Prevalence of Anxiety and Depressive Symptoms among Hospitalized Patients Diagnosed with COVID-19

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ABSTRACT

Background: A series of acute, atypical respiratory diseases was identified in Wuhan, China, which was named Coronavirus disease (COVID-19) by the World Health Organization (WHO), and the disease was later declared a pandemic. This disease has psychological effects in addition to physiological symptoms. This study aims to find out the psychological impacts of disease in the form of anxiety and depressive symptoms among hospitalized patients diagnosed with COVID-19.

Methods: A multicentric descriptive cross-sectional study was conducted among patients diagnosed with COVID-19 who were admitted from July 1, 2021 to August 15, 2021 in six different hospitals. Ethical approval was obtained from the Nepal Health Research Council (reference number 284). COVID-19 was diagnosed using Reverse Transcription Polymerase Chain Reaction (RT-PCR) or COVID-19 antigen test. Data were collected from the patients using proforma containing the demographic profile and two questionnaires (Hospital Anxiety and Depression scale and Global Health Questionnaire-12) translated into the Nepali language.

Results: Among 360 patients who participated in the study, 194 (53.9%) were males and 166 (46%) were females. Symptoms of anxiety and depression were seen in 161 (44.7%) and 253 (70.3%) of the participants respectively. Similarly 349 (96.9%) of them were found to have clinically significant mental distress.

Conclusions: The prevalence of anxiety and depressive symptoms among hospitalized patients diagnosed with COVID-19 is significantly high compared to the general population.

Keywords: Anxiety; coronavirus disease-2019; cross-sectional study; depression; psychological effect.

INTRODUCTION

In December 2019, a cluster of cases of pneumonia of unfamiliar etiology was observed in Wuhan City of China. This was named COVID-19 (coronavirus disease- 2019) and the virus was named SARS-COV-2 by the World Health Organization (WHO) on February 11, 2020.[1] Studies have shown that depression and anxiety are common and persistent mental illnesses in various chronic diseases including cancer and other serious illnesses.[2-4] Similar psychological symptoms are observed in patients with Coronavirus Disease 2019 (COVID-19) including emotional distress, mood swings, fear of being alone in isolation, or dying, feeling helpless, and insomnia.[5] Mental health plays a crucial role in accelerating patient recovery.[6]

This study has evaluated the prevalence of anxiety and depressive symptoms in hospitalized COVID-19 patients to assess its psychological effects. Also, clinically significant mental distress was evaluated among those patients. This will help in early identification and timely interventions of the psychiatric illnesses.

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METHODS

This was a multicentric descriptive cross-sectional study conducted among patients diagnosed with COVID-19 admitted from July 1, 2021 to August 15, 2021 in the following six different hospitals of Nepal: Shivanagar COVID-19 Hospital (Chitwan), Tribhuwan University Teaching Hospital (Kathmandu), Nepal Mediciti Hospital (Lalitpur), Shahid Gangalal National Heart Centre (Kathmandu), Sumeru City Hospital (Lalitpur), and Syangja District Hospital (Syangja). The patients with positive Reverse Transcription Polymerase Chain Reaction (RT-PCR) and/or COVID-19 antigen test were enrolled. However, patients with previously diagnosed psychiatric illnesses were not included in the study. Ethical approval was taken from Nepal Health Research Council (reference number 284). All subjects were informed that the participation was voluntary, and informed consent was taken. Considering a 10% non-response rate, the sample size estimated for the study was 360. Data on the demographic profile of the patients were collected. The mental state was evaluated using the Nepali translated version of the Hospital Anxiety and Depression Scale (HADS) [8, 9] and General Health Questionnaire-12 (GHQ-12).[7-10, 11] The HADS questionnaire comprises seven questions each for anxiety and depression. Each item on the questionnaire is scored from zero to three. A total score of more than or equal to eight on the respective subscale of the Hospital Anxiety and Depression Scale is taken as a case of anxiety or depression respectively. The severity of mental illness based on the HADS score is classified as mild (8-10), moderate (11-14), and severe (15-21).[12]

The GHQ-12 questionnaire comprises 12 questions each of which is scored from zero to three. A total score of four or more is used to indicate a level of mental distress that is clinically significant.[13] The data collected were entered in Microsoft Excel and then imported and analyzed in Statistical Package for the Social Sciences (SPSS) 25.0. Descriptive statistics (frequencies, percentages, means, and standard deviation) were calculated. Association between sociodemographic factors with anxiety and depressive symptoms was evaluated using chi square test considering p value less than 0.05 to be statistically significant.

RESULTS

A total of 360 patients infected with COVID-19 admitted to the study sites agreed to participate in the study of which 194 (53.9%) were male and 166 (46.1%) were female. The mean age of the participants was 48.68 years. Most of the participants (88.1%) were married and 8.3% of them

were single. Around one-fifth of the respondents (21.9%) were illiterate, 78.1% had formal education, and 90.8% lived with their families. Among the respondents, only 48 (13.3%) stated that they smoked cigarettes, 67 (18.6%) drank alcohol and a negligible proportion of them, i.e. 12 (3.3%) had a history of intake of psychotropic drugs (Table 1). Our study also showed that 'service' was the most common occupation among the patients occupying 22.8%. A majority of the patients (54.4%) belonged to middle-class families with an annual family income of Nepalese Rupees one lakhs to five lakhs. (Table 2).

Table 1. Demographic findings of patients, N= 360.	
Category	n (%)
Gender	
Male	194 (53.9)
Female	166 (46.1)
Education	
Illiterate	79 (21.9)
Formal education	281 (78.1)
Marital Status	
Married	317 (88.1)
Single	30 (8.3)
Separated	1 (0.3)
Widowed	12 (3.3)
Substance Abuse	
Smoking	48 (13.3)
Alcohol	67 (18.6)
Others	20 (5.6)
Psychotropics	12 (3.3)
Living Condition	
living alone	30 (8.3)
living with family	327 (90.8)
Others	3 (0.8)

Table 2. Socioeconomic findings of the patients. N= 360	
Category	n(%)
Religion	
Hindu	294 (81.7)
Buddhist	42 (11.7)
Christian	15 (4.2)
Muslim	8 (2.2)
Others	1 (0.3)
Caste	
Brahmin	88 (24.4)
Kshatriya	86 (23.9)
Shudra	10 (2.8)
Others	176 (48.9)
Occupation	
Business	55 (15.3)

Table 2. Socioeconomic findings of the patients. N= 360

Category	n(%)
Farmer	65 (18.1)
Laborer	10 (2.8)
Service	82 (22.8)
Student	16 (4.4)
Housewife	79 (21.9)
Unemployed	46 (12.8)
Others	7 (1.9)
Annual Income	
<1 lakhs	87 (24.2)
1-5 lakhs	196 (54.4)
>5 lakhs	77 (21.4)

We used the Hospital Anxiety and Depression Scale (HADS) questionnaire to compute the incidence of anxiety and depressive symptoms among the hospitalized patients with COVID-19. As per this scoring system, nearly half of the total participants (44.7%) had anxiety symptoms and more than two-thirds of patients (70.3%) had symptoms of depression (Table 3).

Table 3. Status of anxiety and depressive symptoms among study participants. N=360

Mental health outcomes	Status	n (%)
Anxiety Symptoms	Not Present	199(55.3)
	Present	161(44.7)
Depressive Symptoms	Not Present	107(29.7)
	Present	253(70.3)

Similarly, the mental state evaluation of the participants using the Nepali-translated version of General Health Questionnaire-12 (GHQ-12) revealed that a large proportion of the patients i.e. 96.9% of them had clinically significant mental distress (Table 4).[11]

Table 4. Mental state evaluation using GHQ-12. N=360

Parameters	n (%)
Normal	11 (3.1)
Significant mental distress	349 (96.9)

We also analyzed the sociodemographic status of patients with these mental illnesses so as to assess their correlation if any (Table 5). Among the patients with anxiety symptoms, 52.2% were males (p value 0.56), 13% smoked cigarettes, 21.7% drank alcohol, and 2.5% had a history of intake of psychotropic substances (p value 0.59). Similarly, 34.2% of the population with symptoms of anxiety were illiterate (p value <0.00001). In addition, the majority of patients with anxiety symptoms (92.5%) lived with their families (p value 0.59).

Similarly, among patients with depressive symptoms, males (51.5%) outnumbered females (48.5%, p value 0.48). Of them, 15.7% smoked cigarettes, 20.9% drank alcohol and 1.5% had a history of psychotropic substance use (p value 0.10). Farming and service were the most common occupations practiced by 25 (18.7%) of them each (p value 0.047). Similar to that of patients with anxiety symptoms, 93.3% of patients with symptoms of depression lived with the family (p value 0.45) (Table 5).

Table 5. Characteristics of patients with symptoms of anxiety and depression. N=360

Parameters	Anxiety Symptoms n (%)	P Value	Depressive Symptoms n (%)	P Value
Gender				
Male	84 (52.2)	**0.56**	69 (51.5)	**0.48**
Female	77 (47.8)		65 (48.5)	
Substance Abuse				
Smoking	21 (13)	**0.59**	21 (15.7)	**0.10**
Alcohol	35 (21.7)		28 (20.9)	
Others	9 (5.6)		4 (3.0)	
Psychotropics	4 (2.5)		2 (1.5)	
Education				
Illiterate	55 (34.2)	**< .00001**	48 (35.8)	**< .00001**
Formal Education	106 (65.8)		75 (64.2)	
Marital Status				
Married	147 (91.3)	**0.18**	124 (92.5)	**0.053**
Single	9 (5.6)		5 (3.7)	
Separated	1 (0.6)		1 (0.7)	
Widowed	4 (2.5)		4 (3.0)	
Living Condition				
living alone	11 (6.8)	**0.59**	8 (6.0)	**0.45**
living with family	149 (92.5)		125 (93.3)	
Others	1 (0.6)		1 (0.7)	

DISCUSSION

In this multicentric study, we aimed to estimate the prevalence of symptoms of depression, and anxiety, and significant mental distress among the patients infected with COVID-19 disease admitted in different hospitals in Nepal. Our survey pictured that 161 (44.7%) and 253 (70.3%) of the total 360 participants had symptoms of anxiety and depression respectively, and 349 (96.9%) of them showed clinically significant mental distress when measured through the standard questionnaire. The prevalence of anxiety and depressive symptoms shown in our study is significantly high when compared with the general population of Nepal which is 16.1% and 4.2% respectively.[14] This immense disparity between the prevalence of mental illness before and during the pandemic shows that COVID-19 has a significant impact on the mental health of patients. As public health emergencies like severe acute respiratory syndrome (SARS) and COVID-19 infection are linked with forced lockdown, social isolation and loneliness in isolation centres, quarantines, and hospitals, these have been shown to be linked with worse mental health outcomes including significant mental distress, anxiety, and depression.[15]

The prevalence of anxiety symptoms in our study is in line with that of a meta-analysis by Deng J. et. al. including 31 studies with 5153 patients which showed it to be 47%, however, the prevalence of depressive symptoms outnumbers the finding in this meta-analysis (45%).[16] Also, the prevalence of anxiety symptoms is comparable but that of depression is significantly high in our study in comparison to other similar studies conducted among health workers during the COVID-19 pandemic in Nepal.[17,18] This suggests that depressive symptoms are a significant problem among the hospitalized COVID-19 patients more than anxiety which might be because of the additional financial burden associated with hospital admission.

We analyzed different co-factors associated with significant mental distress, anxiety, and depression. Our study illustrated that males (anxiety 52.2%, depression 51.5) outnumbered females in reporting the psychiatric symptoms which is different from the finding in a similar study among the general population in Nepal which showed that the prevalence of anxiety and depression was high among female (70.6% and 58.8% respectively).[19] However, this study did not show any statistically significant association between sex and psychiatric symptoms (p value 0.56 for anxiety and 0.48 for depressive symptoms). As per the social make-up, men are expected to be the source of income and support their families in Nepal.[20] Since the hospital stay increases their expenses and deprives them of earnings as well, the resulting economic issues and unemployment crisis might have contributed to the above findings in our study.

Though a greater percentage of the married population (anxiety 91.3%, depression 92.5%) and those living with family (Anxiety 92.5%, depression 93.3%) had psychiatric illnesses, this study failed to demonstrate a statistically significant association between marital status and anxiety and depressive symptoms (p value 0.18 and 0.053 respectively, considering p value <0.05 statistically significant). Other similar studies have shown variable findings on this issue. For example, some studies show no significant relationship between marital status and mental illnesses while others show an inverse association between marital status and living status with mental illnesses, i.e. more incidence of them in unmarried population and those living alone.[19, 21]

The analysis of the patients based on their educational status showed that of total patients with symptoms of anxiety and depression respectively, 106 (65.8%) and 75 (64.2%) received some form of formal education with a statistically significant association between psychiatric symptoms and education status of the patients (p value <0.00001). This finding concurs with outputs by Kamal NM et.al. which showed that a higher level of education is associated with depression, anxiety, and stress.[22] The reason for this finding may be due to a higher level of health-conscious concerns, and worries regarding the COVID-19 infection and worldwide pandemic among educated patients more than illiterate ones. We tried to analyze the association of abuse of alcohol, cigarettes, and other psychoactive substance with the incidence of mental issues among the admitted patients. However, there was no significant association among them (p value 0.59 and 0.10 for anxiety and depressive symptoms respectively).

This study is probably the first one, assessing the mental health status of patients admitted with COVID-19 in Nepal, which includes multiple health institutions of different levels ranging from a primary health centre to tertiary hospitals, including both governmental and non-governmental hospitals. Considering the high burden of mental illnesses symptoms in hospitalized patients with COVID-19, we coordinated with the psychiatrists of hospitals in the respective area and referred patients with severe symptoms for further psychiatric management. Moreover, the homeopathic team of few centers were also involved in management

of patients with mild and moderate symptoms by teaching relaxation techniques and yoga. However, since the study design is cross-sectional type, it does not allow the establishment of any causality or association between the two study parameters. Moreover, the severity of COVID-19 symptoms in participants were not taken into account. Besides, the study sites were chosen at the convenience of the researchers and we could not include all the admitted patients with COVID-19 in the study sites, so the finding may not be generalized.

CONCLUSIONS

This multicentric study, using standard tools, depicted a significantly higher prevalence of anxiety and depressive symptoms, and significant mental distress among the patients with COVID-19 admitted in different hospitals in Nepal. We also tried to identify different factors associated with significant mental illnesses in these patients. Since mental well-being is directly linked to physical well-being and early recovery in admitted patients, more attention should be paid upon increasing awareness regarding mental illnesses, stress-coping strategies, and psychosocial support by trained medical staff. Furthermore, stress should be laid upon the provision of proper communication with family members and relatives, broadcasting of correct and timely information, and post-COVID psychiatric counselling to upgrade the psychological wellbeing of these patients. Hence, we suggest more similar studies in cases of any pandemics to evaluate the status of mental health in patients so as to address the overall wellbeing of these patients.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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