



ORIGINAL ARTICLE

The Impact of Covid-19 Pandemic on the Education and Wellbeing of the Residents in the Family Practice Residency Program in the Ministry of Health in Bahrain

Maryam Altamimi^{*1}, Zainab Alghaiss¹, Maryam Alawi¹, Noora Alammadi¹, Zainab Algallaf¹, Reem Almurshed¹, Naeema Budhaish², Mohemmed Mandeel³

¹Fourth-Year Family Medicine Resident, Ministry of Health, Manama, Kingdom of Bahrain.

²Consultant Family Physician, Consultant Medical Tutor; Clinical Lecturer, Family Practice Residency Program and AGU, Ministry of Health, Kingdom of Bahrain

³Consultant Family Physician, MBBS, Family Practice Residency Program, M.MED.Sci (UK).

*Corresponding author:

Dr. Maryam Altamimi, Fourth Year Family Medicine Resident, Building 929, Road 1015, Sanabis 410, Kingdom of Bahrain; Tel. No.: 172888888; Email: MHA11242@Rcsi-mub.com

Received date: May 30, 2023; **Accepted date:** November 06, 2023; **Published date:** December 31, 2023

Abstract

Background: The global spread of SARS-CoV-2 profoundly affected physicians, especially the trainees in residency programs, in terms of psychological, social well-being, and educational aspects. However, the extent of its impact and how it compromises their quality of life and care has not been established well.

Objectives: The aim of our study is to assess the impact of SARS-CoV-2 on psychological, social well-being and education among the trainees in residency training programs in the Ministry of Health in the Kingdom of Bahrain.

Methods: A cross-sectional study was conducted on 89 trainee residents in February 2022 using the perceived stress questionnaire distributed over social media platforms to be answered online. The questionnaire was composed of 4 parts: demographics, the impact of the COVID-19 virus on psychological well-being, training, and education. A p-value cut-off point of <0.05 at a 95% Confidence Interval (CI) was used to determine statistical significance.

Result: Of the 89 questionnaires distributed, 85 trainees responded (95.5%). Residents who covered COVID-19 centers for more than four months had a higher impact on their training than those who covered less than two months. Female trainees were more affected than males. However, there was no significant difference among genders regarding the level of stress and psychological well-being.

Conclusion: The adoption of new strategies in the training department for the trainees is recommended to decrease the adverse psychological effects and to prevent any compromise in the training in future pandemics.

Keywords: COVID-19; SARS-CoV-2; Pandemic; Trainees; Family Practice; Psychological wellbeing; Residency

Introduction

The SARS-CoV-2 pandemic has an undeniable huge burden worldwide. It is a public health emergency that necessitates the practice of social distancing, leading to work and school closure and limited socialization. As a result, a range of psychological, emotional, and economic concerns was raised among the population.^{1,2}

In the Kingdom of Bahrain, the first COVID-19 virus case was identified on February 24th, 2020, after which the virus has spread contagiously among the people in the country.¹ Indeed, the frontline workers battling this pandemic are the most affected groups, especially the resident trainees, as they are both learners and caregivers during this pandemic.

Family physician trainees in Bahrain were dramatically affected by the pandemic as the health center training activities, and the hospital-based departmental activities and training were suspended. As an outcome, there was a lack of proper exposure in each category of medical rotations. In addition, conventional interactive in-person lectures were suspended and, later on, were substituted by online lectures and seminars.

On the other hand, during the pandemic, residents proved their loyalty to their jobs and country as they were bearing vast numbers of patients exceeding their capacity while at risk of infection. This improved their leadership skills and motivated them to look for all the new updates from evidence-based resources and enhanced their ability to manage similar future situations.

Looking into the literature, many studies address the impact of SARS-CoV-2 on the well-being and education of medical trainees. They conclude that there are significant risks for anxiety, depression, and sleep disorders in those who fight against the COVID-19 virus.^{2, 3, 4} Furthermore, there was a reduction in training activities^{4,7} and low satisfaction rates on online teaching and decrement in education and working hours among some specialties.^{7, 8}

General practice trainers report a limitation in face-to-face encounters between patients and trainees.⁷

However, we did not encounter any research study raising the issue of COVID-19's impact on family program trainees worldwide and in the

Kingdom of Bahrain, and to what extent the result of this impact is still unrevealed. Thus, this study aims to understand the impact of the SARS-CoV-2 pandemic on the education and psychological well-being of the Family Practice Residency Program (FPRP) residents in the Ministry of Health in the Kingdom of Bahrain.

Materials & Methods

After obtaining approval from the Family Practice Residency Program (FPRP) research ethics committee in the Ministry of Health in the Kingdom of Bahrain (MOH-Bahrain), we conducted a cross-sectional study during the SARS-CoV-2 pandemic crisis from 10/02/2022 to 20/02/2022.

The total population sampling consists of 89 FPRP residents enrolled in the residency program when the study was conducted. The family practice residency program is a 4-year Arab/Irish board residency-training program in MOH-Bahrain. When the study was conducted, it enrolled 89 residents, an average of 22 residents each year.

A list with the resident's names, contact numbers, and emails was obtained from the family training program administration. At first, study participants were identified using the inclusion and exclusion criteria set by the investigators to address the aim of the study; we included all postgraduate medical doctors under the Family practice training program in the Ministry of Health in February 2022, excluding the researchers.

The survey included four questionnaires. The first one described the participants' demographic data; it consists of 6 items describing their age, sex, marital status, having children, year of current training, and months of SARS-CoV-2 centers coverage.

The second one comprises 22 binary questions (Yes or no) to measure the SARS-CoV-2 center's coverage during the pandemic crisis. Both questionnaires were adapted from a similar study conducted in the Kingdom of Saudi Arabia.⁷

The third questionnaire aimed to study the impact of the SARS-CoV-2 pandemic on the psychological and social well-being of the residents. It is a validated instrument (Chronbach's alpha of 0.82) used to measure stress levels among FPRP

residents during Pandemic.⁹ It comprises 30 items designed to measure the perceived stress caused by life events on trainees in this program. Respondents indicate on a scale from 1 (“almost never”) to 4 (“usually”) how frequently they experienced certain stress-related feelings. Higher scores indicate greater levels of stress. A total score is found by tallying each item (questions 1, 7, 10, 13, 17, 21, 25, and 29 are positive and are scored according to the directions accompanying the scale). A Perceived Stress Questionnaire index can be found by subtracting 30 from the raw score and dividing the result by 90, yielding a score between 0 and 1.

The fourth questionnaire was adapted from a study done in India to measure the impact of the pandemic on resident’s education. It consists of 6 items.¹⁰

The overall survey reliability was tested and performed well with Cronhbach’s Alpha score of 0.762.

The surveys were distributed to the whole sample, and three reminders were sent electronically using the WhatsApp application. We used a total population sampling technique to include 89 training residents, excluding the researchers.

After that, a statistical analysis was conducted to achieve the research objectives, and we achieved a 95% response rate. Completed survey forms were electronically converted and then kept in a confidential file. Data were analyzed using SPSS software confidentially. The responses of demographic characteristics of FPRP residents were summarized as raw counts and frequency percentages. The binary responses of FPRP coverage of SARS-CoV-2 centers during the pandemic crisis were presented in raw counts, frequency percentages, and 95% confidence intervals. The data collected on the psychological well-being of FPRP Residents during the SARS-CoV-2 pandemic using the perceived stress questionnaire (PSQ) were kept in raw counts and percentages.

The mean and the standard deviation (SD) of the PSQ index were calculated. The positive responses (strongly agree and agree) of the Likert scale addressing the impact of the SARS-CoV-2 pandemic on the training of FPRP residents were

combined into an agreement percentage and 95% confidence intervals. The mean and the SD of the impact of the training score were calculated. The Mann-Whitney U Test was used to measure the differences in means of PSQ index and of Impact on training score according to sociodemographic characteristics regarding age, sex, marital status, and having children. The Kruskal-Wallis H Test was used to measure the differences in means of PSQ index and Impact on training score according to sociodemographic characteristics regarding the training year and months of COVID-19 coverage. The P-value and size effect of the latter was measured.

Results

Demographic and clinical characteristics

The demographic characteristics of the FPRP trainees are presented in Table 1. Of the 89 residents, 85 responded, giving a response rate of 95.5%. Of the 85 respondents, 84.7% were female, 63.5% were married, 48.2% had children. The mean age of respondents was 29.7(SD), and more than half (55.3%) were above 30.

Response rates of residents from year 2 to year 4+ were almost similar in their duration of training period and ranged from 29% for year 2 to 24% for year 4+ residents. Most residents (37.6%) had covered more than 4 months in SARS-CoV-2 centers, while only 10.6% covered 1-2 months.

Table 1: Demographic Characteristics of FPRP Residents

Characteristics	n (%)
<i>Sex</i>	
Male	13 (15.3)
Female	72 (84.7)
<i>Age in years</i>	
<30	38 (44.7)
≥30	47 (55.3)
Mean ± SD	29.7 ± 1.8
<i>Marital Status</i>	
Unmarried	30 (35.3)
Married	54 (63.5)
Divorced	1 (1.2)

Having Children	
Yes	41 (48.2)
No	44 (51.8)
Years of current training	
Year 2	25 (29.4)
Year 3	19 (22.4)
Year 4	21 (24.7)
Year 4+	20 (23.5)
Months of COVID-19 coverage	
1-2 months	9 (10.6)
2-3 months	19 (22.4)
3-4 months	25 (29.4)
>4 months	32 (37.6)

Values are numbers (percentages), n=85

COVID-19 centers coverage during the pandemic crisis

Table 2 shows residents’ responses to the type and duration of duties during the SARS-CoV-2 pandemic. Of the 85 residents, 72 (84%) (95% CI = 76.0 to 91%) worked in COVID-19 quarantine areas, and 97% (95% CI = 93.0 to 99.5%) of them had direct contact with SARS-CoV-2 patients. Furthermore, 88.2%(95% CI =80% to 94%) experienced anxiety about the pandemic. Half (58.8%) of the trainees felt they had full support from their program directors and institute, 87.1% were fearful of getting and spreading SARS-CoV-2 infection during coverage time, and 89.4% felt that their family members were not safe during their SARS-CoV-2 coverage and thus, had to stay away from their families to protect them from exposure and infection. Of the 85 residents, 95.3% did not have enough time to do activities besides hospital duties.

Table 2: Positive responses to questions regarding COVID-19 centres coverage during the COVID-19 pandemic crisis (n = 85), values are numbers (%) with 95% CI

		95% CI for %
1. Have you worked in the quarantine area	72 (84.7)	76.0% to 91.1%
2. Were you obliged to change the hospital because of this pandemic	73 (85.9)	(77.3, 92.0)
3. Did you get direct contact with COVID-19 patients	83 (97.6)	(92.7, 99.5)
4. Did you get full support from your program director and Institute	50 (58.8)	(48.2, 68.8)
5. Did you understand your role in this situation	70 (82.4)	(73.2, 89.3)
6. Were you routinely screened or got a diagnostic swab for COVID-19	74 (87.1)	(78.7, 92.9)
7. Did you ever get infected with COVID-19	29 (34.1)	(24.7, 44.6)
8. Were you ever isolated due to unprotected exposure to COVID-19 patient	32 (37.6)	(27.9, 48.2)
9. Were you updated regarding the latest COVID-19 protocol	68 (80)	(70.6, 87.4)
10. Were you trained on how to protect yourself against the COVID-19 spread	57 (67.1)	(56.6, 76.4)
11. Were you provided with enough personal protective equipment in the work area for COVID-19	66 (77.6)	(68.0, 85.5)
12. Were you anxious about the pandemic	75 (88.2)	(80.1, 93.8)
13. Did you experience anxiety and stress among your co-workers	78 (91.8)	(84.5, 96.2)
14. Did you complain of depression during the pandemic of COVID19	57 (67.1)	(56.6, 76.4)
15. Were you fearful of getting infected with COVID-19	74 (87.1)	(78.7, 92.9)
16. Did you experience guilt or fear of spreading COVID-19 infection	74 (87.1)	(78.7, 92.9)
17. Did experience fear of death due to COVID-19	32 (37.6)	(27.9, 48.2)
18. Did you feel safe during the pandemic	10 (11.8)	(6.2, 19.9)
19. Did you feel the family members were safe during the pandemic	9 (10.6)	(5.4, 18.4)
20. Did you have to stay away from your family during the pandemic to protect them	77 (90.6)	(83.0, 95.4)
21. Did you consider changing your specialty in order to protect yourself and your family	25 (29.4)	(20.5, 39.7)
22. Did you experience decrease time to do other activities outside the hospital	81 (95.3)	(89.2, 98.4)

Psychological Well-being of FPRP Residents during COVID-19

Table 3 describes the psychological well-being of FPRP residents during the SARS-CoV-2 pandemic. We calculated the PSQ index and compared the mean scores of the participants. Around 28% of the residents usually felt irritable and grouchy, and 22% felt tense and frustrated during the crisis.

Approximately 17.6% of the residents felt lonely and isolated. Furthermore, Around 38.3% reported feeling usually tired. Only 9.4% of respondents felt safe and protected. Of the respondents, 31.8%, and 34.1% of the residents usually felt loaded with responsibilities and under pressure from deadlines respectively.

Table 3: Psychological Well-Being Of FPRP Residents During The COVID-19 Pandemic

	Almost never	Sometimes	Often	Usually
	n (%)	n (%)	n (%)	n (%)
You feel rested	11 (12.9)	52 (61.2)	17 (20)	5 (5.9)
You feel that too many demands are being made on you	20 (23.5)	17 (20)	18 (21.2)	30 (35.3)
You are irritable or grouchy	11 (12.9)	32 (37.6)	18 (21.2)	24 (28.2)
You have too many things to do	21 (24.7)	12 (14.1)	21 (24.7)	31 (36.5)
You feel lonely or isolated	12 (14.1)	29 (34.1)	29 (34.1)	15 (17.6)
You find yourself in situations of conflict	14 (16.5)	34 (40)	22 (25.9)	15 (17.6)
You feel you are doing things you really like	24 (28.2)	32 (37.6)	21 (24.7)	8 (9.4)
You feel tired	22 (25.9)	14 (16.5)	16 (18.8)	33 (38.8)
You fear you may not manage to attain your goals	19 (22.4)	21 (24.7)	22 (25.9)	23 (27.1)
You feel calm	16 (18.8)	36 (42.4)	24 (28.2)	9 (10.6)
You have too many decisions to make	15 (17.6)	25 (29.4)	23 (27.1)	22 (25.9)
You feel frustrated	10 (11.8)	33 (38.8)	23 (27.1)	19 (22.4)
You are full of energy	19 (22.4)	37 (43.5)	17 (20)	12 (14.1)
You feel tense	13 (15.3)	31 (36.5)	22 (25.9)	19 (22.4)
Your problems seem to be piling up	12 (14.1)	33 (38.8)	23 (27.1)	17 (20)
You feel you are in a hurry	16 (18.8)	25 (29.4)	21 (24.7)	23 (27.1)
You feel safe and protected	15 (17.6)	41 (48.2)	21 (24.7)	8 (9.4)
You have many worries	16 (18.8)	24 (28.2)	19 (22.4)	26 (30.6)
You are under pressure from other people	17 (20)	23 (27.1)	18 (21.2)	27 (31.8)
You feel discouraged	15 (17.6)	25 (29.4)	22 (25.9)	23 (27.1)
You enjoy yourself	13 (15.3)	46 (54.1)	16 (18.8)	10 (11.8)
You are afraid for the future	18 (21.2)	23 (27.1)	19 (22.4)	25 (29.4)
You feel you are doing things because you have to, not because you want to	13 (15.3)	25 (29.4)	22 (25.9)	25 (29.4)
You feel criticized or judged	16 (18.8)	31 (36.5)	16 (18.8)	22 (25.9)
You are lighthearted	16 (18.8)	40 (47.1)	19 (22.4)	10 (11.8)
You feel mentally exhausted	18 (21.2)	25 (29.4)	17 (20)	25 (29.4)
You have trouble relaxing	18 (21.2)	24 (28.2)	22 (25.9)	21 (24.7)
You feel loaded down with responsibility	17 (20)	20 (23.5)	21 (24.7)	27 (31.8)
You have enough time for yourself	22 (25.9)	39 (45.9)	11 (12.9)	13 (15.3)
You feel under pressure from deadlines	19 (22.4)	21 (24.7)	16 (18.8)	29 (34.1)

n=85

Impact of COVID-19 on the training of FPRP residents

Table 4 and 5 describes the impact of the COVID-19 pandemic on the movement of FPRP residents. The overall mean of impact on training score was 3.73 (SD 0.49). The PSQ index scored a mean of 0.55. Our study showed that around 90% of the residents agreed that the lockdown affected their theoretical learning (95% CI: 83 to 95.4%) and their clinical training (89.4%) (95% CI 81.6 to 94.6%). Whereas 87.1% (95%CI: 78.7 to 92.9%) experienced a reduction in training activities, and 83.5% (95% CI 74.6 - 90.2%) experienced a reduction in time to read and study during the COVID-19 pandemic. Nearly half of FPRP residents used electronic learning effectively, 55.3% (95%CI 44.7 - 65.5%) and 60% (95% CI 49.4 –69.9%) found the online classes/webinars useful during the lockdown period.

Table 4: The Impact Of COVID-19 Pandemic On The Training Of FPRP Residents

	Agree n (%)	95% CI for %
This lockdown has affected my theoretical learning/ classroom training.	77 (90.6)	83.0 to 95.4)
This lockdown has affected my clinical training.	76 (89.4)	(81.6, 94.6)
There has been a reduction in my training activities during the COVID-19 pandemic.	74 (87.1)	(78.7, 92.9)
I don't have enough time to read and study during the pandemic.	71 (83.5)	(74.6, 90.2)
Online classes and webinars during this lockdown period were useful.	51 (60)	(49.4, 69.9)
I have used Electronic learning effectively during the lockdown period.	47 (55.3)	(44.7, 65.5)

n=85

Table 5: The Impact Of COVID-19 Pandemic On The Training Of FPRP Residents

	Mean	SD
Impact on training score	3.73	.49
PSQ index	0.55	0.24

The difference in means of the PSQ index

Table 6 illustrates the difference in means of the PSQ Index according to sociodemographic characteristics. Although none of the demographic variables had a statistical significance on the mean PSQ index, differences in mean scores were noted among the groups despite the small effect size. The mean PSQ indices of the two sexes were similar, however slightly higher in females. Similarly, the two age groups had identical stress levels with means of 0.54 (SD 0.24) and 0.56 (SD 0.24) in those <30 years of age and residents >30 years old, respectively. The unmarried group had a slightly higher PSQ index mean than the married group (0.58 vs. 0.54, respectively), and correspondingly, residents who do not have children had a higher mean score of 0.59 (SD 0.21). The highest mean score was noted in year 4 residents. Moreover, residents who covered SARS-CoV-2 centers for 2-3 months were observed to have the highest mean score of 0.64 (SD 0.21).

Difference in mean scores of impact on training

Table 7 describes the difference in means scores of the impact of SARS-CoV-2 on the training based on the sociodemographic characteristics. There was a statistically significant difference in the impact of COVID-19 on the training score between the two sexes; the mean score was higher in females than in males, with means scores of 3.78 (SD = 0.47) and 3.45(SD = 0.49) respectively. Other demographic data showed differences; however, it was of no statistical significance. Moreover, longer durations of COVID-19 coverage affected the training program more than the shorter ones. Nonetheless, there was no significant difference in the effect of COVID-19 on the training among other sociodemographic characteristics shown in the table.

Table 6: Difference In Means Of PSQ Index According To Sociodemographic Characteristics

	PSQ Index Mean (SD)	<i>p</i> -value	η^2 (size effect)
Sex			
Male	0.51 (0.13)	0.541	0.004
Female	0.56 (0.25)		
Age in years			
<30	0.54 (0.24)	0.770	0.001
≥30	0.56 (0.24)		
Marital status			
Unmarried	0.58 (0.18)	0.385	0.009
Married	0.54 (0.27)		
Having children			
Yes	0.51 (0.27)	0.110	0.030
No	0.59 (0.21)		
Training year			
Year 2	0.55 (0.25)	0.897	0.007
Year 3	0.53 (0.24)		
Year 4	0.58 (0.26)		
Year 4+	0.54 (0.21)		
Months of COVID-19 coverage			
1-2 months	0.53 (0.29)	0.149	0.064
2-3 months	0.64 (0.21)		
3-4 months	0.48 (0.24)		
More than 4 months	0.56 (0.23)		

n=85, Cohen's effect size Small=.1, Medium .3, Large .5

Discussion

This cross-sectional study involved 85 out of 89 family residency program trainees and showed that the COVID-19 Pandemic significantly affected FPRP residents' training and psychological well-being. Despite having a high response rate, the confidence interval ranges were wide, which can be attributed to the small sample size.

Our Study revealed that around 28% of the residents felt irritable, and 17.6% felt lonely and isolated.

Table 7: Difference In Means Scores of Impact on Training Score According to Sociodemographic Characteristics

	Impact on training score Mean (SD)	<i>p</i> -value	Effect size
Sex			
Male	3.45 (0.49)	0.028	.2
Female	3.78 (0.47)		
Age in years			
<30	3.77 (0.48)	0.488	.01
≥30	3.7 (0.5)		
Marital status			
Unmarried	3.66 (0.45)	0.165	.15
Married	3.78 (0.51)		
Having children			
Yes	3.78 (0.48)	0.372	.01
No	3.69 (0.5)		
Training year			
Year 2	3.71 (0.49)	0.783	NA
Year 3	3.78 (0.48)		
Year 4	3.79 (0.51)		
Year 4+	3.65 (0.5)		
Months of COVID-19 coverage			
1-2 months	3.48 (0.46)	0.202	NA
2-3 months	3.83 (0.57)		
3-4 months	3.65 (0.46)		
More than 4 months	3.8 (0.45)		

Cohen's effect size Small=.1, Medium .3, Large .5

Moreover, 31.8% of them thought they were loaded with responsibilities. Likewise, 88.2% of them experienced anxiety about the pandemic, but half (58.8%) of the trainees felt they had full support from their program directors and institute.

However, there were no significant differences among the sexes and the length of coverage period. Hence, all the residents were under enormous stress, and their psychological well-being was affected equally. The emergence of online teaching,

conferences, and webinars was one of the most important aspects of the pandemic.

On one hand, our study showed that the residents think the pandemic affected their theoretical learning and clinical training (90% and 89%, respectively). In addition, it confirmed our hypothesis that the longer the duration of COVID-19 facilities coverage, the greater the impact on the training.

On the other hand, half of the FRRP residents (55.3%) used electronic learning efficiently, and 60% found that online teaching was helpful during the crisis. Comparing our study results with regional research, a cross-sectional study conducted in Saudi Arabia among Saudi Commission for Health specialties residents and fellows shows that COVID-19 obviously impacts the training and the physicians' mental health similarly. About 45% of the physicians are anxious, and 37.1% have low moods most of the time. Furthermore, 32.5% feel lonely, and 84.6% report reduced training activities. However, only 37.1% believe they always have full support from their program director, as the study was conducted among different resident levels and fellows from different specialties.⁷

Another cross-sectional study in Oman reveals that COVID-19 frontline healthcare workers are 1.5 times more likely to be anxious, stressed, and have self-reported sleeping problems than non-front-line healthcare workers. Nevertheless, the study was conducted among different healthcare specialties and settings.²

Another study conducted in Jordan among physicians shows that 71.1% are concerned about getting the infection from their patients.⁵

Likewise, a systematic review and meta-analysis show that anxiety and depression prevalence among physicians during the COVID-19 pandemic are 23.2% and 22.8%, respectively, with females having higher rates of emotional distress.³

Moreover, several studies were conducted about the impact of the COVID-19 pandemic on physician training; a study in India about the effect of COVID-19 lockdown on ophthalmology training reveals that about 80.7% of the trainees felt that the lockdown affected their surgical training, and

54.8% of them have an increment in stress levels. Moreover, 32.8% of them did not receive their salaries, maybe due to the low economic status of the country.¹⁰

Another one was done in South Korea using a nationwide survey study assessing orthopedic resident education, which shows that the time spent working in the operating room and the traditional education time decreased. Despite the increase in online-based teaching methods, residents are unsatisfied.⁴

Putting all of these studies together, the physicians covering COVID-19 facilities have a significant decline in training and mental health outcomes.

To minimize the biases, we used an online survey to select all the trainees enrolled in the Family Physicians Residency Program. The questionnaire included four parts, one validated questionnaire and the other used in previous studies, and the final survey achieved a satisfactory Chronbach's alpha score. In addition, we got a high response rate from the candidates, around 95%.

Hence, our study is psychosocial; we have many limitations related to measuring the effect on both sexes, as females represent most of our population. Although our sample included all FRRP residents, the sample size is small; thus, we had a wide CI. Moreover, our study implicit a recall bias since there were a few months between COVID-19 coverage and when the questionnaire was distributed.

The COVID-19 virus pandemic has an undeniable huge burden worldwide as WHO has identified it as severe acute respiratory syndrome¹⁴ and had multiple outcomes in many sectors, including medical complications, financial, social, and economic disruptions. The COVID-19 crisis places additional pressure on physicians and on the healthcare system, which carries a significant risk of psychological distress¹³; therefore, physicians should always be encouraged to talk to each other¹¹ as burnout syndrome is a serious and growing problem among medical staff¹². Moreover, this study may open a door for further research to evaluate the long-term psychological consequences, social well-being, and training among the residents and will try to prevent any further crises by building some strategies and

rules for better health management, improving the health outcome without affecting their training and education.

Source of funding

No public or commercial funding was needed.

Conflict of interest

The Authors declare that they have no conflict of interest.

Ethical approval and consent

The ethics research committee reviewed and approved the study protocol at the Ministry of Health in the Kingdom of Bahrain. Informed consent was obtained by signing online to participate in the electronic survey from all participants.

Author Contributions

All Authors shared equal effort in contributing to the research regarding data collection, data analysis, and manuscript write-up. All authors read and approved the final manuscript. Author (number of the author) supervised the research and gave the final approval for the published version.

Acknowledgment

The authors would like to thank all participants who agreed to answer the questionnaire. In addition, I would like to acknowledge Mr. Hasan Albasri for his help with the data analysis using the SPSS.

References

1. Ministry of Health confirms first case of Coronavirus disease (COVID-19) in Bahrain [Internet]. <https://www.bna.bh/en/>. 2021 [cited 15 July 2021]. Available from: <https://www.bna.bh/en/COVID19.px?cms=q8FmFJgiscL2fwIz-ON1%2BDgdRwjYzx8yqJfGfSBhU4yI%3D>
2. Alshekaili M, Hassan W, Al Said N, et al. Factors associated with mental health outcomes across healthcare settings in Oman during COVID-19: frontline versus non-frontline healthcare workers. *BMJ Open*. 2020;10(10). Available from: <https://bmjopen.bmj.com/content/10/10/e042030>
3. Pappa S, Ntella V, Giannakas T, et al. Prevalence of Depression, Anxiety, and Insomnia Among Healthcare Workers During the COVID-19 Pandemic: A Systematic Review and Meta-Analysis. *SSRN Electronic Journal* [Internet]. 2020(901-907). Available from: <https://www.sciencedirect.com/science/article/abs/pii/S088915912030845X>
4. Chang, DG., Park, JB., et al. The impact of COVID-19 pandemic on orthopaedic resident education: a nationwide survey study in South Korea. *International Orthopaedics (SICOT)* 44, 2203–2210 (2020). <https://doi.org/10.1007/s00264-020-04714-7>
5. Saadeh R, Alfaqih M, Beni Yonis O, et al. The psychosocial and clinical concerns of physicians treating patients with COVID-19. *Journal of Taibah University Medical Sciences* [Internet]. 2020;15(6):544-549. Available from: <https://www.sciencedirect.com/science/article/pii/S1658361220301499>
6. Scallan S, Lyon-Maris J, et al. The educational impact of COVID-19: views from UK GPe-ducators and trainees. *Education for Primary Care* [Internet]. 2020;31(5):328-329. Available from: <https://www.tandfonline.com/doi/full/10.1080/14739879.2020.1806736>
7. Balhareth A, AlDuhileb M, Aldulaijan F, et al. Impact of COVID-19 pandemic on residency and fellowship training programs in Saudi Arabia: A nationwide cross-sectional study. *Annals of Medicine and Surgery* [Internet]. 2020;57:127-132. Available from: <https://www.sciencedirect.com/science/article/pii/S2049080120302077>
8. Rao P, Diamond J, Korjian S, et al. The Impact of the COVID-19 Pandemic on Cardiovascular Fellows-in-Training. *Journal of the American College of Cardiology* [Internet]. 2020;76(7):871-875. Available from: <https://www.sciencedirect.com/science/article/abs/pii/S0735109720356813>
9. Kocalevent, R., Levenstein, S., Fliege, & et al. (2007, July). Contribution to the construct validity of the Perceived Stress Questionnaire from a population-based survey. *National Library of Medicine*, 63(1). <https://doi.org/10.1016/j.jpsychores.2007.02.010>

10. Mishra, D., Nair, A., Gogate, R., et al. (2020, May 25). The impact of COVID-19 related lockdown on ophthalmology training programs in India – Outcomes of a survey. National Library of Medicine. Retrieved July 15, 2021, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7508115/#App1>
11. Elbay, Rümeyza Yeni, et al. “Depression, Anxiety, Stress Levels of Physicians and Associated Factors in Covid-19 Pandemics.” *Psychiatry Research*, vol. 290, Aug. 2020, p. 113130, Available from: <https://doi.org/10.1016/j.psychres.2020.113130>.
12. Elghazally, Shimaa A., et al. “Burnout Impact of COVID-19 Pandemic on Health-Care Professionals at Assiut University Hospitals, 2020.” *International Journal of Environmental Research and Public Health*, vol. 18, no. 10, 18 May 2021, p. 5368, Available from: <https://doi.org/10.3390/ijerph18105368>.
13. Galbraith, Niall, et al. “The Mental Health of Doctors during the Covid-19 Pandemic.” *BJ-Psych Bulletin*, vol. 45, no. 2, 28 Apr. 2020, pp. 1–7, Available from: <https://doi.org/10.1192/bjb.2020.44>.
14. Hosseinzadeh-Shanjani, Zarintaj, et al. “Stress, Anxiety, and Depression Levels among Health-care Staff during the COVID-19 Epidemic.” *Basic and Clinical Neuroscience Journal*, 30 July 2020, pp. 163–170, Available from: <https://doi.org/10.32598/bcn.11.covid19.651.4>.
15. KILINÇEL, Şenay, et al. “Effects of Coronavirus (COVID-19) Pandemic on Health Anxiety Levels of Healthcare Professionals.” *Journal of Contemporary Medicine*, 8 Sept. 2020, Available from: <https://doi.org/10.16899/jcm.767377>.
16. Kumar, Arunaz, et al. “Impact of the COVID-19 Pandemic on Teaching and Learning in Health Professional Education: A Mixed Methods Study Protocol.” *BMC Medical Education*, vol. 21, no. 1, 19 Aug. 2021, Available from: <https://doi.org/10.1186/s12909-021-02871-w>.