 ( 18.09% ) (16.69 – 19.55)	198 (38.22%) (42.56 - 64.02)	26(5.02%) (3.30-7.27)

(Table 3) Males showed a significantly higher frequency of abuse as compared to females. Out of 1424 males, 24.86% (354) reported alcohol abuse while out of 1440 females, alcohol abuse was found to be among 11.39% (164). Mean age of first experience was 15.91 years. It was found to be less among boys (15.89 years) as compared to girls (15.94 years).

**Table 3:** Age and Gender wise prevalence of alcohol abuse

Age	Male( n=1424)		Female( n =1440)	
	Number	%	Number	%
13	30	8.5	15	9.1
14	53	15	15	9.1
15	51	14.4	18	11
16	79	22.3	57	34.8
17	85	24	39	23.8
18	46	13	15	9.1
19	10	2.8	5	3
<b>Total</b>	354	24.86	164	11.39
<b>Mean age</b>	15.89 years		15.94 years	

Among participants (both in males as well as in females) prevalence of alcohol abusers was highest for those studying in private schools in urban area. (Table 4)

**Table 4 :** Distribution of alcohol abusers according to area and type of school

School	Abusers.	Non Abuser	Total	%
Govt rural	253	1435	1688	15
Private rural	67	231	298	22.5
Govt urban	114	474	588	19.4
Private urban	84	206	290	29

Habit of alcohol abuse among family and friends was found to be 52.1% and 29.4 % respectively. (Table 5)

**Table 5:** family and friend’s wise distribution of alcohol abusers

Type of Substance	Family N(%)	Friends N(%)
Alcohol	1491 (52.1)	842(29.4)

The Multiple logistic regression model revealed that alcohol abuse among friends, family members, inability to spend quality time with parents, gender and older age group of 16-19 years were the factors found to be positively associated with substance abuse. (Table 6)

**Table 6 :** Multiple Logistic Regression showing Association of socio demographic variables with alcohol abuse

Variable		Substance Abuse				p value
		Present		Absent		
		No.	%	No.	%	
Age group	13-15yr	182	35.1%	1211	51.6%	0.000
	16-19yr	336	64.9%	1135	48.4%	
Gender	Female	164	31.7%	1276	54.4%	0.000
	Male	354	68.3%	1070	45.6%	
Type of school	Government	367	70.8%	1909	81.4%	0.233
	Private	151	29.2%	437	18.6%	
Area of school	Rural	320	61.8%	1666	71.0%	0.830
	Urban	198	38.2%	680	29.0%	
Father’s education status	High education	211	40.7%	697	29.7%	1.013
	Low education	307	59.3%	1649	70.3%	
Mothers education status	High education	208	40.2%	692	29.5%	.940
	Low education	310	59.8%	1654	70.5%	
Type of family	Joint	178	34.4%	818	34.9%	0.502
	Nuclear	340	65.6%	1528	65.1%	
Current place of stay	With parents	408	78.8%	2122	90.5%	0.000
	Away	110	21.2%	224	9.5%	
Abuse in friends	No	119	23.0%	1642	70.0%	0.000
	Yes	399	77.0%	704	30.0%	
Abuse in family	No	186	35.9%	1187	50.6%	0.001
	Yes	332	64.1%	1159	49.4%	

## DISCUSSION

The overall prevalence of alcohol abuse in the present study was 18.09 % (95% CI-16.69 % to 19.55%). Nearly 38.22% (95% CI- 42.56 to 64.02) had used them in the past month (current user) while 5 % (95% CI -3.30% to 7.27%) were regular users. Higher prevalence of 31.9% were observed in a study done by Ludhiana, Punjab.<sup>6</sup> Another study conducted by Kokiwar et al<sup>7</sup> in KarimNagar on male adolescents reported an prevalence of 32.7% which was higher to the prevalence of alcohol abuse in males in our study. Another study in Delhi in the similar age group showed a prevalence of 30.1% among boys.<sup>8</sup> Contrary to our study findings, Kapil et al<sup>9</sup> cited a prevalence of 13.4% in their study on school going adolescents in Delhi. Prevalence among general population in India was reported to vary from 21.4% to 45.9% in a large-scale study.<sup>10</sup> The overall prevalence of substance abuse in our study was slightly on the lower side as compared to other studies done in India.<sup>2, 6, 7, 8</sup> The possible reasons could be that in some of these studies, adolescents of higher age group were assessed which could have resulted in a higher prevalence as age is an important predictor of substance abuse.

The present study showed that the age at first experience with alcoholic drinks was much higher than any other records across the country.<sup>2,6</sup> 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.<sup>11</sup> 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)<sup>6</sup> However, about 8.8% of college students in North India started using alcohol below the age of 10 years.<sup>12</sup> 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. Also, the difference in age at initiation among different studies may be due to the target population (present study specifically targeted school going adolescents).

Higher numbers of adolescents ( $\geq 15$  years) used alcohol drinks in comparison to the adolescents ( $\leq 15$  years) in the present study. Similar association of increasing age with substance abuse was also found in many other studies.<sup>13,14</sup> With increasing age adolescents' sphere of influence and experimental mentality increases while the control of parents weakens, thus culminating in increased usage in higher age group.

In the present study majority of the students were from government schools in rural background where the prevalence was found to be the least. This could be because these schools are located deep in the rural heartland and are still relatively untouched by the modern influences and tourist influx. Also the avenues are limited because schools are located in the villages where people recognise each other and hence the chances of being spotted indulging in substance abuse are high.

Significant association was found between gender and prevalence of alcohol abuse in present study. Males had significantly higher odds of being substance abuser. Similar results were observed by many others especially in India.<sup>15-17</sup> It may be due to relatively more parental tolerance to drinking behaviour of their male children. In our society, males have lesser societal constraints and are thus more experimental in their outlook.

In the present study no significant association was found between substance abuse and type of family, though the prevalence was higher among the adolescents belonging to nuclear families. This is in accordance with a study by Saxena et al<sup>18</sup>, Sharma et al<sup>16</sup> who reported a significantly higher abuse among students belonging from nuclear families than joint families. In a joint family there are a number of elders who can keep an eye on the truant adolescent even if the parents are busy elsewhere, a luxury which is not there in the nuclear families

Although we could not find any correlation between students' behavior with that of parents' education and occupational status, but parents and peer behavior were found to influence the habit of students.

Participants staying away from their home were far more likely to be indulging in substance abuse than those living with their parents. This was a statistically significant observation ( $p < 0.05$ ). It was in line with the results of studies done by other researchers.<sup>19,20</sup> This difference can be very well explained on the basis of the fact that while living at their homes the day to day activities of the students are under scrutiny of their parents. Living away from homes without parental watch the adolescent tend to feel less inhibited. They are more prone to experimentation and socialising with peers who might coax them into this indulgence. Hence alcohol abuse in adolescents staying at their homes is limited as compared to those who are living away from the homes

Parents and peer behavior influence the young mind for their habit of alcohol abuse. The present study revealed that presence of alcohol abuse in the family was a significant predictor of alcohol abuse by the study participants. The prevalence was nearly twice in those students reporting the presence of alcohol abuse in family as compared to those who had no such history. This finding in our study is consistent with the results of majority of the studies.<sup>16,18</sup>

Parents' indifference about the habit of their children influences the substance use habit of their offspring. Similarly, close friend's habit of alcohol abuse or peer pressure influenced the adolescent boys and girls to take alcoholic drinks. It has been reported that peer influence was very important factor influencing alcohol using behavior among school going students of North India.<sup>10</sup>

## CONCLUSION:

In conclusion Being a male, an older (16-19 years) adolescent who stays away from home and having family members or friends indulging in some form of alcohol

abuse were all independent risk factors for alcohol abuse in our study. The role of Family as role models, influence of Friend circle and importance of acting early is also highlighted.

#### RECOMMENDATION:

The study thus emphasizes the need to evolve, both at school and societal level, effective interventions and involving all stakeholders. It is recommended that schools should have regular Parent Teacher Meetings where specific time allotment for discussion and sensitization involving both students and their parents. Every school should have a trained psychologist/counselor. Yoga and meditation classes can be introduced to help the adolescents develop a holistic view of life. Periodic state level surveys to assess magnitude of the problem and for Evaluation impact of the various efforts should be undertaken.

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