Factors affecting problematic use of psychoactive substances among bachelor level students: A mixed methods study from Hill and Terai of Nepal

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ABSTRACT

Introduction: Adolescents start experimenting with licit substances which later worsen to use of more addictive illicit substances. Genetic and environmental vulnerabilities affect use of psychoactive substances with family support, competence, and psychological well-being acting as protective factors. This study aimed to identify the prevalence of problematic use of psychoactive substances among bachelor level students and factors affecting the problematic use.

Method: A cross-sectional study was conducted among 50 bachelor level students selected purposively from a private college of Kathmandu metropolitan city and five in-depth and key informant interviews of bachelor level students, guardian, and teachers from Kohalpur municipality. Cronbach's alpha was calculated for each of the tools used and prevalence of problematic use of psychoactive substances was assessed.

Result: Prevalence of problematic use of psychoactive substances among lifetime users was 51.4%. The factors significantly associated with problematic use of psychoactive substances were sex and social discrediting by peers. Qualitative analysis identified many risk and protective factors at individual, interpersonal, and socio-cultural level.

Conclusion: High prevalence of lifetime psychoactive substance use and high percentage of problematic use of psychoactive substances among substance users requires intervention at different socio-ecological level.

Keywords: adolescents, factors, problematic use, psychoactive substances

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INTRODUCTION

People aged18 to 25 years are more prone to use psychoactive substances.[1] Studies on gateway hypothesis suggests adolescents' licit substance use worsening to illicit use during adulthood.[2] Use of psychoactive substances range from beneficial use to chronic dependence with problematic use defined as the use that begins to have negative consequences for individual, friends/family, or society.[3]

A multi-country study has identified prevalence of frequent (≥10 times), infrequent (1-9 times), and ever (at least once) illicit drug use in the past month as 2.2%, 14.7%, and 16.9% respectively.[4] Studies in Nepal have identified varied prevalence of substance use among adolescents.[5-6] Substance use among adolescents has also been identified to have genetic and environmental vulnerabilities.[7]

This pilot study was conducted for pretesting of different tools, identifying prevalence of and factors affecting problematic use of psychoactive substance which would help in conduction of a larger study in future.

METHOD

This pilot study was a cross-sectional concurrent parallel mix method study with purposive sampling of students of a private bachelor level college of Kathmandu Metropolitan city and bachelor level students, their teachers, and guardian of Kohalpur Municipality. The sites were chosen as previous study suggested problem of drug abuse to be localized in the urban, semi-urban areas, and along the border of Nepal and India.[8] Fifty students were selected for quantitative data collection and two students (one user and one non-user), one hostel warden, and two teachers were selected for qualitative interviews.

One private bachelor level college from Kathmandu Metropolitan city was selected purposively for the quantitative study. Initially, a visit was made to the college for coordination and feasibility of the pilot study and the authority of the college were informed about the study and its objectives. Written consent to conduct the study within the college was obtained from the college authority. In the next visit, students of the college were approached at random for data collection. Written consent was provided from the participants before the study. In three visits, 50 students completed the quantitative questionnaires. Before forwarding the questionnaire, briefing about the study and its objectives was provided with assurance about anonymity and confidentiality of the information shared by the participants. Researcher was also present in the class to help understand the questions of the questionnaire. Presence of the researcher in the class also minimized copying or sharing of responses by the participants.

Socio-demographics of the participants were collected using variables from different tools used for national surveys like census and Nepal Demographic Health Survey (NDHS). Modified Kuppuswamy Scale in context of Nepal[9] was used to create the socio-economic status of the participants. Adverse experiences questionnaire (Self-administered) was adopted from Juvenile Victimization Questionnaire Second Revision (JVQ-R2) and Adverse Childhood Experiences International Questionnaire (binary version). A 5-likert scale Ryff's Psychological Well-being (PWB) scale was used to measure psychological well-being score of the participants. CRAFFT+N screening tool was used to screen for problematic use of psychoactive substances. Authorities of the respective tools were contacted and permission to use the tools was obtained through emails before the start of the study. One public health scholar translated all the tools to Nepali and another back translated them into English. Tools in Nepali aided in easy understanding of the questions by the participants. Alpha reliability of all the tools in Nepali were also calculated which helped in language validation of those tools.

In-depth interviews (IDIs) were conducted with students and Key Informant Interviews (KIIs) were conducted with guardian and teachers using an Interview Guideline finalized from extensive literature review, presentation, and discussion with supervisor and scholar with knowledge of qualitative data analysis. All interviews were conducted face-to-face in a separate room, maintaining privacy of the information being shared and were audio-recorded. Participants were provided with codes (students: IU, guardian: KG; and teachers: KT) during interview-taking, analysis of information, and presentation of results.

Alpha reliability of different tools used in the study were analyzed using EZR version 1.38. The categorical and continuous variables were subjected to descriptive analysis. Frequency and percentage were calculated for categorical variables whereas mean, standard deviation (SD), minimum, median, and maximum were calculated from continuous variables. Chi-square tests (Pearson's and Fisher's exact) were performed

with the problematic substance use among students who ever used any substances as dependent variable and socio-demographic characteristics, childhood experiences, and psychological well-being as independent variables. Thematic analysis[10] of the interviews were conducted in RQDA package[11] for R using six steps of Braun and Clarke[12] to synthesize the findings. Intercoder reliability was calculated for two independent coders with 60% positive agreement.

Data and information for this pilot study were collected in early March 2020 and analysis were completed by end of March 2020. Ethical clearance for the final study of thesis (PHP2008061407) was obtained from Institutional Review Committee- Patan Academy of Health Sciences (IRC-PAHS) on August 6, 2020. Informed consent was obtained from all the participants before the study.

RESULT

Cronbach's alpha for Adverse experiences questionnaire (Self-administered), Ryff's psychological well-being scale (5 Likert scale), and CRAFFT+N screening tool were 0.8149, 0.7045, and 0.7245 respectively. Results from the descriptive analysis of substance use and problematic use are provided in Table 1. Among the total participants (N=50), the lifetime prevalence of alcohol use only, marijuana and related substance use only, over the counter illicit substance use only, nicotine and related substance use only were 68%, 26%, 4%, and 36% respectively with lifetime prevalence of any substance use as 70%. 36% of the total participants and 51.4% of those who had ever used any one of the substances were identified to have problematic substance use. Mean age of the participants who had ever used substances (N=35) was 22.2 ±1.4 years with minimum age of 19 years and maximum age of 25 years. Average Ryff's PWB Score was 63.7±8.6 with minimum of 38 and maximum of 79.

From the Chi-square test (Table 2 and 3), sex [OR 28.39, 95% CI: 3.09-1436.40) and social discrediting by peers [OR 6.04, 95% CI:1.19-37.90] were identified to have significant association with problematic substance use (p-value less than 0.05). Physical abuse by caregiver though had p-value equal to 0.05 with OR of 3.89 but the 95% Confidence Interval was 0.78-23.28.

Findings from the qualitative analysis are provided in Table 4. Male sex was identified as the major biological risk factor influencing problematic substance use. One of the participants reported that though both sexes use substances, males were more prone for problematic use. One of the participants also reported domestic violence to be influencing problematic use of substances. Peers were identified as the most important interpersonal risk factor for influencing use of substances. The pressure from peers was identified as risk factor for problematic use of psychoactive substances among bachelor level students.

"Though adolescents of both the sexes abuse substances but it is higher among males than in females." KT2

"Instable family environment like quarrels between the family members also act as risk factor for substance abuse in adolescents." KG1

"According to psychology, family and friends are the major factors that affect adolescents' behavior and choices. Family and environment play equal role in adolescent substance use. If the family environment is good and supportive but the friend circle is bad then it may also have risk of substance abuse. Similarly, even if any adolescent has good friend circle but the family environment is bad then risk of substance abuse may be present." KT2

Table 1. Descriptive analysis of substance use and problematic use

SN	Variable	Frequency (%)	SN	Variable	Frequency (%)
1	**Substance use (alcohol)**		**5**	**Substance use (any)**	
	No	16 (32.0)		No	15 (30.0)
	Yes	34 (68.0)		Yes	35 (70.0)
2	**Substance use (marijuana and related)**		**6**	**Problematic use (among all samples)**	
	No	37 (74.0)		No	32 (64.0)
	Yes	13 (26.0)		Yes	18 (36.0)
3	**Substance use (illicit, over the counter)**		**7**	**Problematic use (among users) (N = 35)**	
	No	48 (96.0)		No	17 (48.6)
	Yes	2 (4.0)		Yes	18 (51.4)
4	**Substance use (nicotine and related)**				
	No	32 (64.0)			
	Yes	18 (36.0)			

Table 2. Chi-square between dependent variable and fixed variables

S.N.	Variable	Problematic use of substance		p-value	Odds Ratio (OR) with 95% Confidence Interval (CI)
		No (N, %)	Yes (N, %)		
1.	**Age**				
	19	0 (0.0)	1 (5.6)	0.15[a]	
	20	0 (0.0)	1 (5.6)		
	21	2 (11.8)	7 (38.9)		
	22	7 (41.2)	4 (22.2)		
	23	6 (35.3)	2 (11.1)		
	24	0 (0.0)	1 (5.6)		
	25	2 (11.8)	2 (11.1)		
2.	**Sex**				
	Female	16 (94.1)	6 (33.3)	<0.001[b]*	28.39* (3.09-1436.40)
	Male	1 (5.9)	12 (66.7)		
3.	**Ethnicity**				
	Brahmin/Chhetri	9 (52.9)	14 (77.8)	0.12[a]	
	Dalit	0 (0.0)	0 (0.0)		
	Janajati	6 (35.3)	1 (5.6)		
	Others	2 (11.8)	3 (16.7)		
4.	**Marital status**				
	Unmarried	14 (82.4)	17 (94.4)	0.34[a]	0.28 (0.00-4.00)
	Married	3 (17.6)	1 (5.6)		
	Others	0 (0.0)	0 (0.0)		
5.	**Study stream**				
	Science	15 (88.2)	17 (94.4)	0.60[a]	0.45 (0.00-9.50)
	Management	0 (0.0)	0 (0.0)		
	Others	2 (11.8)	1 (5.6)		
6.	**Type of family**				
	Nuclear	11 (64.7)	10 (56.6)	0.58[b]	1.45 (0.31-7.13)
	Joint	6 (35.3)	8 (44.4)		
7.	**Father's literacy status**				
	Illiterate	1 (5.9)	0 (0.0)	0.49[a]	Infinity (0.03-Infinity)
	Literate	16 (94.1)	18 (100.0)		
8.	**Mother's literacy status**				
	Illiterate	3 (17.6)	2 (11.1)	0.66[a]	1.69 (0.17-22.98)
	Literate	14 (82.4)	16 (88.9)		
9.	**Socio-Economic Status grading**				
	Upper	3 (17.6)	4 (22.2)	0.52[a]	
	Middle	14 (82.4)	12 (66.7)		
	Lower	0 (0.0)	2 (11.1)		

[a] Fischer's exact test, [b] Pearson's chi-square test, * significant at p≤0.05

Modified Kuppuswamy Scale Score[9]: 26-29 (Upper Socioeconomic class); 11-25 (Middle Socioeconomic class); 10 or less (Lower Socioeconomic class)

Table 3. Chi-square between dependent variable and intermediate variables

S.N.	Variables	Problematic use of substances		p-value	Odds Ratio (OR) with Confidence Interval (CI)
		No	Yes		
1.	**Verbal harassment (sexual or other)**				
	No	4 (23.5)	6 (33.3)	0.71[a]	0.62 (0.10-3.41)
	Yes	13 (76.5)	12 (66.7)		
2.	**Physical abuse with weapon**				
	No	10 (58.8)	6 (33.3)	0.13[b]	2.77 (0.60-14.13)
	Yes	7 (41.2)	12 (66.7)		
3.	**Physical abuse without weapon**				
	No	7 (41.2)	6 (33.3)	0.63[b]	1.39 (0.29-6.91)
	Yes	10 (58.8)	12 (66.7)		
4.	**Psychological/Emotional abuse**				
	No	9 (52.9)	6 (33.3)	0.24[b]	2.20 (0.47-10.99)
	Yes	8 (47.1)	12 (66.7)		

5.	**Physical abuse by gang or group**				
	No	14 (82.4)	15 (83.3)	1.0[a]	0.94 (0.11-8.20)
	Yes	3 (17.6)	3 (16.7)		
6.	**Physical abuse by peer or siblings**				
	No	8 (47.1)	4 (22.2)	0.12[b]	3.01 (0.59-18.04)
	Yes	9 (52.9)	14 (77.8)		
7.	**Relational aggression by peers**				
	No	8 (47.1)	8 (44.4)	0.88[b]	1.11 (0.24-5.12)
	Yes	9 (52.9)	10 (55.6)		
8.	**Sexual abuse by known adult**				
	No	10 (58.8)	14 (77.8)	0.23[b]	0.42 (0.07-2.19)
	Yes	7 (41.2)	4 (22.2)		
9.	**Sexual abuse by unknown adult**				
	No	10 (58.8)	14 (77.8)	0.23[b]	0.42 (0.07-2.19)
	Yes	7 (41.2)	4 (22.2)		
10.	**Witness to domestic violence**				
	No	11 (64.7)	13 (72.2)	0.63[b]	0.71 (0.13-3.70)
	Yes	6 (35.3)	5 (27.8)		
11.	**Witness to assault with weapon**				
	No	8 (47.1)	5 (27.8)	0.24[b]	2.26 (0.47-12.03)
	Yes	9 (52.9)	13 (72.2)		
12.	**Exposure to community violence**				
	No	10 (58.8)	12 (66.7)	0.63[b]	0.72 (0.15-3.48)
	Yes	7 (41.2)	6 (33.3)		
13.	**Physical abuse by caregiver**				
	No	13 (76.5)	8 (44.4)	0.05[b]*	3.89 (0.78-23.28)
	Yes	4 (23.5)	10 (55.6)		
14.	**Neglect**				
	No	15 (88.2)	11 (61.1)	0.12[a]	4.56 (0.69-53.36)
	Yes	2 (11.8)	7 (38.9)		
15.	**Neglect from parental incapacitation**				
	No	15 (88.2)	18 (100.0)	0.23[a]	0 (0.0-4.97)
	Yes	2 (11.8)	0 (0.0)		
16.	**Neglect from parental absence**				
	No	15 (88.2)	13 (72.2)	0.40[a]	2.80 (0.38-34.15)
	Yes	2 (11.8)	5 (27.8)		
17.	**Social discrediting by peers**				
	No	11 (64.7)	4 (22.2)	0.01[b]*	6.04* (1.19-37.90)
	Yes	6 (35.3)	14 (77.8)		
18.	**Social exclusion by peers**				
	No	6 (35.3)	6 (33.3)	0.90[b]	1.09 (0.22-5.50)
	Yes	11 (64.7)	12 (66.7)		
19.	**Murder of family member or friend**				
	No	14 (82.4)	18 (100.0)	0.10[a]	0 (0.0-2.19)
	Yes	3 (17.6)	0 (0.0)		
20.	**Biased physical abuse**				
	No	14 (82.4)	17 (94.4)	0.34[a]	0.28 (0.01-4.00)
	Yes	3 (17.6)	1 (5.6)		
21.	**Sexual abuse by peer/sibling**				
	No	13 (76.5)	15 (83.3)	0.69[a]	0.66 (0.08-4.70)
	Yes	4 (23.5)	3 (16.7)		
22.	**Psychological well-being Score**				
	Less than 64	7 (41.2)	9 (50.0)	0.60[b]	0.71 (0.15-3.22)
	More than or equal to 64	10 (58.8)	9 (50.0)		
23.	**Substance use (alcohol)**				
	No	1 (5.9)	0 (0.0)	0.49[a]	Infinity (0.03-Infinity)
	Yes	16 (94.1)	18 (100.0)		
24.	**Substance use (marijuana and related)**				
	No	12 (70.6)	10 (55.6)	0.36[b]	1.88 (0.39-9.94)
	Yes	5 (29.4)	8 (44.4)		

25.	**Substance use (illicit, over the counter)**				
	No	17 (100.0)	16 (88.9)	0.49[a]	Infinity (0.19-Infinity)
	Yes	0 (0.0)	2 (11.1)		
26.	**Substance use (nicotine and related)**				
	No	9 (52.9)	8 (44.4)	0.62[b]	1.39 (0.31-6.50)
	Yes	8 (47.1)	10 (55.6)		

[a] Fischer's exact test, [b] Pearson's chi-square test, * significant at p≤0.05

Table 4. Findings from thematic analysis of IDIs and KIIs

Themes	Factors
Individual level	**Risk Factors:** Younger age, Male sex, Cold climate, Low economic status, Unemployment, Good perception on substance use, Curiosity, Fun, Relief tension, Copying others, Failure in exam, Failure in love, Knowledge on substance use, Residence **Both:** Education, Personality
Interpersonal level	**Risk factors:** Instable family environment, Distance with family, Domestic violence, Familial use, Inadequate care from family, Peer pressure
Socio-cultural level	**Risk factors:** College environment, Social drinking, Easy availability, Open border, Cultural use **Protective factors:** Awareness raising, Religious group **Both:** Social environment, Rules and regulations, Mass media

DISCUSSION

The alpha reliability (Cronbach's alpha) of Adverse experiences questionnaire (Self-administered), Ryff's psychological well-being scale (5 Likert scale), and CRAFFT+N screening tool in Nepali language were 0.8149, 0.7045, and 0.7245 respectively. Studies have recognized Cronbach's alpha value of more than 0.70 to show interrelatedness between items in the scale and homogeneous constructs.[13]

Sex was identified as a major risk factor for problematic use of psychoactive substances. Studies in Nepal[5] and elsewhere,[14-15] have also identified males to be more likely to be involved in substance use. However, no significant gender differences in smoking, binge drinking, and marijuana use was identified from a study in Hungary.[16] Social discrediting by peers was also identified as risk factors for problematic use of psychoactive substances from this study. Peer cluster theory suggests that drug use among adolescents is directly linked to peer relations.[17] A study in Nepal has also identified peer factors to have significant association with drug use.[18] Different qualitative studies have identified similar peer-related factors influencing use of substances among adolescents.[19-20] Bad roles of family members or caregivers were also identified as risk factors for problematic use of psychoactive substances. Family interaction theory proposes that lack of parental supervision and support contributes to weak family attachments, adolescent personality, and involvement with substance using peers and substance use.[17] Family conflicts and poor parent-adolescent relationship has been identified to increase the risk of substance use among adolescents.[21]

Different risk and protective factors for problematic substance use were identified from the qualitative analysis at individual, interpersonal, and sociocultural level. Younger age, male sex, low economic status, unemployment, good perception on substance use, curiosity, fun, relief tension, copying others, failure in exam, failure in love, knowledge on substance use, and residence at individual level; unstable family environment, distance with family, domestic violence, familial use, inadequate care from family, and peer pressure at interpersonal level; and college environment, social drinking, easy availability, open border, and cultural use at socio-cultural level were identified as risk factors for problematic use of psychoactive substances. Awareness raising and presence of religious group were identified as protective factors and education, personality, social environment, rules and regulations, and mass media were identified as both protective and risk factors for problematic substance use. Studies have identified similar risk and protective factors at individual, relational, community, and societal level.[20,22,23]

The study used a new tool Adverse experiences questionnaire (Self-administered) adopted from Juvenile Victimization Questionnaire Second Revision (JVQ-R2) and Adverse Childhood Experiences International Questionnaire (binary version) with good alpha reliability for identifying various intermediate variables on adverse experiences, however factor and component analysis of the tool could help provide thematic

grouping of variables for associations. Findings from the study cannot be generalized due to the non-random sampling of participants, however, this study provides basis for conducting robust studies on similar topic.

CONCLUSION

High prevalence of lifetime psychoactive substance use and high percentage of problematic use among substance users identified the need for interventional approach. Presence of risk factors at different socio-ecological levels implies that interventions need to be targeted at varying levels, majorly focusing on awareness raising at individual, family, and community level and strict rules and regulations from political level.

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