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Research Article

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The Prevalence and Associated Factors of Depression and Anxiety during COVID-19 Pandemic among Healthcare Workers in Phnom Penh, Cambodia: A Cross-Sectional Study

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Abstract

Background: The COVID-19 pandemic may have a negative impact on the mental health of healthcare workers worldwide. The high level of depression and anxiety have been found in previous studies. However, few studies have examined the impact of COVID-19 pandemic on depression and anxiety among Cambodian healthcare workers.

Objectives: To determine the level of the depression and anxiety and associated factors among healthcare workers in Cambodia during COVID-19 pandemic.

Methods: This was a cross-sectional study. A convenience sampling method was used to collect data from a survey between August 11st, 2022 and September 17th, 2022. Health care workers in three public hospitals and other private sectors in Phnom Penh in Cambodia were invited to complete the questionnaires. Depression and anxiety were measured by HADS subscales for Anxiety (HADS-A) and Depression (HADS-D), and demography and socio-economic status data were collected by an Ad Hoc questionnaire developed by the research team.

Results: A total of 393 healthcare workers from the health services completed the questionnaires and were included in the analysis. Among them, 33.1% were nurses, 31.0% were physicians, 4.6% were lab technicians, 4.6% were dentists, 4.8% were midwives, and 18.3% were pharmacists. The results showed that the 34.6% and 34.4% of the healthcare workers had scored range between 8 and 21 indicating abnormalities of depression and anxiety, respectively during COVID-19 pandemic,

which was much higher than non-pandemic periods in Cambodia and similar with other countries during the COVID-19 pandemic.

Conclusions: During Covid-19 pandemic, rates of depression and anxiety were elevated in Cambodian healthcare workers, similar with other countries.

Keywords: Depression, Anxiety, COVID-19, Healthcare Workers

1. Introduction

On March 11th, 2020, the COVID-19 has been declared by the WHO as a pandemic [1]. The COVID-19 clinical symptoms range from mild to severe [2] including respiratory failure, severe pulmonary infection, gastrointestinal symptoms (including diarrhea, vomiting and anorexia), neurological symptoms (including fatigue, dizziness and disturbed awareness), ischemic and hemorrhagic strokes, muscle damage, skin and eye manifestations, and septic shock [2, 3]. So far COVID-19 has spread to 227 countries and caused 399 million confirmed cases over 5.75 million deaths by February 9th 2022 [4]. Cambodia confirmed a first case of COVID-19 on January 27th 2020 [5]. According to the Cambodia Ministry of Health, the COVID-19 has spread to 138,438 confirmed cases with 3,056 deaths and 135,247 was recovered on December, 19th 2022 [6].

Due to the fast spread and serious outcome of COVID-19 pandemic, the restriction, social isolation, quarantine, and lockdown had been implemented that could negatively affect the people's mental health, especially on the health care workers [7]. During the COVID-19 pandemic, it was such a huge challenge for healthcare workers because the workload was increased, needed to care for the ill colleagues and several serious patients at once, to change the protocol of working, fears of contagion and feeling guilty of the patients "died alone", and required to work longer. In addition, many staff were in close contact with the very sick patients, so they may get infected easily and need to be isolated from work and family. These factors made them feel not good because of leaving from work as well as feeling boredom, exhaustion, and loneliness [8]. Moreover, healthcare workers were imposed difficulties by the need to wear a surgical mask and face shield every day, washing hands frequently, with limited access to food and drink during work hours [9].

As a result, COVID-19 pandemic may have negatively impacted on the healthcare workers' mental health negatively, resulting in increased risks of developing depression, anxiety, stress, burnout, insomnia, distress, sleep problems, and posttraumatic symptoms[10]. A systematic review and meta-regression study has shown that the prevalence of depression and anxiety among front-line healthcare workers was higher than in the general population [11]. A study in India suggested a high burden of depression and anxiety among young and unmarried health care professionals who were taking care of patients during COVID-19 pandemic [12]. However, there is a lack of study of depression and anxiety within Cambodian healthcare workers during COVID-19. Thus, the aim of this research was to assess depression and anxiety among healthcare workers in Phnom Penh, Cambodia.

2. Materials and Methods

2.1. Study design and study population

This cross-sectional descriptive study was carried out between August, 11th 2022 and September, 17th 2022 in the public hospitals (Khmer-Soviet Friendship Hospital, Cambodia-China Friendship Preah Kossamak and Presh Ang Duong Hospital) and private work places in Phnom Penh, Cambodia, with a convenient sampling. Various categories of healthcare workers including physicians, nurses, dentists, pharmacists, lab technicians were invited to participate in this study. Healthcare workers from the provincial hospital were excluded.

2.2. Procedures

In order to deliver the questionnaires to the participants in the public sectors and private sectors, the research team reached out directly to the hospital senior management team. Staff of the research team presented the purpose and the protocol of the study to the hospital management team clearly. After approval from the hospital senior management was obtained, the research team submitted the REB application to the National Ethic Committee for Health Research of Cambodia Ministry of Health. The survey was started after REB approval was obtained. Structured face-to-face interviews were conducted by staff of the research team using questionnaires. Before distributing the questionnaires, staff of the research team presented to the study participants in detail about the aim of the study and each question, and explained that the participation of the survey is on a voluntary basis.

2.3. Survey tools

Depression and anxiety were measured by Hospital Anxiety and Depression Scale (HADS) such as (1)"I still enjoy the things I used to enjoy ", (2)"I can laugh and see the funny side of things", (3) "I feel cheerful", (4)" I feel as if I am slowed down",(5)"I have lost interest in my appearance", (6)" I look forward with enjoyment to things", (7)" I can enjoy a good book or radio or TV", (8)"I feel tense or "wound up", (9)"I get a sort of frightened feeling as if something awful is about to happen, (10)Worrying thoughts go through my mind, (11)" I can sit at ease and feel relaxed", (12)" I get a sort of frightened feeling like "butterflies" the stomach, (13)" I feel restless as I have to be on the move", (14) " I get sudden feelings of panic". All the questionnaires were translated to Khmer languages. HADS is a 14 items checklist of Depression and Anxiety. Items are scored off by different questions as (0) =definitely as much, (1) =Not quite so much, (2) =only a little, (3) =Hardly at all and the other questions have mentioned different words with the same scores. Moreover, HADS has 7 items of Depression and 7 items of Anxiety and a possible score range between 0 and 21 where the higher scores mean abnormal case (attachment 1). A score of 0-7 is normal, a score of 8-10 is Borderline abnormal, and a score of 11-21 is Abnormal. The HADS scale is shown to be effective to use and well assessing to measure the Anxiety and Depression according to the reliability and validity of the Hospital Anxiety and Depression Scale in an emergency department in Saudi Arabia, a cross-sectional observational study[13]. Data on demography and socio-economic factors were collected by an Ad Hoc questionnaire developed by the research team.

	Questions		Score		
		0	1	2	3
Depression	1.I feel as if I am slowed down	Not at all	Sometimes	Very often	Nearly all the time
	2.I still enjoy the things I used to enjoy	Definitely as much	Not quite so much	Only a little	Hardly at all
	3.I have lost interest in my appearance	I take just as much care as ever	I may not take quite as much care	I don't take as much care as I should	Definitely
	4.I can laugh and see the funny side of things	As much as I al- ways could	Not quite so much now	Definitely not so much now	Not at all
	5.I look forward with enjoyment to things	As much as I ever did	Rather less than I used to	Definitely less than I used to	Hardly at all
	6.I feel cheerful	Most of the time	Sometimes	Not often	Not at all
	7.I can enjoy a good book or radio or TV program	Often	Sometimes	Not often	Very seldom
Anxiety	1.I feel tense or 'wound up'	Not at all	From time to time, occasionally	A lot of the time	Most of the time
	2.I get a sort of frightened feeling like 'butterflies' in the stomach	Not at all	Occasionally	Quite Often	Very Often
	3.I get a sort of frightened feeling as if something awful is about to happen	Not at all	A little, but it doesn't worry me	Yes, but not too badly	Very definitely and quite badly
	4.I feel restless as I have to be on the move	Not at all	Not very much	Quite a lot	Very much indeed
	5.Worrying thoughts go through my mind	Only occasionally	From time to time, but not too often	A lot of the time	A great deal of the time
	6.I get sudden feelings of panic	Not at all	Not very often	Quite often	Very often indeed
	7.I can sit at ease and feel relaxed	Definitely	Usually	Not Often	Not at all

Attachment 1: The Contents of the HADS

2.4. Statistical Methods

The data were input by using 2018 Microsoft Excel (version 16.18). The HADS scores were summed up in the Microsoft Excel then imported to SPSS software. The statistical analysis was undertaken in SPSS Software (version 25.0) for statistical computing. The descriptive statistic was used to analyze the data of social demographics including gender, age, occupational status and the hospital's name. Moreover, the depression and anxiety level of health care workers were determined by using the frequency of descriptive statistics. The prevalence of anxiety and depression were calculated by dividing Borderline abnormal and abnormal frequencies by the total number of people. Chi-square test was used to analyze the correlation between anxiety and depression. Non-parametric tests were used to analyze the differences of anxiety or depression among different demographic characteristics. All tests were based on α =0.05.

3. Results

3.1. Social Demographic

A total of 393 valid questionnaires were obtained after verification. Distribution of social demographic characteristics is presented in Table 1. The largest number of healthcare workers surveyed were physicians (31.0%) and nurses (33.1%). Half of them were males and another half were females. Most of them were the 20-30 and 31-40 age groups (Table 1).

Variable	Frequency (%)
Age	
20-30	68(17.3%)
31-40	79(20.1%)
41-50	7(1.8%)
51-60	14(3.6%)
Not reported	225(57.3%)
Gender	
Men	81(20.6%)
Women	87(22.1%)
Not reported	225(57.3%)
Occupational Status	
Dentist	18(4.6%)
Doctor	122(31.0%)
Pharmacist	72(18.3%)
Nurse	130(33.1%)
Lab technician	18(4.6%)
Midwife	19(4.8%)
Others	14(3.6%)
Workplace's status	
Public	285(72.5%)
Private	108(27.5%)
Location	
Hospital	311(79.1%)
Pharmacy	37(9.4%)
Others	45(11.5%)
Hospital's name	
Khmer-Soviet Friendship	125(31.8%)
Cambodia-China FriendshipPreah Kossamak	49(12.5%)
Presh Angduong	84(21.4%)
Others	135(34.4%)

Table 1: Social demographic characteristics of study participants, Phnom Penh city, Cambodia, 2022 (N=393)

3.2. Abnormalities of depression and its distribution across different socio-demographic factors

A large proportion (34.6%) of healthcare workers had scored between 8 and 21 indicating borderline abnormality or abnormality of depression. No difference of abnormalities in depression across different socio-demographic factors was observed, however (Table 2).

			Depression			
		Normal (n)	Borderline abnormal (n)	Abnormal (n)	H(K)	P value
Overall	N=393	257(65.4%)	103(26.2%)	33(8.4%)		
Sex	Male (n=81)	51	19	11	1.556	0.212
	Female (n=87)	62	18	7		
Age group years old	20-30 (n=68)	50	13	5	3.851	0.278
	31-40 (n=79)	51	18	10		
	41-50 (n=7)	3	3	1		
	51-60 (n=13)	8	4	1		
Occupational status	Dentist (n=18)	8	7	3	9.412	0.152
	Doctor (n=122)	82	32	8		
	Pharmacist (n=72)	45	23	4		
	Nurse (n=130)	89	28	13		
	Lab technician (n=18)	9	6	3		
	Midwife (n=19)	12	5	2		
	Others (n=14)	12	2	0		
Work Place's status	Public (n=285)	182	76	27	1.399	0.237
	Private (n=108)	75	27	6		
Location	Hospital (n=311)	202	81	28	1.932	0.381
	Pharmacy (n=37)	22	12	3		
	Others (n=45)	33	10	2		

Hospital name	Khmer-Soviet Friendship (n=125)	73	46	6	2.199	0.532
	Cambodia-China Friendship Preah Kossamak (n=49)	33	12	4		
	Presh Ang Duong (n=84)	59	10	15		
	Others	92	35	8		

Table 2: Distribution of abnormalities of across different socio-demographic factors among healthcare workers, Phnom Penh city, Cambodia, 2022 (N=393)

3.3. Abnormality of anxiety and its distribution across different socio-demographic

The distribution of abnormality of anxiety. Overall, abnormality of anxiety was similar to depression (34.4%). Again, no difference of abnormalities in anxiety across different socio-demographic factors was observed (Table 3).

			Anxiety			
		Normal (n)	Borderline abnormal (n)	Abnormal (n)	H(K)	<i>P</i> value
Overall	N=393	258(65.6%)	75(19.1%)	60(15.3%)		
Sex	Male (n=81)	59	13	9	2.042	0.153
	Female (n=87)	55	16	16		
Age group years old	20-30 (n=68)	46	9	13	1.535	0.647
	31-40 (n=79)	52	17	10		
	41-50 (n=7)	6	1	0		
	51-60 (n=14)	10	3	1		
Occupational status	Dentist (n=18)	10	3	5	5.385	0.495
	Doctor (n=122)	87	21	14		
	Pharmacist (n=72)	43	16	13		
	Nurse (n=130)	85	24	21		
	Lab techni- cian (n=18)	10	7	1		
	Midwife (n=19)	12	3	4		

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	Others (n=14)	11	1	2		
Work Place's status	Public (n=285)	182	54	49	2.083	0.149
	Private (n=108)	76	21	11		
Location	Hospital (n=311) Pharmacy	203	56	52	2.568	0.277
	(n=37) Others	22	9	6		
	(n=45)	33	10	2		
Hospital name	Khmer-Soviet Friendship (n=125)	82	22	21	0.292	0.962
	Cambodia-China Friendship Preah Kossamak (n=49)	33	5	11		
	Presh Ang Duong (n=84)	53	20	11		
	Others (n=135)	90	28	17		

Table 3: Distribution of abnormalities of anxiety across different socio-demographic factors among healthcare workers, Phnom Penh city, Cambodia, 2022 (N=393)

The binary logistic regression analysis of the demographic factors of healthcare workers with depression and anxiety are presented. The results showed that dentists (aOR=9.146, 95%CI=1.515-55.197) and Lab technician (aOR=6.411, 95%CI=1.078-38.122)

were associated with depression. Also, healthcare workers who are working in the public sector (aOR=2.489, 95%CI=1.066-5.809) were positively associated with anxiety.

	HADS	
Demographic	Depression aOR(95% CI)	Anxiety aOR(95% CI)
Sex(Ref= Female)		
Male	1.257(0.638-2.476)	0.671(0.337-1.333)
Age group years old(Ref= >51)		
20-30	0.626(0.177-2.218)	1.379(0.336-5.665)
31-40	0.903(0.268-3.037)	1.653(0.417-6.557)
41-50	2.127(0.328-13.806)	0.559(0.047-6.710)
Occupational Status (Ref= Others)		
Dentists	9.146(1.515-55.197)*	3.007(0.598-15.117)
Doctors	3.223(0.679-15.296)	1.405(0.364-5.432)
Pharmacists	5.135(0.956-27.573)	3.460(0.783-15.278)
Nurses	3.088(0.650-14.681)	1.831(0.475-7.053)
Lab technician	6.411(1.078-38.122)*	2.988(0.600-14.873)
Midwives	4.766(0.788-28.817)	2.125(0.420-10.752)
Workplace's status (Ref=Private)		

Public	1.672(0.731-3.826)	2.489(1.066-5.809)*
Location (Ref=Others)		
Hospital	1.273(0.520-3.118)	1.400(0.572-3.426)
Pharmacy	1.827(0.649-5.142)	1.685(0.601-4.722)
Workplace's Name (Ref=Others)		
Khmer-Soviet	1.293(0.573-2.921)	0.703(0.312-1.588)
China-Cambodia friendship	0.981(0.394-2.442)	0.728(0.293-1.809)
Presh AngDuong	0.706(0.293-1.703)	0.747(0.317-1.761)

*p<0.05, Adjusted odds ratios(aOR) controlled for Age, Genders, Occupation Status, Workplace's status, Location, and Workplace's name

Table 4: Binary logistic regression between Healthcare Workers Demographics Factors and Mental Health (Adjusted Odds Ratios (aOR) and 95%CI)

4. Discussion

The COVID-19 pandemic affected many countries in the world. Among them, the USA, Canada, Peru, Chile, Colombia and Mexico were the most affected countries [14]. Cambodia was reported as one of the lowest COVID-19 cases country according to a study in 2020 and early 2021[9, 15]. During COVID-19 outbreak, healthcare workers were the most important human resources who have been working hard in order to take care of the patients. In addition, healthcare workers may be discriminated against by the other people and be isolated from the family and co-workers because of the concern of getting infection from them. As a result, it may affect their mental health such as depression and anxiety. In this cross-sectional study, we found abnormalities of depression and anxiety among healthcare workers in a Cambodia city during the COVID-19 pandemic. The results showed that the prevalence of anxiety and depression was 34.4% and 34.6%, respectively, which was much higher than the 16.7% of depression and 27.4% of anxiety observed in a national representative sample of Cambodian adults [16]. A study in two hospitals in Hanoi, Vietnam found that among medical staff, the rate of depression was 23.2% and rate of anxiety was 33.1% of anxiety. Medical staff showed that the clinical Medical Staffs got disorder during COVID-19 outbreak [17]. A systematic review showed that 23.2% of medical workers experienced anxiety symptoms and 22.8% experienced depression symptoms during the COVID-19 pandemic [18]. Higher rates of anxiety and depression among healthcare workers during the COVID-19 pandemic have also been observed in other countries which have not been included in the systematic review. For instance, studies in China, Nepal and India showed that the depressive symptoms among all medical staff were 50.4%, 37.5% and 25%, respectively while the anxiety was 44.6%, 41.9% and 28%, respectively [19].

Our study presented that dentists and lab technicians were associated with depression. According to a recent study, it was also found that dental occupation was a risk factor for the development of severe depressive symptoms. Because dentists work in close contact with the oral secretions of their patients [20]. Meanwhile, another study mentioned that dentists are expected to show significant anxiety during the COVID-19 pandemic [21]. In this study, compared to their Black colleagues, Asian pharmacists were at higher risk of anxiety and stress symptoms [22]. However, a study by Andreas et al. Nurses are more likely than physicians to suffer from depression and PTSD. In this research study, nurses were reported to have increased depressive and PTSD symptoms compared to other HCWs in Cyprus [23]. And HCWs who worked directly with COVID-19 patients suffered a high level of PTSD symptoms and depression in comparison to workers who worked indirectly [24]. On the other hand, our study showed that HCWs who worked in the public sector were associated with anxiety. And a study in China, based on a study conducted in Ningbo, concluded that the HCWs who were working in the government sector were less likely to suffer from the depression compared to the enterprise private workers [25].

We speculate that the reasons for abnormalities in depression and anxiety in healthcare workers were elevated as follows: Due to their heavy workload and high work pressure during the COVID-19 pandemic. Being a victim of discrimination during the COVID-19 pandemic [26] and □long-term exposure of medical workers to COVID-19 infection may cause mental health problems [27]. Our study also found that there was a linear correlation between anxiety and depression scores, which was consistent with the results of the study by Motahedi et al [28].

Our study has several limitations. First, it is based on a survey of healthcare workers in three public health hospitals. Whether and to what extent the results observed in the 3 hospitals can be generated to healthcare workers in other hospitals or other health care settings require additional investigations. Second, only a few demographic characteristics were surveyed for analysis, limiting our ability to explore further the risk factors that may be associated with the elevated abnormalities in depression and anxiety among healthcare workers. Finally, the number of study participants was small, preventing us from using more advanced statistical methods in the analysis.

5. Conclusion

This cross-sectional study found that about 34% of healthcare workers developed abnormalities in depression and anxiety during COVID-19 pandemic, an information for the Cambodian government in policy development.

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