ORIGINAL ARTICLE

Risk Factors leading to Adolescent Substance Use

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Abstract

Introduction: Substance abuse is a patterned use of a substance in which the user consumes the substance in amounts or with methods which are harmful to themselves or others. Adolescence is a transitional stage of young group of people between the ages of 10 to 19 years. The main objective of this study was to assess the risk factors leading to substance use among adolescent students of selected school of Kaski district.

Methods: Descriptive cross-sectional research design was conducted among 390 adolescent students studying in selected schools of Kaski. Structured self-administrationquestionnaire was used to collect data. Simple random sampling technique was used to select the sample. Collected data was checked immediately for its completeness after collecting from the participants. Data was edited, coded and entered into statistical package for social sciences (SPSS) version 16. Data was analyzed by using both univariate, bivariateand multivariate analysis techniques.

Results: The result showed that substance abuse was prevalent among 22.30% of the respondents. There was significant association of substance abuse with age, grade, demographic variables and prevalence of substance use, likewise there was statistically significant association between the family related, peer related and individual risk factors and prevalence of substance use.

Conclusion: Based on the finding it is concluded that the prevalence of substance use is high among adolescents, early screening of risk factors and prompt intervention to prevent use of substance is essential to protect the youth of a nation.

Keywords: Adolescent, risk factors, substance use

Introduction

Substance use is a major public health problem worldwide, and it is common during the period of adolescence leading to mental and physical health problems. Substance abuse is harmful or hazardous use of psychoactive substance including licit and illicit drugs (World Health Organization [WHO], 2019)[1]. Globally, one in every 10 girls aged 13-15 years and one in every 5 boys aged 13-15 years use tobacco (WHO, 2016)[2]. Drug use among 8th graders increased 61% between 2016 and 2020·50% of teenagers have used a drug at least once· 43% of college students use illicit drugs· 2·08 million (8·33%) of 12 to 17 years nationwide report using drugs in the last month.

Total 11.2% of overdose deaths are aged 15 to 24 years (National Centre for Drug Abuse Statistics [NCDAS], 2020)[3]. The peak levels of drug use are seen among those aged 18–25 (United Nations Office on Drug and Crime [UNODC], 2020)[4].

In Nepal, over one -third of drug users (36.6%) had completed lower secondary (grade 9-10) and 19.8% had completed upper secondary (grade 11-12), while 3.6% had completed higher education (Nepal drug users survey [NDUS], 2076)[5]. Nearly 73.1% current hard drug users had experience of first-time drug intake before they reach 20 years. Majority of the hard drug users have level of education below grade 10 level (Government of Nepal Central Bureau of Statistics, 2069)[6].

A study was conducted to assess the prevalence of substance use and associated factors among high school adolescents, in Kaski, in 2017. Finding of the study showed that the prevalence of substance use is 6.1% in which 50% respondents consume alcohol, 80% take cigarette, 10% use tobacco and 20% take ganja. Among the substance users, 40% reported imitating parents and 40% reported curiosity to initiate substance use. Regarding the accessibility of the substances among the

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respondents who use substances, 30% respondents said that it's very difficult whereas 10% said that it's very easy to access the substances.[7]

This study assessed the risk factors leading to substance use among adolescent students in Nepal. The risk factors included personal, education, family and friend factors. This study focuses on family factors such as family relationship, family status, parents' relationship, family discipline, availability of pocket money, substance abuse by family, imitation, stressful life events, cultural acceptance to use drugs, social factors like social relationship, involvement of social activities, easily accessibility of substances social norms, social culture, social rules, barriers, school related factors, peer pressure, curiosity, punishment by teachers. Failure in exam, flexible or strict rule of school.

The result of the study showed prevalence of substance abuse was 22.30% and there was significant association between demographic variables and prevalence of substance user, likewise there was statistically significant association between the family related, peer related and individual risk factors and prevalence of substance use.

Methods

A quantitative descriptive cross-sectional study was conducted in adolescent students of different public schools of Pokhara Metropolitan city.

Pokhara metropolitan was selected purposively; Total 3 schools were selected from the ward number19, 26 and 29using simple random sampling (lottery) method.

Selected schoolswereBindabasini secondary school, ward no.19; Laxmi secondary school, ward no. 26 and Jana Prakash secondary school of ward no 29. The total numbers of students studying in these three schools were 987. The number of students from secondary level (class 9, 10, 11, 12) is 183 in Bindabasini School, 358 in Laxmi School and 419 in Jana Prakash School. Sample size was calculated by using standard formula. Cochran's Formulawas used to calculate sample size estimated sample size (n) = Z2pq/e2 using prevalence rate 6.1 (Gurung, 2017).

$n=Z^2pq/e^2$

Where,

n= required sample size

p= prevalence of the substance use among adolescents

q= 1-p

z= the standard normal variate, value of Z at 95% confidence interval=1.96

e= permissible error, value of d=5%=0.05

Then, estimated sample size (n) = Z^2pq/e^2

= 1.96^2x0.6x0.4/0.05

= 368.793 =369

Now, for finite population size (n) = n0/1+n0/N

(N=17294)

= 369/1+369/ 17294

= 361.2819

=361

Now, adding 10% of 361 of as non-response rate,

Total precise sample size= 361+36=397

Total sample size is 397

A proportionate stratified random sampling technique was used to obtain the desired sample size. Firstly, Study setting was selected purposively from 48 schools. On the basis of the total number of students in 3 different types of schools, the proportion of students was selected from each grade was calculated as:

Total number of students in 3 schools= 987

With the required sample size of 397,

Number of students selected for the study from Bindabasini Ma, Vi.19

= 397/987 ×183 = 73.60 ≈74/4=18.5=19 from each class

Number of students selected for the study from Laxmi Ma. Vi. 26

= 397/987×385 =154.85 ≈ 155/4 =38.75 =39 from each class

Number of students selected for the study from Jana Prakash Ma.Vi, 29

= 397/987×419 = 167 ≈ 41.75 =42 from each class

Finally, the participants of the study were selected by using simple random sampling (lottery method) from each grade through college attendance register.

Structure self-administered questionnaire in English language was used to collect the data.

The instrument was developed on the basis of extensive review of the literature, standard recommendations and protocols for substance abuse. The instrument is divided into 5 parts: Questions related to socio-demographic information of the participants, family related risk factors, Peer related risk factors and individual risk factors to initiate use of substance among adolescents. Ethical approval was taken from the GMC-IRC(Reg. no. 148/079/080). Written permission was taken from the principal of related school. Verbal permission from respective class teachers also obtained before the data collection. Informed Written assent for the age below 18 years students and consent was taken from the parents/teachers of respondents. The introduction of the researcher and purpose of study was clearly stated.

Researcher herself was involved to collect data. After enrolling the research participants, instruction was given regarding the responses of the questionnaire. Doubts and queries regarding the questionnaire were clarified. Participants filled the questionnaire in the presence of the researcher to prevent data contamination. The questionnaire was distributed among students to collect information. Data collection was done per day in one school during the day time (10am to 4pm) as their convenient. Class wise data was collected in class 9, 10, 11 and 12. Among 397 respondents 7 respondents were not completed the questionnaire so response rate was98. % (390). All the collected data were reviewed and checked immediately for completeness, consistency and accuracy. Data was edited

and coded on the same day of data collection and entered and analyzed on Statistical Package for Social Science (SPSS) Version 26. Analysis was done using descriptive statistical tools like frequency, percentage, mean, standard deviation and inferential statistical method like factor analysis, χ^2 test was done. The analyzed data was interpreted based on the objectives of the study. The findings were presented in different tables.

Results

Table 1: Socio-demographic Characteristics of the Respondents n =390

Characteristics	Number	Percentage (%)
Age (in years)		
<17	197	50.50
≥ 17	193	49.50
Mean age=16.50, min=13, max=20, SD=1.399		
Sex		
Male	190	48.70
Female	200	51.30
Residence		
Urban municipality	298	76.40
Rural municipality	92	23.60
Current Grade		
Nine	108	27.70
Ten	80	20.50
Eleven	99	25.40
Twelve	103	26.40
Education of father		
Literate	359	92.10
Illiterate	31	7.90
Education of mother		
Literate Illiterate	321	82.30
	69	17.70
Occupation of father		
Unemployed	24	6.20
Employed	350	89.70
Not live	16	4.10
Occupation of mother		
Unemployed	67	17.20
Employed	316	81.00
Not live	7	1.80

Table 1 reveals the socio demographic characteristics of respondents. The mean age of the respondents was 16.50 years (±1.399). Female respondents were slightly more (51.30%) than male. About three fourth (76.40%) of respondents were residing in urban area. Almost the respondents' entire father (92.10%) was literate. Similarly, majority of the respondent's mother (82.30%) were literate. Most of the respondent's father (89.70%) and 81% of their mothers were employed.

Table 2: Prevalence of Substance use among Adolescents n=390

Substance use	Number	Percentage
Yes	87	22.30
No	303	77.70

Table 2 illustrates that the prevalence of the substance use is 22.30% among the respondents. Among the different substances, tobacco, alcohol, cannabis, cocaine, amphetamine, inhalants, sedatives and others were used by respondents.

Table 3: Association between Use of Substance and Socio-demographic Variables n=390

Variables	Use of substance		X2	P-value
	Yes	No		
Age				
>17	51(58.62%)	36 (41.37%)	2.945	0.086
<17	146 (48.18%)	157(51.81%)		
Sex				
Male	54 (28.5%)	136(71.6%)	7.989	**0.005**
Female	33(16.5%)	167(83.5%)		
Residence				
Urban	64 (21. 5%)	234(78.5%)	0.504	0.478
Rural	23 (25.0%)	69(75.0%)		
Grade				
9	35 (32.5%)	73 (67.6%)	14.091	**0.003**
10	22 (27.5%)	58 (72.5%)		
11	15 (15.2%)	84 (84.8%)		
12	15 (14.6%)	88 (85.4%)		
Father education				
Literate	81 (22.6%)	278 (77.4%)	0.169	0.681
Illiterate	6 (19.4%)	25(80.6%)		
Mother Education				
Literate	70 (21.8%)	251(78.2%)	0.263	0.608
Illiterate	17 (24.7%)	52(75.4%)		

Significant level of p-value at <0.05

Table 3 reveals that there is significant association of substance use with sex of the respondents (p=0.005) and grade of the respondents (p=0.003). There is no statistically significant association of substance use with residence, father's education and mother's education of respondents.

Table 4 shows that there is significant association of substance use with family related factors i.e., parents responsible for family (0.043), good family relation (0.032) and parents ask for expenditure of pocket money (0.000). There is no statistically significant relation of substance use with separated parents, father taking alcohol, parents smoking, parents allow taking substance, parents suffering depression, family strict rule, and family flexible rule, difficult to get pocket money, physically abuse by parents and mentally abuse by parents.

Table 4: Association between Substance Use and Family Related Factors

Variables	Use of substance		χ2	P-value
	Non user	User		
Separated parents				
Yes	257(79.3%)	20 (30.3%)	2.980	0.087
No	46(69.7%)	67 (20.7%)		
Parents responsible for family				
Yes	282(79.0%)	75(21.0%)	4.110	**0.043**
No	21(63.6%)	12(36.4%)		
Father taking alcohol				
Yes	142 (78.9%)	38(21.1%)	0.276	0.599
No	161(76.7%)	49(23.3%)		
Parents smoking				
Yes	51(76.1%)	16(23.9%)	0.115	0.734
No	252(78%)	71(22%)		
Parents allows taking substance				
Yes	28(75.7%)	9(24.3%)	0.096	0.752
No	275(77.9%)	78(22.1%)		
Good family relation				
Yes	262(79.6%)	67(20.4%)	4.582	**0.032**
No	41(67.2%)	20(32.8%)		
Parents suffering depression				
Yes	31(73.8%)	11(26.2%)	0.409	0.522
No	272(78.2%)	76(21.8%)		
Family strict rule				
Yes	108(79.4%)	28(20.6%)	0.356	0.551
No	195(76.8%)	59(23.2%)		
Family flexible rule				
Yes	190(77.6%)	55(22.4%)	0.008	0.931
No	113(77.9%)	32(22.1%)		
Difficult to get pocket money				
Yes	122(81.9%)	27(18.1%)	2.439	0.118
No	181(75.1%)	60(24.9%)		
Parents ask for expenditure				
Yes	190(85%)	33(14.8%)	16.945	**0.000**
No	113(67.7%)	54(32.3%)		
Physically abuse by parents				
Yes	32 (84,2%)	6 (15.8%)	10.32	0.310
No	271 (77.0%)	81 (23.0%)		
Mentally abuse by parents				
Yes	28(82.4%)	6(17.6%)	0.467	0.494
No	275(77.2%)	81(22.8%)		

Table 5: Association between Substance Use and Peer Related Factors

Variables	Use of substance		χ2	P-value
	Non user	User		
Talent student of class				
Yes	171(83.4%)	34 (16.6%)	8.165	**0.004**
No	132 (71.4%)	53(28.6%)		
Good relation with friends				
Yes	275(79.0%)	73 (21.0&)	3.301	0.069
No	28 (66.7%)	14 (33.3%)		
Fail in last exam				
Yes	58 (66.7%)	29(33.3%)	7.854	**0.005**
No	245(80.9%)	58 (19.1%)		
Friend use any substance				
Yes	44(62.9%)	26 (37.1%)	10.833	**0.001**
No	259(80.9%)	61(19.1%)		
Friend give pressure to use any substance				
Yes	31(70.5%)	13(29.5%)	1.499	0.221
No	272 (78.6%)	74(21.4%)		
Teacher talks on effects of substance use				
Yes	210 (78.1%)	59(21.9%)	0.070	0.791
No	93(76.9%)	28(23.1%)		

Significant level of p-value at <0.05

Table 5 shows that there was significant association of substance use with peer related factors i.e. talent student of class (0.004), fail in last exam (0.005), and friend use any substance (0.001). There was no statistically significant association between substance use and good relation with friends, friend give pressure to use any substance, and teacher talks on effects of substance.

Table 6 shows that there is significant association of substance use with individual related factors i.e. friends are deviant & pressure to use substance (0.000), involving bullying (0.002), associated in gang (0.000), having PTSD (0.000) and substance relief stress (0.000).

Substance abuse was significantly associated with risk factor current grade of the student, grade 11 and 12 students (OR=0.339, 95% CI: .176-653), mother's employment abuse (OR=0.423, 95% CI: .220-.812).

Table 6: Association between Substance Use and Individual Related Factors

Variables	Use of substance		χ2	P-value
	Non user	User		
Friends are deviant & pressure to use substance				
Yes	19 (51.4%)	18(48.6%)	16.365	**0.000**
No	284 (80.5%)	60(19.5%)		
You involving bullying				
Yes	24(58.5%)	17(41.5%)	9.700	**0.002**
No	279 (79.9&)	70(20.1%)		
You associated in gang				
Yes	10(43.5%)	13(56.5%)	16.508	**0.000**
No	293(79.8%)	74(20.2%)		
You have PTSD				
Yes	15(50.0%)	15(50.0%)	14.380	**0.000**
No	288(80.0%)	72(20.0%)		
Substance relief stress				
Yes	12(42.9%)	16(57.1)	21.121	**0.000**
No	291(80.4%)	71(19.6%)		

Significant level of p-value at <0.05

Discussion

This study identified crucial physical factors, social factors; psychological factors, environmental factors and different influencing advertisement of media are the main focusing factors to initiate substance on adolescents. It aimed to assess the risk factors leading to substance use and the prevalence of substance use among the adolescent students. Total of three Risk factors were included in this study these are family related risk factors, peer related risk factors and individual related risk factors. Based on the obtained result the prevalence of substance use among adolescent is high.

Bivariate analysis show that variables such as, sex, grade of the students, education of father and education of mother are important variables to initiate the substance use. In other bivariate analysis of risk factors such as family related risk factors, parents responsible for family, good family relation and parents ask for expenditure of pocket money. In peer related risk factors talent student of class, fail in last exam, and friend use any substance and in individual related factors friends are deviant & pressure to use substance, involving bullying, associated in gang, having PTSD and substance relief stress are the significant factors to initiate substances use among adolescents.

This study identified the prevalence 22.30% of substance use among adolescents. The prevalence of substance use among adolescents is consistent with the prevalence of 18.8% in Bharatpur Metropolitan, 16.1% in Morocco, 27.4% in Rupandehi district of Nepal, 25.3% in Kalaiya Municipality, 15.2% in Brazil[8,9,10,11,12]. It is contrast to the prevalence of 6.1% in Kaski Pokhara[7], this discrepancy may be due to small sample size.

In this study regarding the family related, peer related and individual related factors are the risk factors of substance use among adolescents. These findings is as consistent as the study conducted by Gurung et al.(2020)[8]in Bharatpur Metropolitan in Nepal which shows associated with substance abuser in family (OR= 2.701, 95% CI: 1.667-4.377), sibling abuse substances (OR= 4.757, 95% CI:1.467-15.248), substance abuser in close friend circle (OR= 11.204, 95% CI: 6.693-4.18.755), friends insisted/enforced to take substances (OR= 2.978, 95% CI: 1.409-6.294), and stressful events (OR= 2.434, 95% CI: 1.130-5.243),in Morocco (2016), living with a family member who uses tobacco, and feeling insecure within the family.

The present study revealed current grade 9-12 as the risk factor of substance abuse in secondary school students where grade 11- and 12 students were about three times (OR=0.339, 95% CI: .176-653, p<0.01) more likely to abuse substances compared to grade 9 and 10 students.Here, no evidence was found regarding comparison between current grade 9-10 and 11-12 students.

It was observed that students from employed mother were more likely to involve in substance abuse (OR= 0.423, 95% CI: .220-.812, p=0.5) compared to student from unemployed mother. No evidence was found regarding comparison between mothers' occupation and substance use.

Conclusion

Based on the finding of the study it is concluded that the prevalence of substance use is present among adolescent students. There are different risk factors to use substances among adolescents are family related factors, peer related factors and individual related factors. therefore, early screening of risk factors and prompt intervention to prevent use of substance is essential to protect the youth.

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