



Contents lists available at ScienceDirect

Safety and Health at Work

journal homepage: www.e-shaw.net

Original article

Fear of COVID-19 and Its Impact on Job Satisfaction and Turnover Intention Among Egyptian Physicians

Eman E. Abd-Ellatif¹, Manal M. Anwar^{2,*}, Abobakr A. Aljifri³, Mervat M. El Dalatony⁴¹ Department of Public Health and Community Medicine, Faculty of Medicine, Mansoura University, Egypt² Department of Public Health and Community Medicine, Faculty of Medicine Beni-Suef University, Egypt³ Director of Quality and Patient Safety in Healthcare, Riyadh, Saudi Arabia⁴ Public Health and Community Medicine Department, Menoufia University, Egypt

ARTICLE INFO

Article history:

Received 24 March 2021

Received in revised form

13 June 2021

Accepted 9 July 2021

Available online 16 July 2021

Keywords:

COVID-19

Egypt

Fear

Intention

Job satisfaction

ABSTRACT

Introduction: The risk of experiencing psychiatric symptoms related to the COVID-19 pandemic is high among healthcare workers whose occupations are in public health, emergency medicine, and intensive or critical care.

Materials and methods: A cross-sectional study aimed to assess the prevalence of fear of COVID-19 among 411 frontline Egyptian physicians during the COVID-19 pandemic; identify determinants and predictors for fear of COVID-19; determine the impact of fear of COVID-19 on job satisfaction; and detect the impact of fear of COVID-19 on turnover intention. Three standardized scales (fear of COVID-19, job satisfaction, and turnover intention scores) were used for data collection via online Google Form.

Results: Regarding fear relating to the COVID-19 pandemic, 16.5% of the study subjects were classified as experiencing a severe fear level, while 78.1% experienced a moderate degree. A significant association between the level of fear relating to COVID-19 and the work department. The highest degree of fear is in a general-educational-university facility. Regarding job satisfaction, 42% of those having a severe level of fear are dissatisfied. Fear of COVID-19 is negatively associated with job satisfaction while positively significant correlated with turnover scores, a positive significant predictor of turnover intention. Job satisfaction is negatively associated with turnover intention; a negative significant predictor of turnover intention.

Conclusions: Frontline Egyptian physicians reported higher levels of fear relating to the COVID-19 pandemic (moderate to severe). Increased fear levels relating to COVID-19 have a relationship with lower levels of job satisfaction and higher levels of job turnover.

© 2021 Occupational Safety and Health Research Institute, Published by Elsevier Korea LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Healthcare system goals include prevention of an infection pandemic, as well as provision of high-quality medical care for those infected; pandemics pose a psychological toll associated with social isolation, behavioral, and emotional contagion of fear and anxiety [1].

The proliferation of Corona Virus Disease-19 (COVID-19) that gained worldwide attention in December 2019 led to the declaration of a Public Health Emergency of International Concern (PHEIC) by the WHO Emergency Committee at the end of January 2020 [2].

As of February 2021, there have been over 108 million recorded COVID-19 cases, with almost 2.4 million deaths worldwide [3].

Frontline healthcare providers (HCPs) facing this public health pandemic are put under physical and psychological stress; being at risk of being infected while caring for patients or exposed to patients' environment or biological samples with subsequent transmission to their family members [4].

It is expected that with asymptomatic persons driving continued community transmission, the spread of the disease will be greater with initial estimates of 10–20% of all diagnoses for HCPs [5–7].

* Corresponding author. Public Health and Community Medicine Department, Faculty of Medicine, Beni-Suef University, Egypt.

E-mail addresses: eman_saleh@mans.edu.eg (E.E. Abd-Ellatif), M_anwarabdo@yahoo.com (M.M. Anwar), abobakr2016@outlook.com (A.A. Aljifri), mervat.moh.abd@gmail.com (M.M. El Dalatony).

In the COVID-19 pandemic, HCPs stressors include; enormous workload, nosocomial transmission, inadequate personal protective equipment (PPE), moral dilemma, violence, despair, isolation from the family, making them vulnerable to fear, anxiety, depression, and insomnia [8]. Occupational mental health impairment affects performance, interpersonal communication, productivity, commitment, and job satisfaction [9]. Studies, including healthcare workers, have demonstrated that job satisfaction has an inverse relationship with intentional turnover (meaning an employee's choice to voluntarily leave their current job within a specific time period influenced by direct (internal) and indirect (external) factors) [10].

Analysis of the *external influencing factors* for physicians' turnover intention included: the state of the nation's medical infrastructure, occupational environment, the nature of the relationship between doctor and patient, employment level, available job opportunities, among other environmental elements [11]. *Influencing factors* of an internal nature consisted of age, whether male or female, marital status, and ability to work. Work-related factors impacting the turnover intention included: hours of work, level of salary, social security benefits, stress on the job, commitment on an emotional level, influence on the job, and perceived fairness in remuneration [12]. There is a greater propensity for HCPs serving in the public health system and emergency, primary, and intensive or critical care to develop psychological conditions associated with the pandemic of COVID-19 [13]. Public psychological impact related to COVID-19 spread was studied often with less focus on the physicians' experience that cares for the patients [14].

This study was proposed aiming to (a) assess the prevalence of fear of COVID-19 among physicians in Egypt during the COVID-19 pandemic, (b) identify determinants and predictors for levels of fear relating to COVID-19, (c) determine the effect of fear relating to COVID-19 on job satisfaction and (d) detect the effect of fear relating to COVID-19 on turnover intention.

2. Materials and methods

A cross-sectional study was conducted to assess the pervasiveness and elements linked to fear among frontline physicians working in all health facilities in Egypt and collected data from the first of October 2020 to the first of November 2020, during the COVID-19 pandemic.

Due to the necessity of social distancing, we will access the data collection tool for the study using Google Forms, which is an online platform. The design of the survey instrument facilitated the sections being completed one after the other. The participants of the study underwent a short orientation before answering the questions to make them aware of the research being conducted, the aim, possible advantages, any associated risks, and how to complete the survey. We distributed an electronic version of this structured, self-administered questionnaire to Egyptian frontline physicians of different specialties; through social media (WhatsApp and Facebook) groups; and were invited to participate.

2.1. Study participants and sampling technique

Convenient samples, including physicians working at all health facilities in Egypt during the COVID-19 pandemic, agreed to take part in the research during the period under study.

2.2. Sample size

The calculated minimal sample size is 379, but the distributed electronic questionnaires will be increased, taking into account the high nonresponse rate to web-based surveys [15]. The final sample size is adjusted for expected attrition (20%). So, the final sample size will equal 411.

2.3. Study tools

The research participants were asked to complete a structured electronic survey with no assistance, and it included the following:

2.3.1. Sociodemographic, work and health-related factors

(Gender, age, marital status, address, number of dependents, level of education); characteristics of the job and work experiences (department or section employed, type of job, place, frequency of shifts, amount of experience, number of times handling critical cases, frequency of dealing with suspected COVID-19 cases, frequency of dealing with confirmed COVID-19 cases and work of a private nature external to the hospital); smoking history and presence of chronic health problems [16].

2.3.2. Fear of COVID-19 scale (FCV-19S, Ahorsu et al., 2020) [17]

This is a self-report type of scale with the objective of evaluating the levels of fear relating to the pandemic. This 7-item one-dimensional scale referred to the fear responses to COVID-19. The participants are asked to indicate on a Likert-type scale with five items that range from strongly disagree (1) to strongly agree (5). A participant's total score can be a minimum of 7 and a maximum of 35. A total score on the higher end is an indicator of a greater level of fear relating to COVID-19. The scores between 7 and 35 indicate levels of fear as follows: a score of 7 to 16 is normal; a score of 17 to 26 is mild to moderate; and a score of 27 to 35 is severe. Cronbach alpha of 0.82 indicates that this is a measure displaying high levels of internal validity [17].

2.4. Job satisfaction scale/satisfaction with work scale (SWWS)

The Satisfaction with Life Scale (SWLS; **Diener et al., 1985**) has been adopted as a measure in the work environment. The psychometric properties of SWLS are highly favorable, with test-retest reliability of 0.82 and Cronbach's α of 0.87 [18]. SWWS is a brief scale of 5 items. Respondents are asked to indicate from 1 (strongly disagree) upwards to 5 (strongly agree) on a Likert-type scale with five items [19].

2.4.1. Scoring procedure

The sum result for all five answers to the five statements is calculated. Interpret individual scores: A score of between 21 and 25 indicates Extreme Satisfaction, between 16 and 20 indicates Satisfaction, a score of 15 refers to Neutral, between 10 and 14 indicates Dissatisfaction, and a score of between 5 and 9 indicates Extreme Dissatisfaction [19].

2.5. Turnover intention scale (TIS-6)

The turnover intention was measured with a six-item scale adapted from the 15-item scale confirmed the overall reliability of the six-item TIS-6 ($\alpha = 0.80$); (a) Scale: 1 = Never to 5 = Always, (b) Scale: 1 = highly unlikely to 5 = highly likely, (c) Reverse coding used to compute item mean scale. Item mean scale 1 = to a very large extent to 5 = to no extent, (d) Reverse coding used to compute item mean scale. Item mean scale 1 = Always to 5 = Never [20]. Higher scores on the TIS-6 indicate a higher response for participants' turnover intention [21].

2.6. Ethical considerations

This study was approved by Faculty of Medicine, Beni-Suef University Research Ethics Committee (FBBSU-REC, No. 041020200), which adhered to the principles of the Declaration of Helsinki.

Respondents shared a written, electronic agreement after clarifying the study objectives and data confidentiality.

3. Results

Table 1 displays the sociodemographic characteristics of the study participants presenting that most of the participants are within the age group of 30–39 years (47.9%). Of the participants, 74.7% were female. Further, 74.7% of them were females, and the highest percent were living in an urban community (89.1%). Most of our participants were married (79.3%). Regarding the educational level of the participants, 37.7% had master's degrees, 29.9% doctorate degrees, and 22.9% bachelor's certifications. Of the study participants, 92.7% were nonsmokers, and 89.3% of them did not suffer from any chronic illness.

Table 2 shows the study participant's distribution according to their working characteristics where 44.3% were specialists, followed by consultants 29.2% and residents 23.1%. The participants are distributed over a variety of clinical departments ordered as (7.0% in the emergency department, 9.5% in the intensive care unit, 9.0% in the chest department, 16.3% in internal medicine, 11.9% in Pediatrics, 7.8% in Surgery, and 38.4% in other), respectively. As regards the type of facility where they work, 65.2% are working in 2ry healthcare facilities, 16.8% in isolation facilities, followed by 8.3% in primary healthcare facilities and finally 5.8% are working in specialized centers.

Table 1
Socio-demographic factors for COVID-19 fear among studied COVID-19 frontline physicians in Egypt

Variable	Frequency	Percent
Age (years)		
20–29	118	28.7
30–39	197	47.9
40–49	71	17.3
≥50	25	6.1
Sex		
Male	104	25.3
Female	307	74.7
Residence		
Rural	45	10.9
Urban	366	89.1
Marital status		
Married	326	79.3
Single	80	19.5
Divorced	4	1.0
Widow	1	.2
Family size		
≤4	275	66.9
≥5	136	33.1
Educational qualification		
Bachelor of medicine (Physician)	94	22.9
Diploma	32	7.8
Doctorate degree	123	29.9
Master degree	155	37.7
Other	7	1.7
Smoking history		
Current smoker	24	5.8
Ex-smoker	6	1.5
Non smoker	381	92.7
Presence of any chronic disease		
Yes	44	10.7
No	367	89.3
Total	411	100.0

Table 2
Occupational and health-related factors for COVID-19 fear

Variable	Frequency	Percent
Occupational degree		
Consultant	120	29.2
Specialist	182	44.3
Resident	95	23.1
General practitioner	8	1.9
Other	6	1.5
Place of work		
Emergency department	29	7.0
Intensive care unit	39	9.5
Chest	37	9.0
Medicine	67	16.3
Pediatrics	49	11.9
Surgical	32	7.8
Other	158	38.4
The type of health facility		
Isolation facility (Hospital-Department)	69	16.8
2ry Healthcare facility (General-Educational-University)	268	65.2
Primary healthcare facility (Health unit-Primary healthcare center)	34	8.3
Specialized center	24	5.8
Other	16	3.9
The number of shifts per month		
≤10	194	47.2
≥20	10	2.4
10–20	207	50.4
Years of work experience		
<10	221	53.8
≥10	108	26.3
≥20	82	20.0
Frequency of dealing with critical patients		
Few times a year	25	6.1
More than once daily	89	21.7
Never	23	5.6
Once daily	86	20.9
Once monthly	49	11.9
Once weekly	139	33.8
Frequency of dealing with suspected COVID-19 cases		
More than once daily	71	17.3
Never	36	8.8
Once daily	79	19.2
Once weekly	225	54.7
Previous history COVID-19 infection		
Yes	46	11.2
No	365	88.8
Total	411	100.0

Table 3 indicates 78.1% of the participants suffer a moderate degree of COVID-19 fear as indicated by the fear scale and 16.5% suffer severe fearfulness levels.

In Table 4, we can notice a significant association ($P < 0.01$) between the fear of COVID-19 level and work department, to the side of moderate fear of COVID-19 level in the order of (internal medicine, pediatrics, surgical, ICU, chest, and emergency) departments, which had a relatively low moderate response rate of fear. The highest degree of fear is in a General-Educational-University facility 2ry healthcare facility; General-Educational-University (31.82%) for mild, (68.54%) for moderate, and 60.29% for severe (P -value < 0.001). Regarding job satisfaction, 41.2% of those having a severe level of fear are dissatisfied (P -value < 0.001).

Table 3
Distribution of COVID-19 fear among the studied group

Variable	Participant HCWs	
	Number	Percent
Degrees of fear of COVID-19		
Mild	22	5.4
Moderate	321	78.1
Severe	68	16.5
Total	411	100.0

In addition, a highly significant positive correlation between fear of COVID-19 and turnover intention scores indicated a Pearson correlation of 0.292 ($P < 0.001$), whereas a nonsignificant negative correlation between fear of COVID-19 and job satisfaction scores indicated a Spearman correlation of -0.060- ($P = 0.226$) (Table 5).

Demonstration of a simple linear regression analysis between the fear of COVID-19 and turnover scores among study participants in Table 6 indicated that the fear of COVID-19 is a highly significant positive predictor of turnover ($P < 0.001$).

A highly significant negative correlation between job satisfaction and turnover scores with a Spearman correlation of -0.433- ($P < 0.001$) likewise regression analysis between job satisfaction and turnover scores among study participants revealed that job satisfaction is a highly significant negative predictor of turnover ($P < 0.001$) Table 7.

4. Discussion

In the present study, the study participants suffering a moderate degree of fearing sensations comprised 78.1%, followed by 6.5% with a severe sense of fear and only 5.4% had mild fearing. This difference of fearing sensations are multifactorial either due to fear of shortage of Personal Protective Equipment (PPE), fear of being infected and getting quarantined and/or being the cause of infection of a family member or a colleague. In the same context, 83.9% of the participants in a study published recently had the feeling of anxiousness when speaking in close proximity with families and friends [22]. This is in concordance with the reported findings of Kumar et al., 2020 [23], who stated that fears are overwhelming,

especially with the reports of asymptomatic transmission of COVID-19. Similarly, Wang et al., 2020 [24] found that 16.5% of the participants experienced depressive symptoms of a moderate to severe nature; 28.8% experienced anxiety symptoms of a moderate to severe nature; and 8.1% experienced stress at moderate to severe levels. Such fear levels of COVID-19, ranging from moderate to severe, during the current pandemic often reflect an adverse psychological sequel [25].

Institutional efforts taken to comfort physicians before and during the pandemic included many actions; first of which was: assigning a local hospital coordinator for implementing the national plan of epidemics and further actions included: (a) Setting an executive plan after meeting with hospital administration and doing an awareness seminar for HCWs. (b) Surveying and reviewing hospital personal protective equipment (PPE) and ensuring adequate storage. (c) Precautionary measures to prevent the spread of COVID-19 virus and assigning a hospital's rapid response team to deal with suspected/confirmed cases. Hands-on and online training for infection control practices dealing with suspected and confirmed cases, and case definition and waste management and dealing with deceased cases were implemented in all hospitals. Awareness brochures, posters in addition to video materials on TV screens about guidelines for infection control practices and cough etiquette were distributed in all patient care areas and uploaded to the hospitals' websites.

In the current study, the determinants and predictors for levels of fear relating to COVID-19 showed a significant association between participants' healthcare work department and their degree of COVID-19 fear ($P < 0.01$). Chest department physicians were the highest fearful group among other specialties, followed by intensive care physicians, then internal medicine. Explanation of such finding would be that most COVID-19 cases present with respiratory symptoms and seek chest consultation; the ICU physicians being the front liners managing emergency cases (COVID-19 and Non-COVID-19) highly symptomatic cases who might afterward be diagnosed to be COVID-19 positive, and last comes internal medicine physicians who mostly share in the clinical management of admitted patients. This is in concordance with the findings of (Lu et al., 2017) [12] Who reported that physicians in respiratory, emergency room, intensive care unit, and infectious diseases department showed were psychologically more affected being the

Table 4
Univariate analysis of fear of COVID-19 degree and work department, type of healthcare facility and job satisfaction

Variables	Degree of fear of Covid-19						Contingency coefficient	P-value
	Mild (22)		Moderate (321)		Severe (68)			
	No.	Percent	No.	Percent	No.	Percent		
Work department								
Emergency Department	2	9.09	21	6.54	6	8.82	0.256	0.004*
Intensive care Unit	0	0.00	27	8.41	12	17.64		
Chest	1	4.46	23	7.17	13	19.12		
Medicine	2	9.09	57	17.75	8	11.76		
Pediatrics	1	4.46	43	13.40	5	7.35		
Surgical	2	9.09	28	8.72	2	2.94		
Other	14	63.64	122	38.01	22	32.35		
Work department								
Isolation facility (Hospital-Department)	3	13.64	48	14.95	18	26.47	0.309	<0.001**
2ry healthcare facility (General-Educational-University)	7	31.82	220	68.54	41	60.29		
Primary healthcare facility (Health unit-Primary Healthcare center)	2	9.09	26	8.10	6	8.82		
Specialized center	5	22.73	18	5.61	1	1.47		
Other	5	22.73	9	2.80	2	2.94		
Job Satisfaction								
Extremely dissatisfied	6	27.3	5	1.6	2	2.9	0.34	<0.001**
Dissatisfied	5	22.7	76	23.7	28	41.2		
Neutral	1	4.5	53	16.5	9	13.2		
Satisfied	10	45.5	187	58.3	29	42.6		

*Correlation is statistically significant below the 0.01 level (2-tailed). **Correlation is highly significant below the <0.001.

Table 5

Correlation between fear of COVID-19 and job satisfaction and turnover intention scores

Variable	Pearson or Spearman correlation (r)	P-value
Job satisfaction	-0.060-	0.226
Turnover intention	0.292	<0.001*

*Correlation is highly significant below the 0.01 level (2-tailed).

frontline medical staff managing COVID-19 patients and in close contact with coronavirus pneumonia patients, and there was almost twice the risk of anxiety and depression compared to nonclinical HCWs not dealing with Coronavirus pneumonia patients. Additionally (Lai et al., 2020) [8] reported that frontline medical staff in Wuhan experienced an especially high probability of anxiety, depression, emotional distress, and insomnia in comparison to the same type of staff outside of Wuhan.

National ministerial decisions were issued to reassure, retain the medical staff members included: allocating separate specialized well-equipped isolation hospitals for physicians in each governorate all over Egypt. In order to ameliorate study participants' fear, local policies necessitated ensuring enough and timely PPE medical supply, daily screening of their body temperature, sending whoever is symptomatic for PCR testing and home isolation and further transfer for medical care if PCR proved positive and monitoring close family members.

Local efforts entailed setting up a separate pathway for the triage area for suspected/confirmed cases to minimize the possible spread of infection, and an emergency isolation room was prepared in each hospital to deal with suspected cases and were referred to the ministry of health chest/fever hospital following national policies and guidelines.

A highly significant association ($P < 0.01$) between the type of healthcare facility and the levels of COVID-19 degree of fear was shown in Table 4; the highest percentage of HCWs suffering a moderate and severe degree of fear was in the 2ry care hospitals followed by isolation hospitals and tertiary care hospitals. This was similar to the findings of Lai et al., 2020 [8], reporting high scores of anxiety, insomnia, and depression symptoms in 2ry hospitals HCWs compared to those working in tertiary hospitals.

The effect of fear on job satisfaction and the intend for turnover as shown in (Table 5) revealed a significantly high direct association between total score of the levels of fear and the total score of turnover, and the negative association between levels of fear total score among respondents and their job satisfaction level.

To prevent physicians from refraining from work and improving their satisfaction (a) Re-structuring/preparing hospital medical staff housing to prevent transmission of infection. (b) Specifying a separate hotline number for inquiry and medical advice for the HCWs. (c) Incentives and medical risk allowances were provided for all HCWs dealing with COVID-19 patients. (d) Appreciation certificates were distributed to all HCWs on duty for self-appraisal. (e) For facilitating their vaccination process, the vaccine was brought to the healthcare facility and vaccination was offered to them under the supervision of the infection control unit by the national ID number.

Table 6

Correlation between job satisfaction and turnover intention scores among the studied group

Variable	Spearman correlation(r)	P-value
Turnover intention	-0.433-	<0.001*

*Correlation is highly significant below the 0.01 level (2-tailed).

Table 7

Linear regression of fear of COVID-19, job satisfaction and turnover intention among the studied group

Linear regression of fear of COVID-19 and turnover intention					
Variable	B	SE	t	P-value	95% CI
Turnover intention	0.198	0.032	6.163	<0.001**	(0.13–0.26)
Linear regression of job satisfaction and turnover intention					
Variable	B	SE	t	P-value	95% CI
Turnover intention	-0.435-	0.048	-8.996-	<0.001**	(-0.531 to -0.340)

**Highly significant.

In the current study, there was a significantly high inverse association ($P < 0.01$) in the levels of the fear total score, as shown in table (6), denoting that as job satisfaction level decreases, the turnover total score increases. Table 7 showed that the levels of fear is a positive forecaster of professional turnover intention and job satisfaction is a negative predictor of turnover intention. These findings are consistent with that reported by (Leodoro et al., 2020) [26], who examined the impact of COVID-19 related levels of fear on job satisfaction of nurses, view of health generally, anxiety, and turnover intention on an organizational and professional level. After adjustment for nurse/unit/hospital, features showed that an increased level of fear of COVID-19 was consistent with decreased work satisfaction, increased psychological distress, and increased intentions for organizational and professional turnover. All the above findings are logical, and that HCW's psychological response to a global pandemic is not simple and has many facets. Anxiety factors may include threats to safety or possible loss of a relative, with the expected increment in suspected and real COVID-19 cases influx. In addition to the work distress, pressure magnitude, and concerns about their health, possible virus spread, and possible at work patient care changes in response to the crisis and isolation during the pandemic owing to the fact that the disease can be transmitted between humans [27–29]. Though it is unclear if it is due to illness, an attempt at protection, HCWs are less likely to show up for work during Pandemics. A study on HCWs' willingness to work during an avian flu outbreak showed that nearly one of every four workers was absent [30].

Despite differences in location and culture, generally, 20% to 30% of medical staff are hesitant about carrying out their duties in the middle of a pandemic [31].

In view of study results; it seems that the national health authorities dealt with this pandemic wisely and effectively with a future vision to minimize the risk on HCWs and inhabitants; On the National level, an Expanded immunization program and online registration on the website for the vaccine was open on February 2021 based on priority classification with HCWs as category 1.

Egypt holding company VACSERA and Sinovac signed an agreement to manufacture the vaccine in Egypt aiming to cover our national needs by the year end.

In addition; the presidential initiative to improve rural living standards for rural inhabitants would be an added important preventive measure for communicable and noncommunicable diseases.

5. Conclusions

Egyptian frontline physicians experienced mild to moderate levels of fear related to the COVID-19 pandemic. The type of healthcare facility and work department had significant associations with the levels of fear among participants. Greater levels of fear were related to lower job satisfaction and higher intentional

turnover. Improving environmental, housing conditions, sanitation and raising personal awareness and attitude to minimize cross infection in all community age groups. Future nationwide larger scale continuous studies are needed to reflect the need and propose the solution of such challenges are encouraged.

5.1. Study limitations

This study has some limitations; there is the possibility of a limitation with the research design; this type of cross-sectional research design is not able to demonstrate a causal relation between the variables being investigated. This research established associations that were significant between some personal variables and their Fear of COVID-19 Scale rating. However, there are other elements that may be significant in explaining the physicians' fear of COVID-19, and these may include: adequacy of staff, the working environment, the leadership and management of the hospital, adequacy of resources at the hospital, competency of physicians, the number of patients and acuity.

Authors' contributions

Eman Elsayed Abd-Ellatif: Conceptualization, Software, Methodology, Curation of Data, Preparation of the Draft, Reviewing, editing, and proofreading. Manal Mohamed Anwar, Abobakr Alawi Aljifri, Mervat Mohamed El Dalatony: Data collection and curation, Software, Drafting, Reviewing and Editing. All authors have approved the final manuscript.

Funding

No funding sources.

Conflicts of interest

None.

Acknowledgments

This research was only possible because of the dedicated and passionate contribution of all participants.

References

- Huremović D. Social Distancing, quarantine, and isolation BT –psychiatry of pandemics: a mental health response to infection outbreak. In: Huremović D, editor. *Psychiatry of Pandemics*. Cham: Springer; 2019. p. 85–94. https://doi.org/10.1007/978-3-030-15346-5_1.
- Nishiura H, Jung SM, Linton NM, Kinoshita R, Yang Y, Hayashi K, et al. The extent of transmission of novel coronavirus in Wuhan, China. *J Clin Med* 2020;9(2):330. <https://doi.org/10.3390/jcm9020330>.
- Johns Hopkins University of Medicine. Coronavirus resource center. <https://coronavirus.jhu.edu/map.html>. [Accessed 24 January 2021].
- Temsah MH, Al-Sohime F, Alamro N, Al-Eyadhy A, Al-Hasan K, Jamal A, et al. The psychological impact of COVID-19 pandemic on health care workers in a MERS-CoV endemic country. *J Infect Publ Health* 2020;13(6):877–82. <https://doi.org/10.1016/j.jiph.2020.05.021>.
- Black JRM, Bailey C, Przewrocka J, Dijkstra KK, Swanton C. COVID-19: the case for health-care worker screening to prevent hospital transmission. *Lancet* 2020;395:1418–20.
- Lazzerini M, Putoto G. COVID-19 in Italy: momentous decisions and many uncertainties. *Lancet Glob Health* 2020;8:e641–2.
- CDC COVID-19 Response Team. Characteristics of health care personnel with COVID-19: United States, February 12–April 9, 2020. *MMWR Morb Mortal Wkly Rep* 2020;69(15):477–81.
- Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, et al. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Netw Open* 2020;3(3):e203976. <https://doi.org/10.1001/jamanetworkopen.2020.3976>.
- Zhang X, Bian L, Bai X, Kong D, Liu L, Chen Q, et al. The influence of job satisfaction, resilience and work engagement on turnover intention among village doctors in China: a cross-sectional study. *BMC Health Serv Res* 2020;28:20. <https://doi.org/10.1186/s12913-020-05154-0>.
- Gualano MR, Gili R, Bert F, Scaiola G, Cerutti S, Gatti G, et al. Job satisfaction among radiology assistants: a multicentre cross-sectional study in Italy. *Med Lav* 2016;107(1):37–46.
- Fang P, Liu X, Huang L, Zhang X, Fang Z. Factors that influence the turnover intention of Chinese village doctors based on the investigation results of Xiangyang City in Hubei Province. *Int J Equity Health* 2014;13(84):1–9.
- Lu Y, Hu XM, Huang XL, Zhuang XD, Guo P, Feng LF, et al. The relationship between job satisfaction, work stress, work–family conflict, and turnover intention among physicians in Guangdong, China: a cross-sectional study. *BMJ Open* 2017;7(5):e014894.
- Cullen W, Gulati G, Kelly BD. Mental health in the COVID-19 pandemic. *QJM* 2020;113(5):311–2.
- Sim K, Chua HC, Vieta E, Fernandez G. The anatomy of panic buying related to the current COVID-19 pandemic. *Psychiatr Res* 2020;288:113015.
- Ebert JF, Huibers L, Christensen B, Christensen MB. Paper- or web-based questionnaire invitations as a method for data collection: cross-sectional comparative study of differences in response rate, completeness of data, and financial cost. *J Med Internet Res* 2018;20(1):e24. <https://doi.org/10.2196/jmir.8353>.
- Lu W, Wang H, Lin Y, Li L. Psychological status of medical workforce during the COVID-19 pandemic: a cross-sectional study. *Psychiatr Res* 2020;288:112936. <https://doi.org/10.1016/j.psychres.2020.112936>.
- Ahorsu DK, Lin CY, Imani V, Saffari M, Griffiths MD, Pakpov AH. The fear of COVID-19 scale: development and initial validation. *Int J Ment Health Addict* 2020;27:1–9. <https://doi.org/10.1007/s11469-020-00270-8>.
- Diener E, Emmons RA, Larsen R, Griffin S. The satisfaction with life scale. *J Personality Assess* 1985;49(1):71–5.
- Maguire L. Cross-sectional analyses of self-employed & directly employed workers' job-specific well-being in creative and corporate workplaces [Thesis]; 2020. <https://doi.org/10.13140/RG.2.2.22491.11042>.
- Bothma C, Roodt G. The validation of the turnover intention scale. *SA J Hum Resource Manage* 2013;11(1):12. <https://doi.org/10.4102/sFBSajhrm.v11i1.507>.
- Giffen R. Organizational culture and personality type: relationship with person-organization fit and turnover intention [Graduate Theses and Dissertations]; 2015. 14387 p., <https://lib.dr.iastate.edu/etd/14387>.
- Ahmed MA, Jouhar R, Ahmed N, Adnan S, Aftab M, Zafar MS, et al. Fear and practice modifications among dentists to combat novel coronavirus disease (COVID-19) outbreak. *Int J Environ Res Publ Health* 2020;17(8):2821. <https://doi.org/10.3390/ijerph17082821>.
- Kumar J, Katto MS, Siddiqui AA, Sahito B, Ahmed B, Jamil M, et al. Predictive factors associated with fear faced by healthcare workers during COVID-19 pandemic: a questionnaire-based study. *Cureus* 2020;12(8):e9741. <https://doi.org/10.7759/cureus.9741>. Published 2020 Aug 14.
- Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, et al. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *Int J Environ Res Publ Health* 2020;17(5):1729. <https://doi.org/10.3390/ijerph17051729>. PMID: 32155789; PMCID: PMC7084952.
- Joob B, Wiwanitkit V. Traumatization in medical staff helping with COVID-19 control. *Brain Behav Immun* 2020;87:10. <https://doi.org/10.1016/j.bbi.2020.03.020>.
- Leodoro J, Labrague, PhD, DM, CHSE, RN, Janet De los Santos. Fear of COVID-19, psychological distress, work satisfaction and turnover intention among front line nurses. Research square. Preprint. Available online at: <https://www.researchsquare.com/article/rs-35366/v1>. (Last accessed 21 December 2020). DOI: v1"><https://doi.org/10.21203/rs.3.rs-35366/v1>.
- Wang W, Tang J, Wei F. Updated understanding of the outbreak of 2019 novel coronavirus (2019-nCoV) in Wuhan, China. *J Med Virol* 2020;92(4):441–7. <https://doi.org/10.1002/jmv.25689>.
- Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, et al. Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. *N Engl J Med* 2020;382(13):1199–207. <https://doi.org/10.1056/NEJMoa2001316>.
- Rothe C, Schunk M, Sothmann P, Bretzel G, Froeschl G, Wallrauch C, et al. Ransmission of 2019-nCoV infection from an asymptomatic contact in Germany. *N Engl J Med* 2020;382(10):970–1. <https://doi.org/10.1056/NEJMc2001468>.
- Butsashvili M, Triner W, Kamkamidze G, Kajaia M, McNutt LA. Knowledge and anticipated behavior of health care workers in response to an outbreak of pandemic influenza in Georgia. *J Infect Dev Ctries* 2007;1(3):329–32.
- Imai H, Matsuishi K, Ito A, Moury K, Kitamura N, Akimoto K, et al. Factors associated with motivation and hesitation to work among health professionals during a public crisis: a cross sectional study of hospital workers in Japan during the pandemic (H1N1) 2009. *BMC Public Health* 2010;10(672). <https://doi.org/10.1186/1471-2458-10-672>.