A Comparative Study of Anxiety in Indonesia and Nepal During COVID-19 Pandemic

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Abstract

Background: Indonesia and Nepal, which are in the World Health Organization South-East Asia Region, are the countries with the highest numbers of confirmed cases and deaths since the start of the COVID-19 pandemic outside of the Region of the Americas and the European Region. Since its first confirmed case on March 2nd, Indonesia has reported 100,303 cases and 4,838 deaths as of July 28, which is the highest number of cases in Southeast Asia. As restrictions in response to the pandemic continue, the public's psychological anxiety is gradually increasing.

Methods: There were 889 participants (university students and graduate students) living in Indonesia or Nepal (Indonesia: 551 persons; Nepal: 338 persons). An English questionnaire was administered to participants through an online survey using Google. T-test, Chi-squared test and logistic regression analysis were conducted.

Results: Regarding the factors affecting anxiety, they were "trust in hospitals for COVID-19 diagnosis," "risk of getting infected by COVID-19," "risk of family getting infected by COVID-19," "national discrimination due to COVID-19," "chronic disease status," "experience of purchasing masks," and "health behaviors" in Indonesia, and "trust in hospitals for COVID-19 diagnosis," "risk of family getting infected by COVID-19," and "depression score" in Nepal. In both countries, significant effects of "trust in hospitals for COVID-19 diagnosis" and "risk of family getting infected by COVID-19" were observed.

Conclusions: Therefore, Indonesia and Nepal should implement policies and guidelines to prevent psychological and psychiatric issues in the population due to the COVID-19 pandemic. Such measures will help to prevent and control the secondary damage caused by the disease.

Background

Since first emerging in China in December 2019, COVID-19 has spread rapidly on a global scale, resulting in massive numbers of infected patients and deaths. Due to the high rate of transmission, countries worldwide have been making efforts to prevent further spread, such as restricting movement, locking down international borders, as well as other country-specific regulations. Indonesia and Nepal, which are countries in the World Health Organization (WHO) South-East Asia Region, have both experienced the highest numbers of confirmed cases and deaths since the start of the COVID-19 pandemic outside of the Region of the Americas and the European Region. Since its first confirmed COVID-19 patient on March 2nd, Indonesia has recorded 100,303 confirmed cases and 4,838 deaths as of July 28th, which was the highest number of confirmed cases in Southeast Asia [1].

The Indonesian government implemented large-scale social restrictions (*Pembatasan Sosial Berskala Besar*, PSBB), affecting the use of educational institutions, workplaces, religious facilities, public facilities, cultural activities, and transport, and temporarily closed locations and facilities with dense crowds. Travel between regions has been forbidden, and the international airports have also ceased operations. Following the announcement of the PSBB, the "new normal" period was promulgated, and conditions for movement domestically and overseas were strictly enforced, such as submission of polymerase chain reaction test

(COVID-19 test) results. However, due to the weather in Indonesia, the number of cases has continued to increase, leading the Indonesian government to announce an extension of the PSBB to July 30th [2].

In Nepal, the first case of COVID-19 was a Nepalese national who re-entered the country from China on January 23rd. Since then, there have been 18,752 confirmed cases and 48 deaths reported as of July 28th, and these numbers continue to grow. On March 22nd, the Nepalese government implemented entry restrictions for international flights and tourists to prevent the entry of COVID-19 from overseas and implemented nationwide lockdown on March 24th. The lockdown measures successfully reduced the spike in cases and deaths, and the national lockdown was ended on July 21st [3]. As these restrictions continue, the psychological anxiety of the public is gradually increasing. Anxiety refers to feelings of tension, worrisome thoughts, and emotions affecting the body, which presents with unwanted thoughts and worries and can also develop when an individual try to avoid their worries [4]. Anxiety and depression can increase when trauma-induced thoughts or moods are recalled as well as in survivors of certain incidents. Such incidents make people feel different emotions from normal and can cause various symptoms, such as reduced concentration, loss of appetite, mood swings, and sleep disturbance [5]. In China, the first country to implement a lockdown, 21.3% of students at Changzhi Medical College experienced mild anxiety, 2.7% experienced moderate anxiety, and 0.9% experienced severe anxiety [6]. The main causes of anxiety were found to be the economic effects of COVID-19, effects on daily living, and delay of academic activities. In a study by Li et al., the prevalence of depression or anxiety among Chinese people was 20.4%, and the onset of depression or anxiety was significantly related to the time of encountering news related to COVID-19. Other factors affecting anxiety included concerns about loved ones getting infected, concerns about income, employment, academic pursuits, or ability to repay loans, and discomfort in daily living due to isolation [7]. Wang et al. conducted a study of residents in 194 cities in China and found that 28.8% of respondents displayed moderate or severe anxiety symptoms. Moreover, the respondents were worried about the concerns about other family members getting COVID-19. Psychological effects, stress, anxiety, and depression were found to be higher among individuals who were female, students, those who had physical symptoms, or had low self-rated health [8]. The WHO has highlighted that, as the COVID-19 pandemic continues long-term, in addition to physical problems, psychiatric problems are becoming more prevalent worldwide, and many people are showing anxiety about the possibility of infection, death, or bereavement due to COVID-19 [9]. Hence, in this study, we aimed to compare anxiety between residents of Nepal and Indonesia, where long-term lockdown measures are continuing and the numbers of COVID-19 patients are growing, and to investigate the factors affecting anxiety. The specific objectives of this study were as follows:

1) To investigate general and healthcare-related characteristics in residents of Nepal and Indonesia

2) To investigate differences in healthcare-related characteristics and anxiety between residents of Nepal and Indonesia

3) To investigate factors affecting anxiety in the residents of Nepal and Indonesia

Methods

1) Research Design

This study is a cross-sectional study and classified the factors affecting anxiety into general factors and health-related factors.

2) Research tool and target

The study participants were 889 individuals (university students and graduate students) from Indonesia (n = 551) and Nepal (n = 338). An English version of a questionnaire was conducted using Google online survey. The number of samples was calculated with an error limit of 5% and a significance level of 95% using G Power 3.1.9.4. The minimum required number of samples was 76, and sampling was conducted considering the dropout rate and insufficient questionnaire.

3) Method of data collection

Data was collected by online survey, a non-face-to-face survey method due to movement restrictions and quarantine by the Indonesian and Nepalese governments to prevent the spread of COVID-19 and using the snowball sampling method. The study was investigated for 24 days from April 7 to 30, 2020.

4) Research tool

This study was applied 'Questionnaire in the COVID-19 Online Survey Tool' for the Chinese general population by Wang's research[10] with a reasonable validity and reliability. Then the authors modified the questionnaire according to the situation of two targeted countries. The questionnaire included general characteristics questions: demographic characteristics and self-rated health, symptoms of discomfort, reliability of medical institutions, knowledge information about COVID-19 and health-related questions: possibility of COVID-19 infection and family infection, national discrimination due to COVID-19, purchase of mask, depression (PHQ-9, Patient Health Questionnaire-9). In case of PHQ-9, it was calculated by a total of 27 points by assigning 3 points to each question. In addition, the score was divided by 5, 10, 15 points as criteria to verify either has mild depression or not.

To measure "anxiety" caused by COVID-19, the question "Do you feel that too worry or anxiety has been made about COVID-19?" was applied. There were nine questions regarding health behaviors. The specific questions included over the last 14 days, covering your mouth when coughing and sneezing, using public transportation, washing hands with soap, washing hands after coughing and sneezing, wearing a mask regardless of symptoms, washing hands after touching contaminated objects, using an elevator, and sitting in a row, and whether or not to participate in meeting with 10 or more people. It was calculated by a total of 45 points by assigning 5 points to each question.

5) Analysis methods

We used IBM SPSS 25.0 to analyze data. The specific analytical methods are below:

First, descriptive statistics were calculated for demographic characteristics, and self-rated health, symptoms of discomfort, reliability of medical institutions, knowledge information about COVID-19 and health-related questions, and t-test, Chi-squared tests were performed in each variable between 'Indonesian group' and 'Nepal group'. Second, logistic regression test was conducted to verify relationship of related variables and anxiety.

Results

1) General characteristics and healthcare-related characteristics

When the general and healthcare-related characteristics were compared between the residents of Indonesia and Nepal, among general characteristics, there were significant differences in sex ($p < .001$), age ($p < .001$), education level ($p < .001$), marital status ($p < .001$), employment status ($p < .001$), presence or absence of children ($p < .001$), and household size ($p < .001$). There were no differences in whether or not the respondent had seen a doctor in the last 14 days ($t = 1.769$, $p = .184$) or chronic disease status ($t = .438$, $p = .508$). The general characteristics of participants from Indonesia were as follows: 90.7% of respondents were female, and their mean age was 19.92 ± 1.17 years, with a range of 16–26 years. Most respondents were unmarried (99.6%) and did not have children (96.0%). The most commonly reported household size was 3–5 persons (55.5%). In Nepal, 39.6% of respondents were male and 60.4% were female, and their mean age was 23.40 ± 5.18 years. Most respondents were unmarried (89.3%), and 89.3% were students. The most commonly reported household size was 3–5 persons (68.3%). The healthcare-related characteristics for participants from Indonesia were as follows: 82.6% of respondents had experience of self-isolation, and subjective health status was reported as "good" by 58.4% of respondents and "very good" by 37.4%. Trust in hospitals for COVID-19 diagnosis was rated as "somewhat confident" by 39.0% of respondents and "very confident" by 20.3%. Regarding the contracting COVID-19 during the current outbreak, 39.2% of respondents rated the risk as "high" and 22.0% rated the risk as "very high." Regarding the risk of dying from COVID-19, 41.7% of respondents rated the risk as "high" and 27.9% rated the risk as "very high." Regarding the concerns about other family members getting COVID-19, 65% of respondents stated that they were "very worried," and the percentage of respondents stating that there was national discrimination due to COVID-19 was 23.0%. Further, 75.7% of respondents had purchased masks to prevent COVID-19 while 82.6% of respondents wanted additional information about COVID-19. The mean score for health behaviors was 34.1 ± 7.73 out of 45 points, and the mean anxiety score was 3.74 ± 1.1 points.

In Nepal, subjective health status was reported to be "good" by 58% of respondents and "very good" by 32.5%, while trust in hospitals for COVID-19 diagnosis was rated as "low' by 47.6% of respondents and "medium" by 31.7%. Regarding contracting COVID-19 during the current outbreak, 43.8% of respondents rated the risk as "high"; regarding the risk of dying from COVID-19, 53% of respondents rated the risk as "high" and 34.3% rated the risk as "very high." In total, 68% of respondents stated that there was no national discrimination due to COVID-19, 86.1% stated that they had purchased masks to prevent COVID-19, and 86.1% wanted additional information about COVID-19. The mean score for health behaviors was 15.33 ± 5.26 out of 45 points, and the mean anxiety score was 3.11 ± 1.04 points.

Table 1 General characteristics

Variables		N (%) or Mean ± SD		t/F/r(*p*)
		Indonesia (n = 551)	Nepal (n = 338)	
Sex	Male	51(9.3)	134(39.6)	117.395(< .001)
	Female	500(90.7)	204(60.4)	
Age		19.92 ± 1.17(16–26)	23.40 ± 5.18(15–53)	-15.142(< .001)
Education level	University	526(95.5)	302(89.3)	54.189(< .001)
	Higher than university	25(4.5)	36(10.7)	
Marital status	Unmarried	549(99.6)	302(89.3)	12.252(< .001)
	Married	2(0.4)	36(10.7)	
Employment status	Student	543(98.5)	299(88.5)	44.667(< .001)
	Employed	6(1.1)	36(10.7)	
	Unemployed	2(0.4)	3(0.9)	
Children information	No	529(96.0)	313(92.6)	22.219(< .001)
	Yes	22(4.0)	25(7.4)	
Household size	1-person household	38(6.9)	12(3.6)	15.450(.001)
	2-person household	45(8.2)	22(6.5)	
	3–5-person household	306(55.5)	231(68.3)	
	≥ 6-person household	162(29.4)	73(21.6)	
Did you see a doctor in the clinic in the past 14 days?	No	481(87.3)	305(90.2)	1.769(.184)
	Yes	70(12.7)	33(9.8)	
Were you under quarantine by health authority in the past 14 days?	No	455(82.6)	314(92.9)	19.117(< .001)
	Yes	96(17.4)	24(7.4)	
Please self-rate your current health status	Fair	23(4.2)	32(9.5)	11.681(.020)
	Good	322(58.4)	196(58.0)	
	Very good	206(37.4)	110(32.5)	
Do you suffer from a chronic illness	No	527(95.6)	320(94.7)	.438(.508)

Variables		N (%) or Mean ± SD		t/F/r(*p*)
		Indonesia (n = 551)	Nepal (n = 338)	
diagnosed by physician?	Yes	24(4.4)	18(5.3)	
Trust in hospitals for COVID-19 diagnosis for COVID-19 diagnosis	Not at all confident	13(2.4)	41(12.1)	45.111(< .001)
	Not very confident	80(14.5)	161(47.6)	
	Somewhat confident	215(39.0)	107(31.7)	
	Very confident	112(20.3)	14(4.1)	
	Don't know	131(23.8)	15(4.4)	
Please rate your likelihood of [a. Contracting COVID-19 during the current outbreak]	Very low	22(4.0)	14(4.1)	14.483(< .001)
	Low	130(23.6)	128(37.9)	
	High	216(39.2)	148(43.8)	
	Very high	121(22.0)	40(11.8)	
	Not sure	62(11.3)	8(2.4)	
Please rate your likelihood of [b. Surviving COVID-19 if infected]	Very low	17(3.1)	1(0.3)	39.574(< .001)
	Low	95(17.2)	32(9.5)	
	High	230(41.7)	179(53.0)	
	Very high	154(27.9)	116(34.3)	
	Not sure	55(10.0)	10(3.0)	
Do you feel that you are being discriminated against by other countries due to the outbreak of COVID-19	Yes	127(23.0)	46(13.6)	17.815(< .001)
	No	240(43.6)	230(68.0)	
	Not sure	184(33.4)	62(18.3)	
Have you ever bought masks due to the outbreak of COVID-19?	No	134(24.3)	47(13.9)	161.671(< .001)
	Yes	417(75.7)	291(86.1)	
Would you like to receive additional information about COVID-19?	Yes	455(82.6)	291(86.1)	135.817(< .001)
	No	96(17.4)	47(13.9)	
Health behaviors		34.1 ± 7.73(9–45)	15.33 ± 5.26(9–45)	68.070(< .001)

Variables			N (%) or Mean ± SD		t/F/r(*p*)
			Indonesia (n = 551)	Nepal (n = 338)	
Please rate your concerns about other family members getting COVID-19		Not worried	14(2.5)	9(2.7)	14.538(< .001)
		Somewhat worried	69(12.5)	107(31.7)	
		Very worried	358(65.0)	176(52.1)	
		Not applicable	44(8.0)	27(8.0)	
		Not sure	66(12.0)	19(5.6)	
Depression*	Score 5	Mild depression (≥ 5 points)	409(74.2)	153(45.3)	75.571(< .001)
	Score 10	Mild depression (≥ 10 points)	235(42.6)	66(19.5)	50.017(< .001)
	Score 15	Mild depression (≥ 15 points)	101(18.3)	30(8.9)	14.904(< .001)
	Total		8.86 ± 6(0–27)	5.7 ± 5.47(0–27)	5.153(.023)
Anxiety			3.74 ± 1.1(1–5)	3.11 ± 1.04(1–5)	106.936(< .001)
* To verify depression, applied PHQ-9. The result was divided 5, 10, 15 points as criteria of mild depression.					

2) Differences in anxiety depending on general and healthcare-related characteristics

Among participants from Indonesia, trust in hospitals for COVID-19 diagnosis, contracting COVID-19 during the current outbreak, concerns about other family members getting COVID-19, national discrimination due to COVID-19, experience of purchasing masks, chronic disease status, desire for more information about COVID-19, and health behaviors exhibited statistically significant relationships with anxiety. Participants with very high trust in hospitals for COVID-19 diagnosis exhibited the highest anxiety levels (F = 2.797, *p* = .026), and participants who rated the contracting COVID-19 during the current outbreak as “very high” also exhibited high anxiety levels (F = 4.515, *p* = .001). For concerns about other family members getting COVID-19, participants who responded “not applicable” exhibited the highest anxiety, followed by participants who stated that they were “very worried” (F = 13.4144, *p* < .001). Participants who stated that there was national discrimination due to COVID-19 exhibited higher anxiety (F = 7.096, *p* = .001). Participants who had purchased masks exhibited higher anxiety (t = 4.717, *p* < .001), and those with a chronic disease exhibited higher anxiety (t=-2.729, *p* = .007). Participants who wanted additional information about COVID-19

exhibited higher anxiety scores than those who did not want additional information (t = 2.116, p = .035). There was a positive correlation between health behavior scores and anxiety scores (r = 0.135, p = .003). Among participants from Nepal, subjective health status, contracting COVID-19 during the current outbreak, national discrimination due to COVID-19, health behavior scores, concerns about other family members getting COVID-19, and depression scores exhibited statistically significant relationships with anxiety. Participants who reported “average” subjective health status exhibited higher anxiety (F = 2.86, p = .018). Participants who rated contracting COVID-19 during the current outbreak as “very high” (F = 2.519, p = .041) and those who stated that there was national discrimination due to COVID-19 exhibited higher anxiety (F = 6.081, p = .003). Participants who were “very worried” about the concerns about other family members getting COVID-19 exhibited the highest anxiety levels (F = 4.591, p < .001). Health behavior scores exhibited a negative correlation with anxiety (r=-.117, p = .031), while depression scores exhibited a positive correlation with anxiety (r = .250, p < .001). The factors that exhibited a significant relationship with anxiety in both countries were risk of themselves being infected by COVID-19, risk of dying from COVID-19, national discrimination due to COVID-19, health behaviors, and concerns about other family members getting COVID-19.

Table 2 Differences in anxiety depending on general and healthcare-related characteristics

Variables		Anxiety			
		mean ± SD		t/F/r(p)	
		Indonesia	Nepal	Indonesia	Nepal
Sex	Male	3.72 ± 1.15	3.05 ± 1.11	− .128(.898)	− .821(.412)
	Female	3.75 ± 1.08	3.15 ± .98		
Age				.022(.600)	− .039(.475)
Education level	University	3.74 ± 1.09	3.14 ± 1.04	− .451(.652)	1.351(.178)
	Higher than university	3.84 ± 1.07	2.89 ± .98		
Marital status	Unmarried	3.74 ± 1.09	3.13 ± 1.03	.318(.751)	1.009(.314)
	Married	3.50 ± .71	2.94 ± 1.07		
Employment status	Student	3.75 ± 1.09	3.13 ± 1.05	.907(.404)	.712(.545)
	Employed	3.17 ± 0.98	2.97 ± 1.0		
	Unemployed	4.0 ± 1.41	3.5 ± .71		
Children information	No	3.73 ± 1.1	3.13 ± 1.04	-1.931(.054)	1.149(.251)
	Yes	4.18 ± .733	2.88 ± .97		
Household size	1-person household	3.79 ± 1.26	3.5 ± .8	.168(.918)	1.151(.329)
	2-person household	3.64 ± 1.09	3.36 ± .9		
	3–5-person household	3.75 ± 1.11	3.09 ± 1.06		
	≥ 6-person household	3.73 ± 1.04	3.04 ± 1.02		
Did you see a doctor in the clinic in the past 14 days?	No	3.74 ± 1.08	3.07 ± 1.03	− .460(.646)	-2.020(.044)
	Yes	3.8 ± 1.18	3.45 ± 1.09		

Variables		Anxiety			
		mean ± SD		t/F/r(p)	
		Indonesia	Nepal	Indonesia	Nepal
Were you under quarantine by health authority in the past 14 days?	No	3.75 ± 1.09	3.09 ± 1.03	.148(.882)	-1.507(.133)
	Yes	3.73 ± 1.09	3.42 ± 1.1		
Please self-rate your current health status	Fair	3.57 ± .95	3.42 ± 1.05	.723(.486)	2.86(.018) *c > a*
	Good	3.79 ± 1.13	3.16 ± 1.03		
	Very good	3.70 ± 1.04	2.92 ± 1.02		
Do you suffer from a chronic illness diagnosed by a physician?	No	3.72 ± 1.1	3.11 ± 1.05	-2.729(.007)	− .240(.810)
	Yes	4.33 ± .761	3.17 ± .786		
Trust in hospitals for COVID-19 diagnosis for COVID-19 diagnosis	Not at all confident	3.62 ± 0.87	3.07 ± 1.10	2.797(.026) d > c > b	1.783(.132)
	Not very confident	3.61 ± 0.934	3.17 ± 1.02		
	Somewhat confident	3.69 ± 1.0	3.09 ± 1.04		
	Very confident	4.04 ± 1.02	2.43 ± .94		
	Don't know	3.65 ± 1.34.	3.27 ± .961		
Please rate your likelihood of [a. Contracting COVID-19 during the current outbreak]	Very low[a]	3.68 ± 1.25	3.07 ± 1.07	4.515(.001) d > c > b	2.519(.041) c > b
	Low[b]	3.55 ± 1.18	2.89 ± 1.1		
	High[c]	3.65 ± .991	3.24 ± .94		
	Very high[d]	4.08 ± 1.05	3.33 ± 1.1		
	Not sure[e]	3.82 ± 1.13	3.13 ± 1.13		
Please rate your likelihood of [b. Surviving COVID-19 if	Very low	3.53 ± 1.33	3.0 ± 0	1.422(.225)	.065(.992)

Variables		Anxiety			
		mean ± SD		t/F/r(p)	
		Indonesia	Nepal	Indonesia	Nepal
infected]	Low	3.67 ± 1.23	3.16 ± 1.32		
	High	3.67 ± 1.04	3.09 ± .96		
	Very high	3.9 ± 1.01	3.13 ± 1.07		
	Not sure	3.84 ± 1.18	3.0 ± 1.16		
Do you feel that you are being discriminated against by other countries due to the outbreak of COVID-19	Yes[a]	4.03 ± 1.04	3.54 ± 1.05	7.096(.001) a > b,c	6.081(.003) a > b
	No[b]	3.72 ± 1.07	2.99 ± 1.03		
	Not sure[c]	3.57 ± 1.11	3.23 ± .965		
Have you ever bought masks due to the outbreak of COVID-19?	No	3.37 ± 1.19	2.91 ± 1.12	4.717(< .001)	-1.387(.166)
	Yes	3.87 ± 1.03	3.14 ± 1.02		
Would you like to receive additional information about COVID-19?	Yes	3.79 ± 1.05	3.06 ± 1.17	2.116(.035)	− .324(.746)
	No	3.53 ± 1.25	3.12 ± 1.02		
Health behaviors		3.74 ± 1.09	3.11 ± 1.04	.135(.003)	− .117(.031)
Please rate your concerns about other family members getting COVID-19	Not worried[a]	3.86 ± 1.35	3.0 ± 1.12	13.444(< .001) d > c > e,b	4.591(.001) c > b
	Somewhat worried[b]	3.17 ± .923	2.83 ± 1.01		
	Very worried[c]	3.91 ± .965	3.33 ± .947		
	Not applicable[d]	4.07 ± 1.17	3.04 ± 1.29		
	Not sure[e]	3.18 ± 1.36	2.79 ± 1.23		

Variables			Anxiety			
			mean ± SD		t/F/r(p)	
			Indonesia	Nepal	Indonesia	Nepal
Depression*	Score 5	Normal	3.8 ± 1.24	2.86 ± 1.03	.431(.512)	25.439(< .001)
		Mild depression (≥ 5 points)	3.73 ± 1.03	3.41 ± .97		
	Score 10	Normal	3.72 ± 1.11	3.0 ± 1.02	.319(.573)	16.198(< .001)
		Mild depression (≥ 10 points)	2.77 ± 1.08	3.56 ± 1.01		
	Score 15	Normal	3.77 ± 1.06	3.05 ± 1.01	1.275(.259)	12.296(.001)
		Mild depression (≥ 15 points)	3.63 ± 1.22	3.73 ± 1.11		
	PHQ_SUM		3.74 ± 1.09	3.11 ± 1.04	− .012(.774)	.250(< .001)
[a,b,c,d,e] = Scheffé post hoc test p < .05						
* To verify depression, applied PHQ-9. The result was divided 5, 10, 15 points as criteria of mild depression.						

3) Factors affecting anxiety in residents of Indonesia and Nepal

We performed a multiple linear regression analysis to investigate factors affecting anxiety in residents of Indonesia and Nepal. To examine collinearity between the independent variables, the tolerance and variance inflation factor were analyzed; no problems with collinearity were observed. In Indonesia, the factors with a significant effect were trust in hospitals for COVID-19 diagnosis, contracting COVID-19 during the current outbreak, concerns about other family members getting COVID-19, national discrimination due to COVID-19, chronic disease status, experience of purchasing masks, and health behaviors. In Nepal, the factors with a significant effect were trust in hospitals for COVID-19 diagnosis, concerns about other family members getting COVID-19, and depression. Thus, the factors with significant effects in both countries were trust in hospitals for COVID-19 diagnosis and concerns about other family members getting COVID-19. In Indonesia, the factors with the largest effects on anxiety, in descending order, were concerns about other family members getting COVID-19 (β = .164), experience of purchasing masks (β=-.129), contracting COVID-19 during the current outbreak (β = .113), trust in hospitals for COVID-19 diagnosis (β = .097), health behaviors (β = .095), national discrimination due to COVID-19 (β = .094), and chronic diseases status (β = .083). Thus,

anxiety was higher in participants who rated the risk of family being infected as higher, who had experience purchasing masks, who rated the contracting COVID-19 during the current outbreak as higher, who had greater trust in hospitals for COVID-19 diagnosis, who performed more health behaviors, who believed that there was national discrimination due to COVID-19, and who had a chronic disease. These variables explained 14.1% of the variance in anxiety due to COVID-19 among residents of Indonesia. In Nepal, the factors with the largest effects on anxiety, in descending order, were depression (β = .236), health behaviors (β=-.175), concerns about other family members getting COVID-19 (β = .159), trust in hospitals for COVID-19 diagnosis (β=-.126), and national discrimination due to COVID-19 (β = .130). Anxiety scores were higher in participants with higher depression scores, who performed fewer health behaviors, who rated the concerns about other family members getting COVID-19 as higher, and who believed that there was national discrimination due to COVID-19. These variables explained 17.9% of anxiety due to COVID-19 among residents of Nepal.

Table 3 Factors affecting anxiety among residents of Indonesia and Nepal

	Indonesia (n = 551)					Nepal (n = 338)				
Variables	**B**	**SE**	**β**	**t**	p	**B**	**SE**	**β**	**t**	p
	3.223	.329		9.795	.000	3.113	.447		6.962	.000
Self-rate of health status [1)]	− .312	.225	− .056	-1.388	.166	.018	.279	.005	.063	.950
Trust in hospitals for COVID-19 diagnosis for COVID-19 diagnosis [2)]	.288	.111	.107	2.590	**.010**	-1.943	.489	− .365	-3.976	**.000**
Surviving COVID-19 if infected [3)]	.328	.109	.125	2.997	**.003**	.136	.286	.044	.473	.637
Please rate your concerns about other family members getting COVID-19[4)]	.376	.095	.165	3.961	**.000**	.461	.177	.224	2.607	**.011**
Do you feel that you are being discriminated against by other countries due to the outbreak of COVID-19?[5)]	.233	.106	.090	2.188	**.029**	.301	.172	.148	arar.750	.083
Do you suffer from a chronic illness diagnosed by a physician?	.478	.216	.090	2.213	**.027**	.539	.383	.123	1.407	.163
Have you ever bought masks due to the outbreak of COVID-19?	− .316	.106	− .125	-2.990	**.003**	− .163	.243	− .058	− .673	.503

	Indonesia (n = 551)					Nepal (n = 338)				
Would you like to receive additional information about COVID-19?	− .048	.119	− .017	− .402	.688	− .401	.265	− .134	-1.514	.133
Health behaviors	.015	.006	.105	2.503	**.013**	.007	.017	.034	.406	.686
Depression score (PHQ-9)	.003	.008	.019	.457	.648	.036	.016	.198	2.274	**.025**
F(*p*)	8.508(< .001)					4.982(< .001)				
Adjusted R^2	.136					.339				

Dummy variables: [1)] Self-rate of health status (1: “Average”), [2)] Trust in hospitals for COVID-19 diagnosis (1: “High”), [3)] Surviving COVID-19 if infected (1: “Very high”), [4)] Please rate your concerns about other family members getting COVID-19 (1: “Very worried”), [5)] Do you feel that you are being discriminated against by other countries due to the outbreak of COVID-19? (1: “Yes”)

PHQ-9 9-question Patient Health Questionnaires

Discussion

Since the first case in December 2019, COVID-19 has spread rapidly throughout the world and caused a massive number of infections and deaths to date. All countries are making every effort to prevent the spread of COVID-19, limiting contact between people through measures such as restricting movement, isolation, and closing international borders. The governments of Indonesia and Nepal have also implemented strong COVID-19 prevention policies including closing borders, isolating patients, and restricting the use of public transport, and some policies continue to be implemented. This study aimed to investigate the emotional anxiety among residents of Indonesia and Nepal caused by the sudden changes in the social environment in response to COVID-19 and also analyze the factors affecting anxiety. Anxiety scores for residents of Indonesia and Nepal were 3.74 ± 1.1 points and 3.11 ± 1.04 points, respectively, meaning that anxiety was higher in Indonesia. Depression scores were also higher among residents of Indonesia compared to residents of Nepal. In a previous study that investigated depression due to national lockdown policies and movement restrictions among Indonesian university students, the prevalence of moderate and severe depression was 27.4% and 12.9%, respectively [11], which was lower than that in our study, but consistent in indicated that residents were suffering psychiatric and psychological discomfort. In a previous study in Nepal, 14.1% of residents experienced mild depression and 9.9% experienced moderate depression due to COVID-19, which was similar to our study (mild depression: 18.3%, moderate depression: 7%) in showing that residents experienced psychiatric and psychological effects due to movement restriction and COVID-19 [12]. Indonesia developed its first COVID-19 patient later than Nepal, but COVID-19 spread at a much faster

rate in the country, and the increase in cases and deaths was much greater. This is thought to be the reason for the high anxiety among residents of Indonesia. It is surmised that residents of Nepal also experienced high anxiety due to movement restrictions and the increase in cases. When we investigated the factors affecting anxiety among residents of Indonesia and Nepal, in both countries, residents exhibited higher anxiety when they were “very worried” about the concerns about other family members getting COVID-19 and when they reported “high” trust in hospitals for COVID-19 diagnosis. In Indonesia, anxiety was higher among residents who rated the contracting COVID-19 during the current outbreak as “very high,” who believed that there was national discrimination due to COVID-19, who had a chronic disease, who had purchased masks, and who practiced health behaviors; in Nepal, anxiety was higher among residents with high depression scores. In both countries, residents experienced anxiety about family members becoming infected by COVID-19. A study by Lee et al. [13] identified knowledge about COVID-19, health concerns, and fear of COVID-19 infection as factors affecting anxiety [14]. Another study by Wang et al. [15] observed that anxiety and depression increased further among people whose family members have been infected or have a suspected infection, which is consistent with our findings. In our study, most respondents in both Indonesia and Nepal lived in households of 3–5 persons, which suggests that they might think of themselves and their family members as a unit. Thus, they experience higher anxiety when they rated the risk of family members being infected by COVID-19 as higher. Participants with high trust in hospitals for COVID-19 diagnosis also exhibited high anxiety, which contrasts with the results of a previous study, in which the rapid spread of COVID-19 led to reduced trust in hospitals for COVID-19 diagnosis and suspicion about the results of COVID-19 tests [16]. Before the outbreak of COVID-19, trust and satisfaction in hospitals were relatively high among residents of Indonesia [17]. However, since the COVID-19 outbreak, with the declaration of a pandemic by the WHO and the resulting social changes, there has been rapid dissemination of misinformation and fake news about COVID-19. As people have been exposed to this false information unprepared, they began to rebel against government policies or lose trust in COVID-19 test results from hospitals, even leading to dissatisfaction in medical services [18]. Thus, even if the unique circumstances of the COVID-19 pandemic do not harm trust in medical institutions overall, the public may lose trust in services related to COVID-19, leading to increased public anxiety. In Indonesia, participants who rated contracting COVID-19 during the current outbreak as high and adhered to health behaviors also exhibited high anxiety. This is consistent with a study by Stickley et al. [19], in which anxiety was affected by preventive behaviors such as hand-washing, mask-wearing, coughing into tissues, not touching one’s face after touching other objects, canceling holiday plans, and staying at home. People consciously perform preventive behaviors more when they more strongly perceive the risk of disease and consider themselves vulnerable [20]. In our study, we can surmise that individuals developed anxiety that they could be infected as they were continually exposed to information about COVID-19 and that high anxiety led them to perform health behaviors. Participants with experience of purchasing masks and those with chronic disease also exhibited high anxiety. This finding is consistent with a study by Ardan, Rahman, & Geroda [11], which identified mask-wearing and social activities as factors affecting COVID-19-induced anxiety in Indonesian university students [21]. Countries worldwide are making mask-wearing compulsory to prevent the spread of COVID-19 because blocking contact with saliva or bodily secretions is the most effective method of prevention [22]. However, many countries have not been able to supply enough masks to accompany these policies, and this has heightened public anxiety and led to panic buying [23]. Particularly, developing

countries have major difficulties with mask supply, and much effort is needed to purchase masks. This explains why we observed higher anxiety among participants who had an experience of purchasing masks, as we believe that more participants with higher anxiety had an increased desire to purchase masks. Many studies have already confirmed that chronic disease patients exhibit higher fatality from COVID-19, and this has been continually reported by broadcast media [24]; [25]. In one previous study, people with existing diabetes exhibited greater difficulties psychologically accepting COVID-19, which partially agrees with our findings [25]. In Nepal, participants with high depression scores exhibited higher anxiety, which is consistent with a study by Chandra, Karki, & Katwal [27] which investigated depression and anxiety in clinical nurses in Nepal, where nurses with higher levels of depression showed higher anxiety. Depression and anxiety commonly occur together and become more severe as they persist, so they are often measured simultaneously [28]. In Nepal, anxiety increased due to long-term restrictions in relation to COVID-19 and the constant stream of new cases [29], and it can be surmised that this has been accompanied by an increase in the prevalence of depression.

Conclusions

The COVID-19 pandemic is a source of stress for many people, and the fear of a new disease, concerns about infection, and restrictions to social activities due to isolation are affecting people's emotional anxiety and depression.

In this study of the general characteristics of residents of Indonesia and Nepal, 90.7% of respondents from Indonesia and 60.4% of respondents from Nepal were female. The percentage of respondents with a household size of 3–5 persons was 55.5% in Indonesia and 68.3% in Nepal. The mean anxiety score was 3.74 points for residents from Indonesia and 3.11 points for residents from Nepal.

In Indonesia, trust in hospitals for COVID-19 diagnosis, contracting COVID-19, concerns about other family members getting COVID-19, national discrimination due to COVID-19, experience of purchasing masks, chronic disease status, desire for additional information about COVID-19, and health behaviors had statistically significant effects on anxiety. In Nepal, subjective health status, Contracting COVID-19, national discrimination due to COVID-19, health behaviors, risk of family being infected, and depression score had statistically significant effects on anxiety.

The significant factors affecting anxiety in both countries were trust in hospitals for COVID-19 diagnosis and concerns about other family members getting COVID-19. In Indonesia, trust in hospitals for COVID-19 diagnosis, contracting COVID-19 during the current outbreak, concerns about other family members getting COVID-19, national discrimination due to COVID-19, chronic disease status, experience of purchasing masks, and health behaviors were identified as significant factors affecting anxiety. In Nepal, trust in hospitals for COVID-19 diagnosis, concerns about other family members getting COVID-19, and depression score were identified as significant factors affecting anxiety.

During the COVID-19 outbreak, the United Nations emphasized the importance of mental health, such as constructing mental health policy guidelines [30], and the Inter-Agency Standing Committee published guidelines for mental health that present strategies to provide psychiatric and psychological support [31].

Hence, by implementing policies to deal with new diseases and the spread of disease, governments can not only improve the public's awareness of disease prevention but also remind the public of the importance of prevention and help to stop further disease spread. The governments of Indonesia and Nepal should present policies and guidelines that can prevent psychiatric and psychological problems caused by the spread of COVID-19. These measures will help to prevent and control the secondary damage of the COVID-19 disease.

Abbreviations

WHO: World Health Organization; PSBB: Pembatasan Sosial Berskala Besar; PHQ-9: Patient Health Questionnaire-9; COVID-19: Coronavirus Disease

Declarations

Ethics approval and consent to participate

This study involved human participants so that the study approved by the Institutional Review Board of Yonsei University (1041849-202005-SB-057-02) and the written informed consent was obtained from all participants.

Consent for publication

Not applicable.

Availability of data and material

The data analyzed during this study are not publicly available due to need for confidentiality, but an anonymized version might be available from the corresponding author on reasonable request.

Competing interests

The authors have no relevant financial or non-financial interests to disclose.

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Authors' contributions

EN designed the original concept of the study. YJ designed the research methodology with supervision from EN and DS. SP implemented the survey and collected the data. YJ and DS interpreted the results. YJ edited the final manuscript. All authors read contributed to the revision of the analysis of the data, the manuscript.

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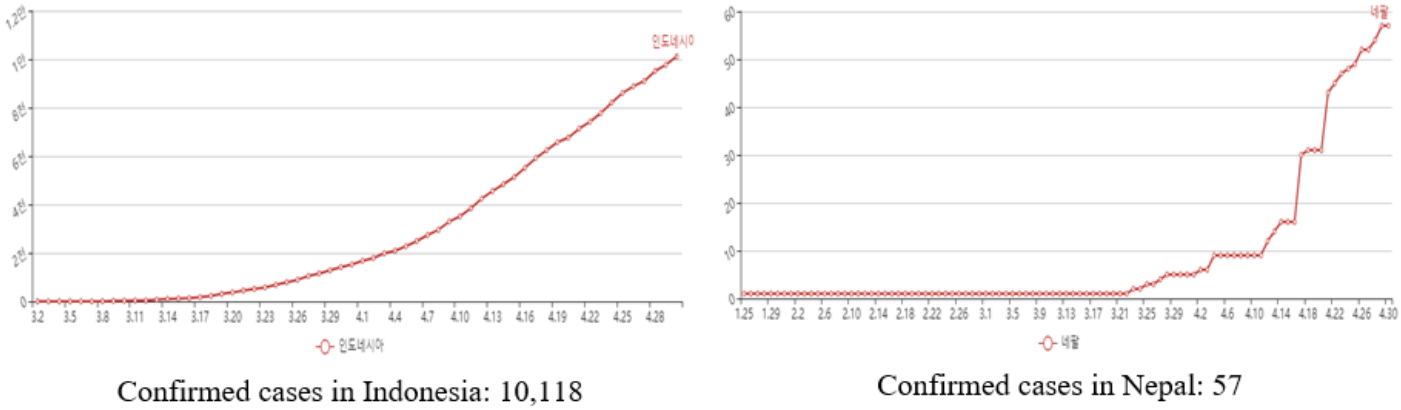
Figures



Confirmed cases in Indonesia: 10,118

Confirmed cases in Nepal: 57

Figure 1

Confirmed case in Indonesia and Nepal (30. April. 2020)