

Anxiety and Perceived Stress among Physicians Working at Cairo University Hospitals Amid COVID-19 Pandemic

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Received: July 2021; Accepted: August 2021; Published: September 1, 2021.

Citation: Eman E Ebrahim, Marwa M Ahmed, Dalia M Gaber, Heba G Elnahas. Anxiety and Perceived Stress among Physicians Working at Cairo University Hospitals Amid COVID-19 Pandemic. World Family Medicine. 2021; 19(9): 52-60
DOI: 10.5742/MEWFM.2021.94125

Abstract

Introduction: The COVID-19 pandemic has rapidly become a major worldwide health problem. Understanding the negative psychological sequelae on working physicians either front liners or not, can reserve psychological resilience for future disease outbreaks.

Aim of the study: to explore the degree of anxiety and perceived stress in junior and mid senior physicians working at Cairo University Hospitals amid the COVID 19 pandemic.

Methodology: This was an online based cross-sectional study done from April to May 2021. A total of 208 physicians working at Cairo University hospitals were asked to fill in Google forms including sociodemographic and clinical data beside two reliable tools to assess anxiety using the generalized anxiety disorder questionnaire (GAD) and perceived stress using the perceived stress scale (PSS). The individual domains and the total scores were calculated then compared with the different sociodemographic and clinical characteristics.

Results: Most of the participants were females (66.3%), single (66.8%), not previously infected with COVID-19 (63.5%) and not included in the care of COVID 19 patients (64.9%). The mean GAD total score was 8.99 ± 5.58 with 57.7% of the participants suffering mild to moderate anxiety. The mean PSS score was 20.76 ± 5.3 with 80.3% found to have moderate stress. Except for the relation between gender and perceived stress (p value= 0.003), and the relation between psychiatric illness and perceived stress (p value=0.026), there was no statistical significance between anxiety and perceived stress from one side and sociodemographic and clinical data from the other side.

Conclusion: Anxiety and perceived stress among physicians during the COVID-19 pandemic is considered high regardless of the different sociodemographic and clinical characteristics.

Key words: COVID-19 pandemic, anxiety, perceived stress, physicians

Introduction

Since first diagnosed in December 2019, the COVID-19 pandemic has rapidly become a major health problem, with the number of confirmed cases reaching about 188,655,968 worldwide including 4,067,517 deaths according to the World Health Organization (WHO) (1). Besides the well-established pulmonary affection in COVID-19, the virus also has renal (2), cardiovascular (3) neurological and psychological complications (4).

The possible relation between respiratory illness and psychiatric symptoms is not novel, but has been described in literature before; for example post influenza depression and anxiety has been reported in a series of 37 cases (5). Also new onset manic episodes were reported with Influenza infection in individuals with no previous history of mental illness (6). These dramatic psychological impacts are not only a possible sequela of being infected but it has been proven that the strict public health measures including self-isolation and physical distancing that were implemented worldwide to slow down the spread of the outbreak had a negative effect on psychological well-being (7). Healthcare workers (HCWs) especially who are participating in the management of patients with infectious diseases are at greater risk of suffering from psychological symptoms whether they get infected or not (8). Multiple factors are behind the higher susceptibility of HCWs to mental health derailment (9). The flooding numbers of cases, the tiring workload, scarcity of personal protection equipment and drugs, the intense media focus and stigmatization along with the overwhelming fear about the health of self, family, relatives and friends, all cause the mental burden on the HCWs (10). Research showed that HCWs at the time of epidemics have reported suffering from stress, anxiety, and depression with more susceptibility to long-term psychological impacts (11). The high infectivity, morbidity and potential fatality of COVID-19 adds to the previously mentioned factors and increases the sense of personal danger (12). Previous research on HCWs during the acute SARS outbreak, showed that 89% of the participants reported multiple psychological symptoms (13). Similarly, in a cross-sectional survey that included 1,257 HCWs involved with COVID-19 patients in different regions in China 50.4% suffered from depression, 44.6% had anxiety, 34.0% had insomnia, and 71.5% suffered from distress (9). Understanding the possible mental and psychological impacts of a public health emergency on the healthcare providers can help in implementing better management strategies towards upcoming disasters (14).

Aim of the study: was to explore the degree of anxiety and perceived stress among junior and mid senior physicians working at Cairo University Hospitals amid the COVID 19 pandemic.

Methodology

Study design and setting: This was a web based cross-sectional survey conducted during the COVID-19 pandemic in the period from April to May 2021. Junior and mid-senior physicians (House officers, residents, assistant lecturers and lecturers) working at Cairo University hospitals were included in the study.

Study tools

An anonymous self-administered Google form link was created. The form link was disseminated through the social media groups of junior and mid-senior physicians and their responses were collected until the calculated sample was achieved. It consisted of four parts:

- **The sociodemographic and COVID-19 related data:** this included gender, marital status, residence, past history of contracting COVID-19 disease and dealing with suspected COVID-19 patients

- **Health related worries against COVID-19 disease (15):** adapted from a questionnaire used to detect worries and psychological distress during COVID-19 infection. It consists of 3 questions. The answers to each question were on a 5-rank scale from 1 representing the minimum to 5 which is the maximum.

- **The Generalized Anxiety Disorder questionnaire (GAD) (16):** it consists of 7 questions describing the personal feelings within the past 2 weeks. The answers were on a 4-rank scale ranging from not at all sure to nearly every day. The total score was calculated.

- **The Perceived Stress Scale (PSS) (17):** consists of 10 questions describing feelings and thoughts within the past 4 weeks. The answers to each question were on a 5-rank scale, ranging from never to very often. The total score was calculated.

All questionnaires were provided in one link on the Google form which was intended so that the answer to a question is a must to progress to the next one so all responses were complete without data loss. To avoid duplicate responses, the option of 'limit to one response' was activated in the form. The eligible participants were reminded to answer the form through social media groups every week.

Sample size estimation: Sample size was calculated using G-power version 3.1 software. Based on the levels of anxiety in HCWs reported in a study conducted by Sahebi et al 2021 (18), with 90% study power and 0.05 alpha error; the required sample size was 195 physicians to achieve the study objectives.

Statistical analysis:

The collected data were analyzed using SPSS program (Statistical Package for Social Science) version 22. Quantitative data were expressed as mean and standard deviation (SD) while qualitative data were represented in tables as frequencies and percentages. Student t test was used for comparing quantitative data. Chi-square test was used for qualitative data. It was considered statistically significant at P-value < 0.05.

Ethical consideration:

Approval was obtained from the research and ethical committee of Cairo University (Institutional review board (IRB): N-33-2021). The study was conducted according to the guidelines of the Declaration of Helsinki. The Google form included a written consent section that highlighted that submission of the questionnaire indicate their approval to share in the study. The collected data were confidential for the study purposes. The participants were informed that responding is voluntary and participation refusal is accepted without stating the reason.

Results

The current study was done to explore the degree of anxiety and perceived stress among physicians at Cairo university hospitals during COVID-19 pandemic. The total number of responders was 208 physicians. More than half of the studied group were females (66.3%), single (66.8%), living in Giza (47.6%) and Cairo (46.6%) and didn't suffer from any psychiatric illness prior (87.5%).

Regarding the participant's relation with COVID 19 infection, most of them (63.5%) haven't been infected with COVID 19 before. About (42.9%) of the infected participants were affected in the last 3 months, (96.2%) of them were treated at home and (92.4%) didn't receive corticosteroids in their treatment regimen. 64.9% of the infected participants weren't sharing in the management of COVID-19 patients.

As seen in Figure 1, 34.1% of the participants rated 3 on how much they became worried that the infection will affect themselves, 59.6% rated 5 on how much they became worried that the infection will affect one of their closest family members and 71.2% also rated 5 on how much they became worried that the infection will affect elderly members of their family.

Table 1 demonstrates the response of the study participants to Generalized Anxiety Disorder (GAD) screening questions; 41.3% of the participants felt nervous, anxious or on edge and, 35.1% are not able to stop or control worries for several days. 40.9% and 44.2% are worrying too much about different things and have trouble relaxing for several days respectively. Nearly half of the participants (40.9%) are so restless that it is hard to sit still, 42.3% are becoming easily annoyed or irritable and 33.2% feeling afraid as if something awful might happen for several days. The mean GAD total score was found to be 8.99 ± 5.58 with 57.7% of the participants suffering mild to moderate anxiety.

Table 2 shows the response of the study participants to the Perceived Stress Scale (PSS). About 80.3% of the participants were found to have moderate stress, with more than half of them (56.7%) sometimes have been upset because of something that happened unexpectedly, 41.3% sometimes have felt that they were unable to control the important things in their life, 43.3% sometimes have felt nervous and stressed, 38.5% have sometimes felt confident about their ability to handle personal problems, more than half (52.4%) have sometimes felt that things were going their way, 41.8% have sometimes found that they could not cope with all the things that they had to do, 44.2% have sometimes been able

to control irritations in their life, 47.6% have sometimes felt that they were on top of things, 39.4% have sometimes been angered because of things that happened that were outside of their control and 37% have sometimes felt difficulties were piling up so high that they could not overcome them.

Table 3 shows that there was a statistically significant relation between gender, psychiatric disease history and the perceived stress scale. While regarding anxiety there was no significant relation between the sociodemographic character, clinical history and the GAD total score.

Table 4 shows that there was a significant relation between how much the physician became worried that the infection will affect them and the PSS, but there was no significant relation between generalized anxiety disorder and the health-related worries of the physicians against COVID 19 infection.

Discussion

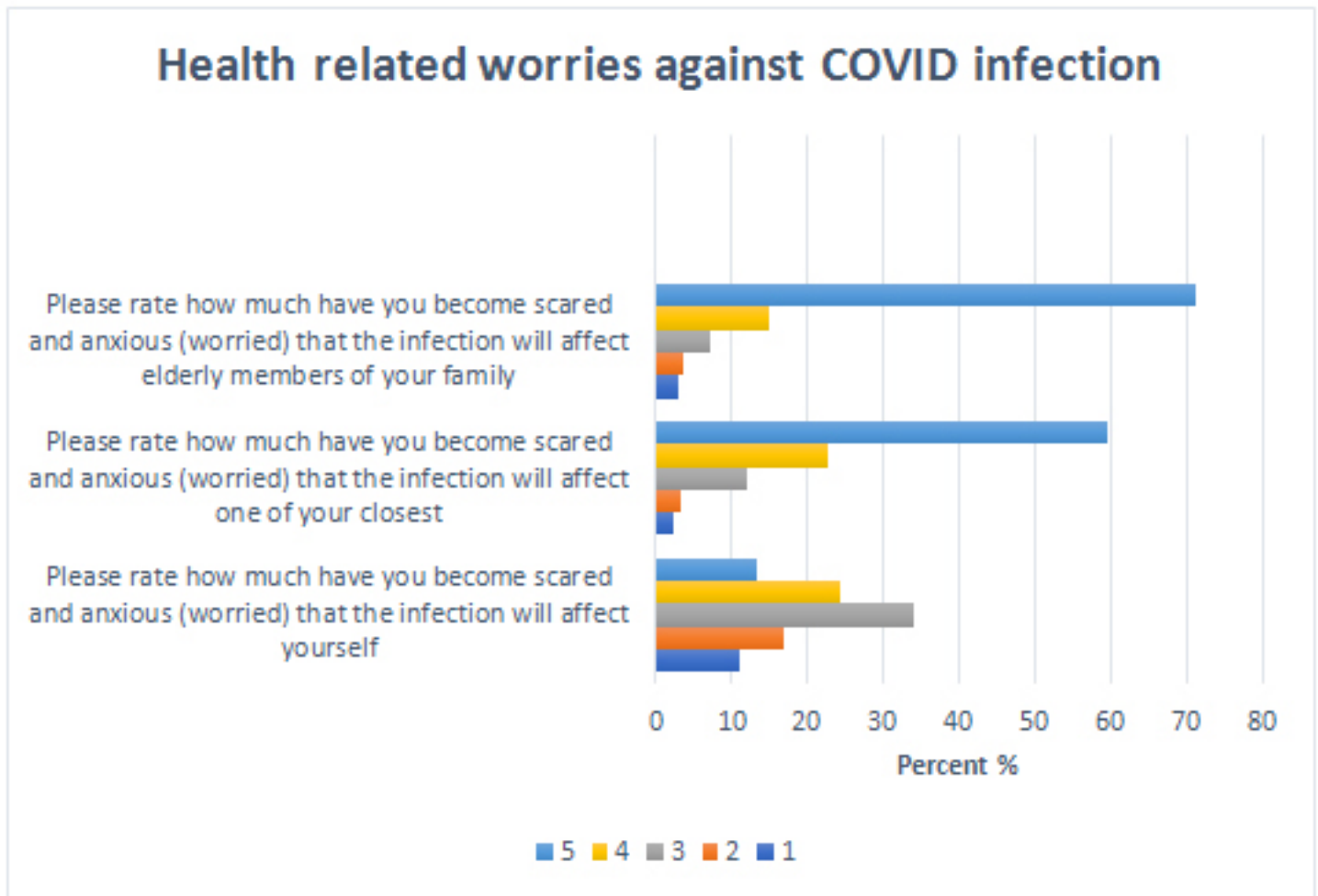
The current study investigated the negative effect caused by the pandemic of COVID 19 among working physicians regarding anxiety and perceived stress.

Our study results regarding the physicians' attitudes towards COVID-19 infection was consistent with the results of the work of Parajuli et al, 2020 (19) who studied the knowledge and attitude of 230 HCW at Seti Provincial hospital and found that the majority (87.8% and 60% respectively) agreed that HCWs and their family members are vulnerable to getting infected with COVID-19. The same was demonstrated by the results of Abolfotouh et al, 2020 (20) who surveyed 844 HCW in 3 tertiary hospitals in Saudi Arabia and found that most of HCW felt vulnerable about getting infected with Covid-19 at work and 69.1% would feel threatened if a colleague was infected with Covid-19.

The study results demonstrated that all of the participants suffered from GAD ranging from mild (27.9%) to severe form (14.4%) during COVID 19 pandemic. This is in line with the meta-analysis done by Adibi et al 2021 (21) who recruited 19 studies in his work and concluded that the prevalence of GAD in HCW during COVID-19 pandemic based on the GAD instrument was 32.04% (95% CI: 26.89–37.19, I² = 98.2%, $p < 0.001$). This high GAD prevalence, among HCWs during the COVID-19 pandemic should draw the attention of the health system managers to monitor HCW for psychological problems and provide them with supportive measures if necessary.

Our results showed that about 80.3% of the participants were found to have moderate stress. These results are in line with Teshome et al, 2021 (22) who conducted his work on 798 HCW in Ethiopia and found that 61.8% (95% CI: 58.4%, 65.2%) of HCWs had perceived stress. All HCWs were similarly stressed by the current pandemic compared to the general population. Maintaining qualified HCWs who can provide guidance and emotional backing to junior colleagues is important. Psychological support for HCWs in the pandemic can be transformed into reserves of psychological pliability for future disease outbreaks.

Figure : Health related worries of the studied group against COVID infection



Except for the relation between gender and perceived stress (p value= 0.003) and the relation between psychiatric illness and perceived stress (p value= 0.026), our study showed that there was no statistical significance in the relation between anxiety and perceived stress from one side and the different sociodemographic and clinical characteristics on the other side. This is in line with Aly et al 2021 (23), who concluded from their study that the prevalence of mental health problems in the form of anxiety, stress and depression among HCW was high regardless of the sociodemographic characteristics.

Conclusion

Anxiety and perceived stress among physicians during the COVID-19 pandemic is considered high regardless of the different sociodemographic and clinical characteristics.

Table 1: Response of the studied group to Generalized Anxiety Disorder (GAD) questions

	Not at all	Several days	More than half the days	Nearly every day
	No. (%)	No. (%)	No. (%)	No. (%)
Feeling nervous, anxious or on edge	34 (16.3)	86 (41.3)	52 (25)	36 (17.3)
Not being able to stop or control worrying	63 (30.3)	73 (35.1)	46 (22.1)	26 (12.5)
Worrying too much about different things	29 (13.9)	85 (40.9)	55 (26.4)	39 (18.8)
Trouble relaxing	44 (21.2)	92 (44.2)	48 (23.1)	24 (11.5)
Being so restless that it is hard to sit still	85 (40.9)	68 (32.7)	35 (16.8)	20 (9.6)
Becoming easily annoyed or irritable	38 (18.3)	88 (42.3)	45 (21.6)	37 (17.8)
Feeling afraid as if something awful might happen	55 (26.4)	69 (33.2)	51 (24.5)	33 (15.9)
GAD grade	Minimal anxiety	Mild anxiety	Moderate anxiety	Severe anxiety
	No. (%)	No. (%)	No. (%)	No. (%)
	58 (27.9)	70 (33.7)	50 (24)	30 (14.4)
GAD Score:				
Mean±SD	8.99±5.58			
Range	(0-21)			

Table 2: Response of the studied group to the Perceived Stress Scale (PSS) questions

	Never	Almost Never	Sometimes	Fairly Often	Very Often
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Upset because of something happening unexpectedly?	18 (8.7)	26 (12.5)	118 (56.7)	31 (14.9)	15 (7.2)
Felt unable to control important things in your life?	18 (8.7)	37 (17.8)	86 (41.3)	44 (21.2)	23 (11.1)
Felt nervous and stressed?	8 (3.8)	20 (9.6)	90 (43.3)	50 (24)	40 (19.2)
Felt confident to handle your problems?	10(4.8)	44 (21.2)	80 (38.5)	55 (26.4)	19 (9.1)
Felt that things were going your way?	17(8.2)	36 (17.3)	109 (52.4)	35 (16.8)	11 (5.3)
Found that you could not cope with all the things that you had to do?	16(7.7)	44 (21.2)	87 (41.8)	44 (21.2)	17 (8.2)
Been able to control irritations in your life?	13(6.3)	45 (21.6)	92 (44.2)	46 (22.1)	12 (5.8)
Felt that you were on top of things?	22(10.6)	54 (26)	99 (47.6)	20 (9.6)	13 (6.3)
Been angered because of things that happened that were outside of your control?	13(6.3)	37 (17.8)	82 (39.4)	53 (25.5)	23 (11.1)
Felt difficulties were piling up so high that you could not overcome them?	26(12.5)	48 (23.1)	77 (37)	40 (19.2)	17 (8.2)
PSS grade	Low stress	Moderate stress		High stress	
	No. (%)	No. (%)		No. (%)	
	15 (7.2)	167 (80.3)		26 (12.5)	
PSS Score:					
Mean±SD	20.76±5.3				
Range	(8-39)				

Table 3: Relation between Generalized Anxiety Disorder (GAD), perceived stress scale (PSS) and basic sociodemographic characteristics, and clinical history:

Variables	GAD-7				P-value	PSS grade			P-value
	Minimal anxiety N=58	Mild anxiety N=70	Moderate anxiety N=50	Severe anxiety N=30		Low stress N=15	Moderate stress N=167	High stress N=26	
	No. (%)	No. (%)	No. (%)	No. (%)		No. (%)	No. (%)	No. (%)	
Gender:					0.158				0.003*
Male	25 (43.1)	17 (24.)	18 (36)	10 (33.7)		11 (73.3)	52 (31.1)	7 (26.9)	
Female	33 (56.9)	53 (75.7)	32 (64)	20 (66.7)	4 (26.7)	115 (68.9)	19 (73.1)		
Marital status:					0.714				0.347
Single	41 (70.7)	49 (70)	32 (64)	17 (56.7)		13 (86.7)	111 (66.5)	15 (57.7)	
Married	16 (27.6)	20 (28.6)	18 (36)	12 (40)		2 (13.3)	53 (31.7)	11 (42.3)	
Widowed	1 (1.7)	1 (1.4)	0 (0)	1 (3.3)	0 (0)	3 (1.8)	0 (0)		
Residency:					0.758				0.310
Giza	23 (39.7)	36 (51.4)	23 (46)	17 (56.7)		4 (26.7)	83 (49.7)	12 (46.2)	
Cairo	32 (55.2)	30 (42.9)	24 (48)	11 (36.7)		10 (66.7)	76 (45.5)	11 (42.3)	
Outside Cairo	3 (5.2)	4 (5.7)	3 (6)	2 (6.7)	1 (6.7)	8 (4.8)	3 (11.5)		
History of psychiatric diseases:					0.555				0.026*
No	6 (10.3)	9 (12.9)	5 (10)	6 (20)		0 (0)	19 (11.4)	7 (26.9)	
Yes	52 (89.7)	61 (87.1)	45 (90)	24 (80)	15 (100)	148 (88.6)	19 (73.1)		
Infected with COVID?					0.613				0.792
Yes	24 (41.4)	23 (32.9)	20 (40)	9 (30)		5 (33.3)	60 (35.9)	11 (42.3)	
No	34 (58.6)	47 (67.1)	30 (60)	21 (70)	10 (66.7)	107 (64.1)	15 (57.7)		

Table 4: Relation between Generalized anxiety disorder (GAD-7), perceived stress scale (PSS) and the attitude toward COVID 19

Variables	GAD-7				P-value	PSS grade			P-value
	Minimal anxiety (N=58)	Mild anxiety (N=70)	Moderate anxiety (N=50)	Severe anxiety (N=30)		Low stress (N=15)	Moderate stress (N=167)	High stress (N=26)	
	No. (%)	No. (%)	No. (%)	No. (%)		No. (%)	No. (%)	No. (%)	
Rate worry the infection will affect yourself					0.083				0.056*
1	12 (20.7)	4 (5.7)	4 (8)	3 (10)		0 (0)	22 (13.2)	1 (3.8)	
2	14 (24.1)	10 (14.3)	5 (10)	6 (20)		4 (26.7)	25 (15)	6 (23.1)	
3	18 (31)	27 (38.6)	16 (32)	10 (33.3)		2 (13.3)	63 (37.3)	6 (23.1)	
4	11 (19)	18 (25.7)	17 (34)	5 (16.7)		7 (46.7)	34 (20.4)	10 (38.5)	
5	3 (5.2)	11 (15.7)	8 (16)	6 (20)	2 (13.3)	23 (13.8)	3 (11.5)		
Rate worry the infection will affect your closest ones					0.072				0.923
1	2 (3.4)	0 (0)	1 (2)	2 (6.7)		0 (0)	4 (4.2)	1 (3.8)	
2	5 (8.6)	2 (2.9)	0 (0)	0 (0)		1 (6.7)	5 (3)	1 (3.8)	
3	11 (19)	8 (11.4)	3 (6)	3 (10)		3 (20)	20 (12)	2 (7.7)	
4	11 (19)	18 (25.7)	14 (28)	4 (13.3)		4 (26.7)	38 (22.8)	5 (19.2)	
5	29 (50)	42 (60)	32 (64)	21 (70)	7 (46.7)	100 (59.9)	17 (65.4)		
Rate worry the infection will affect family elderly					0.164				0.854
1	3 (5.2)	0 (0)	1 (2)	2 (6.7)		0 (0)	5 (3)	1 (3.8)	
2	6 (10.3)	1 (1.4)	1 (2)	0 (0)		1 (6.7)	6 (3.6)	1 (3.8)	
3	4 (6.9)	4 (5.7)	4 (8)	3 (10)		1 (6.7)	10 (6)	4 (15.4)	
4	10 (17.2)	10 (14.3)	6 (12)	5 (16.7)		2 (13.3)	26 (15.6)	3 (11.5)	
5	35 (60.3)	55 (78.6)	38 (76)	20 (66.7)	11 (73.3)	120 (71.9)	17 (65.4)		

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