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Research Paper

Prevalence and factors influencing COVID-19 Anxiety among Nepalese Population during the COVID-19 Pandemic

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ABSTRACT

Global health epidemics or pandemics have short and long-term negative psychological impacts, including anxiety, in people everywhere. We thus investigated the prevalence of COVID-19 anxiety among the general population aged ≥18 years. A web-based cross-sectional survey was conducted using a self-selected convenience sampling method among 546 participants. Participants completed a five-item Corona Virus Anxiety Scale, a measure of COVID-19 anxiety. We used SPSS software to perform descriptive and inferential analysis. The majority of the participants were <29 years (88.6%), females (71.4%), Unmarried (87%), residing in urban areas (91.2%), completed college education (50.7%), and belonging to a nuclear family (76.2%). Health status showed almost 6% were suffering from some chronic illnesses, 19% experienced sleep problems, approximately 21% were from the COVID-19 risk zone, and approximately 25% were not satisfied with their present health status. About 8.1% of the total respondents had a high level of COVID anxiety, and COVID-19 anxiety was more prevalent among women, those who were married, respondents from the rural setting, those residing in an extended family, students, and those who had school education. COVID anxiety was higher among those suffering from chronic illness, those who were not satisfied with their current health status, those having sleep problems, and those from the COVID-19 risk zone. Logistic regression showed that sex and education had a significant association with COVID-19 anxiety. There is a need for increased knowledge and awareness on COVID-19 as well as mental health issues associated with it. The government should take initiatives to provide such services for the general population and those at increased risk.

Keywords: *COVID-19, Corona Anxiety, Health Status, Nepal*

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COVID-19, a novel disease, is believed to have originated from a wet market in Wuhan, China, and has spread all over the world, resulting in a large number of hospitalizations and deaths (Wang et al. 2020). Nepal, on 23 January 2020, confirmed the first case of COVID-19 in a 31-year-old student, who had returned from Wuhan on 9 January. In the span of 8 months, Nepal witnessed 22 confirmed cases and 32 deaths. Also, both rates of confirmed cases and death have accelerated in recent days (Paudel, Shrestha, Karmacharya, & Pathak, 2020).

Besides physical (Ran et al., 2020), economic (McKibbin, and Fernando, 2020), and educational impact (Strauss, 2020), global health epidemic or pandemics have short- and long-term psychological impacts on people worldwide, including stress, anxiety, obsession, PTSD, depression (Rossi et al., 2020; Salari et al., 2020; Pappa et al., 2020; Zhou et al., 2020; Shrestha et al., 2020), loneliness, boredom and anger (Maunder, 2003). Also, increased rates of relapse of pre-existing psychological problems are usually seen during the COVID-19 pandemic (Chatterjee, Barikar, and Mukherjee, 2020). The rate of mental and substance use disorders, which contribute to 7.4% of the disease burden worldwide (Whiteford et al., 2013), can be high during global pandemic or epidemics. Factors like higher publicity of disease condition in mass media (Wheaton, Abramowitz, Berman, Fabricant, and Olatunji, 2012) and the introduction of lockdown measures (Fullana, Hidalgo-Mazzei, Vieta, and Radua, 2020) can increase the rate of mental health conditions during pandemics. Also, a low health literacy rate in Nepal (Shrestha, Guo, Maharjan, Gurung, and Ruit, 2014; Vaidya, Shakya, and Krettek, 2010), which is associated with higher anxiety and depression (Kuroda et al., 2018; Smith, Curtis, Wardle, von Wagner, and Wolf, 2013), can be a factor in COVID-19 anxiety.

Among mental health problems, anxiety disorders are very common in the global population, with a lifetime prevalence rate ranging from 13.6% to 28.8% (Michael, Zetsche, and Margraf, 2007). Also, anxiety is one of the most reported conditions during this global pandemic (Zhou et al., 2020; Kumar and Somani, 2020; Gupta et al., 2020). Anxiety and fear have curbed the globe during the COVID-19 pandemic (Kuman and Somani, 2020). In Nepal, some studies have reported anxiety among health workers (Gupta et al., 2020; Khanal, Devkota, Dahal, Paudel, and Joshi, 2020; Gupta, Sahoo, Mehra, and Grover, 2020), with the prevalence ranging from 25.4% (Gupta, Sahoo, Mehra, and Grover, 2020) to 41.9% (Khanal, Devkota, Dahal, Paudel, and Joshi, 2020), and a study reported prevalence of anxiety among students (Dangal and Bajracharya, 2020) with a prevalence of 66.7%.

Even though a widespread condition, the prevalence of anxiety during COVID-19 is different in diverse groups. Pappa et al. (2002), in their systematic review, indicated a pooled prevalence of 23.2% of anxiety among health care workers. Zhou et al. (2020) reported anxiety symptoms among 37.4% of Chinese adolescents. A study by Salari et al. (2020) in their systematic review and meta-analysis showed a prevalence of 31.9% in the general population. Females (Ozdin, and Bayrak Ozdin, 2020; Moghanibashi-Mansourieh, 2020), people with chronic illness (Ozdin, and Bayrak Ozdin, 2020), those residing in an urban setting (Ozdin, and Bayrak Ozdin, 2020), people of a certain age (Moghanibashi-Mansourieh, 2020; Wang, 2020), those living in COVID-19 risk zone and those who have contracted COVID-19 or have some close ones suffering from COVID-19 (Moghanibashi-Mansourieh, 2020) are especially vulnerable to COVID-19 anxiety. Also, vulnerability to a psychological problem is a vital risk factor (Cullen, Gulati, and Kelly, 2020).

In Nepal, a handful of literature explored anxiety during COVID-19, and none of these studies explored COVID-19 anxiety. Thus, the aim of this study is twofold; to explore COVID-19 anxiety among the Nepalese population and to investigate COVID-19 anxiety for demographic variables.

METHODOLOGY

Study Design and Participants

A web-based cross-sectional survey was conducted for a period of three months between 1 June 2020 and 31 August 2020. The online survey was conducted among the Nepalese population aged $\geq$ 18 years residing in Nepal. We used an unrestricted self-selected, convenient sampling method, and used an online platform to collect the data. The questionnaire was developed into a web-based online Google form and circulated within the network of authors to get responses from the participants. We received a total of 558 responses during the study period but 12 responses were excluded due to incompleteness. Thus, the total participants included in the study were 546.

Data Collection

The online survey questionnaire consisted of three sections: socio-demographic information, current health-related status, and Corona Virus Anxiety Scale. The first section included information about age, sex, religion, marital status, residence, provincial residence, family type, highest educational degree obtained, and occupation of the respondents. Another section included information related to the current health status of the respondents in relation to COVID-19, which involved information related to risk zone, presence of any chronic illness, satisfaction with current health status, sleep problems, and family history of COVID-19.

The third section focused on COVID-19 anxiety, measured through a previously validated 5-item Coronavirus Anxiety Scale (CAS) (Lee, 2020). Each statement in CAS is rated on a 5-point rating scale, ranging from 0 ('not at all') to 4 ('nearly every day over the preceding two weeks'). The score of CAS ranges from 0 to 20, and a higher score is an indication of higher COVID-19 anxiety. Even though the cut-off score for dysfunctional anxiety was $\geq$ 9 in the clinical population, we used the cut-off score of ≥ 5 recommended for the general population (Choi, Lee, & Lee, 2020). We used CAS as a screening tool for two reasons. First, the CAS was placed in the public domain, and explicit permission was granted by the author to use the tool. Second, this tool had a solid psychometric property (Lee, Mathis, Obe, and Pappalardo, 2020). The internal consistency of the tool as measured by coefficient alpha was 0.69 in this study.

Data analysis

All the data, imported in Microsoft Excel sheet from the Google form, was checked for the completeness of response. We then imported and coded the data in the Statistical Package for Social Science-21 version (SPSS-21) and performed descriptive and inferential statistics. We calculated frequency (and percentage), mean, standard deviation, and chi-square test. Further, we performed a binary logistic regression.

RESULTS

Socio-demographic and Health related Information

Table 1 presents the socio-demographic and health-related information about the respondents. The age of the respondents ranged from 18 to 55, with a mean age of 23.54

(SD=5.68). Majority of the respondents were below 29 years in age (88.6%). Of the total respondents, 71.4% were females (n=390), and unmarried respondents outnumbered (87%) married ones. Regarding the current occupational status, 65.2% (n=356) were students. The majority of the respondents were residing in an urban setting (91.2%). An almost equal percentage of the respondents had either high school or college education (49.3% and 50.7%, respectively). The type of family showed that the majority (76.2%) of the participants were staying in a nuclear family. An almost 6% (n=32) of respondents were currently suffering from some kind of chronic illnesses, and almost 25% (n=133) were not satisfied with their present health status. Of the total respondents, around 19% (n=103) experienced some kind of sleep problems. Approximately 21% (n=116) of the respondents were from the COVID-19 risk zone.

Table 1 Demographic and Health related Characteristics

Characteristics of the respondents (N = 546)	n	%
Age (M= 23.54, SD=5.68, Range=18-55)		
<29	484	88.6
≥30	62	11.4
Sex		
Male	156	28.6
Female	390	71.4
Marital Status		
Unmarried	475	87.0
Married	71	13.0
Family Type		
Nuclear	416	76.2
Extended	130	23.8
Residence		
Urban	498	91.2
Rural	48	8.8
Occupation		
Student	356	65.2
Other	190	34.8
Highest Level of Education		
High School	269	49.3
College	277	50.7
Chronic Illness		
No	514	94.1
Yes	32	5.9
Satisfied with current health		
No	133	24.4
Yes	413	75.6
Sleep Problem		
No	443	81.1
Yes	103	18.9
COVID Risk Zone		
No	430	78.8
Yes	116	21.2

Prevalence of COVID-19 Anxiety

The score of CAS ranged from 0-12, with a mean score of 1.22 (SD=2.05). Table 2 shows that 8.1% of the total respondents (n=44) had a high level of COVID anxiety. The prevalence of COVID was comparatively higher among women (9.5% as compared to 4.5%), those who were married (9.9% versus 7.8%), respondents from the rural setting (12.5% as compared to 7.6%), those residing in the extended family (10.8% versus 7.2%). Anxiety was more prevalent among students (9.6%) than those who were not students (5.3%). Also, the prevalence of COVID-19 anxiety was higher among those who had school education than those having a college education (11.2% as compared to 5.1%). The prevalence of COVID anxiety was proportionately higher among those suffering from chronic illness (8.2%), those who were not satisfied with their current health status (9.0%), and those having sleep problems (8.7%). Comparatively, a higher percentage of people from the perceived COVID-19 risk zone (9.5%) had COVID anxiety. Of these demographic and health-related variables, only sex and education of respondents had a significant association with COVID-19 anxiety. Thus, we only included age, sex and education in logistic regression analysis.

Table 2 *Respondents' characteristics by COVID-19 Anxiety*

Factor	COVID Anxiety		p-value
	Low (%)	High (%)	
Sex			
Male	149 (95.5)	7 (4.5)	0.05*
Female	353 (90.5)	37 (9.5)	
Marital Status			
Unmarried	438 (92.2)	37 (7.8)	0.6
Married	64 (90.1)	7 (9.9)	
Family Type			
Nuclear	386 (92.8)	30 (7.2)	0.19
Extended	116 (89.2)	14 (10.8)	
Residence			
Urban	460 (92.4)	38 (7.6)	0.24
Rural	42 (87.5)	6 (12.5)	
Occupation			
Student	322 (90.4)	34 (9.6)	0.08
Other	180 (94.7)	10 (5.3)	
Education			
High School	239 (88.8)	30 (11.2)	0.009**
College	263 (94.9)	14 (8.1)	
Chronic Illness			
No	472 (91.8)	42 (8.2)	0.7
Yes	30 (93.8)	2 (6.3)	
Satisfied with current health			
No	121 (91.0)	12 (9.0)	0.64
Yes	381 (92.3)	32 (7.7)	
Sleep Problem			
No	408 (92.1)	35 (7.9)	0.8
Yes	94 (91.3)	9 (8.7)	
COVID Risk Zone			
No	397 (92.3)	33 (7.7)	0.53
Yes	105 (90.5)	11 (9.5)	

* Significant at 0.05, ** Significant at 0.01

The result of logistic regression (see Table 3) demonstrated that only sex and education had a significant association with COVID-19 anxiety. Females were two times more likely to have COVID-19 anxiety than males. Similarly, those having a school education were two and half times more likely to suffer from COVID-19 anxiety.

Table 3 Logistic Regression Analysis of Respondents' Characteristics and COVID-19 Anxiety

Factors	B	SE	Wald	P-value	OR	95% C.I. for OR	
						Lower	Upper
Age	0.02	0.03	0.37	0.54	1.02	0.96	1.09
Education	0.99	0.39	6.73	0.01*	2.72	1.28	5.9
Sex	0.87	0.43	4.12	0.04*	2.38	1.03	5.5
Constant	-4.15	1.005	17.07	0.000	0.02		

Abbreviations: B = Beta coefficient, SE = Standard Error, CI = Confidence Interval, OR = Odds Ratio, * = significant p-value
Notes: COVID-19 Anxiety: normal (0), high (1); Education: School Education (0), College Education (1); Sex: Female (0), Male (1); 0 = reference group

DISCUSSION

The prevalence of anxiety in our study is lower than that reported in the literature abroad and in Nepal (for example, Zhou et al., 2020; Wang et al., 2020; Gupta, Sahoo, Mehra, and Grover, 2020; Dangal and Bajracharya, 2020; Salari et al., 2020; Sigdel et al., 2020), and higher than the prevalence of anxiety disorders reported in Nepal before COVID-19 (Jha et al., 2019). The differences in prevalence can be attributed to the difference in data collection tools, as this study used a tool to measure COVID-19 anxiety rather than overall anxiety. The higher prevalence rate than the study of Jha et al. (2019) is an indication that COVID-19 has influenced the life of Nepalese citizens negatively.

Consistent with the previous studies, the prevalence was higher among females (Sigdel et al., 2020). Females usually report higher rates of internalizing symptoms (Foster, Li, McClure, Sonne, and Gray, 2016) like test anxiety (Bhatta and Rai, 2020), anxiety (Ahmed and Alansari, 2004), and depression (Van de Velde, Bracke, and Levecque, 2010) and COVID-19 anxiety is no exception to it. Proportionately higher prevalence of COVID anxiety was among married people, which contrasted to the findings of Ahmad, Rahman, and Agarwal (2020). Concerns about dear ones in a collectivistic culture like Nepal might be the factor contributing to the higher COVID-19 anxiety among our respondents. The higher prevalence of COVID-19 anxiety among people from rural settings and those with lower education contrasted to the findings of existing literature (for example, Ozdin and Bayrak Ozdin, 2020; Moghanibashi-Mansourieh, 2020). Better educated people have better health-related behaviors (Margolis, 2013), health literacy and have a perceived control that they can prevent disease (Park, Cho, and Moore, 2018), which can have contributed to lower rates of COVID-19 anxiety among people with college than school education. Also, people from urban areas usually have better education opportunities in Nepal, and this might have contributed to lower rates of COVID-19 anxiety among these people. Prevalence of COVID-19 anxiety was higher among those not satisfied with current health, those having a chronic illness, and those having sleep problems. These findings were consistent with the results of Ahmad, Rahman, and Agarwal (2020), who reported that poor health status and loss of sleep are significantly associated with anxiety during COVID-19. Poor self-rated health status was

also an important factor in anxiety levels in the study of Wang et al. (2020). Chronic illness is in itself a predictor of poor mental health, while sleep problems are both the symptoms and contributing factors in psychological problems.

The result of logistic regression shows that sex and education were significant factors in COVID-19 anxiety. Sigdel et al. (2020) concluded that females are 6.3 times more likely to have anxiety compared to males, which is higher than that in our study. High school students were times more at risk to suffer from COVID-19 anxiety, which is contrary to existing literature. As mentioned earlier, education is related to better health-related behaviors and a sense of control regarding the prevention of disease, which can be a factor contributing to the result of the present study.

The study has some limitations. We collected data through the use of a web-based online survey, which restricts certain groups like illiterate, older adults, and those having no access to the internet. A random sampling procedure might produce more generalizable findings. This study only provided information on point prevalence, and new research can focus on identifying the trajectory of COVID-19 anxiety for a specified duration. The findings cannot be generalized to older adults, illiterate, and those having no access to the internet. We did not examine the COVID-19 anxiety in victims of the Corona Virus. Future studies can focus on anxiety and related mental health conditions in people who have experienced or are suffering from COVID-19.

Despite the limitations, this study adds some new findings to existing literature. First, this is the first study to report the prevalence of COVID-19 anxiety in Nepal. Second, this is among the few studies that explored the prevalence of COVID-19 anxiety among the general population.

CONCLUSION

The overall prevalence of COVID-19 anxiety among the Nepalese population is 8.1%, which is higher than the prevalence of anxiety disorders before COVID-19. Thus, studies are needed to prevent and intervene in COVID-19 anxiety. The rate of COVID-19 anxiety is relatively higher among females, students, married people, and residents of a rural setting, people from extended family, and those having school education, and only sex and educational status contributed significantly to COVID-19 anxiety. Chronic illness, sleep problems, dissatisfaction with current health, and residing in the COVID-19 risk zone are related to higher COVID-19 anxiety rates, even though these variables did not have a significant contribution to COVID-19 anxiety. The government and healthcare stakeholders should design and implement appropriate measures to prevent and manage COVID-19 anxiety in the general population.

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