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The Relationship between Mental Health and Drug-use among Nepali Adolescents

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ABSTRACT

The purpose of this study is to identify the mental health status of Nepali adolescents and understand the factors that trigger the risk of drug-use. Survey has been conducted in the capital city of Kathmandu and Bhaktapur with 463 Nepali adolescents age group 13 to 19 using the scales of anxiety, depression, stress, cognitive-emotion regulation, self-esteem, potential drug-use. The results of this study are as follows. First, the level of anxiety, depression, and stress are within the scope of 'mild to moderate,' 'mild,' 'moderate' respectively. The level of self-esteem is within the range of 'normal,' and potential of drug-use is also within the scope of 'non-potential drug-use.' Second, the mental health-related variables selected in this study is accounted for about 23.4% of potential drug-use. Depression, self-esteem, and less adaptive cognitive emotional regulation has a significant impact on potential drug-use, while other variables do not. This study is worthwhile to provide basic data for the development of a mental health program and addiction prevention programs for Nepali adolescents.

Keywords: *Nepali adolescents, mental health, potential drug-use, anxiety, depression, stress, self-esteem*

Introduction

Drug abuse is one of the diseases that make human life unhappy and interfere with functioning as a healthy society, causing severe personal and social problems [1]. Also, it can lead to somatic symptoms (such as headache, insomnia, digestive, cardiovascular and immune system problems), cause mental health problems (such as anxiety, depression, and antisocial), and increase the risk of suicide. Besides, drug abuse is also associated with crime and may cause social harm.

Adolescence is a time of significant growth and development in the brain and may have various adverse effects by drug-use in a wide variety of areas such as learning, interpersonal, cognitive and language, and emotional development. And adolescent drug abuse is also known as a risk factor that increases the possibility of addiction in adulthood [2]. In particular, the use of medication before the age of 14 increases the likelihood of experiencing depression, suicidal thoughts, attempts and psychopathology.

Nepal is a multi-ethnic, cultural, religious, bi-lingual society and has diverse customs, the caste system. Sometimes, substances use such as alcohol and marijuana is socially accepted according to those various customs and traditions. As a result, the production, sale and consumption of alcohol are increasing in Nepal [3], which caused high rate (17.4%) of alcohol use among adolescents [4]. The prevalence of drug-use and abuse among Nepali adolescents is 10%, and more than three quarters (81.2%) of illegal substance users responded that they had started before 20 years old. Despite the high risk of drug-use, there are fewer numbers of rehabilitation centers that also may lack specialized adolescent treatment programs in Nepal.

In order to develop prevention programs for drug abuse, it is necessary to identify drug-use status and influential factors. So far there have been many studies on the relationship between drug-use and psychosocial factors, such as ethnic and culture, family relationships, peer relationships, and a history of family drug-use. Moreover, many pieces of research have shown a

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strong association in mental health with drug-use [5-6]. In particular, depression has a direct effect on adolescents' drug abuse. Anxiety is also a factor that increases the risk of drug-use because adolescents try to consume drugs to reduce tension or attempt at self-medication. However, the self-medicating individual may be at high risk for mood disorders, substance use disorders, and suicidal behavior. Moreover, stress also increases the likelihood of drug-use. In particular, social stress and economic stress are found to be a trigger of adolescent drug-use. In the case of Nepal, many people have posttraumatic stress disorder due to an earthquake in 2015, which is expected to increase the likelihood of drug-use among adolescents in Nepal.

Recently, studies on protective factors among mental health factors such as self-esteem and cognitive-emotional regulation ability have been actively conducted. Self-esteem is the subjective assessment of one's worth as a person. Concerning drug-use, it has a significant relationship with self-esteem. Self-esteem itself is considered to be a critical factor in preventing adolescent drug-use. While some researchers reported a strong relationship between self-esteem and drug abuse, some others reported a weak relationship. Another important protective factor is Cognitive Emotion Regulation (CER). It is a cognitive way of managing the intake of emotionally arousing information. CER was found to play an essential role in the relationships between the negative experiences of life and the reporting of symptoms of depression and anxiety [7]. In recent years; research is underway to clarify which CER strategies are protecting the drug-use.

Prevention in addiction is crucial before it reaches the level of addiction. For this reason, in many countries, drug abuse prevention education for young people is mandatory. However, Nepal is still behind and there is few professional preventive educational treatment programs that exist for an adolescent who suffers from drug-use. Especially, research on the relationship between adolescent drug abuse potential and mental health has not been conducted yet. In order to develop drug abuse preventive treatment programs for adolescents, it is necessary to identify adolescent drug abuse inducement factors and their protective factors, and to identify the relationship between those factors. Therefore, this study aims to investigate the mental health status and drug-use risk factors of adolescents in Nepal. Research problems are as follows. First, what are the potential drug-use and mental health of adolescents in Nepal? Second, what are the relationship between mental health and drug-use among Nepali adolescents?

Materials and Method

Participants: Four hundred sixty-three adolescents in Nepal participated during the Survey. Amongst, 233 are men and 230 are women. The participants' age was 13 to 19 years. The criteria for youth age can be defined variously by each nation, and this study follows the criteria provided by WHO, ages 13 to 19. The age group is 14 years (22.9%) higher, respectively, 15 years (18.6%), 17 years old (16.8%), 13 years old (13.8%), 18 years old (13.6%) and 16 years old (12.5%).

Procedure: The survey conducted by two trained Nepali students who are currently studying master degree and each questionnaire was conducted by face to face method. If students did not understand the questionnaire items, an additional explanation was provided. A total of six questionnaires (133 items) were translated into Nepali. In the translation process, two international students from Nepal who are fluent in Nepali and English translated English to Nepali. Also, the translation results were compared and revised. Then, the translation into Nepali was translated into English and compared with the English text. Then a professor from Nepal edited and confirmed the results.

Tools

Anxiety (Beck Anxiety Inventory, BAI): BAI is a multiple-choice self-report inventory that is used for measuring the severity of anxiety [8]. The standardized cutoffs are: 0–9(normal to minimal), 10–18(mild to moderate), 19–29(moderate to severe), 30–63(severe). In this study, BAI's Cronbach's α was .85.

Depression (Beck Depression Inventory, BDI): BDI is a multiple-choice self-report inventory for measuring the severity of depression [9]. In this study, Cronbach's α of BDI was .83. The standard cut-off scores were as follows: 0–9(minimal), 10–18(mild), 19–29(moderate), 30–63(severe).

Stress (Perceived Stress Scale, PSS): The Perceived Stress Scale (PSS) is the most widely used psychological instrument for measuring the perception of stress [10]. Cronbach's α was .70 or higher in several studies using this scale, but it was .54 in this study. The standard cut-off scores were as follows: 0-13 (low), 14-26 (moderate), 27-40 (high).

Cognitive Emotion Regulation (Cognitive Emotion Regulation Questionnaire, CERQ): CERQ is a multidimensional questionnaire constructed in order to identify the cognitive coping strategies someone uses after having experienced adverse events or situations [11]. The CERQ is a self-report questionnaire consisting of 18 items. The Cronbach's α of CERQ was .88 at the end of the study. In this study, Cronbach's α of CERQ was .88.

Self-esteem (Rosenberg Self-Esteem Scale, SES): SES consists of a total of 10 questions [12]. The cut-off point for problematic self-esteem is 15 points. The Cronbach's α of SES was .61.

Potential Drug-use (Screening Scale for Potential Drug-use Adolescents, SPDA): SPDA was designed to screen potential drug-users [13]. A total of 35 items consist of a 4-point scale. Potential drug-use cut-off point for adolescent screening is 73 points. The potential group is 73 points or more, and the non-potential group is 73 points or less. Cronbach's α of the SPDA was .90.

Statistical Analysis

Descriptive analysis was employed to determine the level of mental health in the study group. And a Pearson *r* correlation coefficient was calculated to test whether potential drug-use is associated with mental health variables. A multiple regression analysis was calculated for each outcome of interest. A significance level of $p<.05$ was applied. All data were analyzed using SPSS.

Ethical Considerations: Ethical approval was obtained from the Nepal government (NHRC No. 2485) and Namseoul University Research Ethics Committee in South Korea (No. NSUIRB-201807-001).

Results and Discussion

Mental Status: Table 1 shows that the mean of anxiety ($M = 15.94$) of Nepali adolescents was within the range of 'mild to moderate'. And there was a significant difference between male and female adolescents ($t = -2.86$, $p = .004$) and among school levels ($F = 3.51$, $p = .031$).

The mean of depression ($M = 14.89$) of Nepali adolescents was within the range of 'mild' level (19-29 points). There was a significant difference between male and female adolescents ($t = -3.78$, $p = .001$) and among school levels ($F = 4.27$, $p = .015$).

The mean of stress ($M = 18.54$) of Nepali adolescents was also within the range of 'moderate' (14-26 points). Results showed the stress level of female students was significantly higher than male students ($t = -3.12$, $p = .002$) and the higher secondary adolescents was significantly higher ($F = 4.26$, $p = .015$).

The mean of self-esteem ($M = 17.15$) of Nepali adolescents belonged to the normal level (over 15 points). However, problematic low self-esteem was 32.2%. There was no significant difference between male and female, and among school levels ($F = 2.34$, $p = .098$).

The mean of potential drug-use ($M = 65.46$) of Nepali adolescents indicates it is not within the range of potential drug-use group (greater than 73). However, 29.2% of the students were within the potential drug-use group. There was a significant difference between male and female adolescents ($t = 3.39$, $p = .001$) and among school levels ($F = 32.02$, $p = .001$).

Table 1: Descriptive Statistics of Mental Health Factors

	Sex	Male				Female				Total			
Var.	School Level	M	LS	HS	Sum	M	LS	HS	Sum	M	LS	HS	Sum
	n	69	66	98	233	68	63	99	230	137	129	197	463
Anxiety	M	14.52	13.56	16.00	14.87	15.43	16.92	18.20	17.03	14.97	15.20	17.11	15.94
	SE	9.18	6.82	7.98	8.09	8.82	7.39	8.10	8.18	8.98	7.27	8.10	8.20
Depression	M	12.71	11.65	15.08	13.41	14.82	16.54	17.37	16.39	13.76	14.04	16.23	14.89
	SE	6.60	7.67	8.54	7.87	9.40	8.91	8.88	9.07	8.15	8.62	8.77	8.61
Stress	M	17.41	17.74	18.23	17.85	17.82	19.41	20.11	19.24	17.61	18.56	19.18	18.54
	SE	4.12	4.85	4.51	4.49	4.94	5.40	4.86	5.11	4.53	5.18	4.77	4.85
Self-esteem	M	17.57	18.06	16.84	17.40	17.43	16.96	16.49	16.90	17.50	17.52	16.66	17.15
	SE	3.50	3.74	3.77	3.71	5.00	4.98	4.09	4.62	4.30	4.41	3.93	4.19
Potential Drug-use	M	60.49	64.48	74.73	67.61	62.87	57.08	67.49	63.27	61.67	60.87	71.10	65.46
	SE	12.61	12.28	14.71	14.78	12.57	10.10	12.61	12.66	12.60	11.82	14.14	13.92

Note. M=Middle School, LS=Lower Secondary School, HS=Higher Secondary School

The Relationships among Mental Status Variables: Table 3 shows the correlation between mental health variables and potential drug-use. While potential drug-use is correlated positively but weakly with anxiety and stress, moderately with depression. On the other hand, self-esteem is weakly but negatively correlated. Among CERQ adaptive strategies, potential drug-use is correlated with 'Positive Reappraisal' negatively, and 'Putting into Perspective' positively. Among CERQ less adaptive strategies, potential drug-use is correlated with 'Acceptance,' 'Rumination,' 'Catastrophizing,' 'Other-blame,' and 'Self-blame' positively

Table 2: Correlation Matrix Among Mental Health Variables

Variables	Dep	Str	SE	PDU	CERQ adaptive regulation strategies				CERQ less adaptive regulation strategies				
					PR	ReP	PoR	PP	AC	RU	CA	OB	SB
Anx	.505**	.421**	-.295**	.303**	.118*	.099*	.018	.166**	.264**	.289**	.326**	.212**	.372**
Dep		.593**	-.547**	.423**	-.023	-.012	-.103*	.218**	.263**	.246**	.500**	.294**	.470**
Str			-.525**	.292**	-.013	-.022	-.081	.240**	.253**	.219**	.387**	.251**	.409**
SE				-.346**	.108*	.132**	.225**	-.133**	-.177**	-.165**	-.341**	-.156**	-.374**
PDU					.003	-.022	-.096*	.203**	.175**	.156**	.324**	.320**	.258**

Note: Anx=Anxiety, Dep=Depression, Str=Stress, SE=Self-esteem, PDU=Potential Drug-use, PR=Positive Refocusing, ReP=Refocus on planning, PoR=Positive reappraisal, PP= Putting into Perspective, AC=Acceptance, RU=Rumination, CA=Catastrophizing, OB=Other-Blame, SB=Self-blame

The Effects of Mental Health Variables on Potential Drug-use: Table 3 presents the results of the multiple regression analyses on potential drug-use with mental health variables. The total model explained 23.6% of the variance of drug-use (F = 11.97,df = 13,449, p = .001). Anxiety, depression, self-esteem significantly predicted potential drug-use, but not the stress score was identified as significant predictors. Besides, the other-blame strategy was a predictor of potential drug-use. All CERQ adaptive strategies were not predictive of potential drug-use.

Table 3: Summary of Multiple regression Analysis on Potential Drug-use With Mental Health Variables

Predictors		*B*	SE	β	t	p	R^2	corrected R^2	F
	(Constant)	60.20	5.50		10.95	.000			
	Anxiety	0.19	0.08	.11	2.24	.026	.257	.236	11.97***
	Depression	0.35	0.10	.22	3.58	.000			
	Stress	-0.13	0.16	-.04	-0.82	.413			
	Self-esteem	-0.50	0.18	-.15	-2.84	.005			
CERQ – ARS	Po_Refocus [a]	0.12	0.25	.03	0.49	.626			
	Re_Plan [b]	-0.16	0.27	-.04	-0.58	.565			
	Po_Reapprais [c]	-0.32	0.26	-.07	-1.26	.210			
	Put_Perspect [d]	0.30	0.22	.07	1.39	.164			
CERQ - LARS	Acceptance	0.13	0.25	.03	0.51	.610			
	Rumination	-0.12	0.22	-.03	-0.55	.580			
	Catasrophizing	0.18	0.22	.05	0.82	.412			
	Other-Blame	0.87	0.23	.18	3.73	.000			
	Self-blame	-0.05	0.24	-.01	-0.19	.846			

Note: Po_Refocus [a]=Positive Refocusing, Re_Plan [b]=Refocus on planning, Po_Reapprais [c]=Positive reappraisal, Put_Perspect [d]= Putting into Perspective

Discussion

This study reveals that the level of anxiety, depression, and stress of Nepali adolescents was within the range of mild and moderate level. However, adolescents feel 'moderate to severe' anxiety (30.2%) and 'severe' anxiety (6.7%), 'moderate' and 'severe' depression (28.3%), moderate stress (80.8%). This result shows that Nepalese teenagers feel depressed, anxious, and stressful enough to feel uncomfortable with their adaptation although they do not experience any pathological levels of anxiety, depression, and stress. Especially, anxiety, depression, and stress were found to be higher in female than male adolescents. Moreover, in this study, the higher the school level, the more anxiety, depression, and stress indicate that middle-to-late adolescence (ages 15-18) may be more vulnerable time. Therefore, female adolescents in Nepal are at a higher risk of anxiety, depression, and stress.

The prevalence of problematic self-esteem of Nepali adolescents is 32.2%. The mean score of Nepali adolescents' self-esteem is relatively lower than that of other countries adolescents [14-15]. Also, in the comparison analysis according to the school level, there was no significant difference. The results of the previous studies on the change of self-esteem according to the age of adolescents showed various variations. This result shows that there might be a slight difference according to cultures and countries.

Nepali adolescents use adaptive regulation strategies mainly such as 'Refocus of Planning,' 'Positive Reappraisal,' 'Positive Refocusing.' However, considering the results on the relationships with PDU, anxiety, depression, stress, only 'Positive reappraisal' had a week negative association with them. 'Putting into Perspective' had even positive association. This means that adaptive regulation strategies of CERQ are not effective in coping stress events, and teaching and reinforcing regulation strategies such as 'Putting into Perspective' may result in negative effects on mental health. One more thing to consider is that though 'Acceptance' was classified as an adaptive strategy in one study [16], this study is consistent with the study that it is a less adaptive strategy [17] and is positively correlated with depressive symptoms.

The mean of SPDA among Nepali adolescents was under the cut-point, but 29.2% of the adolescents were at risk for potential drug-use. This result can be compared with the study [18] in which the mean of the SPDA was 57.11 and 18.6% of the Korean middle school students were a potential drug-use group. In addition, this study reveals that potential drug-use is higher in male adolescents and increases according to age and grade. This result may be due to the Nepali environment where men are easy to get addictive substances and to the culture that substance use such as alcohol and marijuana are allowed to have socially. It suggests that the need of the education and programs to be provided.

Significant predictors among mental health variables on PDU were anxiety, depression, self-esteem, other-blame regulation strategy. This result is consistent with the previous studies in that depression and anxiety have a significant effect on substance abuse, that self-esteem affects substance abuse, and that less adaptive regulation strategies increase the possibility of drug-use. However, it is different from the previous studies in that stress does not appear to be a significant predictor. In the future, it is necessary to examine the effects of social stress on the drug-use in Nepali settings.

Conclusion

The anxiety, depression and stress level of adolescents in Nepal was in the range of 'mild and moderate,' and self-esteem was 'moderate,' and cognitive-emotional regulation strategies mainly used in stress situation were adaptive strategies. Mental health factors that have the most significant effect on potential drug-use were anxiety, depression, self-esteem, and other-blame regulation strategies. In the end, efforts to change the anxiety and depression and less adaptive regulation strategies of adolescents in Nepal are required to reduce the possibility of drug-use.

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