

Original Research Article

A comparative study on substance abuse problems among adolescent girls and boys in urban and rural field practice areas of South India

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ABSTRACT

Introduction: Adolescence is a vital period of human growth and development. Substance abuse is a major public health issue because it affects younger people more and more and causes serious health, social, and financial issues. This study was conducted to assess and compare substance abuse among school-going adolescent girls and boys in urban and rural areas of South India.

Method: A school-based cross-sectional study was conducted among 416 adolescent girls and boys aged 10–19 years residing in the urban and rural field practice areas of Kurnool Medical College. Data were collected between March 2023 and March 2025 using a semi-structured questionnaire through a simple random sampling technique. Permission from the institutional ethics committee (IEC) was obtained, and written informed consent was secured from the participants. Data were analyzed using SPSS Version 21.

Results: The prevalence of substance abuse was higher in urban areas (4.32%) than in rural areas (2.88%). The most common type of substance abuse was smoking tobacco in both urban (1.92%) and rural areas (1.44%). Most participants consumed alcohol occasionally in both urban (0.96%) and rural areas (0.96%). Smoking tobacco was the most commonly used form of tobacco in both urban and rural areas.

Conclusion: The prevalence of substance abuse was higher in urban areas compared to rural areas. Friends were the most common first alcohol-drinking partners in both urban and rural areas. Awareness programs should be initiated, along with educating parents, teachers, and peer groups about the harmful effects of tobacco and substance use.

Keywords: Adolescent, Alcohol, Substance abuse, Smoking tobacco, Smokeless tobacco

INTRODUCTION

Adolescents are defined by the World Health Organization (WHO) as people between the ages of 10 and 19. In the nations that make up the South-East Asia Region (SEAR), there are roughly 360 million adolescents, or 20% of the total population.¹ With over 253 million adolescent between the ages of 10 and 19, India has the world's largest adolescent population. In India, adolescents make about one in five people.² Since adolescence contributes for about 45% of prospective skeletal growth, 15–25% of adult height gain, and 37% of total bone mass

accumulation, adolescent health and wellbeing are crucial.^{3,4} In order to promote healthy development into adulthood, this age group marks a transitional stage of life that need for proper nutrition, therapy, education, and direction.⁵ Adolescent substance addiction is a significant public health issue in India.⁶ According to earlier research, gutkha, nicotine, smoking, alcohol, ganja, thinner, and marijuana are the most often used substances among Indian adolescents.^{7,8} Many factors affect the usage of substances by adolescents. Drug use, hostility, violence, and delinquency are among the problem behaviours that have been linked to family-related problems. Adolescent

substance use is significantly influenced by a number of factors, including family violence, poverty, intactness, family income and composition.⁹ Substance abuse can severely influence people, families, communities, and the criminal justice system by increasing the incidence of criminal offences, domestic violence, and infections such as human immunodeficiency virus infection, Hepatitis B, and other sexually transmitted diseases (STDs). Therefore, the present study aims to assess the prevalence of substance abuse among rural and urban adolescents.

METHODS

A school-based cross-sectional study was conducted from March 2023 to March 2025 among adolescent girls and boys aged 10–19 years residing in the urban and rural field practice areas of Kurnool Medical College, Kurnool, South India.

Out of 305 schools in Kurnool district, four government schools providing education from 6th to 10th standard were located within the field practice areas of Kurnool Medical College. In the present study, students studying in 7th to 10th standards in these schools were included. Data were collected from two government high schools in the rural field practice area and two government high schools in the urban field practice area of Kurnool Medical College. Students aged 10–19 years were selected from each school using a simple random sampling technique.

The sample size was calculated based on the prevalence of common mental disorders (22.4%) reported in a previous study conducted by Gupta et al, Grover et al resulting in an estimated sample size of 416. Since this was a comparative cross-sectional study, 208 participants were selected from the rural field practice area and 208 participants from the urban field practice area under the Department of Community Medicine, Kurnool Medical College.¹⁰ Adolescent girls and boys aged 10–19 years studying in 7th to 10th standards in the selected schools, whose parents/guardians provided consent and who gave assent for participation, were included in the study.

Adolescents who were absent during the study period and could not be contacted after three consecutive visits, seriously ill adolescents, and those unwilling to provide consent/assent for participation were excluded from the study. Adolescent girls who had not attained menarche were also excluded from the study.

Ethical approval was obtained from the Institutional Ethics Committee (IEC No. 209/2023). After obtaining permission from the school authorities, dates were fixed for interviewing the students. Participants were randomly selected from each field practice area to achieve the required sample size of 208. Equal numbers of male and female adolescents were included from each school to maintain uniformity. A total of 416 students were finally included in the study. Students from each class were

randomly selected using roll numbers obtained from the class registers.

The objectives and benefits of the study were explained to the participants, and written informed assent was obtained from adolescents aged above 12 years. A pretested, semi-structured questionnaire was used for data collection. Participants were interviewed using a pretested, semi-structured questionnaire to collect socio-demographic information and details related to substance abuse. Substance abuse was assessed based on the history, type of substance used, and reasons for initiating substance use.

Statistical analysis was performed using IBM SPSS Version 21. Descriptive data were presented as frequencies and proportions. Categorical variables were analyzed using the chi-square test. A p value of less than 0.05 was considered statistically significant.

RESULTS

In the present study, among the 208 urban and 208 rural participants, the majority in both areas belonged to the 10–15 years age group (urban 76.92%, rural 79.32%). In terms of religion, most participants were Hindus in both urban (79.80%) and rural (74.51%) areas. Regarding fathers' education, the highest proportion in urban areas had completed intermediate/diploma (22.11%), while in rural areas the majority had studied up to high school (24.51%). For mothers' education, middle school was most common in urban areas (22.59%), whereas in rural areas primary school and middle school were equally predominant (24.51% each). In the urban area, the majority of fathers were skilled workers (32.21%), while in the rural area also the majority were skilled workers (38.46%).

Among mothers, the majority in urban (42.30%) as well as rural areas (40.38%) were unskilled workers. Regarding type of family, nuclear families constituted the majority in both urban (76.44%) and rural areas (71.63%). In the urban area, the majority of families belonged to Class V (31.73%) according to the Modified B.G. Prasad classification, whereas in the rural area, the majority belonged to Class IV (43.75%). Table 1 shows the distribution of substance abuse among rural and urban study participants. The prevalence of substance abuse was higher in urban areas (4.32%) compared to rural areas (2.88%). The most common type of substance abuse was smoking tobacco in both urban (1.92%) and rural areas (1.44%).

Friends were the first alcohol-drinking partners among participants in both urban (1.44%) and rural areas (1.44%). Most participants consumed alcohol occasionally in both urban (0.96%) and rural areas (0.96%). Smoking tobacco was the most commonly used form of tobacco in both urban (1.92%) and rural areas (1.44%). Most participants reported occasional smoking tobacco use in both urban (2.40%) and rural areas (1.92%). Friends were the first smoking partners in both urban (1.92%) and rural areas

(2.40%). The most common reason for initiating substance abuse was peer pressure in both urban (2.88%) and rural areas (3.36%). Table 2 shows the association between substance abuse characteristics and gender among study participants in urban and rural areas. Substance abuse was more common among males compared to females, among

whom no cases were reported (0%), in both urban and rural areas. Peer pressure was the most common reason for initiating substance abuse among males in both urban and rural areas. A statistically significant association was found between the reason for initiating substance abuse and gender in both urban and rural areas.

Table 1: Distribution of substance abuse among rural and urban study participants (n=416).

Variables	Urban (n=208) (%)	Rural (n=208) (%)	Total (n=416) (%)
Substance abuse (alcohol, smoking, smokeless tobacco)			
Yes	9 (4.32)	6 (2.88)	15 (3.60)
No	199 (95.67)	202 (97.11)	401 (96.39)
Type of the substance abuse			
Alcohol	3 (1.44)	3 (1.44)	6 (1.44)
Smoking tobacco	4 (1.92)	3 (1.44)	7 (1.68)
Smokeless tobacco	2 (0.96)	2 (0.96)	4 (0.96)
First alcohol drinking partner			
Friends	3 (1.44)	3 (1.44)	6 (1.44)
Relatives	0 (0.0)	0 (0.0)	0 (0.0)
Siblings	0 (0.0)	0 (0.0)	0 (0.0)
Frequency of alcohol consumption			
Daily	0 (0.0)	0 (0.0)	0 (0.0)
Weekly	1 (0.48)	1 (0.48)	2 (0.48)
Occasionally	2 (0.96)	2 (0.96)	4 (0.96)
Most commonly used form of tobacco			
Smoking	4 (1.92)	3 (1.44)	7 (1.68)
Tobacco chewing (smokeless)	2 (0.96)	2 (0.96)	4 (0.96)
Frequency of tobacco use			
Daily	0 (0.0)	0 (0.0)	0 (0.0)
Weekly	1 (0.48)	1 (0.48)	2 (0.48)
Occasionally	5 (2.40)	4 (1.92)	9 (2.16)
First smoking partner			
Friends	4 (1.92)	5 (2.40)	9 (2.16)
Self	2 (0.96)	0 (0.0)	2 (0.48)
Relatives	0 (0.0)	0 (0.0)	0 (0.0)
Siblings	0 (0.0)	0 (0.0)	0 (0.0)
Reason for starting the substance for pleasure			
Study tension	0 (0.0)	0 (0.0)	0 (0.0)
Peer pressure	6 (2.88)	7 (3.36)	13 (3.12)
Family problems/stress	0 (0.0)	0 (0.0)	0 (0.0)

Table 2: Assessment of relationship between substance abuse characteristics of adolescents with gender (n=416).

Variables	Urban (n=208) Gender		Total (n=416)	Rural (n=208) Gender		Total (n=416)
	Male	Female		Male	Female	
Substance abuse (alcohol, smoking, smokeless tobacco)						
Yes	9 (100%)	0 (0%)	9	6 (100%)	0 (0%)	
No	95 (47.7%)	104 (52.3%)		98 (48.5%)	104 (51.5%)	
	X ² = 9.41 p value 0.002*			X ² = 6.18 p value 0.013*		
Frequency of alcohol consumption						
Weekly	1 (100%)	0 (0%)	1	1 (100%)	0 (0%)	1
Occasionally	2 (100%)	0 (0%)	2	2 (100%)	0 (0%)	2
	X ² = 3.04 p value 0.21			X ² = 3.04 p value 0.21		

Continued.

Variables	Urban (n=208)		Total (n=416)	Rural (n=208)		Total (n=416)
	Gender			Gender		
	Male	Female		Male	Female	
Reason for starting the substance						
For pleasure	3 (100%)	0 (0%)	3	1 (100%)	0 (0%)	1
Tension of study	0 (0%)	0 (0%)	0	0 (0%)	0 (0%)	0
Peer pressure	6 (100%)	0 (0%)	6	7 (100%)	0 (0%)	7
Family problems / stress	0 (0%)	0 (0%)	0	0 (0%)	0 (0%)	0
	X ² = 9.41 p value 0.009*			X ² = 8.32 p value 0.16*		

*p value <0.05- Statistically significant.

DISCUSSION

In the present study, the prevalence of substance abuse was 4.32% in urban areas and 2.88% in rural areas. The most common type of substance abuse was smoking tobacco in both urban (1.92%) and rural areas (1.44%). Friends were the first alcohol-drinking partners in both urban (1.44%) and rural areas (1.44%). These findings were contrary to the study conducted by Baruah et al in which the prevalence of substance abuse was 36.3% in urban areas and 9.3% in rural areas. The most common type of substance abuse reported in their study was smokeless tobacco (78%), followed by smoking tobacco (49.7%).¹¹ In the present study, most participants consumed alcohol occasionally in both urban (0.96%) and rural areas (0.96%). Smoking tobacco was the most commonly used form of tobacco in both urban (1.92%) and rural areas (1.44%).

A study conducted in Goa in 2004 by Padnekar et al among school children reported that the prevalence of current tobacco use (smoking) was 3.5%, which was contrary to the findings of the present study. Similarly, Mohan et al in Kerala reported a prevalence of current tobacco use of 11.3%.^{12,13}

The higher prevalence of tobacco use compared to alcohol use among adolescents in the present study may be due to the easy accessibility of tobacco products in small shops that also sell snacks and sweets, unlike liquor stores, where adolescents may be reluctant to visit. Substance abuse and smoking habits initiated during adolescence are likely to persist into adulthood and substantially increase the risk of several non-communicable diseases, including cancer and cardiovascular diseases. In the present study, the most common reason for initiating substance abuse was peer pressure, accounting for 2.88% in urban areas and 3.36% in rural areas. Similar findings were reported by Gupta et al in which the majority of participants identified peer pressure as the primary reason for initiating substance abuse.¹⁰

In the present study, gender was significantly associated with substance abuse. These findings were comparable to the study conducted by Bhagavati et al in which age and gender were found to be significantly associated with

substance abuse.¹⁴ Since this was a cross-sectional study, causal relationships could not be established. The study was conducted only among government school students in the field practice areas of Kurnool Medical College; therefore, the findings may not be representative of adolescents studying in private schools.

As the interviews were conducted personally by the investigator, responses to sensitive questions related to smoking, alcohol use, and smokeless tobacco use may not have been entirely accurate due to confidentiality concerns and social desirability bias. This limitation could have been minimized by conducting focus group discussions or using anonymous self-administered questionnaires.

CONCLUSION

The prevalence of substance abuse was higher in urban areas compared to rural areas. Friends were the first alcohol-drinking partners in both urban and rural areas. Peer pressure was the most common cause associated with the initiation of substance in both urban and rural areas.

Recommendations

To control the growing problem of substance abuse among adolescents, educational and interventional initiatives should be implemented at the school and community levels. Special attention should be given to male adolescents, and schools should regularly conduct awareness programs on substance abuse prevention.

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