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Gender Differences In Attitudes Toward Alcohol And Drug Use: An Empirical Study

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Abstract

The present study examined gender differences in attitudes toward alcohol and drug use among adolescents aged 16–19 years in Ramnagar, Uttarakhand. A quantitative, descriptive, and comparative research design was adopted. The sample consisted of 200 adolescents, including 100 male and 100 female respondents. Data were collected using a structured 31-item attitude scale measuring adolescents' attitudes toward alcohol and drug use. Descriptive statistics and an independent-samples t-test were used for data analysis. Since Levene's test indicated unequal variances, the Welch independent-samples t-test was applied. The results showed that male adolescents reported higher attitude scores (M = 81.47, SD = 21.45) than female adolescents (M = 68.72, SD = 10.17). The difference was statistically significant, t (141.36) = 5.37, $p < .001$. The effect size was moderate to large, Hedges' g = 0.76. The findings suggest that gender plays a significant role in shaping adolescents' attitudes toward alcohol and drug use. Male adolescents appeared to hold more favourable or permissive attitudes than female adolescents, subject to the scoring direction of the scale. The study highlights the need for gender-sensitive awareness programmes, school-based counselling, and community-level prevention strategies for adolescents in semi-urban regions such as Ramnagar.

Keywords: adolescent attitudes, alcohol use, drug use, gender differences, Ramnagar, Uttarakhand, substance use, t-test.

Introduction

Adolescence is a critical developmental stage marked by rapid biological, psychological, social, and emotional changes. During this period, individuals begin to form independent beliefs, attitudes, and behavioural intentions regarding health-risk behaviours, including alcohol and drug use. Substance use often begins during adolescence, and early initiation has been associated with later substance-related problems, poor academic outcomes, mental health difficulties, and risky peer-related behaviours (World Health Organization [WHO], 2024). Therefore, understanding adolescents' attitudes toward alcohol and drug use is important for identifying risk perceptions, social acceptance, and possible vulnerability to substance-related behaviour.

Alcohol and drug use among adolescents is influenced not only by availability and peer exposure but also by attitudes toward substances. Attitudes shape how young people evaluate experimentation, perceived harm, social acceptability, and personal risk. In the Indian context, studies have shown that many adolescents are aware of the harmful effects of substance use; however, awareness alone may not be sufficient to prevent initiation or experimentation (Tsering et al., 2010). This suggests that attitude formation, peer influence, family environment, and social norms play a significant role in adolescent substance-related behaviour.

Gender is an important variable in the study of adolescent attitudes toward alcohol and drug use. Social and cultural norms often shape male and female behaviour differently, particularly in relation to substance use, peer interaction, public conduct, and perceived acceptability. In India, boys are generally found to report higher levels of substance use than girls, although the pattern may vary across region, age, social background, and type of substance (Dhawan et al., 2025). Gender differences may also reflect differences in parental monitoring, peer pressure, social freedom, stigma, and cultural expectations.

National-level evidence indicates that adolescent substance use is a growing public health concern in India. The national survey on substance use reported that alcohol, cannabis, opioids, sedatives, inhalants, and other substances are used by a section of children and adolescents aged 10–17 years (Ambekar et al., 2019). Such findings highlight the need to study not only actual consumption but also attitudes toward alcohol and drug use, especially among adolescents who are at a formative stage of identity development and decision-making.

Uttarakhand provides a meaningful regional context for examining adolescent attitudes toward substance use. Ramnagar, located in Uttarakhand, represents a semi-urban social setting where adolescents may be influenced by changing lifestyles, peer networks, local cultural norms, media exposure, and family expectations. In such contexts, attitudes toward alcohol and drug use may differ between male and female adolescents because gender roles continue to influence behavioural expectations and social acceptance.

The present study examines gender differences in attitudes toward alcohol and drug use among adolescents aged 16–19 years in Ramnagar, Uttarakhand. Using a 31-item attitude scale, the study compares male and female respondents to assess whether significant differences exist in their attitudes. Since the independent variable is gender and the dependent variable is attitude score, an independent-samples t-test is appropriate for examining mean differences between the two groups. The findings may contribute to gender-sensitive awareness programmes, school-based counselling, family-level intervention, and youth-focused prevention strategies in Uttarakhand.

Literature review

Substance use among adolescents has become a major public health concern because adolescence is a period of rapid physical, emotional, cognitive, and social development. During this stage, young people are more likely to explore new behaviours, seek peer acceptance, and test social boundaries. These developmental characteristics may increase vulnerability to experimentation with alcohol, tobacco, cannabis, inhalants, and other psychoactive substances (World Health Organization [WHO], 2024). Early exposure to alcohol and drugs is especially concerning because it may affect academic performance, mental health, family relationships, peer behaviour, and long-term health outcomes (WHO, 2024).

In India, adolescent substance use has received increasing research and policy attention. The national survey on substance use in India reported that children and adolescents aged 10–17 years were using substances such as alcohol, cannabis, opioids, sedatives, and inhalants (Ambekar et al., 2019). Although the prevalence among adolescents is lower than among adults, early initiation is a serious concern because habits, attitudes, and risk-taking patterns are often formed during adolescence (Ambekar et al., 2019). Therefore, adolescent substance use should not be understood only as a behavioural issue but also as a developmental, psychological, and social issue.

School-based studies in India have also shown that substance use exists among school-going adolescents. Dhawan et al. (2025) found that substance use among Indian school students was not limited to marginalized or out-of-school groups but was also present among students in formal educational settings. This finding is important because schools are not only places of academic learning but also important spaces where peer influence, identity formation, and social attitudes develop. Thus, school-going adolescents represent an important population for studying attitudes toward alcohol and drug use (Dhawan et al., 2025).

Attitudes toward alcohol and drug use are important because they often influence behavioural intentions and future experimentation. An adolescent may not currently use alcohol or drugs but may hold permissive attitudes toward such behaviour. These favourable attitudes can increase the likelihood of experimentation when opportunities arise or when peer pressure is present (Tsering et al., 2010). On the other hand, unfavourable attitudes toward alcohol and drug use may act as a protective factor by reducing the social

and psychological acceptability of substance use (WHO, 2024). Therefore, measuring attitudes provides insight into adolescents' risk perceptions, beliefs, and social acceptance of substance-related behaviour.

The distinction between knowledge and attitude is also important. Knowledge about the harmful effects of substance use does not always lead to negative attitudes or avoidance behaviour. Tsering et al. (2010), in a study of high-school students in India, found that adolescent substance-related opinions were shaped by several factors, including curiosity, peer influence, family background, and social environment. This suggests that awareness programmes should not focus only on providing information about harmful effects but should also address attitudes, perceived social norms, and peer-related pressures (Tsering et al., 2010).

Peer influence is one of the strongest factors associated with adolescent attitudes toward alcohol and drug use. Adolescents often evaluate behaviours in relation to peer approval, group belonging, and social identity. In some peer groups, alcohol or drug experimentation may be viewed as a sign of maturity, independence, confidence, or modern lifestyle (Tsering et al., 2010). The WHO (2024) has also emphasized that adolescent substance-use prevention should address social norms, peer pressure, and youth environments. Therefore, attitude-based studies are useful because they help identify whether adolescents perceive substance use as acceptable, fashionable, risky, or harmful.

Family environment also plays an important role in shaping adolescent attitudes toward substance use. Parental monitoring, communication, emotional support, discipline, and parental modelling influence how adolescents understand alcohol and drug use (Ambekar et al., 2019). In families where communication about substance use is limited, adolescents may rely more on peers, media, or local social networks for information. This can result in inaccurate beliefs or permissive attitudes toward alcohol and drugs. Thus, family and school contexts are both important in shaping adolescent attitudes (WHO, 2024).

Gender is a major variable in adolescent substance-use research. In many societies, boys and girls experience different expectations regarding freedom, mobility, peer interaction, risk-taking, and acceptable behaviour. In India, substance use among boys is often more visible and socially tolerated than substance use among girls, which may be more strongly stigmatized (Dhawan et al., 2025). These social and cultural expectations can shape not only actual substance-use behaviour but also attitudes toward alcohol and drug use.

Several studies have reported gender differences in adolescent substance use. Dhawan et al. (2025) found that substance use was higher among boys than girls in a nationwide study of school-going adolescents in India. This gender difference may be related to greater peer exposure, higher social acceptance of male substance use, lower parental restriction for boys, and cultural associations between masculinity and risk-taking (Dhawan et al., 2025). Therefore, it is reasonable to examine whether male and female adolescents also differ in their attitudes toward alcohol and drug use.

At the same time, researchers have cautioned that female substance use may be under-reported in India because of stigma, shame, and fear of family or social consequences. Sharma et al. (2018) observed that substance use among adolescent girls is relatively under-researched and may remain hidden because female substance use is often viewed as more socially unacceptable than male substance use. This suggests that gender differences in reported attitudes may reflect both actual differences and differences in social desirability or willingness to express views openly (Sharma et al., 2018).

The literature also suggests that changing social conditions may influence adolescent attitudes toward substance use. Urbanization, media exposure, tourism, social media, changing peer culture, and increasing interaction between boys and girls may affect how adolescents perceive alcohol and drug use (WHO, 2024). In semi-urban areas, adolescents may experience both traditional family control and modern lifestyle influences. This dual exposure may create differences in attitudes based on gender, family background, peer group, and local culture (Ambekar et al., 2019).

Regional context is important in substance-use research because India is socially and culturally diverse. Attitudes toward alcohol and drug use may vary across states, districts, rural and semi-urban areas, family structures, educational settings, and local cultural norms (Ambekar et al., 2019). Ramnagar, Uttarakhand, represents a meaningful semi-urban setting where adolescents may be influenced by traditional social expectations as well as changing youth culture. Therefore, studying adolescents aged 16–19 years in Ramnagar can provide useful insight into local gender-based differences in attitudes toward alcohol and drug use.

Previous Indian studies have mainly focused on prevalence, knowledge, and patterns of substance use among adolescents (Ambekar et al., 2019; Dhawan et al., 2025; Tsering et al., 2010). However, relatively fewer studies have examined gender differences in attitudes toward alcohol and drug use among late adolescents in smaller towns and semi-urban regions. This indicates a research gap for empirical studies that compare male and female adolescents on attitude measures rather than only measuring substance-use behaviour.

The present study addresses this gap by examining gender differences in attitudes toward alcohol and drug use among adolescents aged 16–19 years in Ramnagar, Uttarakhand. A 31-item attitude scale is used to assess respondents' attitudes, and male and female groups are compared using an independent-samples t-test. Since the study focuses on mean differences between two independent groups, the t-test is an appropriate statistical technique. The findings may help in designing gender-sensitive awareness programmes, school counselling interventions, family education, and community-based prevention strategies for adolescents.

Objectives of the Study

- To study attitudes toward alcohol and drug use among adolescents aged 16–19 years in Ramnagar, Uttarakhand.
- To examine gender differences in attitudes toward alcohol and drug use among adolescents.

Hypotheses

The present study examines whether male and female adolescents differ significantly in their attitudes toward alcohol and drug use. Since gender has been found to be an important factor in adolescent substance-use attitudes and behaviour, the following hypotheses were formulated:

Null Hypothesis (H_0):
There is no significant difference between male and female adolescents in their attitudes toward alcohol and drug use.

Alternative Hypothesis (H_1):
There is a significant difference between male and female adolescents in their attitudes toward alcohol and drug use.

In statistical form:

H_0: $\mu_1 = \mu_2$
H_1: $\mu_1 \neq \mu_2$

where μ_1 represents the mean attitude score of male adolescents and μ_2 represents the mean attitude score of female adolescents.

Methodology

Research Design

The present study adopted a quantitative, descriptive, and comparative research design. The study is quantitative because numerical attitude scores were collected from respondents using a structured scale. It is descriptive because it describes adolescents' attitudes toward alcohol and drug use, and comparative because it compares the attitude scores of male and female adolescents.

A comparative research design is appropriate when the objective is to examine whether two or more groups differ on a particular variable (Creswell & Creswell, 2018). In the present study, gender is the grouping variable, while attitude toward alcohol and drug use is the outcome variable.

Locale of the Study

The study was conducted in Ramnagar, Uttarakhand. Ramnagar represents a semi-urban setting where adolescents may be exposed to both traditional social norms and changing modern influences. This makes it a relevant location for studying attitudes toward alcohol and drug use among young people.

Population of the Study

The population of the study consisted of adolescents aged **16 to 19 years** from Ramnagar, Uttarakhand. This age group was selected because late adolescence is an important developmental stage during which individuals form opinions, attitudes, and behavioural intentions related to risk behaviours, including alcohol and drug use.

Sample of the Study

The final sample consisted of 200 adolescents aged 16–19 years. The sample included 100 female respondents and 100 male respondents. Thus, the sample was equally distributed by gender, which allowed a direct comparison of male and female adolescents' attitudes toward alcohol and drug use.

Sampling Technique

A non-probability purposive sampling technique was used for the selection of respondents. The respondents were selected on the basis of specific inclusion criteria: they were adolescents aged 16–19 years, belonged to or were available in Ramnagar, Uttarakhand, and were willing to participate in the study.

Purposive sampling was suitable because the study focused on a specific age group and aimed to compare gender differences in attitudes toward alcohol and drug use.

Tool Used for Data Collection

Data were collected using a structured **31-item attitude scale** designed to measure adolescents' attitudes toward alcohol and drug use. The items assessed respondents' views, beliefs, and perceptions regarding alcohol and drug use. Responses were scored and total attitude scores were calculated for each respondent. The scale demonstrated good internal consistency reliability, with Cronbach's alpha ranging from .81 to .83.

The total score obtained from the 31 items represented the respondent's overall attitude toward alcohol and drug use. Higher scores may be interpreted according to the scoring pattern of the scale. If higher scores indicate a more favourable or permissive attitude toward alcohol and drug use, this should be clearly

mentioned in the final paper. If some items are negatively worded, they should be reverse-coded before calculating the total score.

Variables of the Study

The study included the following variables:

Independent Variable:

Gender: Male and Female

Dependent Variable:

Attitude toward alcohol and drug use, measured through the total score obtained on the 31-item attitude scale.

Data Collection Procedure

The data were collected from adolescents aged 16–19 years in Ramnagar, Uttarakhand. Respondents were informed about the purpose of the study, and their participation was kept voluntary. They were asked to respond to the 31-item attitude scale honestly. The responses were then coded, scored, and entered into a spreadsheet for statistical analysis.

Since the respondents were adolescents, ethical care was taken to ensure confidentiality, anonymity, and responsible handling of responses. No personal identification was disclosed in the study.

Statistical Techniques Used

The collected data were analyzed using quantitative statistical techniques. First, descriptive statistics such as **mean**, **standard deviation**, and **frequency distribution** were used to summarize the attitude scores of male and female respondents. Descriptive statistics help in understanding the general pattern of responses and the average attitude level of each group (Field, 2018).

Second, an **independent-samples t-test** was used to examine whether there was a statistically significant difference between male and female adolescents in their attitudes toward alcohol and drug use. The independent-samples t-test is appropriate when the researcher compares the mean scores of two independent groups on a continuous dependent variable (Pallant, 2020).

The level of significance was fixed at **0.05**. If the calculated p-value is less than 0.05, the null hypothesis is rejected, indicating a significant gender difference in attitudes toward alcohol and drug use. If the p-value is greater than 0.05, the null hypothesis is retained, indicating no statistically significant gender difference.

Assumptions of the t-Test

Before applying the independent-samples t-test, the following assumptions should be considered:

1. The dependent variable should be measured at the interval or ratio level.
2. The two groups should be independent of each other.
3. The attitude scores should be approximately normally distributed within each group.
4. The variances of the two groups should be approximately equal.

Levene's test can be used to examine the assumption of equality of variances. If the assumption is met, the equal variances assumed t-test result is interpreted. If the assumption is violated, the equal variances not assumed result may be used (Field, 2018).

Ethical Considerations

The study followed basic ethical principles of social science research. Participation was voluntary, and respondents were informed that their responses would be used only for academic research purposes. Confidentiality and anonymity were maintained. Since the topic relates to alcohol and drug use among adolescents, care was taken to avoid judgemental language and to protect the privacy of respondents.

Data Analysis

Descriptive Statistics

The study examined gender differences in attitudes toward alcohol and drug use among adolescents aged 16–19 years from Ramnagar, Uttarakhand. The final dataset included **200 respondents**, with **100 female** and **100 male** adolescents. Descriptive statistics were computed separately for both gender groups.

Table 1 shows that male respondents obtained a higher mean attitude score than female respondents. The mean score for female adolescents was **68.72**, while the mean score for male adolescents was **81.47**. This indicates a mean difference of **12.75 points** between the two groups.

Table 1

Descriptive Statistics of Attitude Scores by Gender

Gender	N	Mean	SD	SE	Median	Minimum	Maximum
Female	100	68.72	10.17	1.02	69.00	48	91
Male	100	81.47	21.45	2.14	79.50	32	141

Note. Higher scores should be interpreted according to the scoring direction of the attitude scale. If higher scores indicate more favourable/permissive attitudes toward alcohol and drug use, then male adolescents showed more favourable/permissive attitudes than female adolescents.

Assumption Testing

Before conducting the independent-samples t-test, normality and homogeneity of variance were examined.

The Shapiro–Wilk test showed that the female group did not significantly deviate from normality, **W = .983, p = .244**. However, the male group showed a statistically significant deviation from normality, **W = .973, p = .036**. Since the sample size in each group was 100, the t-test is generally considered robust to moderate deviations from normality.

Levene's test for equality of variances was significant, **F = 47.41, p < .001**, indicating that the variances of the two groups were unequal. Therefore, the **Welch independent-samples t-test** was used instead of the equal-variance t-test.

Table 2

Assumption Tests

Test	Group / Variable	Statistic	p-value	Interpretation
Shapiro–Wilk	Female	.983	.244	Normality not violated
Shapiro–Wilk	Male	.973	.036	Normality slightly violated
Levene's Test	Equality of variances	47.41	< .001	Equal variance assumption violated

Independent-Samples t-Test

A Welch independent-samples t-test was conducted to examine whether male and female adolescents differed significantly in their attitudes toward alcohol and drug use. The result showed a statistically significant difference between male and female respondents, **t(141.36) = 5.37, p < .001**.

Male adolescents reported significantly higher attitude scores (**M = 81.47, SD = 21.45**) than female adolescents (**M = 68.72, SD = 10.17**). The mean difference was **12.75**, with a 95% confidence interval ranging from **8.07 to 17.43**. The effect size was **Hedges' g = 0.76**, indicating a **moderate to large difference** between the two gender groups.

Table 3

Welch Independent-Samples t-Test Comparing Male and Female Attitude Scores

Comparison	Mean Difference	t	df	p-value	95% CI for Difference	Effect Size
Male – Female	12.75	5.37	141.36	< .001	[8.07, 17.43]	0.76

Note. Effect size is reported as Hedges' g. If the comparison is entered as Female – Male in SPSS, the t-value and mean difference will appear negative, but the interpretation remains the same.

Hypothesis Testing

Null Hypothesis (H_0): There is no significant difference between male and female adolescents in their attitudes toward alcohol and drug use.

Alternative Hypothesis (H_1): There is a significant difference between male and female adolescents in their attitudes toward alcohol and drug use.

Since the p-value was less than .001, the null hypothesis was rejected. Therefore, it can be concluded that there is a **statistically significant gender difference** in attitudes toward alcohol and drug use among adolescents aged 16–19 years in Ramnagar, Uttarakhand.

Results

The data were analyzed using descriptive statistics and an independent-samples t-test. The sample consisted of 200 adolescents, including 100 female and 100 male respondents. The mean attitude score of female respondents was 68.72 with a standard deviation of 10.17, whereas the mean attitude score of male respondents was 81.47 with a standard deviation of 21.45. This indicates that male respondents scored higher on the attitude scale than female respondents.

Before applying the t-test, the assumptions of normality and equality of variance were examined. The Shapiro–Wilk test indicated that the female group did not significantly deviate from normality, $W = .983$, $p = .244$. However, the male group showed a slight deviation from normality, $W = .973$, $p = .036$. Levene's test was significant, $F = 47.41$, $p < .001$, indicating unequal variances between the two groups. Therefore, the Welch independent-samples t-test was used.

The Welch t-test revealed a significant gender difference in attitude scores, $t(141.36) = 5.37$, $p < .001$. Male adolescents obtained significantly higher scores than female adolescents, with a mean difference of 12.75 points. The 95% confidence interval for the mean difference ranged from 8.07 to 17.43. The effect size was moderate to large, Hedges' $g = 0.76$. Thus, the findings suggest that gender plays a significant role in adolescents' attitudes toward alcohol and drug use in the present sample.

Figures

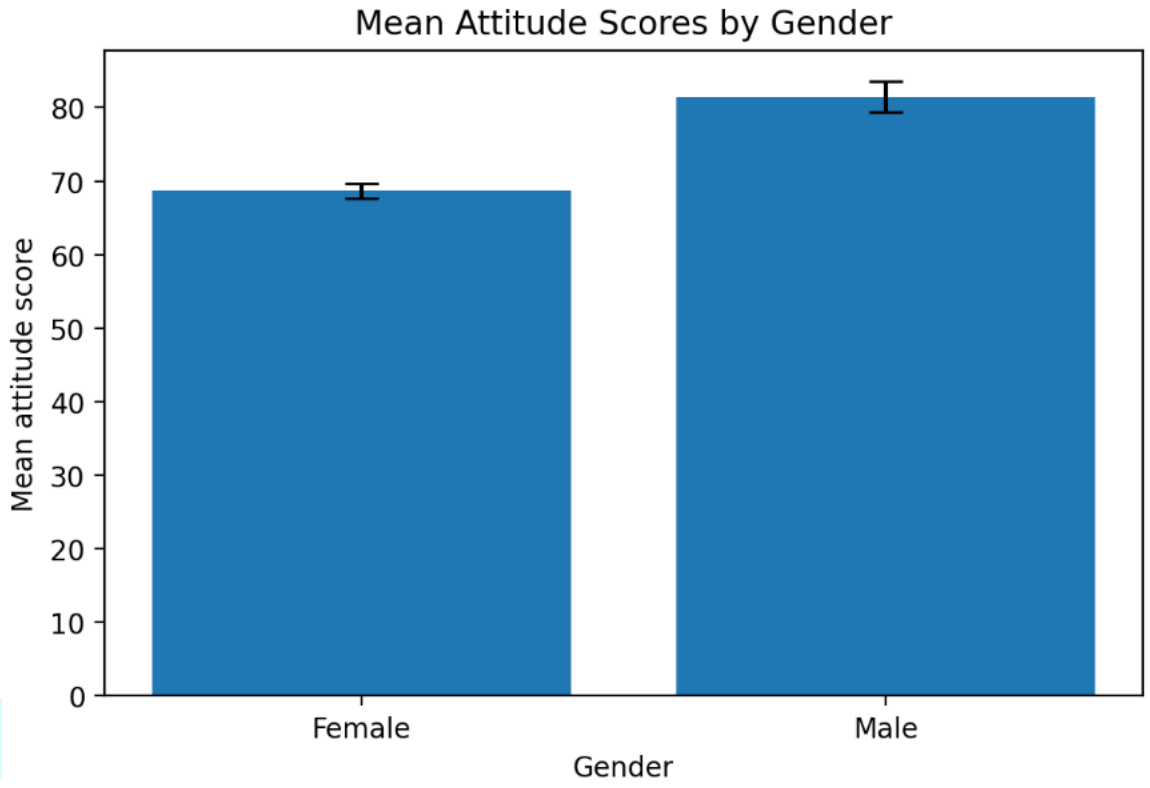

Figure 1: Mean Attitude Scores by Gender

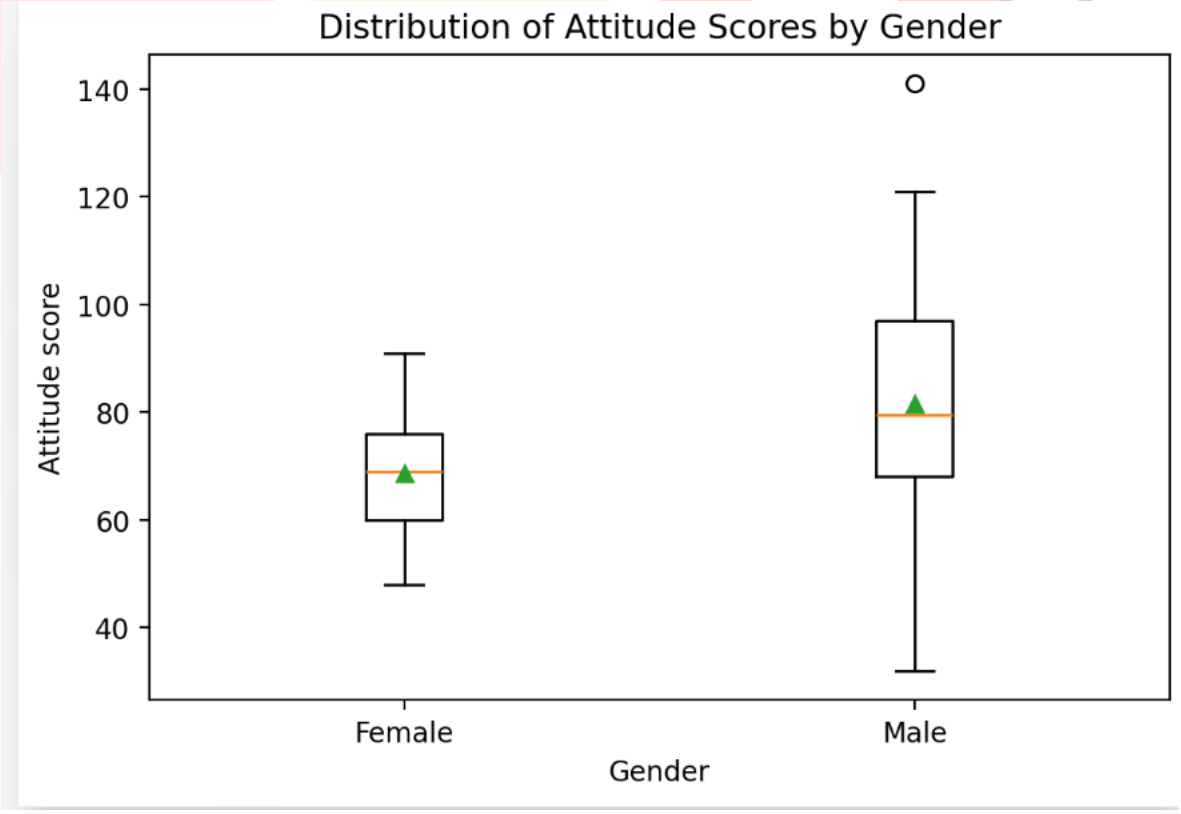

Figure 2: Distribution of Attitude Scores by Gender

Discussion

The present study examined gender differences in attitudes toward alcohol and drug use among adolescents aged 16–19 years in Ramnagar, Uttarakhand. The findings revealed a statistically significant difference between male and female adolescents. Male respondents reported significantly higher attitude scores than female respondents. The mean score of male adolescents was 81.47, whereas the mean score of female adolescents was 68.72. The Welch independent-samples t-test confirmed that this difference was statistically significant, $t(141.36) = 5.37$, $p < .001$. The effect size, Hedges' $g = 0.76$, indicated a moderate to large difference between the two groups.

These findings suggest that gender plays an important role in shaping adolescents' attitudes toward alcohol and drug use. Since male adolescents scored higher than female adolescents, it may be inferred that boys in the present sample had more favourable or permissive attitudes toward alcohol and drug use than girls, assuming that higher scores on the scale indicate more favourable attitudes. This pattern is consistent with previous Indian studies that have reported higher substance-use exposure and greater substance-related risk among boys compared to girls (Ambekar et al., 2019; Dhawan et al., 2025). The results therefore support the view that adolescent substance-related attitudes are shaped by gendered socialization, peer exposure, and cultural expectations.

One possible explanation for the higher attitude scores among male adolescents is the greater social tolerance of substance-related behaviour among boys. In many Indian communities, alcohol or substance experimentation among boys may be viewed as less socially unacceptable than similar behaviour among girls. Boys often experience greater freedom of mobility, greater exposure to peer groups, and fewer restrictions on social interaction outside the home. These factors may increase their exposure to discussions, experimentation, or normalization of alcohol and drug use. As a result, male adolescents may develop more permissive attitudes toward such behaviours.

In contrast, female adolescents may report lower attitude scores because girls often experience stronger family supervision, social control, and stigma related to substance use. In many Indian social contexts, substance use by girls is considered highly unacceptable and may be associated with shame, family dishonour, or moral judgement. This may lead girls to develop more cautious, restrictive, or negative attitudes toward alcohol and drug use. Sharma et al. (2018) noted that substance use among adolescent girls in India is often under-researched and may remain hidden due to social stigma. Therefore, lower female attitude scores may reflect both genuine disapproval and the influence of social desirability.

The findings also highlight the role of peer influence in adolescent attitudes. Adolescents between 16 and 19 years are at a stage where peer approval and group identity become highly significant. For boys, peer groups may sometimes reinforce risk-taking behaviour, experimentation, and masculine identity. Alcohol

or drug-related attitudes may be influenced by the desire to appear mature, confident, independent, or socially accepted. This interpretation is supported by Tsering et al. (2010), who emphasized that adolescents' opinions about substance use are shaped not only by knowledge but also by curiosity, peer influence, family environment, and social surroundings.

The regional setting of Ramnagar, Uttarakhand, also provides an important context for interpreting the findings. Ramnagar is a semi-urban area where adolescents may be exposed to both traditional cultural norms and modern lifestyle influences. In such settings, boys may experience greater exposure to outside social spaces, peer networks, tourism-related influences, and media-driven ideas of modernity. Girls, however, may continue to experience stronger restrictions due to family expectations and gender norms. This may create a visible gender difference in attitudes toward alcohol and drug use.

The results of the study are also important from a preventive and educational perspective. Since male adolescents showed significantly higher attitude scores, they may require targeted awareness and counselling interventions. However, prevention efforts should not focus only on boys. Female adolescents should also be included because lower reported scores do not necessarily mean complete absence of risk. Social stigma may prevent girls from expressing permissive attitudes or discussing substance-related exposure openly. Therefore, gender-sensitive prevention programmes should address both boys and girls, while recognizing their different social realities.

The moderate to large effect size found in the study indicates that the gender difference is not only statistically significant but also practically meaningful. A significant *p*-value shows that the difference is unlikely to be due to chance, while the effect size shows that the magnitude of the difference is meaningful. Thus, the finding has practical relevance for schools, parents, counsellors, and community health workers. Awareness programmes in Ramnagar and similar semi-urban regions should address gender-specific attitudes, peer pressure, misinformation, and the social normalization of substance use.

Another important implication is that attitude-based studies are useful even when actual substance-use behaviour is not measured directly. Attitudes often precede behaviour. Adolescents who hold favourable or permissive attitudes toward alcohol and drug use may be more likely to experiment when they encounter opportunity, peer pressure, or emotional stress. Therefore, identifying attitude differences at this stage can help design early preventive interventions before risky behaviour becomes established.

The study also supports the need for school-based and community-based interventions. Schools can play an important role in correcting myths about alcohol and drugs, strengthening refusal skills, and encouraging healthy coping mechanisms. Counselling sessions, peer education, parent–teacher interaction, and life-skills education may help adolescents develop informed and responsible attitudes.

Since gender differences were found, such programmes should be designed in a way that addresses boys' greater exposure to peer-led risk and girls' possible silence due to stigma.

However, the findings should be interpreted with certain limitations. First, the study was conducted only in Ramnagar, Uttarakhand; therefore, the results may not be generalized to all adolescents in Uttarakhand or India. Second, the study used a self-report attitude scale, and responses may have been influenced by social desirability, particularly because alcohol and drug use are sensitive topics. Third, the study focused only on gender differences and did not examine other possible influencing variables such as family background, parental education, peer substance use, socioeconomic status, academic performance, or media exposure. Fourth, the study measured attitudes rather than actual alcohol or drug-use behaviour.

Despite these limitations, the study makes an important contribution by focusing on gender differences in adolescent attitudes toward alcohol and drug use in a semi-urban Indian context. The findings show that male and female adolescents differ significantly in their attitudes, with boys showing higher attitude scores. This suggests the need for early, gender-sensitive, school and community-based interventions to prevent the normalization of alcohol and drug use among adolescents.

In conclusion, the study found a significant gender difference in attitudes toward alcohol and drug use among adolescents aged 16–19 years in Ramnagar, Uttarakhand. Male adolescents showed significantly higher attitude scores than female adolescents. The findings indicate that gendered socialization, peer influence, cultural expectations, and differential freedom may shape adolescent attitudes toward substance use. Therefore, prevention programmes should be designed with sensitivity to gender differences and local social context.

Limitations of the Study

Although the present study provides useful insight into gender differences in attitudes toward alcohol and drug use among adolescents, it has certain limitations.

First, the study was conducted only in **Ramnagar, Uttarakhand**. Therefore, the findings may not be generalized to all adolescents in Uttarakhand or India. Attitudes toward alcohol and drug use may differ across regions, urban and rural areas, cultural backgrounds, school environments, and socioeconomic groups.

Second, the sample included only adolescents aged **16–19 years**. Although this age group is highly relevant for studying substance-related attitudes, the findings may not apply to younger adolescents, college students, or adults. Future studies may include a wider age range to understand how attitudes change across different developmental stages.

Third, the study used a **self-report attitude scale**. Since alcohol and drug use are sensitive topics, respondents may have given socially desirable answers rather than expressing their actual beliefs. This may be especially relevant for female respondents because substance use among girls is often more socially stigmatized in Indian society.

Fourth, the study focused only on **gender differences**. Other important variables such as socioeconomic status, family background, parental education, peer influence, school type, academic performance, media exposure, and family history of substance use were not included in the analysis. These variables may also influence adolescents' attitudes toward alcohol and drug use.

Fifth, the study measured **attitudes** rather than actual alcohol or drug-use behaviour. Therefore, the findings show how adolescents think or feel about alcohol and drug use, but they do not directly indicate whether respondents actually use alcohol or drugs.

Sixth, the study was cross-sectional in nature. Data were collected at one point in time, so it is not possible to determine changes in attitudes over time or establish causal relationships between gender and attitudes toward alcohol and drug use.

Finally, although the study used a 31-item attitude scale, further information about the scale's previous validation, reliability, and factor structure would strengthen the methodological quality of the study. Future research should report reliability statistics such as Cronbach's alpha and, where possible, conduct factor analysis.

Future Scope of the Study

The present study opens several possibilities for future research.

First, future studies may include a **larger and more diverse sample** from different parts of Uttarakhand and other Indian states. This would help compare regional, rural–urban, and cultural differences in adolescent attitudes toward alcohol and drug use.

Second, future researchers may examine additional variables such as **peer pressure, parental monitoring, family environment, socioeconomic status, school type, academic stress, media exposure, and mental health**. Including these variables would provide a deeper understanding of why some adolescents develop more permissive attitudes toward alcohol and drug use.

Third, future studies may compare **attitudes and actual substance-use behaviour**. This would help determine whether favourable attitudes are associated with higher likelihood of experimentation or use.

Fourth, longitudinal studies may be conducted to examine how adolescent attitudes toward alcohol and drug use change over time. Such studies would be useful for understanding whether attitudes become more permissive with age, peer exposure, or transition from school to college.

Fifth, future research may use **mixed-method approaches**. Along with quantitative scales, interviews or focus group discussions can help understand adolescents' personal beliefs, peer experiences, family restrictions, and local cultural meanings attached to alcohol and drug use.

Sixth, gender-sensitive research should be further developed. Future studies may examine how boys and girls differ not only in attitude scores but also in reasons for approval or disapproval, perceived risks, peer influence, family pressure, and willingness to seek help.

Seventh, future studies may evaluate the effectiveness of **school-based awareness programmes, counselling interventions, and life-skills education** in changing adolescents' attitudes toward alcohol and drug use. Pre-test and post-test designs can be used to examine whether such interventions reduce permissive attitudes.

Finally, future researchers may validate and standardize the 31-item attitude scale for wider use among Indian adolescents. Reliability testing, item analysis, and factor analysis would help improve the accuracy and usefulness of the instrument.

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