

Use of Psychoactive Substance and its Associated Factors among School Adolescents in Rupandehi District of Nepal

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ABSTRACT

Background: Psychoactive substance use among adolescents has been identified as an important health issue in Nepal. Therefore, this study examined the psychoactive substance use and factors associated with its use among adolescent students in the Rupandehi district of Nepal.

Methods: A school-based cross-sectional study was conducted from December 2017 to July 2018 with 460 school students aged between 15 to 19 years across sampled public and private schools in the Rupandehi district of Nepal. Structured interview schedule was used to collect information on psychoactive substance use. The generalized estimating equation was used to identify the factors associated with the use of psychoactive substances.

Results: Over a quarter (27.4%) of school-going adolescents used at least one type of psychoactive substance. Commonly used psychoactive substance included tobacco products (59.3%) followed by cannabis (55.6%), marijuana (35.8%), hashish (23.5%), alcohol (22.2%), heroin (18.5%), nitrogen tablets (14.8%), sulfa (13.6%) and opium (13.6%), respectively. Being male (AOR=2.0, 95% CI: 1.19-3.36), having peers (AOR=1.8, 95% CI: 1.13-3.03) or family members (AOR=2.2, 95% CI: 1.40-3.54) that used psychoactive substances and father's education level (AOR=2.5, 95% CI: 1.05-5.78) were significantly associated with the psychoactive substance use.

Conclusions: This study identified that over a quarter of school-going adolescents reported the use of at least one illegal psychoactive substance. This study provided details on the extent of behaviours, and can be used to develop a comprehensive prevention and control program. Such programs should address the socio-cultural factors that enable substance use and address gaps in knowledge to prevent and control of psychoactive substance use.

Keywords: Alcohol use; drug abuse; psychoactive substance use; tobacco use

INTRODUCTION

Psychoactive substance use is an important public health problem affecting approximately 275 million people globally.¹ In 2016, globally, 4.2% and 1.3% of all DALYs were attributable to alcohol and drug use as a risk factor.²

The age of onset for psychoactive substance use in Nepal is decreasing.^{3,4} The prevalence of cigarette smoking among 15-19 years age-group was 15.8% (men) and 0.5% (women) in Nepal.⁵ The median age of initiation of tobacco use among both men and women in Nepal was 17 years.⁶ Similarly, a study revealed that 32% of drug users started taking drugs first time in their early age of 15.⁷ The families of psychoactive substance user feel socially isolated, powerless, and stigmatized, particularly when adolescents were found engaged in various crimes.⁸

In developing countries like Nepal, where the adolescent population rarely features in policy, it is imperative to collect updated epidemiological data to guide psychoactive substance use prevention programs. Therefore, this study aimed to examine the psychoactive substance use and its factors associated among adolescent students.

METHODS

A cross-sectional study was conducted with higher secondary students aged 15-19 years in the urban and rural setting of Rupandehi district (Western region of Nepal) between December 2017 and July 2018. In, this region, ten percent of the population (11.61%) is aged 15-19 years.⁹ A multi-stage cluster sampling approach was used for the recruitment of study participants. A representative sample of 460 students was calculated

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based on following assumptions: prevalence = 22.3%, sampling error = 5%, CI = 95%, design effect=2 and non-response rate =15%. In the first stage, rural and urban municipalities of the district were considered as different clusters. Secondly, in accordance to District Education Office, Rupandehi, there were 17 higher secondary schools (3 public and 14 private); we included all three public schools and selected five private schools (2 urban and 3 rural schools) randomly. Proportionate sampling was adopted to calculate the number of students to be sampled from selected school. Next, we selected the grade or section randomly applying lottery methods. Finally, based on the student attendance register, systematic random sampling was performed to enrol the study participants from the selected section or grade. Students aged 15 to 19 years and able to obtain parental assent form and those providing their informed consent were invited to participate. The exclusion criteria included adolescents with the severe psychiatric disorders and/or intent to harm self or others and failed to produce assent consent.

The interviewer-administered semi-structured tool was developed following a review of existing literature and expert inputs. The English version of the semi-structured tool was first translated to Nepali and then back-translated into English by two researchers to check the consistency. A pilot study was conducted among 10 adolescents to finalize the Nepali version of tool. Data were collected using enumerators who received four hours hands-on training on data collection process and field guidelines to ensure that enumerators collect the correct information from the study participants.

The use of the psychoactive substance was the primary outcome. The administration of any forms of drugs, alcohol, tobacco products, or chemical substances to alter the mental processes, e.g. cognition or affect was considered to be the use of Psychoactive substance. This study examined the use of psychoactive substance among the adolescent group (15-19 years age group) in the past six months preceding the survey.

Independent variables included age, gender, marital status of parents (married, divorced, widowed, separated), type of family, ethnicity, parental education level and occupation, education level of adolescents, type of school, place of residence (urban and rural), relationship with parents, psychoactive drug exposure of parents/grand-parents (past and present history), ethnicity, initial age of substance intake, cause for use (peer pressure, curiosity, pleasure, personal and family

problem), frequency of substance use, and use of the psychoactive substance by peers. The respondent's knowledge of the harmful effect of psychoactive substances on physical, psychological, and social aspects was also assessed.

Ethical clearance for this study was obtained from the Ethical Review Board of Nepal Health Research Council, Kathmandu, Nepal. Similarly, written informed consent was obtained from selected school authorities and study participants. Additionally, assent consent was obtained from the participants who were under 18 years of age.

Statistical analysis was performed using Statistical Package for Social Sciences (SPSS) version 20. Mean and standard deviations were reported for quantitative variables and, frequencies and percentages for categorical variables. Associations between the independent variable and dependent variable were checked using Chi-square analysis ($p < 0.05$ were considered as significant). The generalized estimating equation (GEE) was used to identify the factors associated with the use of psychoactive substances.

RESULTS

All 460 subjects completed the questionnaire from the eight selected schools. We analysed the data from 460 respondents with a mean age of 16.4 ± 1.4 years. The study included 51.1% male and 48.9% female. Over half (50.9%) of students belonged to a nuclear family. Among the respondents, 52% were from the Upper caste group (upper class in the traditional Hindu caste system), 62.8% were from urban settings, and 94.6% ascribed to the Hindu religion. Considering the education status of parents, students reported that 12% of mothers and six percent of fathers of the studied adolescents were illiterate. Nearly one-fifth of responders had parents who were engaged in agriculture (20.7%) while 21.5% rely on business, 23.9% on professional service and 32.8% were employed in Gulf countries (Table 1).

Table 1. Demographic and socioeconomic information of the study participants.

| Variables | Options | No. (%) |
|----------------|---------|------------|
| Gender | Male | 235 (51.1) |
| | Female | 225 (48.9) |
| Marital status | Married | 8 (1.7) |
| | Single | 452 (98.3) |
| Family Type | Joint | 226 (49.1) |
| | Nuclear | 234 (50.9) |

| | | | | | |
|----------------------------------|-----------------------|-------------|--|-----|-------------|
| Educational status of the father | Literate | 308 (67.0) | Peers use psychoactive substances | No | 257 (55.9%) |
| | Able to read & write | 124 (27.0) | | Yes | 203 (44.1%) |
| | Illiterate | 28 (6.1) | Use of psychoactive substances by family members | Yes | 180 (39.1%) |
| Ethnicity | Higher caste | 239(52.0) | | No | 280(60.9%) |
| | Indigenous/ Janajatis | 139(30.2) | | | |
| | Madhesi | 45 (9.8%) | | | |
| | Dalit | 37(8.0) | | | |
| Religion | Hindu | 435 (94.6%) | | | |
| | Christian | 7 (1.5%) | | | |
| | Muslim | 6 (1.3%) | | | |
| | Buddhist | 12 (2.6%) | | | |

More than a quarter (27.4%) of adolescents had a history of psychoactive substance use. Of the total psychoactive substance users, 18.5% used only one type of psychoactive substance while 8.9% were using two or more types of psychoactive substances. The commonly used psychoactive substance were tobacco products followed by Cannabis (bhang), Marijuana (ganja), Hashish (charas), Alcohol, Heroin, Nitrogen tablets, and opium. Among the psychoactive substance users, 76.2% were occasional users, 62.7% started using substances before they were 15 years of age. The mean age at which students started using psychoactive substance use was 14.8 (SD 2.2) years. The main reason given for use of psychoactive substances was peer pressure (69%), followed by curiosity (18.3%), feeling of pleasure (7.1%), and other causes (5.6%). A third of participants reported a history of psychoactive substance use by family members (39.1%) or peers (friends) (44.1%) (Table 2).

Table 2. Information on psychoactive substance use.

| Variables | Options | No. (%) |
|---|--------------------|------------|
| Psychoactive substance use | Yes | 126(27.4%) |
| | No | 334(72.6%) |
| Commonly used psychoactive substances (multiple responses, n=126) | Cannabis (bhang), | 45 (55.6%) |
| | Hashish (charas), | 19 (23.5%) |
| | Marijuana (ganja), | 29 (35.8%) |
| | Sulfa | 11 (13.6%) |
| | Opium | 11 (13.6%) |
| | Heroin | 15 (18.5%) |
| | Nitrogen tablets | 12 (14.8%) |
| | Tobacco products | 48 (59.3%) |
| | Alcohol | 18 (22.2%) |
| Major causes of substance use(n=126) | Peer pressure | 87 (69%) |
| | Curiosity | 23 (18.3%) |
| | Pleasure | 9 (7.1%) |
| | Others | 7 (5.6%) |

The majority of study participants were aware of every physical, psychological, and social effect of psychoactive substance use in the questionnaire provided (Table 3).

Table 3. Knowledge on effects of psychoactive substances use.

| Variables | Options | No. (%) |
|--|-----------------------------|-------------|
| Physical effects (Multiple responses) | Headaches | 337 (92.6%) |
| | Hand tremors | 247 (67.9%) |
| | Liver damage | 266 (73.1%) |
| | Weight loss | 282 (77.5%) |
| | Accident | 307 (84.3%) |
| | Lungs disease | 266 (73.1%) |
| | High blood pressure | 263 (72.3%) |
| | Premature death | 288 (79.1%) |
| | Emotional problem | 170 (52.3%) |
| Psychological effects (Multiple responses) | Increased aggressiveness | 253 (77.8%) |
| | Inability to sleep | 275 (84.6%) |
| | Restlessness/ nervousness | 276 (84.9%) |
| | Mental illness | 278 (85.5%) |
| | Poor concentration | 233 (71.7%) |
| Social effects (Multiple responses) | Alter family relationship | 328 (96.2%) |
| | Poor academic performance | 285 (83.6%) |
| | Unprotected pre-marital sex | 223 (65.4%) |
| | Get into robbery | 265 (77.7%) |
| | Cultism | 248 (72.7%) |
| | Effects on finance | 270 (79.2%) |

The univariate analysis between dependent and independent variables found that school setting, gender, educational status of father, and mother, family type, marital status, owing mobile phone, owing two-wheeler, family history of psychoactive substance use and use of psychoactive substance by friends were statistically significant with Psychoactive substance use (Table 4).

The multivariate logistic regression analysis (Table 5) showed that being male (AOR=2.0, 95% CI: 1.19-3.36), psychoactive substance use by peers (AOR=1.8, 95% CI: 1.13-3.03), psychoactive substance use by family

members (AOR=2.2, 95% CI:1.40-3.54) and father's education (AOR=2.5, 95% CI:1.05-5.78) were significantly associated with the use of psychoactive substances.

Table 4. Socio-demographic characteristics associated with Psychoactive substance use.

| Variables | Options | Psychoactive substance Use | | P value |
|--|------------------------|----------------------------|-------------|---------|
| | | No | Yes | |
| School setting | Urban | 222 (66.5%) | 67 (53%) | 0.009* |
| | Rural | 112 (33.5%) | 59 (47%) | |
| Gender | Male | 151 (45.2%) | 84 (66.7%) | 0.000* |
| | Female | 183 (54.8%) | 42 (33.3%) | |
| Educational status of the father | Able to read and write | 88 (26.3%) | 36 (28.6%) | 0.046* |
| | Illiterate | 15 (4.5%) | 13 (10.3%) | |
| | Literate | 231 (69.2%) | 77 (61.1%) | |
| Educational status of the mother | Able to read and write | 112 (33.5%) | 37 (29.4%) | 0.016* |
| | Illiterate | 31 (9.3%) | 24 (19%) | |
| | Literate | 191 (57.2%) | 65 (51.6%) | |
| Type of family | Joint | 151 (45.2%) | 75 (59.5%) | 0.006* |
| | Nuclear | 183 (54.8%) | 51 (40.5%) | |
| Marital status | Married | 2 (0.6%) | 6 (4.8%) | 0.002* |
| | Unmarried | 332 (99.4%) | 120 (95.2%) | |
| Owning a mobile phone | No | 167 (50%) | 48 (38.1%) | 0.022* |
| | Yes | 167 (50%) | 78 (61.9%) | |
| Family owing two-wheeler | No | 84 (25.1%) | 46 (36.5%) | 0.016* |
| | Yes | 250 (74.9%) | 80 (63.5%) | |
| Psychoactive substance use by family members | No | 223 (66.8%) | 57 (45.2%) | 0.000* |
| | Yes | 111 (33.2%) | 69 (54.8%) | |
| Use of psychoactive substances by friends | No | 210 (62.9%) | 47 (37.3%) | 0.000* |
| | Yes | 124 (37.1%) | 79 (62.7%) | |

*p-value significant at a <0.05

Table 5. Associates of psychoactive substances use among School Adolescents.

| Variables | Options | Psychoactive substance Use | |
|---|------------------------|-----------------------------|---------------------------|
| | | Unadjusted Odds Ratio (UOR) | Adjusted Odds Ratio (AOR) |
| Gender | Female | Ref. | Ref. |
| | Male | 2.4 (1.57-3.72) | 2.0 (1.19-3.36) |
| Use of psychoactive substance by peers | No | Ref. | Ref. |
| | Yes | 2.8 (1.86-4.34) | 1.8 (1.13-3.03) |
| Use of psychoactive substance by family members | No | Ref. | Ref. |
| | Yes | 2.4 (1.60-3.69) | 2.2 (1.40-3.54) |
| Educational status of the father | Literate | Ref. | Ref. |
| | Able to read and write | 1.2 (0.77-1.95) | 1.1 (0.71-1.95) |
| | Illiterate | 2.6 (1.18-5.70) | 2.4 (1.05-5.78) |

DISCUSSION

Estimating the prevalence of psychoactive substance use among adolescent students in developing countries like Nepal is crucial in guiding health promotion program development with regard to psychoactive substance use. This aligns target 3.5 of the United Nations Sustainable Development Goals, to strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol.¹⁰ While the findings presented here relate to a specific setting in Nepal, these findings can be used to generate insights into adolescent psychoactive substance use behaviours in other low-middle income countries, particularly those in South Asia.

This study identified that the use of at least one type of psychoactive substance was 27.4% (66.67% male and 33.33% female). This is consistent with previous older studies conducted in Kalaiya, Bara district¹¹, and the western development region of Nepal³. However, this study found greater use of psychoactive substances than those reported by Global Youth Tobacco Survey 2007 in Nepal and Srilanka¹² and other studies from Nepal^{3,4,13} and India.¹⁴ This difference may be attributable to socio-demographic characteristics such as gender, and production and consumption of alcohol as a part of the culture and the access to psychoactive substances. In this context, the current findings may suggest that while

policies such as Tobacco Control Legislation, National Alcohol Regulation and Control policy and Narcotic Drugs Prevention and Control Policy, are current in Nepal, these may not be effectively implemented, particularly for adolescent groups.¹⁵ In Nepal, adolescents can easily purchase psychoactive substances from illegal retailers (undocumented shops), shops or pharmacies at the India-Nepal Border, general grocery shops, and drug suppliers who sell their products using social media and using through peer networks.⁷ Enforcement of policy is largely done by the Narcotics Control Bureau (NCB) of the Nepal Police, the nodal agency for narcotic drug law enforcement in Nepal in coordination with other stakeholders.¹⁶ However, the enforcement of policy for alcohol or tobacco products is primarily held back because of lack of prioritising from local governments or other local stakeholders to enact policy. The exception to this is in schools that do not allow the selling of psychoactive substances within their premises. Future work should seek to better understand the barriers to policy implementation at the meso and micro levels, which may support designing the comprehensive intervention to support reductions in psychoactive substance use among late adolescents in Nepal.

The current findings are also consistent with those reported in studies from Nepal^{17,18} and Morocco,¹⁹ where after tobacco, cannabis and marijuana, the most used psychoactive substance was alcohol. Despite the legal prohibition of cannabis and marijuana in Nepal, these psychoactive substances are widely used among Nepalese adolescents, particularly in the districts close to the Indian border. Moreover, in Nepal, the use of drugs such as cannabis and marijuana as part of social rituals such as Shivratri, Holy and Gaijatra festivals is accepted as an agent of joy or blessing.²⁰ The increased proportion of alcohol users could be because alcohol production and consumption within the culture of some ethnic communities is common practice in Nepal. Additionally, some may perceive drinking alcohol as a way of modernization, a link to western culture.²¹

The mean age for the onset of psychoactive substance use in our study was found to be 14.8 (± 2) years and is consistent with published literature.^{22,23} Our findings are consistent with other previous study that indicates early or mid- adolescents develop curiosity and have increased sociability, pleasure, and entertainment to try different psychoactive substances.²⁴ In the current study, psychoactive substance use among male students was twice more likely compared to females. This finding indicates the greater tendency of males to be involved in psychoactive substance use. This may be due to

cultural factors, including that males traditionally have more freedom as compared to females, which might put them in a peer group where there is increased exposure to risk behaviours (not solely limited to psychoactive substance use). The current finding is concurrent with earlier studies conducted in Nepal^{25,26}, where the male was found predominantly using any form of a psychoactive substance. Further large-scale research on the use of these psychoactive substances among Nepalese school students will guide the development of a school-centered health literacy program to combat the increased use of psychoactive substance. However, the current study highlights the need for future work to use gendered-lens in reducing adolescent substance use.

Psychoactive substance use among adolescents is significantly associated with family history of psychoactive substance use. Our study revealed that adolescent student family members with a history of psychoactive substance use were twice more likely to use psychoactive substances compared to those students where family members did not. This finding is consistent with the earlier studies from Nepal.^{3,22} Our study showed that adolescents with peers having a history of psychoactive substance use were nearly two times more likely to use the psychoactive substance than those who had peers without the history of the psychoactive substance use. This finding has been reported in studies from Nepal^{4,17} and elsewhere in previous studies.²⁷ Based on these findings, we suggest the need for educational programmes designed for both family members and peers to dissuade the use of psychoactive substance among the adolescents. Moreover, we suggest the need to co-design a comprehensive school-based prevention programs by engaging family, institutions, adolescents and other stakeholders so that designed program can address the factors that drive adolescents in psychoactive substance use within local context. Nevertheless, we suggest a mixed-method study that can look to the extent to which the peer pressure was experienced by adolescents and whether adolescents refused any invitations for psychoactive substance use.

The present study results showed an association between the educational status of the father and substance use among school adolescents. We could not find the studies to support this finding. A study conducted in Morocco¹⁹ did not find an association between psychoactive substance use and parental education status. The plausible reason for this could be that parent's education especially nurtures the overall decision-making process of adolescents. In the patriarchal society of Nepal, the father is considered as the head of the family and his

education can easily modify the attitudes and beliefs of ambivalent adolescents. In this context, an uneducated father may not have a sufficient understanding of a rapid development process that occurs between the childhood and adolescent phase that includes complex social, biological, and psychological changes. This limits the educational and psychological support that one adolescent should get from their parents, thereby making adolescents incompetent in taking right decisions for their life,²⁸ eventually leads to the development of unhealthy peers and romantic partners network which may expose adolescents to risky behaviours like psychoactive substance use.

The strengths of this study include: (i) this is the first study to assess the prevalence of psychoactive substance and its associated factors among the school adolescents of Rupandehi district, Nepal, (ii) tools and analytical methods allowed us to identify individual psychoactive substance among school adolescents, and (iii) representative sample size with high response rate. As like other studies, this study does have limitations. Given that this was a cross-sectional study, the causality between the independent, and dependent variables cannot be established. Another limitation could be that students might have under-reported the psychoactive substance use in the face-to-face interview process. Moreover, the study was conducted in one district, so findings may not be generalized to other settings. Furthermore, as the study recruited the late adolescent's group [15-19 years], findings from this study cannot be generalized to adolescents of age bracket 10-19 years. Additionally, we used self-reported questionnaires that could have some socio-desirability bias.

CONCLUSIONS

This study found a sizeable proportion of psychoactive substance use among school adolescents in the Rupandehi district, Nepal. The predominance of being male, use of the psychoactive substances by peers and family members, educational status of the father as factors conducive to psychoactive substance use needs an urgent attention. Our findings argue the need of comprehensive prevention programs for psychoactive substance targeting individual, family, community and organization levels (including schools and youth clubs).

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REFERENCES

1. World Health Organisation. Management of substance abuse: World Health Organisation 2018 Available from: https://www.who.int/substance_abuse/en/
2. GBD 2016 Alcohol and Drug Use Collaborators. The global burden of disease attributable to alcohol and drug use in 195 countries and territories, 1990-2016: a systematic analysis for the Global Burden of Disease Study 2016. *Lancet Psychiatry*. 2018 Dec;5(12):987-1012. [\[Article\]](#)
3. Karki S, Länsimies H, Laukkanen E, Pirskanen M, Pietilä A-M. Substance use by adolescents in the Western Developmental Region of Nepal. *Journal of Substance Use*. 2016;21(1):98-106. [\[Article\]](#)
4. Gurung A, Shrestha N, Silwal M, Ojha S. Prevalence of Substance Use and Associated Factors Among High School Adolescents in Rithepani, Lekhnath-2, kaski, Nepal. *Journal of Gandaki Medical College-Nepal*. 2017;10:43. [\[Article\]](#)
5. Nepal Demographic and Health Survey 2016. Kathmandu, Nepal: Ministry of Health, Nepal; 2017.
6. Dhimal M, Bista B, Bhattarai S, Dixit LP, Hyder MKA, Agrawal N, et al. Report of Non Communicable Disease Risk Factors: STEPS Survey Nepal 2019.: Nepal Health Research Council; 2020.
7. Statistics. GoNaCBo. Survey report on current hard users in Nepal. Kathmandu, Nepal; 2015.

8. Spooner C, Hetherington K. Social determinants of drug use, 2005. [\[Download PDF\]](#)
9. Ministry of Health and Population. Nepal population report 2011. Kathmandu: Government of Nepal; 2011.
10. World Health Organisation. SDG 3: Ensure healthy lives and promote wellbeing for all at all ages: World Health Organisation 2016. Available from: <https://www.who.int/sdg/targets/en/>
11. Bhaskar RK, Sah MN, Gaurav K, Bhaskar SC, Singh R, Yadav MK, et al. Prevalence and correlates of tobacco use among adolescents in the schools of Kalaiya, Nepal: a cross-sectional questionnaire based study. *Tobacco Induced Diseases*. 2016;14(1):11. [\[Article\]](#)
12. Kabir MA, Goh K-L. Determinants of tobacco use among students aged 13–15 years in Nepal and Sri Lanka: Results from the Global Youth Tobacco Survey, 2007. *Health Education Journal*. 2013;73(1):51-61. [\[Article\]](#)
13. Pradhan PMS, Niraula SR, Ghimire A, Singh SB, Pokharel PK. Tobacco use and associated factors among adolescent students in Dharan, Eastern Nepal: a cross-sectional questionnaire survey. 2013;3(2):e002123. [\[Article\]](#)
14. Murthy P, Manjunatha N, Subodh BN, Chand PK, Benegal V. Substance use and addiction research in India. *Indian journal of psychiatry*. 2010;52(Suppl 1):S189-99. [\[Article\]](#)
15. Elsey H, Khanal S, Manandhar S, Sah D, Baral SC, Siddiqi K, et al. Understanding implementation and feasibility of tobacco cessation in routine primary care in Nepal: a mixed methods study. *Implementation science : IS*. 2016;11:104. [\[Article\]](#)
16. Bohara AR. The number of drug abusers in Nepal has been swelling even though sound and subtle narcotic drug policies and strategies have been in place for more than a decade. *Kathmandu Post*. 2017.
17. Panthee B, Panthee S, Gyawali S, Kawakami N. Prevalence and correlates of substance use among health care students in Nepal: a cross sectional study. *BMC Public Health*. 2017;17(1):950. [\[Article\]](#)
18. Dhungana M, Thapa M, Thapa D. Socio-Demographic Profile Of Psychoactive Substance Users Attending a Centre For Mental Health, Rupandehi. *Journal of Psychiatrists' Association of Nepal*. 2018;7:42-5. [\[Article\]](#)
19. Zarrouq B, Bendaou B, El Asri A, Achour S, Rammouz I, Aalouane R, et al. Psychoactive substances use and associated factors among middle and high school students in the North Center of Morocco: a cross-sectional questionnaire survey. *BMC Public Health*. 2016;16(1):468. [\[Article\]](#)
20. Acharya S, Howard J, Panta S, Mahatma S, Copeland J. Cannabis, Lord Shiva and Holy Men: Cannabis Use Among Sadhus in Nepal. *Journal of Psychiatrists' Association of Nepal*. 2015;3. [\[Article\]](#)
21. Sudhinaraset M, Wigglesworth C, Takeuchi DT. Social and Cultural Contexts of Alcohol Use: Influences in a Social-Ecological Framework. *Alcohol research : current reviews*. 2016;38(1):35-45. [\[Article\]](#)
22. Bhaskar RK, Sah MN, Gaurav K, Bhaskar SC, Singh R, Yadav MK, et al. Prevalence and correlates of tobacco use among adolescents in the schools of Kalaiya, Nepal: a cross-sectional questionnaire based study. *Tob Induc Dis*. 2016;14:11. [\[Article\]](#)
23. Poudel A, Gautam S. Age of onset of substance use and psychosocial problems among individuals with substance use disorders. *BMC psychiatry*. 2017;17(1):10. [\[Article\]](#)
24. Raimondo Maria P, Consonni D. Early Adolescents and Substance Use. *Journal of Addiction*. 2012;2013. [\[Article\]](#)
25. Sreeramareddy CT, Kishore PV, Paudel J, Menezes RG. Prevalence and correlates of tobacco use amongst junior collegiates in twin cities of western Nepal: A cross-sectional, questionnaire-based survey. *BMC Public Health*. 2008;8(1):97. [\[Article\]](#)
26. Aich TK. A Comparative Study On 136 Opioid Abusers In India and Nepal. *J Psychiatrists' Association of Nepal Vol.2, No.2, 2013 11-17*. *J Psychiatrists' Association of Nepal*. 2013;Vol.2:11-7. [\[Article\]](#)
27. Ramirez R, Hinman A, Sterling S, Weisner C, Campbell C. Peer influences on adolescent alcohol and other drug use outcomes. *Journal of nursing scholarship : an official publication of Sigma Theta Tau International Honor Society of Nursing*. 2012;44(1):36-44. [\[Article\]](#)
28. Moretti MM, Peled M. Adolescent-parent attachment: Bonds that support healthy development. *Paediatrics & child health*. 2004;9(8):551-5. [\[Article\]](#)