

Prevalence and Predicting Factors of Alcohol Use Among School Going Adolescents in a Hilly State of Northern India

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Abstract

Background: Alcohol use among adolescents is rising globally. This habit starts in adolescence and continues throughout their life. Alcohol addiction is associated with many other risky behaviors. Social environmental interventions will be an effective measure to control the problem of alcohol use. **Objectives:** The purpose of this study was to estimate the prevalence of alcohol use among adolescents and to investigate the associated risk and protective factors. **Methods:** A cross-sectional study was carried out among school going adolescents in the hilly state Himachal. A pre-validated, self-administered questionnaire was used for data collection. **Results:** The prevalence of alcohol use in adolescent was 6.1% (10.7% in males and 0.4% in females). Binary logistic regression model revealed that parent's and peer's drinking behavior significantly predicts an adolescent's drinking behavior. **Conclusion:** Our research supports the need for an adolescent health program involving school, peers, and family. Life skill education should be given to the adolescents to inculcate the resilience so that they learn to say no to peers who try to pull them into such habits.

Keywords: Adolescent, alcohol use, peers, predicting factors

INTRODUCTION

Adolescence is the most crucial stage of life as any habit adopted during adolescence is likely to be continued in the adult stage of life also. Adolescence is a developmental stage where behavior is influenced by many socio-environmental risk and protective factors also known as social determinants.^[1]

Alcohol abuse is a major public health problem across the globe. Worldwide, about 50% of population takes alcohol. Alcohol accounts for 6% of all deaths every year across the globe. Alcohol use by adolescents is rising day by day in India. It reduces self control and makes adolescents vulnerable for adopting other risky behaviors like domestic violence, drunk driving, early indulgence in unprotected sex, etc. Alcohol is the main cause of road traffic accidents,^[2] which is a leading cause of death among adolescents. Domestic violence is on rise in India and one of the main culprits behind it is the habit of alcohol use which is generally adopted by a person during adolescence.

Globally, studies suggest that social factors have important role in determining behaviors adopted by adolescents.^[3] No

study is available on the alcohol use by adolescents in the hilly state of northern India and the existing literature on alcohol use by adolescents in India lacks the comprehensive study on individual, family, and other social factors associated with it. To reduce the alcohol use by adolescents, we need to understand and work on social factors associated with it. With this background, we studied the prevalence of alcohol use and the risk; protective factors among school going adolescents.

MATERIALS AND METHODS

This cross-sectional study was carried out in selected senior secondary schools in Shimla district of Himachal Pradesh, India. The study was carried out among adolescent school children of both sexes, aged 14 to 19 years in urban field

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practice area of Indira Gandhi Medical College, Shimla, Himachal Pradesh, North India. The data were collected over a period of 11 months from senior secondary schools of study area. The sample size was estimated based on the formula of $n = 4pq/L^2$. Since, no previous study was available from the study area, the value of “*p*” (prevalence of alcohol among adolescents) was selected as 50% to arrive at the sample size of 384 ($n = [1.96]^2 \times 0.50 \times 0.50/[0.05]^2$) considering 95% confidence level and ± 0.5 precision. In order to compensate for the design defect, the required sample was multiplied by 2. For student nonresponsive/absentees, the sample size was a further increased by 20%. Thus, the final arrived sample size was 720.

Stratified cluster sampling was used to draw this representative sample of 720 school adolescents’ students from grade 9th to 12th in 10 randomly selected schools in the study area. There were totally 38 clusters (classes) from which 21 clusters (primary sampling unit) were selected with probability proportionate to size sampling. Finally, 36 students were selected from each class using a lottery method of simple random sampling.

A pre-validated, self-administered questionnaire was used for data collection. Before administering the questionnaire by the principal investigator, all participants were assured about the anonymity of their responses to the questionnaire.

In this study, we used the term alcohol use was taken as student who ever took alcohol. The predicting factors or social determinants were assessed in individual, family, peers, and school domains. The individual predicting factors included questions on “feeling sad” and “self-harm.” The social factors included questions on family (sample question: “Do your parents know what you are doing in the free time”), friends (sample question: “Do your friends take alcohol”), and school environment (falling grades, good relation with teachers, and helping attitude of classmates).

Formal approval was obtained from the State Education Department of Himachal Pradesh and the Principals of the selected schools. Informed written consent was taken from all the study participants and their parents/guardians. The study was approved by the ethical committee of Indira Gandhi Medical College, Shimla (HP).

Both descriptive and logistic regression analysis was done using Epi info Software for Windows 3.5.1 (Centre for Disease Control, Atlanta). The dependent variable, alcohol use, was a dichotomous (1 = yes, 0 = no) categorical variable. Binary logistic regression was employed to regress various predictor variables of alcohol use.

RESULTS

A total of 720 students were included in the study. Out of them, 16 did not answer the question of alcohol use in the given questionnaire and hence were dropped from the analysis. The remaining sample of 704 adolescents consisting of males 357 (51%) and females 347 (49%) was analyzed. A total of

379 (53.83%) students were in the age group of 14 to 15 years while the remaining 325 (46.16%) were in age group of 16 to 19 years. Totally, 43 (6.1%) students ever used alcohol, among males, 38 had used alcohol (10.6%) and among females, 5 (1.3%) ever used alcohol. Univariate analysis was done to find out the significant variables associated with alcohol use [Table 1].

In univariate analysis, adolescents having parental supervision like parents knowing friends of the adolescent, parents knowing about free time activities of their children, adolescents who discuss his/her problems with family, who have good relation with teacher, and have helping classmates were having significantly lower odds of alcohol use. Adolescents having family member using alcohol, having friends who take alcohol, and falling grades had significantly higher odds of alcohol use. All significant variables were further analyzed using logistic regression model.

The binary logistic regression revealed the significant predicting factors after adjusting for all other variables. Discussing problems with parents (adjusted odds ratio [AOR] = 0.3), having good relations with school teachers (AOR = 0.4), and discussing problems with family (AOR = 0.3) turned out to be the significant protective factors for alcohol use by the adolescent. On the contrary, having friends who take alcohol (AOR = 9.5), having family member who takes alcohol (AOR = 3.6), and male gender (AOR = 4) were found to be significant risk factors for alcohol use by adolescents [Table 2].

DISCUSSION

The prevalence of alcohol use in our study is significantly more in males (10.6%) as compared with females (1.3%). This may be due to the acceptance of the male drinking behavior in Indian society. Similar findings were observed in studies on adolescents in Jhansi by Peeyush Kariwal^[4] and in Assam, India, by B Mahanta.^[5] In another study by Singh *et al.*,^[6] among students of Delhi in the similar age group showed 30.1% prevalence of alcohol use among boys. This may be because Delhi is a metro city, students have more exposure and easy accessibility to alcohol as compared with hilly state Himachal. V Khosla^[7] in his study among college students of Ludhiana, Punjab, found the prevalence of alcohol use was 31.9%.

The binary logistic regression revealed that having a family member who takes alcohol significantly increased the likelihood of taking alcohol among adolescents. A possible explanation of this may be the fact that adolescents tend to learn by imitation. Similar results were observed by David E Nelson in Montana^[8] and by B Mahanta^[5] in Indian students.

We observed that alcohol use in adolescents has strong association with their friend’s alcohol use as also observed by Sychareun^[9] in Luang Namtha province, Lao PDR. In another study by Grace C Hung on peer influences^[10] it was also found that adolescents having friends who drink alcohol

Table 1: Univariate analysis of Individual, family, school, and peers related variables of alcohol use among adolescents

| Individual and social environmental variables | Used alcohol 43 | Did not use alcohol 661 | P | Odds ratio unadjusted (95% CI) |
|---|-----------------|-------------------------|-------|--------------------------------|
| Gender: | | | | |
| Male | 38 | 319 | 0.000 | 8 (3-21) |
| Female _r | 5 | 342 | | 1 |
| Age: | | | | |
| 14-15 years | 14 | 365 | 0.004 | 0.4 (.2-.7) |
| 16-19 years _r | 29 | 296 | | 1 |
| Parents know friends of the adolescent | 24 | 477 | 0.015 | 0.5 (.2-.9) |
| Parents don't know friends of adolescent _r | 19 | 184 | | 1 |
| Discuss his/her problems with family | 6 | 259 | 0.001 | 0.2 (.1-.6) |
| Do not discuss his/her problems with family _r | 37 | 402 | | 1 |
| Parents know about free time activity | 14 | 459 | 0.000 | 0.2 (.1-.4) |
| Parents do not know about free time activity _r | 29 | 202 | | 1 |
| Family member use alcohol | 30 | 263 | 0.000 | 3.5 (1.8-7.3) |
| Family member do not use alcohol _r | 13 | 398 | | 1 |
| Self hurting tendency* | 23 | 262 | 0.075 | 1.7 (.9-3) |
| No self hurting tendency _r | 20 | 399 | | 1 |
| Feel sad | 24 | 245 | 0.012 | 2.2 (1-4) |
| Don't feel sad _r | 19 | 416 | | 1 |
| Friends take alcohol | 33 | 114 | 0.000 | 15.8 (7-35) |
| Friends do not take alcohol _r | 10 | 547 | | 1 |
| Falling grades | 28 | 313 | 0.029 | 2.1 (1-4) |
| No falling grades _r | 15 | 349 | | 1 |
| Good Relation with teacher | 27 | 549 | 0.001 | 0.3 (.2-.6) |
| Relation with teacher not good _r | 16 | 112 | | 1 |
| Helping attitudes of the classmate | 23 | 476 | 0.006 | 0.4 (.2-.8) |
| Non-Helping Attitude Of The Classmates _r | 20 | 175 | | 1 |
| Mothers' education | | | | |
| Up to 10 th class* | 29 | 516 | 0.11 | 0.6 (.3-1.1) |
| Above 10 th class _r | 14 | 145 | | 1 |
| A matter of worry in family* | 22 | 278 | 0.266 | 1.4 (.8-2.7) |
| No matter of worry in family _r | 21 | 383 | | 1 |
| Being verbally or physically abused* | 17 | 190 | 0.111 | 1.6 (.9-3.1) |
| Not Being verbally or physically abused _r | 26 | 471 | | 1 |
| Learning problem * | 25 | 369 | 0.809 | 1.1 (.6-2) |
| No learning problem _r | 18 | 292 | | 1 |

r is reference category, * non-significant variable

had higher risk levels for taking alcohol than adolescents having non drinking friends. Peer pressure could be the possible explanation for this. Peers have significant role during adolescence. Parents thus need to take the responsibility to constantly give time to their children and be aware of their friend circle also. Adolescents having falling grades in the class and feeling sad were also having higher odds of alcohol use. But the difference was not statistically significant. Similar results were observed by Sullivan M *et al.*^[11,12] Furthermore, we observed that good relation with teachers was a significant protective factor against adolescent's alcohol taking behavior. This may be because having good relations with teacher might keep the students more involved in school work and extracurricular activities. It was also observed that sharing problems with family was a significant protective factor against adolescent's alcohol taking behavior. If an adolescent shares his problems with their family, then they get right guidance at right time. This was also observed by Hawkin JD in his research

work.^[13] Adolescents having lower age, parental supervision where parents knew free time activities and friends of the adolescents, and adolescents having helpful classmates were having lower odds of alcohol intake. But the differences were not statistically significant in our study. Duncan B Clark *et al.*^[14] also found negative association between parental supervision and alcohol intake but the difference was statistically significant in their study unlike ours. A limitation of this study is the use of self-reported survey, which might have resulted in reporting bias. However, we ensured the privacy of study participants and thus reliability of the responses. Another limitation is the cross-sectional design of the study so the temporality between predictive factors and alcohol use cannot be assured.

CONCLUSION

Alcohol use is common among adolescents residing in Shimla district of Himachal. The role of parents in fighting this bad

Table 2: Predicting factors of alcohol use after binary logistic regression

| Predicting factors | P | Adjusted odds ratio (95% CI) |
|---|-------|------------------------------|
| Male* | 0.015 | 4 (1.3-13.6) |
| female | | 1 |
| Age 14-15 years | 0.878 | 0.9 (.4-2) |
| 16-19 years | | 1 |
| Parents know friends of the adolescent | 0.917 | 0.9 (.4-2) |
| Parents do not know friends of the adolescent | | 1 |
| Discuss his/her problems with family* | 0.033 | 0.3 (.1-.9) |
| Do not discuss his/her problems with family | | 1 |
| Parents know about free time activity | 0.174 | 0.6 (.2-1.2) |
| Parents do not know about free time activity | | 1 |
| Family member use alcohol* | 0.004 | 3.6 (1.5-8.3) |
| Family member do not use alcohol | | 1 |
| Feel sad | 0.256 | 1.6 (.7-3.6) |
| Do not feel sad | | 1 |
| Friends take alcohol* | 0.000 | 9.5 (3.4-26) |
| Friends don't take alcohol | | 1 |
| Falling grades | 0.192 | 1.7 (.7-4.1) |
| No falling grades | | 1 |
| Helping attitudes of the classmate | 0.694 | 0.8 (.35-1.9) |
| Non helping attitudes of the classmate | | 1 |
| Relation with teacher good* | 0.032 | 0.4 (.16-92) |
| Relation with teacher not good | | 1 |

*Significant predicting factors after adjusting for all other variables

habit is very important. They should motivate their children not to get influenced by peer pressure, give time to them, and share their problems. All those parents who take alcohol must quit and thus become “role models.” Supportive environment should be created both in school and at home so that adolescents express their feelings. Schools should educate them about the ill health effects of alcohol intake. Life skill education can be made compulsory in the schools for all adolescents to increase the resilience and to develop the will power to say no to the peers who are involved in any such kind of the risky behavior. The adolescent health program needs to include family, school, and peer-level interventions.

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Conflicts of interest

There are no conflicts of interest.

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