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PSYCHOLOGICAL STATUS DURING COVID-19 PANDEMIC AMONG THE GENERAL POPULATION IN BHUTAN

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ABSTRACT:

Background: Since the outbreak of the novel coronavirus disease-19 (COVID-19) on 31 December 2019 in Wuhan (Hubei, China), an increasing amount of information, concern, and restrictive public health measures put on to contain the spread of infection have impacted the mental health of the people. The psychological status of the Bhutanese population during this novel coronavirus disease-19 (COVID-19) pandemic is unknown.

Aim: To measure the levels of stress, anxiety, and depression in Bhutanese population during the COVID-19 pandemic. The study also aimed to explore the potential differences in psychological status between the demographic variables.

Methods and material: A cross-sectional web-based survey was done using a non-probabilistic snowball sampling methodology. Data were collected using the socio-demographic data questionnaire and the Depression Anxiety and Stress scale-21 (DASS-21). Descriptive statistics were used to describe the data, and independent t-tests and analyses of variance (ANOVAs) were used to compare the psychological status among different groups.

Results: A total of 663 respondents were recruited. Of them, 21.27% of the participants reported mild to severe levels of depression, 25.04% reported mild to severe levels of anxiety, and 10.56% were stressed. Young and those unemployed during the pandemic showed greater negative psychological symptoms.

Conclusion: The results show that psychological problems are prevalent during the COVID-19 pandemic. The findings can help government and health professionals safeguard the psychological wellbeing of the community in the face of COVID-19 outbreak in Bhutan and worldwide.

Keywords: COVID-19; Psychological status; Depression; Anxiety; stress; Pandemic

Key messages: COVID-19 pandemic had pronounced impact on the psychological status of the Bhutanese people. Young and unemployed were those mostly affected. The problem of youth unemployment, worsen by losing jobs as a result of the pandemic, was identified as a pertinent issue.

INTRODUCTION:

The World Health Organization (WHO) declared COVID-19 as a pandemic on March 11, 2020 and as on August 26, 2020, the number of confirmed cases was 23,752,965 with 815,038 deaths reported worldwide (WHO website dated August 27, 2020 at 10:16 am Bhutan standard time).[1] The number of 2019-nCOV infections and deaths from it continue to rise with some countries reporting second wave of the infection.

In Bhutan, the index case was reported on 5 March 2020. Since then, 173 cases are reported in the country with zero death as of this writing. While earlier cases reported were all imported cases and detected in the quarantine facilities, Bhutan saw its first local transmission on 11 August 2020. The Royal Government of Bhutan thus announced the state of emergency and national lockdown the very next day in which all citizens were confined to their homes, creating an unprecedented situation in the country. [2]

Since the outbreak of the novel coronavirus disease-19 (COVID-19) on 31 December 2019 in Wuhan (Hubei, China), an increasing amount of information, concern, and restrictive public health measures put on to contain the spread of infection have impacted the mental health of the people. Beside the medical risks, the psychosocial impact of this pandemic is so apparent.[3,4] According to Behavioral Immune System (BIS) theory, people more likely develop negative emotions such as aversion and anxiety and negative cognitive assessment for self-protection.[5,6,7] The stress theory and perceived risk theory indicates that more of negative emotions are triggered by public health emergencies.[8,9]

This unprecedented pandemic has led to significant mental health problems such as stress, anxiety, and depression for both medical professionals and general population alike.[10,11] A research in China suggests that the fear of this pandemic can result in mental illnesses such as anxiety, depression, stress disorders, somatization and health risk behaviors such as increased use alcohol and tobacco.[12] Moreover, the lockdown measures are found to affect people's lives in many aspects and trigger a range of psychological problems such as panic disorder, anxiety, and depression.[13]

The psychological status of the Bhutanese population during this novel coronavirus disease-19 (COVID-19) pandemic is unknown. Therefore, the aim of this study was to measure the levels of stress, anxiety, and depression in Bhutanese population. The study also aimed to explore the potential differences

in psychological status between demographic variables. The findings can help government and health professionals safeguard the psychological wellbeing of the community in the face of COVID-19 outbreak in Bhutan and worldwide.

MATERIALS AND METHODS:

Study design:

An anonymous cross-sectional web-based survey was performed using questionnaires developed with free software Google Forms in September 2020 in Bhutan. Respondents were invited to voluntarily participate in the self-administered online survey.

Population and sample:

All Bhutanese people age above 14 years were eligible for this study. Children age 14 years and below were excluded since DASS-21 questionnaire was not valid for this population. The sample was recruited using a non-probabilistic snowball sampling methodology. The sample size was calculated using Morgan's table at 99% CI with 5% margin of error. The calculated sample size was 663.

Ethical clearance:

The ethical clearance was sought from the Research Ethical Board of Ministry of Health, Bhutan vide approval number REBH/Approval/2020/063. Data were collected using anonymous online questionnaire. The online questionnaire included information about the study and its aims. The survey procedure was explained to the participants. On-line consent was obtained, and participants were informed that they can terminate the survey anytime they desire without explanation. The request for consent was mentioned at the beginning of the survey questionnaire by asking a yes or no question. Confidentiality and anonymity were assured, and no personal identifiers were collected in the form. Only the researchers had access to the responses to the online questionnaire.

Procedure:

Since face-to-face interactions are discouraged during this pandemic, data were collected online using social media including wechat, facebook messenger, whatsapp and telegram. The survey link was first circulated to the social media friends of the researchers and was encouraged to pass it on to others. The data were collected over a period of three week after obtaining the ethical clearance from the Research Ethical Board of Ministry of Health, Bhutan.

INSTRUMENTATION:

Socio-demographic data:

Information on age, gender, marital status, occupation, whether or not a healthcare worker, employment status, current monthly income, chronic illnesses, district, date of completing questionnaire, whether or not participants were in lockdown period while completing the questionnaire were collected.

The Depression Anxiety and Stress scale-21:

The Depression Anxiety and Stress scale-21 (DASS-21),[14] was administered to measure the mental health of the participants. The DASS-21 scale has 21 Likert-type items representing: Depression (Items: 3,5,10,13,16,17, and 21), Anxiety (Items: 2,4,7,9,15,19, and 20) and Stress (Items: 1,6,8,11,12,14, and 18). Each subscale of DASS-21 consists of 7 items and the total scores of Anxiety, Depression and Stress are calculated by summing the scores of each of the items. The total anxiety subscale score is divided into normal (0–3), mild anxiety (4–5), moderate anxiety (6–7), severe anxiety (8–9), and extremely severe anxiety (10+), the total depression subscale score is divided into

normal (0–4), mild depression (5–6), moderate depression (7–10), severe depression (11–13), and extremely severe depression (14+), and the total stress subscale score is divided into normal (0–7), mild stress (8–9), moderate stress (10–12), severe stress (13–16), and extremely severe stress (17+).The Cronbach's alpha coefficient of DASS-21 was reported as 0.88 (Depression), 0.81 (Anxiety) and 0.85 (Stress).[15] DASS-21 was used to measure the mental health of the general population and healthcare professionals during the COVID-19 pandemic.[15,16,17]

Statistical Analysis:

Data were analyzed via the Minitab software version 17.0. Descriptive statistics such as mean, frequency, percentage and standard deviation were used to describe the data. Independent t-tests and analyses of variance (ANOVAs) were used to compare the psychological status among different groups. Statistical significance was evaluated as $p < 0.05$ for all tests.

Results:

Of the 705 responses collected during the survey, 663 (90.04%) responses which were complete in all aspects were analyzed. 47.96% of the participants were female, 51.28% were male, and 0.75% (n=5) preferred not to reveal their gender. More than half (54.75%) of the participants' ages were below 30 years, 37.41% were in the age range of 31-40 years, 6.18% between 41-50 years, and 1.66% were older than 50 years. 57.92% of the participants were married, 39.67% were single, and 2.26% and 0.15% were divorced and widowed respectively. Majority (76.47%) had college or higher education, 30.02% were health workers, 76.47% were employed, and only 9.25% reported having comorbidity. Details are mentioned in table 1.

Table 1 Characteristics of study participants (n = 663)

Characteristics	Number (n)	Percentage (%)
Gender		
Male	340	51.28
Female	318	47.96
Prefer not to say	5	0.75
Age (years)		
<30	363	54.75
31-40	248	37.41
41-50	41	6.18
>50	11	1.66
Education		
Illiterate	1	0.15
Primary school	5	0.75
High school	150	22.62
College and higher	507	76.47
Marital status		
Unmarried	263	39.67
Married	384	57.92
Divorced	15	2.26
Widowed	1	0.15
Comorbidity		
Yes	62	9.35
No	601	90.65

Depression, Anxiety, and Stress:

The mean score for depression was 2.59 (*SD* = 3.33). 522 respondents (78.73%) reported having normal levels of depression (score 0-4), 64 participants (9.65%) had mild depression (score 5-6), 56 (8.45%) had moderate depression (score 7-10), 9 (1.36%) had severe depression (score 11-13), and 12 (1.81%) had extremely severe depression (score 14+). Regarding anxiety, the mean score was 2.36 (*SD* = 3.08). A total of 497 (74.96%) reported normal level of anxiety (score 0-3), 82 (12.37%) had mild anxiety (score 4-5), 40 (6.03%) had moderate anxiety (score 6-7), 18 (2.71%) had severe anxiety (score 8-9), and 26 (3.92%) had extremely severe anxiety (10+). Finally, the mean score for stress was 3.00 (*SD* = 3.37). 593 participants (89.44%) had normal level of stress (score 0-7), 35 (5.28%) had mild stress (score 8-9), 22 (3.32%) had moderate stress (score 10-12), 11 (1.62%) had severe stress (score 13-16) and 2 (0.30%) had extremely severe stress (score 17+).

Comparison of psychological status among different groups:

No significant differences in the reports of depression, anxiety and stress were noted between genders, healthcare workers and non-healthcare workers, and people living in districts with high risk for COVID-19 and people living in low risk districts. When compared based on employment status, unemployed group had significantly higher mean scores for depression, anxiety and stress. Also, ANOVA test revealed that at least one pair of age group had significantly different mean scores of anxiety and depression. The details are shown in table 2.

Table 2 Comparison of stress, anxiety and depression among different groups (n = 663)

Group	n (%)	Stress ($M \pm SD$)	Anxiety ($M \pm SD$)	Depression ($M \pm SD$)
Gender				
Male	340 (51.28)	3.27 ± 3.42	2.27 ± 3.14	2.37 ± 3.30
Female	318 (47.96)	2.93 ± 3.33	2.48 ± 3.02	2.83 ± 3.37
Prefer not to say	5 (0.75)	2.40 ± 3.36	1.80 ± 1.92	2.00 ± 2.92
		$F_{2,660}$ = 2.00, p = .14	$F_{2,660}$ = .48, p = .62	$F_{2,660}$ = 1.65, p = .19
Age (Years)				
<30	363 (54.75)	3.16 ± 3.63	2.60 ± 3.27	2.90 ± 3.58
31-40	248 (37.41)	2.81 ± 2.94	2.08 ± 2.66	2.30 ± 2.95
41-50	41 (6.18)	3.20 ± 3.61	2.51 ± 3.70	2.10 ± 3.32
>50	11 (1.66)	1.10 ± 1.51	0.36 ± 0.67	0.82 ± 0.87
		$F_{3,659}$ = 1.78, p = .15	$F_{3,659}$ = 3.03, p = .03	$F_{3,659}$ = 3.03, p = .03
Health-care worker				
Yes	199 (30.02)	3.16 ± 3.46	2.14 ± 2.98	2.28 ± 2.84
No	464 (69.98)	2.93 ± 3.33	2.46 ± 3.12	2.73 ± 3.51
		t_{661} = -0.79, p = .43	t_{661} = 1.25, p = .21	t_{661} = 1.60, p = .11
Employment status				
Employed	507 (76.47)	2.85 ± 3.15	2.16 ± 2.89	2.36 ± 3.10
Unemployed	156 (23.53)	3.49 ± 3.96	3.04 ± 3.54	3.35 ± 3.91
		t_{661} = -2.08, p = .04	t_{661} = -3.16, p = <.01	t_{661} = -3.29, p = <.01

DISCUSSION:

In times of pandemic, there is an increased risk for depression, anxiety and stress.[18] Studies have shown that COVID-19 affects mental health outcomes.[19,20] To our knowledge, this is the first nationwide study exploring the psychological status of the general population in Bhutan during the COVID-19 pandemic. The prevalence rates of depression, anxiety and stress based on cut off scores of DASS-21 irrespective of severity were 21.27%, 25.04% and 10.56%, respectively. Regarding anxiety, Bhutanese (25.04%) showed similar levels to those of Spanish (25%) and Chinese population (28.8%).[21,22] As for depression and stress, Bhutanese showed slightly higher levels when compared to Chinese population (16.5 and 8.1%, respectively).[22]

In the current study, no significant difference in the reports of psychological symptoms were found between the genders which is in contrast to previous studies where the prevalence of depression, anxiety and stress were shown to be higher in women than in men.[23,24] An intriguing finding in this study was that there were no significant differences in the psychological symptoms between healthcare workers and non-healthcare workers. This contrasts with earlier findings where working in medical field was associated with high scores in anxiety, stress and depression.[25,26] The possible explanation could be because the number of cases in the country during the time of this study was very low, all being imported cases, and the healthcare system was not overwhelmed.

However, individuals who were unemployed reported poorer mental health. This is consistent with the fact that the faltering economy caused by COVID-19 pandemic is most likely to hit the unemployed section of the population who are economically vulnerable. Despite age being associated with increased risk for COVID-19 infection and mortality, the result

of this study showed that the levels of depression, anxiety and stress were significantly lower in the age group above 50 years. However, this is consistent with the findings of a systematic review and meta-analysis which reported that the existed studies showed that levels of psychological symptoms were higher in the younger age group.[27] Reasons could be younger people are more concerned about future consequences and challenges caused by the pandemic and are affected by job loss and the unpredictable situation.[28,29] Also, greater access to information through social media could also be a reason for greater anxiety among young people.[30] Since majority of our participants (54.75%) were age below 30 years, this might mostly comprise of students who may experience emotional distress due to school closures, online teaching and learning, and postponements of exams.[20]

LIMITATIONS:

This study has several limitations. For time sensitivity of the outbreak and different levels of COVID-19 preventive restrictions, we adopted a non-probabilistic snowball sampling methodology which is one of the limitations. Since it is a web-based survey, illiterate and non-social media users couldn't participate which has led to less generalizable results. Also, the cross-sectional design only provides the snapshot at a particular point in time. Longitudinal studies are required to provide information on psychological status over longer periods. Lastly, since data were self-reported, there could have been reporting bias which is another limitation of our study.

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