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ORIGINAL ARTICLE

Awareness, Misconceptions, and Legal Knowledge Regarding Legal and Illegal Substances and their Association with Substance use among School-Going Adolescents: A Cross-Sectional Study

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ABSTRACT

Adolescence is a critical phase during which experimentation with psychoactive substances often begins. Misconceptions, poor legal awareness, and peer or family influence increase vulnerability to substance use. Understanding these factors is essential for developing effective school-based prevention strategies.

Context: Substance use among adolescents is an emerging public health problem in India, with early initiation leading to long-term health and social consequences.

Aim: To assess awareness, misconceptions, and legal awareness regarding legal and illegal substances among school-going adolescents, and to examine their association with substance use.

Setting and Design: A school-based cross-sectional study conducted among students of classes 9 and 10 from selected government and private schools.

Methods and Material: Four hundred students were selected using multistage cluster sampling. Data were collected through a pretested, self-administered questionnaire assessing knowledge, misconceptions, legal awareness, sources of information, and substance use.

Statistical Analysis Used: Descriptive statistics and Chi-square test were used. A p-value <0.05 was considered statistically significant.

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Results: The mean age was 14.54 ± 0.49 years. The prevalence of ever use of tobacco, alcohol, and inhalants was 9.8%, 7.3%, and 2.5%, respectively. Substance use was significantly higher among students with poor knowledge (15.6%), high misconceptions (14.0%), and low legal awareness (13.6%) ($p<0.05$). Strong associations were observed with family (22.5%) and peer substance use (30.3%) ($p<0.001$). School-based education was associated with better knowledge and fewer misconceptions.

Conclusion: Substance use among adolescents is influenced by misinformation, inadequate legal awareness, and social environment. Strengthening school-based educational and preventive programs is essential.

Key Messages: Improving awareness and legal literacy through schools can significantly reduce adolescent substance use.

KEYWORDS

• Adolescents • Substance use • Knowledge • Misconceptions • Legal awareness

INTRODUCTION

Adolescence is a critical period during which substance-use attitudes and behaviours are formed, making school-going adolescents an important target for prevention and surveillance.[1,2] Exposure to peers, media, and social environments increases the likelihood of experimentation with tobacco, alcohol, and other substances.[1] Misconceptions regarding legal and illegal substances lead to underestimation of harm and poor risk perception [3,4], while inadequate legal awareness further contributes to early initiation.[5] In India, laws such as COTPA (Cigarettes and Other Tobacco Products Act) restrict substance access to minors, yet awareness remains limited. [6] School-based programs that improve knowledge, correct misconceptions, and build life skills are effective in preventing substance use. [7,8]

OBJECTIVES

1. To assess the level of knowledge (awareness) regarding legal and illegal substances among class 9–10 students.
2. To identify common misconceptions about the harms, legality and age-related rules for various substances (tobacco, alcohol, inhalants or illicit drugs).
3. To identify sources of information (family, peers, school, social media) and examine their relationship with correct knowledge and misconceptions.

MATERIALS AND METHODS

Study design: Cross-sectional, school-based survey.

Study setting and duration: Conducted in Western part of Maharashtra schools (government and private).

Duration: 5 month (August 2025 to December 2025)

Study population: A total of four schools were included in the study—two government schools and two private schools. Students enrolled in classes 9 and 10, aged approximately 14–17 years, attending selected schools during the study period were included in the study.

Inclusion criteria:

Students enrolled in classes 9 and 10 who were present on the day of data collection and who provided written assent, along with written informed consent from their parent or guardian, were included in the study.

Exclusion criteria:

Students who were absent during data collection despite two visits, those who were physically or mentally unable to complete the questionnaire as assessed by the teacher or investigator, and students or parents who declined assent or consent were excluded.

Sample size was calculated using the formula for estimating a single proportion as described by Lwanga and Lemeshow.[9] Based on a previous school-based study reporting 22.2% high awareness regarding substance abuse among students[10], with $p = 0.222$, $Z = 1.96$ and absolute precision of 0.05, the minimum

sample size was 266. After adjusting for cluster sampling using a design effect of 1.5, the final sample size was increased to 400.

Sampling method

A multistage cluster sampling method was used. Government and private schools were selected using probability proportional to size sampling, followed by random selection of sections and students from classes 9 and 10. A total of 400 students were included, with equal representation from both school types.

Study instrument

A structured, pre-tested, self-administered questionnaire in the local language + English version used for data collection and it is administered in classroom setting under investigator supervision to maintain privacy.

Study Variables and Instrument Structure

Data were collected using a pretested, self-administered questionnaire based on WHO and national adolescent substance-use modules. The instrument assessed knowledge (10 items), misconceptions (7 items), and legal awareness (5 items) and categorized responses into standard levels. Sociodemographic details, sources of information, and self-reported substance use were also recorded.

Responses to knowledge items were recorded using a 3-point Likert scale (correct / incorrect / don't know), while misconception items used agree / uncertain / disagree options, and legal awareness items used aware / partially aware / not aware responses. Correct or appropriate responses were scored as 1, and incorrect or "don't know" responses were scored as 0. Composite scores were calculated separately for each domain, and participants were categorized into good, moderate, and poor levels based on predefined score cut-offs. The instrument demonstrated good internal consistency, with a Cronbach's alpha of 0.82.

Substance use was assessed as a secondary outcome to facilitate analysis of its association with levels of knowledge, misconceptions, and legal awareness, and the study was not primarily designed to estimate the prevalence of substance abuse.

Questionnaire Content and Validation

The questionnaire was developed based on relevant WHO guidelines and national adolescent substance-use survey instruments, and adapted to the local context. It comprised four sections:

1. Sociodemographic details (age, sex, class, type of school, place of residence).
2. Knowledge items (10 questions) assessing awareness regarding types of legal and illegal substances, health risks, age restrictions, and legal status.
3. Misconception items (7 questions) assessing incorrect beliefs related to perceived safety, social acceptability, and harm associated with tobacco, alcohol, inhalants, and illicit drugs.
4. Legal awareness items (5 questions) assessing awareness of laws related to age restrictions, sale, possession, and penalties associated with substance use.
5. Substance use history, assessing self-reported ever use of tobacco, alcohol, and inhalants.

Content validity of the questionnaire was established through expert review by a panel comprising specialists in Community Medicine, Forensic Medicine, Psychiatry, who evaluated the items for relevance, clarity, and appropriateness for the adolescent age group. Necessary modifications were made based on their feedback.

The questionnaire was pre-tested among a group of 30 students from a school not included in the final study sample to assess clarity, comprehension, and feasibility. Minor language and wording modifications were carried out based on pre-testing results. The internal consistency of the final instrument was assessed using Cronbach's alpha, which was 0.82, indicating good reliability.

Data Collection and Ethics

Ethical approval was obtained from the Institutional Ethics Committee. Permissions from school authorities, parental consent, and student assent were secured.

Data Analysis

Data were analyzed using SPSS (version 30). Descriptive statistics (frequency, percentage, mean, and standard deviation) were used to summarize sociodemographic characteristics, levels of knowledge, misconceptions, legal

awareness, and substance use. Composite scores for knowledge, misconceptions, and legal awareness were computed by summing item scores and were categorized into good, moderate, and poor levels based on predefined cut-offs.

Associations between categorical variables, including knowledge level, misconceptions, legal awareness, and substance use, were examined using the Chi-square test. The strength and direction of associations were interpreted based on comparison of proportions across categories. A p-value < 0.05 was considered statistically significant for all analyses.

RESULTS

Among the 400 participants, males constituted 58.8%, with equal representation from classes 9 and 10 and government and private schools (Table 1). The mean age was 14.54 ± 0.49 years. The prevalence of ever tobacco, alcohol, and inhalant use was 9.8%, 7.3%, and 2.5%, respectively (Table 2).

Table 1: Demographic Profile

Variable	Category	Frequency (n=400)	Percentage (%)
Sex	Male	235	58.8
	Female	165	41.2
Class (Standard)	9th	200	50.0
	10th	200	50.0
School Type	Government	200	50.0
	Private	200	50.0
Residence	Urban	244	61.0
	Rural	156	39.0
Age (years)	Mean ± SD	14.54 ± 0.49	–

Table 2: Substance Use Prevalence among Class 9–10 Students

Substance	Yes (n, %)	No (n, %)
Ever Tobacco Use	39 (9.8%)	361 (90.2%)
Ever Alcohol Use	29 (7.3%)	371 (92.8%)
Ever Inhalant Use	10 (2.5%)	390 (97.5%)

Only 36.0% of students had good knowledge, while 34.0% had high misconceptions and 36.8% had low legal awareness regarding substance use (Table 3).

Table 3: Distribution of Knowledge, Misconception, and Legal Awareness Levels

Category	Frequency	Percentage (%)
Knowledge Level		
Poor	90	22.5
Fair	166	41.5
Good	144	36.0
Misconception Level		
Low	155	38.8
Moderate	109	27.2
High	136	34.0
Legal Awareness Level		
Low	147	36.8
Moderate	150	37.5
High	103	25.7

Ever tobacco use was significantly higher among students with poor knowledge (15.6%) compared to those with good knowledge (6.9%) ($p = 0.045$) (Table 5). Similarly, tobacco use increased significantly with high misconception levels (14.0%; $p = 0.021$) and low legal awareness (13.6%; $p = 0.045$) (Tables 6 and 7). No significant association was observed between demographic variables and tobacco or alcohol use (Table 4).

Table 4: Association Between Demographics and Substance Use

Category	n	Ever Tobacco Use (n, %)	Ever Alcohol Use (n, %)
Gender			
Male	235	26 (11.1%)	20 (8.5%)
Female	165	13 (7.9%)	9 (5.5%)
Chi-square (χ^2)		3.42	2.18
p-value		0.064	0.141
School Type			
Government	200	21 (10.5%)	15 (7.5%)
Private	200	18 (9.0%)	14 (7%)
Chi-square (χ^2)		0.38	0.04
p-value		0.537	0.592
Residence			
Urban	244	21 (8.6%)	16 (6.6%)
Rural	156	18 (11.5%)	13 (8.3%)
Chi-square (χ^2)		0.94	0.45
p-value		0.333	0.504
Total	400	39 (9.8%)	29 (7.3%)

Table 5: Association between knowledge level and substance use

Knowledge Level	n	Ever Tobacco Use	Ever Alcohol Use	Ever Inhalant Use
Poor (n = 90)	90	14 (15.6%)	10 (11.1%)	3 (3.3%)
Fair (n = 166)	166	15 (9.0%)	11 (6.6%)	4 (2.4%)
Good (n = 144)	144	10 (6.9%)	8 (5.6%)	3 (2.1%)
Total	400	39 (9.8%)	29 (7.3%)	10 (2.5%)
χ^2, p-value		6.21, 0.045*	2.91, 0.214	3.76, 0.153

Table 6: Association between misconception level and substance use

Misconception Level (n)	Ever Tobacco Use	Ever Alcohol Use	Ever Inhalant Use
Low (n = 155)	10 (6.5%)	7 (4.5%)	3 (1.9%)
Moderate (n = 109)	9 (8.3%)	7 (6.4%)	3 (2.8%)
High (n = 136)	19 (14.0%)	13 (9.6%)	4 (2.9%)
Total (N = 400)	39 (9.8%)	29 (7.2%)	10 (2.5%)
Chi-square (χ^2)	9.72	4.41	5.18
p-value	0.021*	0.110	0.075

Table 7: Association between legal awareness and substance use

Legal Awareness Level (n)	Ever Tobacco Use	Ever Alcohol Use	Ever Inhalant Use
Low (n = 147)	20 (13.6%)	14 (9.5%)	5 (3.4%)
Moderate (n = 150)	12 (8.0%)	9 (6.0%)	3 (2.0%)
High (n = 103)	5 (4.8%)	3 (2.9%)	2 (1.9%)
Total (N = 400)	39 (9.8%)	29 (7.2%)	10 (2.5%)
Chi-square (χ^2)	7.88	4.12	6.25
p-value	0.045*	0.127	0.055

Students exposed to family or peer substance use had significantly higher prevalence of tobacco, alcohol, and inhalant use ($p < 0.001$) (Table 8). School-based education was associated with higher good knowledge (54.1%) and lower misconceptions (17.8%) compared to other information sources ($p = 0.011$) (Table 9).

Table 8: Association of family and peer substance use with student substance use

Exposure Variable	Category	Ever Tobacco n (%)	Ever Alcohol n (%)	Ever Inhalant n (%)
Family substance use	Yes (n=80)	18 (22.5)	14 (17.5)	5 (6.3)
	No (n=320)	21 (6.6)	15 (4.7)	5 (1.6)
	χ^2 (p-value)	15.4 (<0.001**)	13.2 (<0.001**)	6.1 (0.014*)
Friends using substances	Yes (n=99)	30 (30.3)	21 (21.2)	7 (7.1)
	No (n=301)	9 (3.0)	8 (2.7)	3 (1.0)
	χ^2 (p-value)	29.6 (<0.001**)	25.1 (<0.001**)	11.3 (0.001**)

Table 9: Association between source of information and knowledge & misconception level

Source of Information	Good Knowledge (n, %)	High Misconception (n, %)
School-based education (n = 135)	73 (54.1%)	24 (17.8%)
Family members (n = 120)	46 (38.3%)	33 (27.5%)
Friends / Peers (n = 85)	27 (31.8%)	34 (40.0%)
Social Media (n = 60)	18 (30.0%)	27 (45.0%)

($\chi^2 = 11.24$, $p = 0.011$)

DISCUSSION

The present school-based cross-sectional study assessed substance use, awareness, misconceptions, and legal knowledge among 400 adolescents aged 14–17 years. The demographic distribution showed balanced representation across sex, class, school type, and residence, comparable to other Indian school-based studies, supporting the representativeness of the sample.[11,12]

The prevalence of ever tobacco use (9.8%), alcohol use (7.3%), and inhalant use (2.5%) observed in this study is consistent with findings from national and regional adolescent surveys in India, which report tobacco and alcohol use ranging from 6% to 15% in similar age groups.[12,13] The relatively lower prevalence may be attributed to the younger age group and increased exposure to preventive messaging in schools.[14]

Only 36% of students demonstrated good knowledge regarding legal and illegal substances, while more than one-third had high levels of misconceptions and low legal awareness. Similar gaps in substance-related knowledge among adolescents have been reported in previous Indian studies, highlighting persistent deficiencies despite national awareness programs.[11,15] This underscores the need for structured and repeated educational interventions at the school level.

Although substance use was higher among males, government school students, and rural residents, no statistically significant association was observed between demographic variables and tobacco or alcohol use. These findings align with recent literature suggesting that demographic factors alone may not fully explain substance-use behaviour among early adolescents.[12,16]

A significant association was observed between knowledge level and tobacco use, with higher prevalence among students with poor knowledge (15.6%) compared to those with good knowledge (6.9%) ($p = 0.045$). Similarly, tobacco use increased significantly with higher levels of misconceptions and lower legal awareness ($p < 0.05$). These findings are consistent with behavioural models and prior studies demonstrating that inadequate knowledge, misconceptions, and lack of awareness of legal consequences increase vulnerability to substance use.[15,17,18]

Family and peer influences emerged as strong determinants of substance use. Adolescents with family members or friends using substances had significantly higher prevalence of tobacco, alcohol, and inhalant use, with peer influence showing the strongest association. This is consistent with national and international evidence identifying peer and familial modelling as key drivers of adolescent substance use.[19,20]

School-based education was significantly associated with higher levels of good knowledge and lower misconceptions compared to information obtained from peers, family, or social media ($p = 0.011$). This finding reinforces the critical role of schools as effective platforms for substance-use prevention and health education.[14,17]

In conclusion, while the prevalence of substance use among early adolescents was relatively low, significant gaps in knowledge, high misconceptions, limited legal awareness, and strong peer and family influences were identified.

CONCLUSION

The study demonstrates that substance use among school-going adolescents, though relatively low in prevalence, is significantly influenced by poor knowledge, higher misconceptions, and low legal awareness. Tobacco use showed a consistent and significant association with these factors, while family and peer substance use emerged as the strongest predictors. School-based education was associated with better knowledge and fewer misconceptions, underscoring its protective role in adolescent substance-use prevention.

Recommendations

Strengthening comprehensive, school-based substance-use education focusing on correct knowledge, myth correction, and legal awareness is essential. Parental involvement and peer-focused interventions should be integrated into prevention strategies, along with regular awareness sessions and early counselling services within schools.

Limitations

The cross-sectional design limits causal interpretation, and self-reported substance use may be prone to reporting bias. Additionally, findings are based on a limited geographic setting, which may affect generalizability.

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Conflict of Interest: Nil

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