

Impact of Corona Virus Disease-19 on Mental Health of Adolescent Students

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Abstract

A communicable disease, caused by a recently detected severe acute respiratory syndrome corona virus2 (SARS-CoV-2), corona virus disease-19 (COVID-19) pandemic is rapidly increasing across the globe, creating range of psychological impact including panic disorder, stress, anxiety and depression. The objective of this paper is to describe the impact of COVID-19 on mental health of students based on anxiety and depression. The study followed descriptive survey design. Total 51 students of class 9 and 10 of Chhinnamasta-3, Saptari were selected for study. Interview schedule that contained items from General Anxiety Disorder-7 scale and Patient Health Questionnaire-9 were used to collect data. Simple descriptive statistics like percentage mean and T-test, Pearson's 'r' test and Spearman's 'rho' test were applied to analyze the data. All students had some level of anxiety and depression. There was no significant difference between the mean score of anxiety and depression among boys and girls. It is suggested that psychological counseling should be immediately provided to respondents.

Keywords: anxiety, COVID-19, depression, mental health

Introduction

A communicable disease, Corona virus disease (COVID-19) is caused by a recently detected severe acute respiratory syndrome corona virus2 (SARS-CoV-2) (Gupta & Goplani, 2020). The virus called 2019-nCoV is a Corona Virus that mainly attacks respiratory organs and leads to severe last stage of Pneumonia (Dangi & George, 2020). It is assumed that COVID-19 has

originated from animal source but at present, the virus is spreading from person to person though there are no rational details to identify how easily viruses transmit from one person to another. However, the droplets of human sneezing, coughing, or exhaling transmit the virus. It takes two days to fourteen days to develop symptoms of COVID-19 from exposure to virus (Gupta & Goplani, 2020).

The COVID-19 outbreak first appeared in Wuhan, Hubei, China, in December 2019 (Dubey et al., 2020). World Health Organization (WHO) declared COVID-19 outbreak as an international public health emergency on International Concerns on 30 January 2020 and announced the name of new coronavirus disease: COVID-19 on 11 February 2020 (World Health Organization, 2020a) and declared COVID-19 as a pandemic on 11 March 2020 (Gupta & Goplani, 2020). Feeling of stress and worry in any epidemic is normal for people (Inter-Agency Standing Committee [IASC], 2020). Similarly, this pandemic has massive negative affect on human being like cardiovascular disease (CVD), cancer, and HIV/AIDS (Fernandez & Kerns, 2008) that ultimately create a state of anxiety and depression among people and disturb their mental health.

Mental health is a condition of well-being where one can realize own capabilities, cope general stresses, be productive and contributes to own locality, whereas anxiety and depression are mental disorder that disturb mental health of a person (World Health Organization, 2018). Similarly, an emotional state that is complemented by broad changes of psychological aspects based on physical symptoms is anxiety (Lader, 1983). Similarly, a clinical situation that is associated with alteration of mood with reduced interest to already enjoyed activities, feelings of higher sadness and hopelessness is depression (Ballenger, 2000). Anxiety and depression have intimate relation with emotions, moods or affects and both are unfavorable situation regarding to their seriousness, longevity and prevalence (Lader, 1983). Both anxiety and depression are combined effect of any negative aspect that root in fear and sadness and it may be emotions, moods, or temperaments (Fernandez & Kerns, 2008).

COVID-19 is not only health crisis, it is crisis of human existence that creates long term effects on social, economic, behavioral and psychological effects (Ghosh, Dubey, Chatterjee, & Dubey, 2020). The COVID-19 pandemic is rapidly increasing across the globe, creating range of psychological impact including panic disorder, anxiety, depression and stress (World Health Organization, 2020b). COVID-19 has high infectivity and fatality rate that caused worldwide psychosocial impact by causing mass hysteria, economic burden and financial losses (Dubey et al., 2020). The danger of post-traumatic stress disorder (PSTD), depression and anxiety increase during pandemic like calamities and these are potential drastic influences on adolescent mental well-being (Guessoum et al., 2020).

Rather it has substantial consequences on psychological well-being, the psychological impact of COVID-19 outbreak among children is one of the neglected issue (Dubey et al., 2020). In addition, it overwhelmingly interacts with daily living of people and changes the normalcy of people in a few days. In this sense, the pandemic has become a unique experience to all and it is not easy to expect how adolescent react (Buzzi et al., 2020) towards it. Besides medical literatures consider children as less susceptible to COVID-19, it strikes on their psychosocial aspects (Ghosh et al., 2020). This pandemic of COVID-19 is novel to world and there is lack of study regarding its mental impact upon adolescent students in context of our country. Therefore, this paper aims to describe the impact of COVID-19 on mental health of students of class 9 and 10 of community school.

Method

The study followed the descriptive survey design that was conducted in May 2020. Chhinnamasta-3 of Chhinnamasta Rural Municipality Saptari was selected conventionally for the study. A community secondary school situated at Chhinnamasta-3 was selected and total 88 students of class 9 and 10 who were residential of Chhinnamasta-3, according to the records of school, were the population of the study. However, regarding the pandemic situation of COVID-19, the sample size was tried to keep small. By following 95 percent confidence level and 10% of precision, sample size was 51 (Israel, 1992/2013). Interview schedule was used to collect data that contained

demographic section and psychological impact section. Impact on mental health was assessed by assessing anxiety level and depression level of respondents that is classified as mild, moderate and severe anxiety and depression based on score achieved by participants on anxiety and depression scale.

Anxiety level was assessed by using General Anxiety Disorder-7 (GAD-7) scale (Spitzer, Kroenke, Williams & Lowe, 2006) that contains seven items. Each item has four-point scale ranging from 'not at all' (0) to 'nearly every day' (3). Score of anxiety ranges from zero to 21. Mild anxiety, moderate anxiety and severe anxiety respectively have value 5 to 9, 10 to 14 and 15 to 21. The Cronbach α was .92 and test-retest reliability was 0.83 (Spitzer, Kroenke, Williams & Lowe, 2006).

Similarly, depression level was assessed by using Patient Health Questionnaire (PHQ-9) Scale (Spitzer, Kroenke & Williams, 1999) that contains nine items. Each item has four-point scale ranging from 'not at all' (0) to 'nearly every day' (3). Score of depression ranges from zero to 27. Mild depression, moderate depression, moderate severe depression and severe depression are respectively assessed based on the value 5 to 9, 10 to 14, 15 to 19 and 20 to 27. Total score of anxiety and depression were calculated separately by adding score of each item that is identified by respondents. The internal consistency values of PHQ-9 was 0.854 and the test-retest reliability values of was 0.873 (Zhang et al., 2013).

The interview schedule was converted into Nepali version from English version and was pretested among five students of same school from other ward to find out difficulties related to it. With the help of records received from administration section of school, required number of students were individually contacted by visiting their home. Informal approval was received from the president of respective ward on the responsibility of researcher. After receiving verbal consent of students' parent data were collected but in case of having no consent home of next student was visited. However, participation of respondents was voluntary and anonymity was assured by not disclosing the information provided by them to others.

During data collection both researcher and respondents strictly maintained precautions such as wearing mask, making social distance, and using hand sanitizer for COVID-19 that was facilitated by researcher. Nearly five to 10 minutes, researcher discussed about anxiety and depression with the respondents before data collection to maintain quality of data.

Data was analyzed by applying descriptive statistics like frequency, percentage and mean. Similarly, t-test was applied to determine the either the mean difference of score of anxiety and depression among girls and boys were significant or not, and Pearson 'r' correlation test was applied for determination of relationship of age of respondents in year and total score of anxiety and depression. Spearman's rank order correlation test was used to identify the relationship between annual family income of respondents and total score of anxiety and depression, for this annual family income of respondents' was categorized into NRs. up to 50000, NRs. 50001 to 100000 and NRs. more than 100000. To conduct this analysis statistical package for social science (SPSS) (Muijs, 2004) version 20 was used and analyzed data are presented on tables and texts.

Results

In this section data related to socio-demographic characteristics of respondents, level of anxiety and depression respondents, and relationship of students' sex, age and annual family income with total score of anxiety and depression are presented by applying bivariate analysis.

Socio-demographic Characteristics of Respondents

Table 1 shows that 45.1% respondents were male and 54.9% respondents were female and all belongs to Madhesi community. Likewise, mean age of respondents were 15.73 (\pm 1.28) years. Respondents' father having no formal education were 52.94% while 82.35% of respondents' mother had no formal education. Three-fourth (74.51%) of respondents' fathers' occupation was agriculture followed by carpenter/jyaladari (15.69%), business (5.8%) and health service (3.92%). Likewise, nearly three-fourth (72.55%) and just over a quarter (27.45%) respondents' mothers' occupation was respectively housework and agriculture. Total annual income of 39.2%, 43.1% and 17.6%

of respondents was respectively up to NRs. 50000, NRs. 50001 to 100000 and more than NRs. 100000.

Table 1. *Socio-demographic Characteristics of Respondents*

	n = 51	%
Gender of respondents		
Male	23	45.1
Female	28	54.9
Age of respondents in year*		
14	8	15.7
15	16	31.4
16	17	33.33
17	4	7.8
18	4	7.8
19	2	3.9
Ethnicity/Caste of respondents		
Madhesi	46	90.2
Musalman	5	9.8
Religion of respondents		
Hindu	46	90.2
Muslim	5	9.8
Respondents' father Ed.		
No formal ed.	27	52.94
Formal ed.	24	47.06
Respondents' mother Ed.		
No formal ed.	42	82.35
Formal ed.	9	17.65
Respondents' father profession		
Agriculture	38	74.51
Health service	2	3.92
Business	3	5.88
Carpenter/jyaladari	8	15.69
Respondents' mother profession		
House wife	37	72.55
Agriculture	14	27.45
Annual income of family		
Up to NRs. 50000	20	39.2
NRs. 50001 to 100000	22	43.1
More than NRs. 100000	9	17.65

*Mean age: 15.73 (\pm 1.28) years

Level of Anxiety and Depression among Respondents

Table 2 reveals that all students had some level of anxiety and depression. Among them 56.9%, 39.2%, 3.9% respondents respectively had mild, moderate and severe level of anxiety meanwhile 66.7%, 29.4% and 3.9% respondents respectively had mild, moderate and moderate severe level of depression.

Table 2. *Anxiety and Depression Score of Students*

	Anxiety level n (%)	Depression level n (%)
Score		
5 to 9 (mild)	29 (56.9)	34 (66.7)
10 to 14 (moderate)	20 (39.2)	15 (29.4)
15 and more (severe)	2 (3.9)	2(3.9) (moderate severe)

Association of Demographic Aspects of Students with Anxiety and Depression

Applying t-test for independent samples provided that there was no significant difference between male and female respondents mean score for anxiety ($t = -.469$, $df = 49$, $p = .641$) and depression ($t = -.715$, $df = 49$, $p = .478$). Similarly, Pearson's 'r' correlation test for age respectively with anxiety ($r = .078$, $n = 51$, $p = .585$) and depression ($r = .168$, $n = 51$, $p = .238$) showed that there was no significant relationship between age and anxiety and age and depression. Similarly, Spearman's 'rho' test showed that there were no significant relationship between annual income of respondents' family respectively with total anxiety score ($\rho = .018$, $n = 51$, $p = .902$) and total depression score ($\rho = -.004$, $n = 51$, $p = .978$).

Discussion

The present study aimed to identify the impact of COVID-19 on psychological aspects students of class 9 and 10 of Chhinnamasta Rural Municipality-3, Saptari. Altogether 51 students were participated in the study with mean age 15.73 (± 1.28) years old and all had some level of anxiety and depression that were not significant relationship with sex, age and annual family income of respondents.

The present study found that all had some level of anxiety and depression either it was mild or moderate or severe level of anxiety and depression. It might be due to their rural society and their socio-economic condition, and as this pandemic was new to all. Other most influential reasons might be the disturbance of regular school and attachment of village to the Indian boarder. Study shows that the level of anxiety and depression was significantly greater in students from rural society than urban society indicating poor economic condition of rural area (Zhou et al., 2020). A finding of a study mentioned that regular school days are key mechanism to handle mental disorders of young people (Guessoum et al., 2020). Rather, the studies do not support this high prevalence of anxiety and depression among students, a survey among Chinese adolescents aged 12–18 years, Zhou et al. reported that 43% adolescent had depression, 37% had anxiety and 31% had both depression and anxiety (Zhou et al., 2020). Likewise, a study conducted among high school students in Saudi Arabia showed that three-fourth student had depression and one-third students had anxiety (Alharbi, Alsuhaibani, Almarshad, & Alyahya, 2019). However, a study conducted in India among students of +2 and above within age group 16-35 years partially glues our study. It shows that almost all students had anxiety due to COVID-19 but differs in the level of anxiety from our study as it shows among them three-fourth students had severe anxiety and one-fourth students had moderate anxiety but no students had mild anxiety (Dangi & George, 2020).

In our study, among the respondents who had anxiety, more than half (56.9%) respondents had mild anxiety level, more one-third (39.2%) of the respondents had moderate level of anxiety and a few (3.9%) had severe anxiety level. A survey, conducted in Chinese adolescents among age group 12 to 18 years not supporting our study in the sense of percentage of respondents having anxiety, found that nearly two in five respondents had anxiety, and nearly one-third respondents had combined depression and anxiety (Zhou et al., 2020). A study shows that among anxious students one-third were moderately anxious, one in five were moderately anxious and one in ten were severely anxious (Alharbi et al., 2019) and does not support the findings of present study in context of level of anxiety. Similarly, a study

conducted among teenage students of Italy reveals that the great majority of students had anxiety due to COVID-19 as our study. However, it differs in the percentage of level of anxiety. It found that four in five students had moderate and little concerns and fear; minority (14.5%) of them had a lot concerns and fear but nearly one in twenty had no concerns and fear about COVID-19 (Buzzi et al., 2020). Likewise, a study conducted among Chinese undergraduate college students echoes to findings of our study in the sense of students had anxiety due to COVID-19 but it differs in percentage of students suffer from anxiety and percentage of level anxiety. It shows that nearly one in hundred respondents experienced severe anxiety, nearly three in hundred experienced moderate anxiety, and more than one in five experienced mild anxiety due to COVID-19. Social relation and social support have role in feeling anxiety (Cao, et al., 2020). A study, not similar to our study regarding respondents, conducted in 194 cities in China among 1210 general population found that more than half respondents had moderate or severe psychological impact among them more than a quarter respondents had moderate to severe anxiety symptoms (Wang et al., 2020). Similarly, a study conducted among 18 years and old general population found one in seven people had anxiety due to COVID-19 (Choi, Hui & Wan, 2020).

In our study, among the depressed respondents, two-third (66.7%) of respondents had mild depression level, nearly one-third (29.4%) had moderate depression level and a few (3.9%) had moderate severe depression level but no one had severe depression. A survey conducted in Chinese adolescents among age group 12 to 18 years, not supporting to our study in the sense of percentage of respondents having depression, found that more than two in five respondents had depression and nearly one-third respondents had combined depression and anxiety (Zhou et al., 2020). A study found that among depressed students one-third students were mildly depressed, a quarter students were moderately depressed, one in ten students were moderately depressed and one in twenty students were severely depressed (Alharbi et al., 2019). A study, not similar to our study regarding respondents, found that more than half respondents had moderate or severe psychological impact among them one in six

respondents had moderate to severe depressive symptoms (Wang et al., 2020). Similarly, a study conducted in Hong Kong among 18 years or more than 18 years old general population found that one in five people had depression and a quarter people mentioned that their mental health has deteriorated since COVID-19 pandemic started (Choi, Hui & Wan, 2020).

From the findings of present study, we can say that as general population and people of age 18 years and above have depression, anxiety and stress due to COVID-19, students of school must suffer from it. As family members experience depression, anxiety and stress there is possibility of suffering of students because having relatives or colleagues infected with COVID-19 increased likelihood of the anxiety three times among students of college (Cao, et al., 2020).

In this study, the difference of mean score of anxiety of girls and boys was not found significant and the same result was found in case of mean score of depression for boys and girls. Through Pearson's 'r', age of respondents separately with anxiety and depression had not significant relationship. Likewise, Spearman's 'rho' provided no significant relationship between total annual income of family of respondents separately with anxiety and depression. It might be due to small sample size because significance level depend upon the size of sample (Muijs, 2004). The greater sample size increases the probability of significant relationship among the variables. However, a study supports our finding mentioning that there is no association ($p > 0.05$) of age and gender with the level of anxiety (Dangi & George, 2020). Another study says that age is not statistically significant association with anxiety and depression however, gender is statistically significant with anxiety and depression (Alharbi et al., 2019). Similarly, a finding indicate that female are more vulnerable to anxiety and depression than male (Zhou et al., 2020) and another says girls are supposed to have two times higher rate of post-traumatic stress disorder (Guessoum et al., 2020).

We can see that the findings of other study partially match with our study and there is no consistency among the findings of other studies too. There are differences in percentage of respondents suffering from anxiety and

depression and percentage of level of anxiety and depression. Factors like age of respondents, status of respondents, place of residence of respondents, gender of respondents, socio-economic status of respondents, daily activities of respondents are responsible for difference in the findings of studies. Study conducted in China shows that economic effects, students status, effects on daily living and delayed in educational activities are positively associated ($p < 0.001$) with anxiety of students (Cao, et al., 2020). A literature shows that female gender, status of student, particular physical indicators like myalgia, dizziness, coryza, and weak self-valued well-being had significant association ($p < 0.05$) with better psychological influence of the outburst and greater levels of stress, anxiety, and depression (Wang et al., 2020). Nearly a quarter students of Southern region had a lot concerns and fear however more than one students of Northern region had a lot concerns and fear regarding COVID-19 due to the psychological effect of fear of unknown (Buzzi et al., 2020). Hence, we can say that many factors determine the psychological impact among students so there is not consistency among the findings of studies.

Conclusion

COVID-19 pandemic that devastatingly interact with daily living has changed the normalcy of people in a few days. Though mental aspect is neglected aspect, an emergent COVID-19 has substantial consequences on mental health of students. All respondents had some level of anxiety and depression. The great majority of respondents had mild to moderate anxiety and depression. Sex, age and annual family income of respondents did not significantly associate with anxiety and depression. It can be suggested that psychological counseling should be immediately provided to respondents by school administration and local government.

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