

Psychological Status of Nepalese Young Adults During the End of First Wave of COVID-19 Pandemic

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ABSTRACT

Background: Psychological problems increased during the period of COVID-19. Lockdown” is adopted in many countries of the world. It has also been seen that COVID-19 has led not only to an increase of infection and death but also vast change in the lifestyles of every individual especially in young adults causing various mental health issues. However, in Nepal, there are limited studies to address this issue.

The main objective of this study is to generate evidence on the prevalence of symptoms of post-traumatic stress disorder, anxiety, and depression among young adults and the factors contributing to these outcomes in Nepal.

Methods: Cross-sectional methods were employed using an online structured questionnaire in January 2021, among 1229 participants. Three logistic regression models were performed to examine the significant COVID-19 factors.

Results: The prevalence of Depression, Anxiety and post-traumatic stress disorder related symptoms in this study were 255(20.4%), 240(19.2%) and 162(13.2%) respectively. COVID-19 diagnosis, COVID-related stress and exposure was significantly related to depression. Similarly, COVID-19 diagnosis, change in income during COVID-19, being exposed to 4 or more exposure factors had high chances of getting anxiety. Also, income change during COVID-19 and stressors during COVID-19 were related to post-traumatic stress disorder.

Conclusions: This research shows that various COVID-19 related factors have contributed to the high prevalence of these outcomes.

Keywords: Anxiety; COVID-19; depression; Nepal; post-traumatic stress disorder.

INTRODUCTION

After, COVID-19 declared pandemic, “Lockdown” adopted in many countries of the world. The uniqueness of COVID-19, the instantaneous transmission and, overestimation, concerns about the future, the severe economic sanction, the doubts about of health services, the prevalence of common mental disorders are expected to be more than double.^{1,2} As of December 2020, the COVID-19 in Nepal had reached its initial peak.³ Further, In Nepal, stigmatization of COVID-19, unemployment, the unfavourable environment of online classes, surge in suicide cases might be indication for the increase in the psychological problem during this period.⁴⁻¹⁰ However, such analysis comes with its shortcomings due to rudimentary analysis of the limited

data that exists in the country. Thus, main objective of this study is to generate evidence on the prevalence of post-traumatic stress disorder, anxiety, and depression among young adults and factors contributing to these psychological problems in Nepal.

METHODS

For this Cross-sectional study, ethical approval was received from the Nepal Health Research Council (Ref.no.1776). One thousand two hundred sixty seven Nepalese young adults aged (18-35) years old were approached via various social media platforms like Facebook, Twitter, Viber, and Emails based on a snowball sampling technique. Out of which 1229 participants agreed to the study. Data was collected

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in January 2021. Respondents were asked to fill 10-15 minutes long questionnaire developed in google forms, and the identities of respondents were kept anonymous.

The questionnaire was divided into namely four-part. A consent form along with, set of instructions to fill the questionnaire was given, and participants were further guided towards part 2 only if they agreed to participate in the study. Demographics characteristics (Age, Gender, Race, Ethnicity, Education Status, Occupation, Province, Marital Status) were asked.

Third part consist of COVID-19 related factors: (Knowledge regarding COVID-19, Attitude towards COVID-19, COVID-19 related stressors, Exposure to COVID-19 and decrease income during COVID-19). Knowledge questionnaire consisting of 12 questions (4 regarding clinical presentations, 3 regarding transmission routes, and 5 regarding prevention and control of COVID-19). These questions were answered on a true/false basis with an additional "I don't know" option. A correct answer was assigned 1 points, and an incorrect/unknown answer was assigned 0 points. The total knowledge score ranged from 0 to 12, with a higher score denoting a better knowledge of COVID-19. The cut-off was set to 50.0% or less to check logistic regression. The questionnaire had been previously developed and used to identify knowledge regarding COVID-19 among in research done in Chinese Residents.¹¹ The Cronbach's alpha coefficient to determine internal consistency in our study was 0.70. Further, Attitudes towards COVID-19 were measured by 2 questions about the agreement on the final control of COVID-19 and the confidence in winning the battle against COVID-19. The question was answered on basics of Agree/Disagree and on addition Can't say.¹¹ To measure stressors related to COVID-19, six stressors(Worry about economic influences, Worry about academic delays, Worry about obtaining test if I become sick, Influence in daily life, Worrying about getting treated for COVID-19 if I contract it and Absence of Social Support) in terms of presence and absence in individual life-based individuals' experience during COVID-19 as Yes/NO were used.^{12,13} Exposure questions includes eight objective items coded as yes or no: being infected with COVID-19, people infected in their communities/ living in the worst-hit areas; know a person who died of the infection; neighbours infected; friends infected; relatives infected; exposure to stressful media messages; and family members infected. The total score for the objective and subjective experiences was calculated by adding up the yes responses. Fifty percent or more was considered as a cut-off point to determine adequate exposure. The scale had been

used previously to measure the exposure among the Chinese students in quarantine.¹⁴

Patient Health Questionnaire-9 (PHQ-9), Generalized Anxiety Disorder-7 (GAD-7) and PTSD checklist- civilian version (PCL-C) scales were used to measure Depression, Anxiety and PTSD, respectively. The PHQ-9 is a validated, 9-question tool to assess for the degree of depression present in an individual; which was initially developed by Kroenke et al. in 2001.¹⁵ Each question on a 4-point Likert scale from 0 (never) to 3 (nearly every day), with the total score ranging from 0 to 27 and a recommended cut-off score of 10.¹⁶ With the cutoff of 10 the PHQ 9 questionnaire also had been validated in Nepal: sensitivity=0.94, specificity=0.80, positive predictive value (PPV) =0.42, negative predictive value (NPV) =0.99, positive likelihood ratio=4.62, and negative likelihood ratio=0.02. The severity of anxiety was assessed GAD-7 scale. Each question has four options ranging from 0 to 3: Not at all, Several Days, More than half Days, Nearly every day; with a total ranging from 0-21. A total GAD-7 score of 10 or higher represents an optimal cut-off point.¹⁸ PCL-C is a standardized self-report rating scale for PTSD comprising 17 items that correspond to the key symptoms of PTSD.¹⁹ It is measured in terms of a five-point Likert scale ranging from 1 (not at all) to 5 (extremely), with the total score ranging from 17 to 85. Higher scores indicated higher PTSD levels, with scores of 38 or higher being considered probable PTSD.²⁰ The scale also had been used previously in a study in Nepal.²¹

Further, to assess COVID-19 related factors contributing to each of the psychological problems, the first significant effects of covariates (demographics factors) on outcome variables were accessed using the chi-square test and t-test. Afterward, three logistic regression models were performed to examine the relationship between COVID-19 factors and depression, anxiety, and PTSD by adjusting significant covariates in each of the models. Diagnosis of COVID-19, Knowledge, Attitude, Covid related stressors, Exposure to COVID, Income during COVID-19 were predictors in unadjusted models and identified significant covariates(demographic variable) were entered in each of the three adjusted models for each predictor. All variables were categorical. Two-tailed p-values were used.

RESULTS

Table 1 shows the sociodemographic characteristics of the participants. The mean age of the participants was 25.0±4.1, age ranging from 18-35. Female accounts for slightly more percentage of total participants i.e.670(54.5%). Further, 1081 (88.4%) participants follow

Hinduism religion 1081(88.4%). Similarly, majority of participants were Brahmin(525,42.7%), single (925,75.5%), students(528,43.0%) and had Bachelor or equivalent degree(726,59.1%).

Table 2 shows, among 1229 participants, 283(23.8%) had already been diagnosed as COVID-19, and 699(56.9%) reported to have decreased in family income per month during COVID-19 duration. Also, the majority percentage of participants i.e 1163(95.6%) had good knowledge regarding COVID-19 but, more than half of participants i.e. 642(52.2%) and 720(59.5%) had a negative attitude towards Nepal ability to control COVID-19 and final success to win over COVID-19, respectively. At the same time, the maximum percentage of respondents reported having three or more stressors related to COVID-19 (950,77.4%) and being exposed to four or more COVID-19 related exposure factors(930,76.3%).

Figure 1 represents, the prevalence of symptoms of psychological outcome in COVID-19. Two hundred fifty five(20.41%) of participants had depression related symptoms (PHQ-9 \geq 10), 240(19.21%) had an anxiety related symptoms (GAD-7 \geq 10), and 162(13.18%) had PTSD (PCL-C \geq 45.) related symptoms.

Further, to access COVID-19 related factors contributing to each of the psychological problems, the first significant effects of covariates (demographics factors) on outcome variables were assessed using the chi-square test and t-test. Age, religion, ethnicity, marital status, education status, and the province was found to be significantly related to depression and anxiety-related symptoms (p-value <0.05). Where participants following Hinduism(21.8%), Chettri ethnicity(28.4%), living in Gandaki province(23.1%), had bachelor level education(22.6%), and single (22.6%) showed a high level of depression compared to others. Also, participants following Hinduism(21.0%), Chettri ethnicity(31.4%), living in Province 2 (24.0%), had higher secondary level education(25.7%), and single (21.2%) showed a high level of anxiety compared to others. Similarly, age, ethnicity, education status, occupation, education status, and marital status were significantly related to PTSD (p-value <0.05). Among them, participants following Hinduism(13.4%), Chettri ethnicity(19.2%), students(16.3%), had higher secondary-level education(18.3%), and single (14.6.2%) showed a high level of PTSD compared to others.

Table 3, shows the relationship between COVID-19 related factors and Psychological outcomes. Covid-19 related factors that were significantly associated with depression were participants being diagnosed as COVID-19, COVID-19 stressors, exposure to COVID-19,

where participants who were not diagnosed as COVID-19 (OR=0.127, CI= 0.092-0.175)*, had less than 3 COVID-19 stressors(OR=0.428, CI=0.230-0.796) and have been exposed to less than four COVID-19 exposure factor(OR=0.568, CI=0.394-0.818) had fewer chances of getting depression-related symptoms in comparison to others. Similarly, COVID-19 diagnosis, Change in income during COVID-19, Exposure Score \geq 4 were related to anxiety-related symptoms, where participants who were not diagnosed as COVID-19(OR=0.292, CI= 0.212-0.402) and who have been exposed to less than 4 exposure factors (OR=0.644, CI= 0.464-0.957) had less chance of getting anxiety-related symptoms whereas, those who reported a decrease in family income during COVID-19(OR=1.539, CI= 1.137-2.084) reported high chance of having anxiety. Finally, income change during COVID-19 and stressors during COVID-19 were related to PTSD-related symptoms where, participants who reported decreased income in COVID-19(OR=1.512, CI=1.926-1.189) had a high chance and who were exposed to less than 3 stressor had less chance of getting PTSD related symptoms. (OR=1.512, CI=1.926-1.189).

Table 1. Sociodemographics characteristics of study subjects. n=1229

Demographic Characteristics	Mean/ Frequency	Percentage
Age (mean \pm S.D)	25.0 \pm 4.1	Range(18-35)
Gender		
Female	670	54.5
Male	554	45.1
Others	5	0.4
Religion		
Hinduism	1081	88.4
Buddhism	101	8.2
Others	47	3.4
Ethnicity		
Chettri	261	21.2
Brahmin	525	42.7
Newar	252	20.5
Others	191	15.5
Province		
Province 1	141	11.5
Province 2	75	6.1
Bagmati Province	701	57.0

Table 1. Sociodemographics characteristics of study subjects. n=1229

Gandaki Province	121	9.8
Lumbini	122	9.9
Karnali	34	2.8
Sudhuraschim	35	2.8
Marital Status		
Married	304	24.7
Single	925	75.5
Education Status		
Higher Secondary and Lower	230	18.8
Bachelor's	726	59.1
Master's and more	273	22.1
Occupation		
Student	528	43.0
Service	313	25.5
Medical/Health services	125	10.2
Unemployment	113	9.2
Business	77	6.3
Others	73	5.9

Table 2. COVID-19 related factors. n=1229

COVID related factors	Frequency	Percentage(%)
Diagnosed as COVID-19		
Yes	293	23.8
No	936	76.2
Decrease in family income during COVID		
Yes	699	56.9
No	530	43.1
Knowledge Regarding COVID-19		
Knowledge Score \geq 6	1163	95.6
Knowledge Score $<$ 6	66	4.4
Attitude towards COVID-19		
A-1 Nepal Final Success in Controlling		
Agree	587	47.8
Disagree/Can't Say	642	52.5
A2- Confidence of Winning over COVID-19		
Agree	499	47.8
Disagree/Can't Say	730	52.2
COVID-19 related stressors		
Stressors \geq 3	950	77.4
Stressors $<$ 3	279	22.6
Exposure to COVID-19		
Exposure Score \geq 4	938	76.3
Exposure Score $<$ 4	231	23.7

Table 3. Odds ratios and confidence intervals for psychological outcomes.

Factors	PHQ-9 - Depression Adjusted ORa (95% CI)	GAD-7 - Anxiety Adjusted ORa (95% CI)	PTSD Adjusted Adjusted ORa (95% CI)
Diagnosed as COVID-19			
Yes	1.0	1.0	1.0
No	0.127(0.092-0.175)*	0.292(0.212-0.402)*	0.1025(0.683-2.304)
Income Change during COVID-19			
Didn't Decrease	1.0	1.0	1.0
Decrease in Income	1.295(0.969-1.731)	1.539(1.137-2.084)*	1.512(1.926-1.189)*
Knowledge Regarding COVID -19			
Knowledge Score \geq 6	1.0	1.0	1.0
Knowledge Score $<$ 6	1.258(0.606-2.614)	1.350(0.631-2.887)	0.875(0.486-1.578)
Attitude towards COVID-19			
A-1 Nepal Final Success in Controlling			
Agree	1.0	1.0	1.0
Disagree/Can't Say	1.003(0.955-1.050)	1.276(0.950-1.715)	0.985(0.744-1.252)
A2- Confidence of Winning over COVID-19			
Agree	1.0	1.0	1.0
Disagree/Can't Say	1.002(0.954-1.053)	1.013(0.751-1.367)	1.002(0.954-1.053)
COVID-19 related stressors			
Stressors \geq 3	1.0	1.0	1.0

Stressors <3	0.428(0.230-0.796)*	0.570(0.316-1.0276)	0.456(0.322-0.768)*
Exposure to COVID-19			
Exposure Score ≥ 4			
Exposure Score <4	0.568(0.394-0.818)*	0.644(0.464-0.957)*	0.808(0.539-1.121)

*p value <0.05

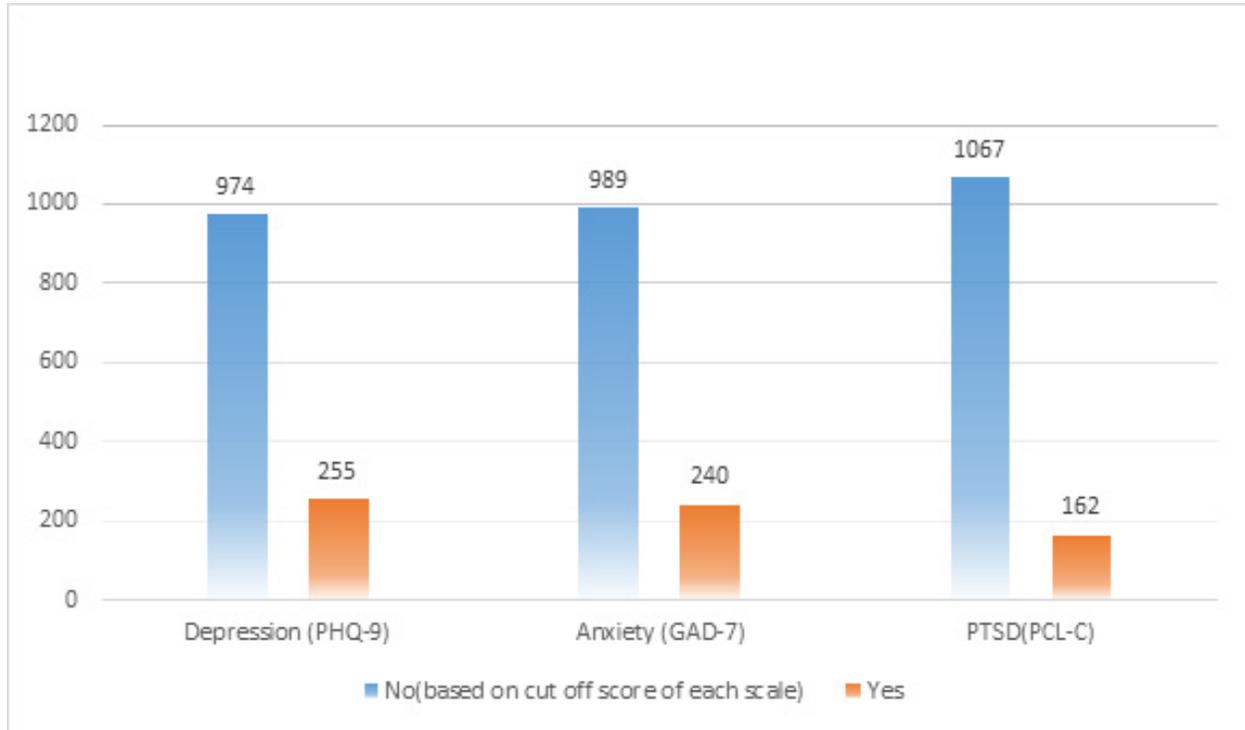


Figure 1. Prevalence of psychological outcomes.

DISCUSSION

Alongside, many health-related and socio-economic issues related to COVID-19 pandemic, psychological problems also increased during this period. However, there are limited studies conducted to address this issue resulting in a lack of scientific shreds of evidence.

Current study finding shows , the prevalence of depression , anxiety and PTSD related symotoms were 20.4% ,19.2% and 13.2% respectively. Although, there are inadequate studies to measure psychological status specifically of young adults(18-35 years) of Nepal before COVID-19, the findings can be compared with few similar studies broadly.For instance, a nationwide study was done in 2016 on the general population using the Hospital Anxiety and Depression scale among the general population of age 18-65 years, the age and gender-adjusted prevalence of depression was 4.2%, and anxiety was 16.1% anxiety.²² The National Mental Health Survey data of Nepal published in 2019, just before the pandemic (n = 1647) with 1371 adults aged more than 18 years found the prevalence of mental

disorders to be 13.2 % (in which the prevalence of major depression was 3.4 %, generalized anxiety disorder was 1.4 % and other anxiety disorders were about 3.6 %).²³ In comparison to these studies, findings of this study had shown a high prevalence of both anxiety and depression during COVID-19 duration, suggesting the high number of distress during the period of a pandemic.

Another study, done among 240 participants after four months of Nepal Earthquake in 2015 using PCL-C scale and validate cut-off point similar to our study had shown the prevalence of 5.2% of PTSD related symptoms which are less than the prevalence in our study (13.1%) which can suggest more impact of COVID-19 in psychology in comparison to earthquake times.²⁴ Also, a survey was done at the time of lockdown in Nepal suggests that about one-fourth of the responders had prominent anxiety 25.4 % and 7.0% of responders reported depressive symptoms (as per GAD-7 and PHQ-9 cut-off scores respectively). Compare to this depressive symptoms, of this study had prominently increased whereas anxiety-related symptoms have decreased over time.²⁵ Suprisingly in this study, less prevalence of anxiety(45.4%), depression (43.3%), and

PTSD (31.8%) were reported, in a comparison study conducted in the America. This high prevalence might be because in the America was conducted in the initial days of COVID-19, whereas this study was conducted during the end of first-wave of pandemic and maybe also due to in Nepal, still, most of the participants live with their family members in comparison to the USA where 37.3% lack family support.¹²

The socio-economic impact of COVID-19 is inevitable. In this study, the highest percentage of respondents 56.9% of the respondents reported a decrease in family income per month during the COVID-19 period. The number can be alarming, as our study also suggested that a decrease in family income had significantly increased the chances of getting anxiety OR=1.539, CI= 1.137-2.084, and PTSD-related symptoms. (OR=1.512, CI=1.926-1.189).

Concurrent with previous study conducted in China among 6190 Chinese residents (90%)¹², this study has found adequate knowledge regarding COVID-19. The findings can be interpreted as success of the government's effort to aware the citizens about the COVID-19 pandemic. However, regarding the attitude, the results are discouraging. For example, in Nepal, 52.2% and 59.4% of total participants had a negative attitude towards successful control and winning over COVID-19. In contrast, in China the findings regarding the attitude of governments' efforts in successful control of COVID-19 a study conducted in China only 1.9% and 17.3% had a negative attitude towards the respective question.¹²This, can also signify Nepal's inability to gain the trust of young adults by their work for the prevention of COVID-19.

Interestingly, Karnali and Sudhuraschim province which have fewer COVID-19 cases in comparison to other provinces also reported significantly less prevalence of depression and anxiety.

Also, in the other study conducted among Chinese students anxiety has been significantly associated with COVID-19 stressors but, in our COVID-19 stressors is not related to anxiety but is associated with depression and PTSD.¹³In a study among in-home quarantine Chinese student, which uses the same exposure factors as this study, mediation analysis suggest that exposure has a direct effect on both depression and PTSD symptoms (p value < 0.001). In consistent with this, exposure also have been significantly related to depression symptoms (OR=0.568, CI=0.394-0.818) but was not related to PTSD symptoms in this study¹⁴

Further, this cross-sectional design limits our ability to infer causality involved in leading to mental health

problems. Probability sampling was used, thus caution must be taken in the generalizability of findings of this study to the broader population of young adults in Nepal. Since the data was collected online, the data may be limited to those young adults who use the internet mostly.

CONCLUSIONS

This study has assessed psychological problems associated with COVID-19 among. This study shows that about 20.4%, 19.2%, and 13.2% participants reported to have depression, anxiety, and PTSD-related symptoms. This study, presents evidence that various COVID-19 factors like income change, stressors, exposure, diagnosis have contributed to these problems. Thus, findings of this study can be used by Nepal government to take mental health intervention and improve the psychological status of young adults.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interest.

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