Depression, Anxiety and Stress among School Going Adolescents during COVID-19 Pandemic in a School in Lalitpur District: Online Survey

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ABSTRACT

Introduction: Coronavirus disease (COVID-19) epidemic is a public health emergency worldwide. It poses a challenge to balance the psychological state of every human being including the children. The objective of this study was to identify the depression, anxiety and stress among school going adolescents during COVID-19 in a school in Lalitpur District.

Methods: An online survey was conducted among 105 adolescents studying in grade 9 and 10 of a conveniently selected school in Lalitpur district. Data was collected using Depression Anxiety and Stress Scale–21 Items (DASS-21) a valid standard tool using a google form developed by researcher. Data entry and analysis was done using SPSS version 16. A descriptive and inferential statistics were calculated. A chi square test for categorical data and correlation coefficient for continuous data were used to establish the relationship between variables. P value ≤ 0.05 was used for statistical significance.

Results: More than half 52.4% were from 16 years. The mean age ± SD of respondent was 14.94±.77 years, 59.o% of respondents were from grade 10. More than half of respondpondents (50.5%) were male. Among the respondents, 12.4% had mild, 19.0% had moderate, 5.7% had severe and 6.7% had extremely severe symptoms of depression. Similarly 13.3% had mild, 14.3% had moderate, 2.9% had severe and 13.3% had extremely severe symptoms of anxiety. Furthermore, 11.4% had mild, 20.0% had moderate and 2.9% had severe symptoms of stress. There was a moderate positive correlation between anxiety and stress (r=0.616, p=.000), anxiety and depression (r= 0.536, p=.000) and, stress and depression (r=0.656, p=.000).

Conclusion: The symptoms of anxiety, depression and stress is prevalent among school going adolescents during the COVID-19 pandemic. All the variables depression, anxiety and stress are positively related to each other which suggest that management should be emphasized by parents and school administration for the promotion of mental health of school going adolescents.

Key words: Adolescent, Anxiety, Depression, Stress

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INTRODUCTION

In January 2020 the World Health Organization (WHO) declared the outbreak of a new coronavirus disease (COVID-19) to be a Public Health Emergency of International Concern which causes a heightened levels of stress; Anxiety throughout the world's population.[1] COVID-19 is highly infectious, and its main clinical characteristics include fever, dry cough, fatigue, myalgia, and dyspnea in the initial stage but older people and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory diseases, and cancer are more likely to develop serious illness.[2]

Around 1.5 billion children have been out of school in this COVID-19 pandemic in the world. These social restrictions lead feelings of anxiety, with many at risk of lasting psychological distress, including depression among school going adolescents.[3,4]

Various research findings revealed that potential psychosocial impacts of COVID- 19 are anxiety, depression, post-traumatic stress disorder, sleep disturbances, increased anxiety for self and others, psychological distress, social isolation, interruption to study among children. Adolescent might also be suffered from domestic violence, child abuse, child labor, child trafficking, child marriage, sexual exploitation and death also. [5-10]

Among global burden of disease and injury in people aged 10-19 mental health conditions account for 16%. Half of them start by 14 years of age but most cases are undetected and untreated. Depression is one of the leading causes among adolescents globally while suicide is the third leading cause of death in 15-19 year olds.[11] So the researchers aim to conduct a study on depression, anxiety and stress among school going adolescent during COVID-19 pandemic.

MATERIALS AND METHODS

A quantitative and descriptive cross sectional study design was applied through online survey among 105 adolescents studying in grade 9 and 10 of Pathashala Nepal Foundation, Bagdol, Lalitpur. There were total 120 adolescents studying in grade 9 and 10, having two sections in each class. Each section had 30 students. At the time of data collection only 105 adolescents responded. Data were collected by using DASS-21 standard tool in English version to measure the depression, anxiety and stress among respondents. DASS-21 indicated good internal consistency in which the Chronbach alphas were 0.88, 0.82 and 0.90 for Depression, Anxiety, and Stress respectively in the original tool.[12] This tool was also used in our neighbor county India in Kendriya Vidyalaya School in New Delhi among students from class nine to twelve [13].

The Depression, Anxiety and Stress Scale - 21 Items (DASS-21) are a set of three self-report scales designed to measure the emotional states of depression, anxiety and stress. Each of the three subscales contains 7 items having with similar content. Necessary instruction was provided before administering the questionnaire by the use of school administration's Microsoft teams by which their regular classes were continued. The data collection tool was dropped to the assignment section of each class. The grade teacher of each section helped to organize the time period and researcher joined that Microsoft teams; then researcher introduced among the respondents in each class. Verbal permission was taken from the respondents virtually on

Microsoft teams at the time of data collection. Data was collected using google form on 19th August, 2nd September, 9th September, and 16th September in each section. The link of google form had sent to assignment section of Microsoft teams of each respondent. Respondents were requested to fill up the question within their class period. Those respondents not completed within class period; provided one week to return their response. The ethical approval for the study was taken from the Nepal Health Research Council. At first, data was entered into Microsoft excel. Then, coding and cleaning the data before analysis in the Statistical Package for Social Science (SPSS) version 16 were done. Descriptive statistics (frequency, percentage, mean and standard deviation) and inferential statistics (chi square test and correlation) were applied to analyze the data. P value ≤0.5 was used for statistical significance.

RESULTS

Out of 105 respondents, more than half of them were male (50.5%) and the age 16 years 52.4% (n=55) respectively. The mean age ± SD of respondent was 14.94± 77 years. Regarding grade of respondents, 62(59%) respondents were from grade 10. Regarding ethnicity, majority of respondents 50(47.6%) were Brahmin, 96(91.4%) of respondents were followed Hinduism and 86(81.9%) of respondents belonged to nuclear family (Table 1).

Regarding the depression, anxiety and stress, it indicated that the respondents had moderate to extremely severe level of depression and anxiety related symptoms. Regarding stress respondents had mild to severe level of stress related symptoms. Among respondents, 12.4% had mild, 19.0 % moderate, 5.7% had severe and 6.7% had extremely severe depression related symptoms respectively. Similarly 13.3% had mild, 14.3% had moderate, 2.9% had severe and 13.3% had extremely severe anxiety related symptoms respectively where as 11.4% had mild, 20.0% had moderate and 2.9% had severe stress related symptoms respectively (Table 2).

There were not statistically significant association between sex, grade, type of family, religion, chronic disease in family, father's education, mother's education, father's occupation and employment of mothers' and depression at 95% confidence interval (P>0.05). Only the statically significant association was found between ethnicity of respondents' and depression at 95% confidence interval (P<0.05) (Table 3).

Again, statistically significant association were not found between, grade, ethnicity, type of family, religion, chronic disease in family, father's education, mother's education and father's occupation and anxiety at 95% confidence interval (P>0.05). Only the statically significant association were found between sex of respondents and employment of mothers' with anxiety at 95% confidence interval (P<0.05) (Table 4).

A significant association was found between sex of respondents and stress at 95% confidence interval (P <0.05) (Table 5). There was a moderate positive correlation between anxiety and stress (r=0.616, P <.01), anxiety and depression (r=0.536, P <.01) and, stress and depression (r=0.656, P <.01) (Table 6).

Table 1. Socio-demographic Characteristics of respondents

Characteristics	Frequency	Percentage
Age		
14 years	30	28.6
15 years	55	52.4
16 years	16	15.2
17 years	4	3.8
Mean age ± SD	14.94±.77	
Grade		
Class 9	43	41.0
Class 10	62	59.0
Sex		
Male	53	50.5
Female	52	49.5
Ethnicity		
Bhrahamin	50	47.6
Chhetri	22	21.0
Janajati	33	31.4
Religion		
Hinduism	96	91.4
Buddhism	7	6.7
Others	2	1.9
Type of family		
Nuclear	86	81.9
Joint	19	18.1

Table 2: Respondents' Level of depression anxiety and stress

Levels	Depression		Anxiety		Stress	
	Number	Percentage	Number	Percentage	Number	Percentage
Normal	59	56.2	59	56.2	69	65.7
Mild	13	12.4	14	13.3	12	11.4
Moderate	20	19.0	15	14.3	21	20.0
Severe	6	5.7	3	2.9	3	2.9
Extremely severe	7	6.7	14	13.3	-	-

Table 3: Association between socio-demographic variables with depression among adolescent

Socio-demographic variables	Presence of Depression				
	Number (%)	No N(%)	Yes N(%)	Chi-square	p- value
Sex of adolescent					
Male	53(50.47)	33 (62.26%)	20(37.7%)	1.604	0.205
Female	52(49.5)	26(50.0%)	26(50.0%)		
Grade of adolescent					
9	43(41.0)	28(65.1%)	15(34.9%)	2.357	0.125
10	62(59.0)	31(50.0%)	31(50%)		
Ethnicity					
Bhramin and Chhetri	72(68.6%)	35(48.6%)	37(51.4%)	5.346	0.021*
Janajati	33(31.4%)	24(72.7%)	9(27.3%)		
Type of family					
Single	86(81.9%)	46(33.5%)	40(46.5%)	1.410	0.235
Joint	19(18.1%)	13(68.4%)	6(31.6%)		
Religion					
Hinduism	96(91.4%)	54(56.2%)	42(43.8%)	.002	0.968
Buddhism	9(8.6%)	5(55.6%)	4(44.9%)		
Chronic disease in family					
Yes	32(30.5%)	16(50.0%)	16(50.0%)	.717	0.397
No	73(69.5%)	43(58.9%)	30(41.1%)		
Fathers' education					
Up to secondary level	7(6.7%)	3(42.9%)	4(57.1%)	.542	0.462
University level	98(93.3)	56(57.1%)	42(42.9%)		

Mothers' education					
Up to secondary level	21(20.0%)	13(61.9%)	8(38.1%)	.348	0.555
University level	84(80%)	46((54.8%)	38(45.2%)		
Fathers' employment					
Service	74(70.5%)	44(59.5%)	30(40.5%)	1.088	0.297
Business	31(29.5%)	15(48.4%)	16(51.6%)		
Mothers' employment					
Self employed	58(55.2%)	36(62.1%)	22(37.9%)	1.819	0.177
Home maker	47(44.8%)	23(48.9%)	24(51.1%)		

*significant at p-value <0.05

Table 4: Association between socio-demographic variables with anxiety among adolescent

Socio-demographic variables	Presence of Anxiety				
	Number (%)	No N(%)	Yes N(%)	Chi-square	p- value
Sex of adolescent					
Male	53(50.47)	36(67.9%)	17(32.1%)	5.986	0.014*
Female	52(49.5)	23(44.2%)	29(55.8%)		
Grade of adolescent					
9	43(41.0)	24(55.8%)	19(44.2%)	.004	0.948
10	62(59.0)	35(56.5%)	27(43.5%)		
Ethnicity					
Bhramin and Chhetri	72(68.6%)	37(51.4%)	35(48.6%)	2.146	0.143
Janajati	33(31.4%)	22(66.7%)	11(33.3%)		
Type of family					
Single	86(81.9%)	49(57.0%)	37(43.0%)	.119	0.730
Joint	19(18.1%)	10(52.6%)	9(47.4%)		
Religion					
Hinduism	96(91.4%)	52(54.2%)	44(45.8%)	1.863	0.172
Buddhism	9(8.6%)	7(77.8%)	2(22.2%)		
Chronic disease in family					
Yes	32(30.5%)	14(43.8%)	18(56.2%)	2.894	0.089
No	73(69.5%)	45(61.6%)	28(38.4%)		
Fathers' education					
Up to secondary level	7(6.7%)	5(71.4%)	2(28.6%)	.707	0.400
University level	98(93.3)	54((54.1%)	44(44.9%)		
Mothers' education					
Up to secondary level	21(20.0%)	14(66.7%)	7(33.3%)	1.170	0.279
University level	84(80%)	45(53.6%)	39(46.4%)		
Fathers' employment					
Service	74(70.5%)	44(59.5%)	30(40.5%)	1.088	0.297
Business	31(29.5%)	15(48.4%)	16(51.6%)		
Mothers' employment					
Self employed	58(55.2%)	39(67.2%)	19(32.8%)	6.428	0.011*
Home maker	47(44.8%)	20(42.6%)	27(57.4%)		

*significant at p-value <0.05

Table 5. Association between socio-demographic variables with stress among adolescent

Socio-demographic variables	Presence of Stress				
	Number (%)	No N(%)	Yes N(%)	Chi-square	p-value

Sex of adolescent					
Male	53(50.47)	43(81.1%)	10(18.9%)	11.291	0.001*
Female	52(49.5)	26(50.50%)	26(50.0%)		
Grade of adolescent					
9	43(41.0)	32(74.4%)	11(25.6%)	2.449	0.118
10	62(59.0)	37(59.7%)	25(40.3%)		
Ethnicity					
Bhramin and Chhetri	72(68.6%)	46(63.9%)	26(36.1%)	.339	0.561
Janajati	33(31.4%)	23(69.7%)	10(30.3%)		
Type of family					
Single	86(81.9%)	57(66.3%)	29(33.7%)	.067	0.795
Joint	19(18.1%)	12(63.2%)	7(36.8%)		
Religion					
Hinduism	96(91.4%)	62(64.6%)	34(35.4%)	.636	0.425
Buddhism	9(8.6%)	7(77.8%)	2(22.2%)		
Chronic disease in family					
Yes	32(30.5%)	18(56.2%)	14(43.8%)	1.830	0.176
No	73(69.5%)	51(69.9%)	22(30.1%)		
Fathers' education					
Up to secondary level	7(6.7%)	5(71.4%)	2(28.6%)	.109	0.742
University level	98(93.3)	64(65.3%)	34(34.7%)		
Mothers' education					
Up to secondary level	21(20.0%)	16(76.2%)	5(23.8%)	1.279	0.258
University level	84(80%)	53(63.1%)	31(36.9%)		
Fathers' employment					
Service	74(70.5%)	49(66.2%)	25(33.8%)	.028	0.867
Business	31(29.5%)	20(64.5%)	11(35.5%)		
Mothers' employment					
Self employed	58(55.2%)	39(67.2%)	19(32.8%)	.134	0.714
Home maker	47(44.8%)	30(63.8%)	17(36.2%)		

*significant at p-value <0.05

Table 6. Bivariate Pearson's correlation between anxiety, stress and depression

Measures	Anxiety	Stress	Depression
Anxiety	1		
Stress	0.616**	1	
Depression	0.536**	0.656**	1

**correlation is significant at the 0.01level (2- tailed)

DISCUSSION

The present study was designed as a descriptive cross-sectional analytical study to identify the depression, anxiety and stress among school going adolescent during COVID-19 pandemic and association between sex, grade, ethnicity, type of family, religion, chronic disease in family, father's education, mother's education, father's occupation and mother's occupation of respondents' with depression, anxiety and stress was examined. This study revealed the operationalization of outcome variables depression, anxiety and stress ranged from moderate to extremely severe level of depression and anxiety. Regarding stress respondents had mild to

severe level of stress. Among 105 respondents, 12.4% had mild, 19% had moderate, 5.7% had sever and 6.7% had extremely severe depression respectively. Similarly 13.3% had mild, 14.3% had moderate, 2.9% had severe and 13.3% had extremely severe depression respectively where as 11.4% had mild, 20.0% had moderate and 2.9% had severe stress respectively. A similar level of severity on depression and anxiety was found in a study conducted in Bangladesh among students studying in university. Where some students were experiencing heightened level of depression and anxiety. Among them 15% of the students reportedly had moderately severe depression, where as 18.1% were severely suffering from anxiety.[7]

Similarly among Chinese school children and adolescents had mental health effect associated with long term school closure due to the COVID-19 pandemic. The mental health effect was found increasingly significantly in second wave of corona virus infection than first wave. 18.5% of depressive symptoms among respondents was found in first wave and this depressive symptoms among the same respondents were increased up to 24.9%, non-suicidal self-injury among adolescents also increased from 31.8% in first wave to 42% in second wave, suicide ideation 22.5% in first wave to 29.7% in second wave, suicide pan 8.7% to 14.6% , suicide attempt 3.0% to 6.4% increase in second wave but there was slightly increase in anxiety between the 2 waves; it found 13.5% in first wave and 15.9% in second wave.[8] The findings of level of anxiety among adolescents of this study was found consistent with the findings of a study conducted in Malaysia during the COVID-19 pandemic and the lockdown. In Malaysia the impact on the anxiety level of university

students were assessed where out of 983 respondents, 20.4%, 6.6%, and 2.8% experienced minimal to moderate, marked to severe, and most extreme levels of anxiety.[9] A contradictory findings were found in a study conducted by Omari et al. where prevalence of depression, anxiety, and stress was 57%, 40.5%, and 38.1%, respectively, with no significant differences between countries.[14]

Depression, anxiety and stress was found decreasing with the increasing level of education in a study conducted by Zhang et al.where moderate depressive symptoms were found in 9.1% of junior high school students and 6.8% of high school students, and severe-to-extremely severe depressive symptoms were found in 5.3% of junior high school students and 2.6% of high school students. Moderate anxiety symptoms were found in 10.3% of junior high school students and 10.9% of high school students, and severe-to-extremely severe anxiety symptoms were found in 10.0% of junior high school students and 7.2% of high school students. Moderate stress symptoms were found in 5.9% of junior high school students and 6.8% of high school students, and severe-to-extremely severe stress symptoms were found in 3.0% of junior high school students and 2.6% of high school students.[15] In this present study there was no statistically significant association between sex, grade, ethnicity, type of family, religion, chronic disease in family, father's education, mother's education, father's occupation and mother's occupation of respondents' with depression and anxiety at 95% confidence interval (p-value >0.05) whereas statistically significant association was only found on sex of respondents and stress. In this present study there was a moderate positive correlation between anxiety and stress

(r=0.616), anxiety and depression (r= 0.536) and stress and depression (r=0.656) respectively. In this study, 11.42% of respondents' mothers were working in the hospital as a medical doctors and nurses so the statistical significant association might be found with employment of mothers'.

Limitations: The study population is limited among only the adolescents studying in grade 9 and 10 in a selected school. The school was selected conveniently and the census sampling was used so it may not a representative sample.

CONCLUSION

The survey concludes that depression, anxiety and stress related symptoms were highly present in school going adolescent during COVID-19 pandemic situation. Depression related symptoms were more among bhramin/chhetri ethnicity. Likewise anxiety and stress related symptoms are more among female respondents. About one fourth of respondents reported severe to extremely severe depression, anxiety and stress related symptoms suggesting that there is a need of mental health support program focusing on adolescents.

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