

# Do interpersonal problems catalyse experimentation of substance use among adolescents? An observational study

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## RESEARCH

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## ABSTRACT

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### Background

The upbringing and sociocultural factors determine the initial stages of habit formation in a child. Type of family, peer company, environment at school, and surroundings tend to influence adolescent's tendency for substance experimentation and use.

### Aims

Our aim was to identify the extent of experimental substance use and catalytic effect of interpersonal relational problems among adolescents.

### Methods

A self-administered health risk screening questionnaire was used. The questionnaire focused on problems related to substance use; type of substances experimented with; and interpersonal problems with parents, peers, at school, and in the neighbourhood. A cross-sectional study design was adopted (n=1770, age 16–19 years). Data obtained was entered and analysed using SPSS 15.

### Results

The proportion of experimentation with substance was found out to be more in boys as compared to girls. Alcohol was mostly consumed by them followed by cigarettes, pan masala and other substances. Interpersonal issues with mothers, fathers, at home, school and residing town were found to be significant factors that influenced adolescents for substance experimentation and use. Higher age group among adolescents sex (male) were strong socio demographic predictors of adolescent substance use.

### Conclusion

Cordial environment at home especially with parents, age, sex (male), residing town/neighbourhood were found to be very significant predictors of substance use by adolescents.

### Key Words

Interpersonal relationships, substance use, adolescents, India, observational study

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### What this study adds:

#### 1. What is known about this subject?

Factors and determinants associated with adolescent substance use have not been researched so far in South India. In Indian traditions, a taboo exists in determining the factors which initiate substance experimentation and use among adolescents.

#### 2. What new information is offered in this study?

The actual views and practices by Indian adolescents were brought out. Prevalence and sociocultural determinants for substance experimentation and use among adolescents is being reported.

#### 3. What are the implications for research, policy, or practice?

Our study would help parents, teachers and health care specialists to provide appropriate services for adolescents at risk.

## Background

Adolescence is defined as a transitional phase from childhood to adulthood. There are likely chances of them being vulnerable to experimentation of substance use, rebelliousness towards existing norms, seek approval of peers more than family due to physiological, psychological and physical changes. Experimentation is characterized by irregular substance use, with a gradual increase in the frequency in various situations.<sup>1</sup> The upbringing and sociocultural factors determine the initial stages of a habit formation in a child. Some are brought up in closely knit, hierarchically organized family that reinforces a traditional lifestyle. Others are brought up in nuclear families, where they spend little time and that reinforce a modern lifestyle. The importance of an intact family model (father-mother) and its role on adolescent substance use have been mentioned in previous studies<sup>1-3</sup> The consumption of substances among adolescents was more in case of single parent families than intact family model. Previous studies reported that adolescents (especially boys) from single-parent families engage in the high rate of problem behaviour.<sup>2,3</sup> The absence of a caring father figure was predictive of current alcohol use among adolescents.<sup>4</sup>

The only factor that remains common in both these family settings is that adolescents tend to show more ambivalent attitude towards peers. A new psychosocial model, peer cluster theory, suggests that the socialization factors that accompany adolescent development interact to produce peer clusters that encourage drug involvement.<sup>4</sup> Peers do provide important resources: companionship, emotional support, social connectedness but they are also implicated in promoting consumerism, dislike towards school, risky behaviours like smoking, alcohol consumption, drugs usage, violence and other delinquent activities. Stronger peer support predicted alcohol and cigarette use among adolescents.<sup>5</sup>

A significant amount of research has suggested that relationship status which adolescents maintain or that are maintained with them are determining factors related to initiation of substance use by them.<sup>6-10</sup> The majority of Indian studies<sup>11-16</sup> have reported the pattern, prevalence of substance use among adolescents but data is scarce on the various causes (especially in terms of interpersonal relationships) at homes, schools, neighbourhood on their substance use. The aim of our study was to identify the extent of experimental substance use among adolescents and the catalytic effect of interpersonal relational problems.

## Method

To achieve our aim, a self-administered health risk screening questionnaire was used. This study tool was developed by Adolescent Health Clinic, Medical College, Kolkata, India. The questionnaire assessed the quality of time spent by parents with adolescents, the attachment with parents, etc. which provided us with the scenario in the present Indian context. Problems related to substance use (perceptions on using various substances like alcohol, cigarettes, drugs, views on friends/youth who use substance etc.) and the types of substances they have experimented with (pan masala, tobacco, alcohol, cigarettes). Interpersonal problems with parents, peers, at school, at neighbourhood were addressed by the questionnaire.

There were a total of 66 questions addressing our objectives. Each question had four options. The total score was 264. The scores for each question was tabulated and reported in the form of quartiles. The final scores were mainly divided into four quartiles; adolescents who “have no issues with” (Score: 0–66) “have mild (minor) issues with” (Score: 67–132), “have moderate issues with” (Score: 133–198) and “have severe issues with” (Score: 199–264) based on the responses to each question. A cross-sectional study design was adopted in Karkala Taluk (Block) (Udupi District, Karnataka). A complete enumeration of all adolescents (16–20 years) studying in various educational institutions in the study area was made and they were the participants selected for the study. In total, 1,770 students participated in the study. Adolescents who were not within the specified age limit (below 16 and above 20 years) were not included for the study. The response rate was 100%. The school principal was visited on a particular day and the study objectives were discussed with them. Informed consent forms were distributed to all students and the teacher in charge was supposed to collect the filled up forms and hand them over to the school principal. On a pre-decided day, the questionnaire was administered to the study population and teacher in charge of each class maintained strict supervision such that no responses of each student could be exchanged with one another. The time taken for administering the questionnaire was 50 minutes. Data obtained was entered and analysed using SPSS 15. Proportions were used to report the findings of our study. Chi square test was used to find associations between issues that adolescents had with respect to substance use by them/friends and their IPR status at home, school etc. Multiple logistic regressions were done to identify independent predictors associated with any substance use. A *p* value of less than 0.05 was considered statistically significant.

**Ethical Considerations:** Institutional ethical clearance (KH/IEC-07/2014) was obtained prior to the study. Written informed consent was obtained from participants and paediatric assent was obtained. Permissions were obtained from all official authorities who were a part of our study.

### Results

A total of 1,770 students participated in the study. Majority of the participants (65.6 per cent) were females. The mean (SD) age of the participants was 17 (1.24) years. The proportions that were experimented substance were found to be more among boys as compared to girls (Figure 1). Alcohol was the substance which adolescents (boys: 22.2 per cent, girls 5.6 per cent) experimented first; smoking cigarettes (boys: 20 per cent, girls: 3.8 per cent) second, and consuming pan masala was ranked third (boys: 14.7 per cent, girls: 1.8 per cent). Other substance experimentation like tobacco and using chemicals was also more in boys (5.7 per cent) as compared to girls (2.8 per cent). The overall prevalence of substance use among study participants was 76.6 per cent (n=1,770).

**Figure 1: Gender-wise prevalence of experimentation of substance among study participants (n=1,770)**

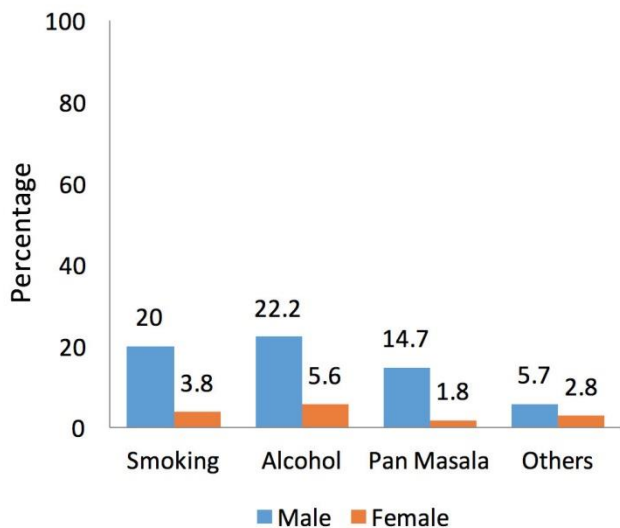


Table 1 displays the level of issues that adolescents (matters regarding the use of substance use by oneself/friends) who had Interpersonal relationship (IPR) issues with mother, father (parents), friends, at home, in neighbourhood (n=1,770). In Table 1, with respect to the proportion of our study participants having IPR issues at home (65 per cent) was ranked the highest. Subsequently, a decrease was seen in the proportion of adolescents having IPR issues with mother (59 per cent), at school (57 per cent), with father (54 per cent). The proportion of these students having IPR

issues with friends (51.2 per cent) and in their neighbourhood (51.3 per cent) was almost the same.

IPR issues at home (quality time spent with parents, supervision by parents etc.) was a very significant factor ( $p < 0.001$ ) that influenced adolescent behaviour on substance use. The proportion of adolescents who had moderate/severe issues at home, the proportion of them reporting substance use by them and their friends was also more (52.5 per cent) as compared to those who had mild/no IPR issues at home (47.2 per cent).

In terms of the IPR problems (misunderstandings with friends, playing with friends, discussing with friends) what this study participants had with their friends was not to be a very significant finding. When adolescents had mild/no IPR issues with their friends, the proportion of students who reported substance use was 47.5 per cent. A slight difference in this proportion (52.5 per cent) was seen when students had moderate/severe IPR issues with friends. Though this finding was not found to be statistically significant ( $p > 0.05$ ), it could be interpreted that in our study population there could be other crucial factors that influenced adolescent's behaviour on substance use more than the IPR issues with friends.

In our study, it was clearly seen that when adolescents had no/mild issues at school (arguments with teachers, teachers strictness, etc.), the proportion of adolescents with issues on substance use by them/friends was more (60.7 per cent) as compared to those who had moderate/severe issues at school (59.2 per cent). This finding was found to be very highly significant ( $p < 0.001$ ) indicating that school environment was a protective factor for adolescents in terms of substance use. If a cordial environment was provided at school, then it would keep more students away from substance experimentation or use.

The residing town/neighbourhood (surroundings of town, rural/urban locations etc.) of the adolescents was found to be significantly ( $p < 0.05$ ) associated with the level (moderate/severe) of issues that they had with substance use. It was seen that the proportion of adolescents who had moderate/severe issues in the residing town/neighbourhood displayed moderate/severe issues with respect to substance use by them and their friends (53.2 per cent).

Multiple logistic regressions (Table 2) was done to adjust for potential confounding factors-IPR issues with mothers, at school and within the neighbourhood were associated with

experimentation of substance use by adolescents. The odds ratio was calculated for experimentation with substance use versus no experimentation with substance use among the group of adolescents using univariate logistic regression. The demographic variables of age and gender are also strong confounding factors responsible for experimentation of substance use. Males were found to be 5.29 times [Adj Odds Ratio (OR)–5.29 (3.95, 7.07)] at higher risk than females to begin experimentation with substance use. With an advance in age, the chances to begin experimentation with substance use also increase. Those who were 19 years were 1.98 [Cru OR–1.98 (1.22, 3.21)] times at higher risk to begin experimentation with substance use as compared to other age groups.

Adolescents who had issues at school [Adj OR– 3.55 (1.63, 3.98)] and at residing town and neighbourhood [Adj OR– 2.23 (1.60, 3.09)] were found to be the other strong predictors for experimentation with substance use as compared to those who had no issues at school and the neighbourhood/town they resided in.

As shown in our previous finding that IPR of adolescents with mothers is a more protective factor than that of IPR with father, this was further strengthened by the logistic regression finding. Those adolescents who had IPR problems with mothers were 1.86 [Adj OR–2.23 (1.35, 2.57)] times at higher risk than those who had no IPR issues with mothers. Whereas, those who had IPR issues with fathers were 0.57 [Adj OR–0.52 (0.42, 0.78)] times at higher risk of experimentation with substance use than those who had no IPR issues with fathers.

## Discussion

The aim of our study was to identify the extent of experimental substance use and catalytic effect of interpersonal relational problems among adolescents. In our study, the prevalence of substance use was most common for alcohol, ranked second was smoking, then pan masala and lastly use of other substances. Other studies have reported a similar pattern on adolescent substance initiation and use.<sup>8,12,17-19</sup> Our study findings were in congruence with a cross cultural study done among Indian, South African, Chinese and American adolescents.<sup>4</sup> In this study, the most common substances ever used were alcohol (44.6 per cent), cigarettes (26.2 per cent) and marijuana (17.9 per cent). The prevalence of alcohol use, smoking cigarettes and consuming cannabis reported by another study<sup>20</sup> was 31 per cent, 27 per cent, and 7 per cent, respectively. The prevalence of various substance uses as reported by our study participants was lower as compared

to the above mentioned study findings.

A study in London predicted that one in five 11–16 year olds (n=3,333) had tried solvents or drugs, one in 12 were repeated users and one in twenty had tried “hard drugs”. Two-thirds had never used alcohol, one in nine could be described as frequent and possibly heavy drinkers, and one in five smoked cigarettes regularly. Smoking was more prevalent and more frequent among girls.<sup>21</sup> In our study, proportion of girls consuming alcohol (5.8 per cent) was more than that of the girls who smoke cigarettes (3.4 per cent).

A study done in India, reported that prevalence of substance use (Tobacco, alcohol, opiates, cannabis) was 54 per cent. Here, it was tobacco which was most prevalent (46 per cent) in use by adolescents, alcohol (29 per cent), cannabis (14 per cent), and opiates (12 per cent). Also, a multivariate analysis predicted that risk of adolescents to substance use was more when their fathers and siblings were substance users.<sup>22</sup> Another Indian study highlighted the predictors of substance use among adolescents; they were heterosexual dating, drug abuse among family and friends. Other less relatively important predictors were father’s occupation, family structure and place of residence.<sup>23,24</sup> The strong predictors of adolescents’ substance initiation and use as reported in our study were IPR issues with parents (mother, father), age, sex (males), which were different from the above mentioned findings.

The age of initiation of substance use is gradually reducing and often reported that the consumption of licit and illicit substance has increased. The common drugs of abuse amongst children and adolescents in India are tobacco and alcohol.<sup>25</sup> Even in our study, adolescents reported the use of alcohol followed by smoking cigarettes. We found gender (male) and age as significant predictors for experimentation of substance use. Our finding was supported by two other studies<sup>4,26</sup> where male gender predicted current alcohol use and older age (17–19 years) was also a predictor.

Sociocultural contexts directly influenced these experimentation habits. Commonly it is observed that male adolescents tend to experiment more substance as compared to females. Certain reasons reported are peers, lack of observation by parents, lack of guidance by health care providers.<sup>17,18,27,28</sup> Adolescent males are more prone to substance abuse, sexual experimentation, involvement in violence.<sup>29,30</sup>

The significance of an intact family comprises of father-

mother-children and the quality time being spent with parents and at home. Even in our study, we made a note on the proportion of students who had IPR issues with mothers, fathers and at the home (like the quality time being spent, supervision of both parents, etc.) This concept was found to be of great importance in two previous studies<sup>2,20</sup> where it was reported that adolescents (especially boys) from single-parent families engage in a high rate of problem behaviour. When parental monitoring was more, it was associated with less delinquency overall and less drinking was seen in boys. Unsupervised time at home alone was associated with more smoking for girls.

Another study reported parallel findings like ours stating that respondents from single-parent families report a significantly higher level of problematic substance use than those from mother–father families. However, a strong evidence for initiation of substance use were bad peer company and increased stress among adolescents.<sup>3</sup>

The IPR with mother (closeness to mother, sharing talks with mother, etc.) what an adolescent shares is a very important factor for their upbringing. In our study, when adolescents had moderate/severe IPR issues with mothers, the proportion of adolescents with respect to the substance use by them was 45.1 per cent and those having moderate/severe IPR issues with mothers, 54.9 per cent of them reported substance use. The increase in this proportion was very evident that how protective was the IPR of mother and adolescents. On the other hand, when it came to adolescents who had moderate/severe IPR issues with fathers, a contrast in our finding was seen that how the proportion of adolescents with no/mild issues related to substance use (58 per cent) decreased to (44 per cent) who had moderate/severe issues with substance use. The reason for this decrease in proportion needs to be researched further. A very highly statistically significant difference ( $p < 0.001$ ) was seen among the IPR issues with fathers and mothers with their adolescent

Our belief was that it was the environmental factors which influences adolescent substance initiation and this was further strengthened by a study which predicted that it was environmental influence which played vital role in substance initiation, use among adolescents than genetic influence (heritability).<sup>31</sup> The predictors what we studied like issues at school (attendance, school environment, etc.), issues in residing town (surroundings of neighbourhood, etc.) were also studied by this study<sup>20</sup> where these were significantly associated with substance use among adolescents.

The importance of the issues that adolescents face in the place where they reside with respect to the town/neighbourhood that we studied was further supported by other studies. For rural students it was reported that greater access to smoking tobacco, chewing tobacco, and steroids made them more prone to substance initiation and use. For urban students it was access to alcohol, marijuana, cocaine, inhalants, ecstasy, methamphetamine, hallucinogens, and prescription drugs. More than 60 per cent of both rural and urban high school students reported easy access to alcohol.<sup>32</sup>

### Study limitations

Our study was an educational institutions based survey which had encompassed all school going adolescents of a particular Taluk (block). But those adolescents who did not attend school and were at high risk of substance use were not captured in our study. So this study could not be considered as a complete representation of all adolescents of the district or the state. Being a cross sectional study design, no temporal association between the cause and effect of substance experimentation by adolescents can be made.

### Conclusion

Though being a cross-sectional study, it has provided a snapshot of the actual mind set of all school going adolescents of an entire Taluk (block) who begin their experimentation with substances. Cordial environment at home especially with parents, age, sex (male), especially with mother, higher age group, sex (male), and residing town/neighbourhood were found to be very significant predictors of substance use by adolescents. Owing to the prevalence of substance use (76.6 per cent), intervention programs should be designed at school level, community level for adolescents.

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### References

1. Lloyd-Richardson EE, Papandonatos G, Kazura A, et al. Differentiating stages of smoking intensity among adolescents: stage-specific psychological and social influences. *Journal of consulting and clinical psychology*. 2002;70(4):998.
2. Griffin KW, Botvin GJ, Scheier LM, et al. Parenting practices as predictors of substance use, delinquency, and aggression among urban minority youth: moderating effects of family structure and gender. *Psychology of addictive behaviours*. 2000;14(2):174.
3. Barrett AE, Turner RJ. Family structure and substance use problems in adolescence and early adulthood: examining explanations for the relationship. *Addiction*.

- 2006;101(1):109–120.
4. Olumide AO, Robinson AC, Levy PA, et al. Predictors of substance use among vulnerable adolescents in five cities: Findings from the Well-Being of Adolescents in Vulnerable Environments study. *Journal of Adolescent Health*. 2014;55(6):S39–S47.
  5. Oetting ER, Beauvais F. Peer cluster theory, socialization characteristics, and adolescent drug use: A path analysis. *Journal of counseling psychology*. 1987;34(2):205.
  6. Tripathi BM, Lal R. Substance abuse in children and adolescents. *Indian J Pediatr*. 1999 Jul-Aug;66(4):569–575.
  7. Kalra R. Education and prevention of drug abuse among school children. *Drug Demand Reduction Report New Delhi; UNDCP Regional Office for South Asia*. 1998;195:198.
  8. Ray R. Current extent and pattern of drug abuse. *South Asia Drug Demand Reduction Report*. 1998:6–31.
  9. Adrados JL. The influence of family, school, and peers on adolescent drug misuse. *Substance Use & Misuse*. 1995;30(11):1407–1423.
  10. Baumrind D. The influence of parenting style on adolescent competence and substance use. *The Journal of Early Adolescence*. 1991;11(1):56–95.
  11. Gajalakshmi V, Asma S, Warren CW. Tobacco survey among youth in South India. *Asian Pac J Cancer Prev*. 2004 Jul-Sep;5(3):273–278.
  12. Sinha DN, Gupta PC, Pednekar MS. Tobacco use among students in the eight North-eastern states of India. *Indian J Cancer*. 2003 Apr-Jun;40(2):43–59.
  13. Kumar PM, Poorni S, Ramachandran S. Tobacco use among school children in Chennai city, India. *Indian J Cancer*. 2006 Jul-Sep;43(3):127–131.
  14. Sinha DN, Roychowdhury S. Tobacco control practices in 25 schools of West Bengal. *Indian J Public Health*. 2004 Jul-Sep;48(3):128–131.
  15. Singh V, Gupta R. Prevalence of tobacco use and awareness of risks among school children in Jaipur. *J Assoc Physicians India*. 2006 Aug;54:609–612.
  16. Sinha DN, Gupta PC, Pednekar M. Tobacco use among students in Bihar (India). *Indian J Public Health*. 2004 Jul-Sep;48(3):111–117.
  17. Obot IS, Room R. Alcohol, gender and drinking problems: perspectives from low and middle income countries: *World Health Organization*; 2005.
  18. Peterson J. A qualitative comparison of parent and adolescent views regarding substance use. *The Journal of School Nursing*. 2010;26(1):53–64.
  19. Marsden J, Boys A, Farrell M, Stillwell G, Hutchings K, Hillebrand J, et al. Personal and social correlates of alcohol consumption among mid-adolescents. *British Journal of Developmental Psychology*. 2005;23(3):427–450.
  20. Flisher AJ, Parry CD, Evans J, et al. Substance use by adolescents in Cape Town: prevalence and correlates. *Journal of Adolescent Health*. 2003;32(1):58–65.
  21. Swadi H. Drug and substance use among 3,333 London adolescents. *British Journal of Addiction*. 1988;83(8):935–942.
  22. Ningombam S, Hutin Y, Murhekar MV. Prevalence and pattern of substance use among the higher secondary school students of Imphal, Manipur, India. 2011.
  23. Mohan D, Rustagi P, Sundaram K, et al. Relative risk of adolescent drug abuse: Part I Socio-demographic and interpersonal variables. *Bull Narc*. 1981;33(1):1-8.
  24. Kapil U, Goindi G, Singh V, et al. Consumption of tobacco, alcohol and betel leaf amongst school children in Delhi. *Indian Journal of Pediatrics*. 2005;72(11):993.
  25. Tripathi B, Lal R. Substance abuse in children and adolescents. *The Indian Journal of Pediatrics*. 1999;66(4):569–575.
  26. Young S, Corley R, Stallings M, et al. Substance use, abuse and dependence in adolescence: prevalence, symptom profiles and correlates. *Drug and Alcohol Dependence*. 2002;68(3):309–322.
  27. Brown BB, Larson RW, Saraswathi TS. *The world's youth: Adolescence in eight regions of the globe: Cambridge University Press*; 2002.
  28. Boys A, Marsden J, Strang J. Understanding reasons for drug use amongst young people: a functional perspective. *Health Education Research*. 2001;16(4):457–469.
  29. Rydelius PA. Alcohol-abusing teenage boys. *Acta Psychiatrica Scandinavica*. 1983;68(5):368–80.
  30. Simons-Morton B, Haynie DL, Crump AD, et al. Expectancies and other psychosocial factors associated with alcohol use among early adolescent boys and girls. *Addictive Behaviors*. 1999;24(2):229–238.
  31. Rhee SH, Hewitt JK, Young SE, et al. Genetic and environmental influences on substance initiation, use, and problem use in adolescents. *Archives of General Psychiatry*. 2003;60(12):1256–1264.
  32. Warren JC, Smalley KB, Barefoot KN. Perceived ease of access to alcohol, tobacco and other substances in rural and urban US students. *Rural Remote Health*. 2015 Oct-Dec;15(4):3397.

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**PEER REVIEW**

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**CONFLICTS OF INTEREST**

The authors declare that they have no competing interests.

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None

**ETHICS COMMITTEE APPROVAL**

The Kasturba Hospital Ethical Clearance Committee provided the required ethical clearance (KH/IEC-07/2014) before the study began.

**Table 1: Adolescents’ IPR issues and substance abuse**

Adolescents’ IPR issues	Mild/No issues with self/friends using substance	Moderate/Severe issues with self/ friends using substance	p value
Mild/No IPR issues with mother (n=726)	n=404 55.60%	n=322 44.40%	<0.001
Moderate/Severe IPR issues with mother (n=1,044)	n=471 45.10%	n=573 54.90%	
Mild/No IPR issues with father (n=822)	n=325 39.50%	n=497 60.60%	<0.001
Moderate/Severe IPR issues with father (n=948)	n=550 58.00%	n=398 42.00%	
Mild/No IPR issues at home (n=632)	n=334 52.80%	n=298 47.20%	<0.05
Moderate/Severe IPR issues at home (n=1,138)	n=541 47.50%	n=597 52.50%	
Mild/No IPR issues with friends (n=882)	n=453 51.40%	n=429 48.60%	0.106
Moderate/Severe IPR issues with friends (n=888)	n=422 47.50%	n=466 52.50%	
Mild/No issues at school (n=768)	n=466 60.70%	n=302 39.30%	<0.001
Moderate/Severe issues at school (n=1,002)	n=409 40.80%	n=593 59.20%	
Mild/No issues in town/neighborhood (n=862)	n=450 52.20%	n=412 47.80%	<0.05
Moderate/Severe in town/neighborhood (n=908)	n=425 46.80%	n=483 53.20%	

**Table 2: Predictors associated with experimental use of substance (N=1770)**

Interpersonal problems with	Crude OR (95% Confidence interval)	Adj OR (95% Confidence Interval)
Mother	2.59 (1.92, 3.49)	1.86 (1.35, 2.57)
Father	0.62 (0.47, 0.81)	0.57 (0.42, 0.78)
Home	0.94 (0.72, 1.25)	-
Friend	1.38 (1.03, 1.85)	-
School	3.86 (2.54, 5.87)	3.55 (1.63, 3.98)
Town/neighborhood	2.62 (1.93, 3.55)	2.23 (1.60, 3.09)
Gender(Male)	5.63 (4.25, 7.46)	5.29 (3.95, 7.07)
Age		
16	1.09 (0.72, 1.66)	
17	1.15 (0.74, 1.79)	-
18	1.58 (1.01, 2.46)	
19	1.98 (1.22, 3.21)	
≥ 20		