

Corona's Effect on Sleep Disorders among the Medical Staff in Primary Health Care in Makkah Al-Mokarramah Saudi Arabia 2022

Ayman Yousuf Termezi Alandanusi¹, Taghreed Abduljaleel Zamzami², Abdulrahman Helal Helal Almalki³, Norah Ebrahim Suliman Asiri⁴, Ashwaq ahmad yamani⁵, Hezam Safar Almalki⁶, Rommana Bakur Ebraheem⁷, Tawfiq Ahmed A Alsharif⁸, Yousra Hassan Abusulaiman⁹, Aminah Mohammed Alhwsawi¹⁰, Mohammed Nasser Mohammed Alsharif¹¹, Majdi Mohammed Alnajjar¹², Abdulaziz Mohammed Abdullah Alhomiany¹³, Wafaa Aayed Al Shehry¹⁰, Ahmad Raddah Almsoudi¹⁴, Khulood ali alzahrani¹⁵

¹Family Medicine Specialist, Al Shumaisy Medical complex or Administration of Primary Health Care Centers, Saudi Arabia.

²Pharmacist, King Abdullah medical city, Saudi Arabia.

³Anaesthesia technician, King Abdulaziz hospital, Makkah, MOH, Saudi Arabia,

⁴Nursing Specialist, Mental Health Administration Complex in Jeddah - Psychological Services, Saudi Arabia.

⁵Dental assistant, Hera general hospital, Makkah al mukarramah, Saudi Arabia.

⁶Health services management specialist, King Faisal Hospital in Makkah Al-Mukarramah, Saudi Arabia.

⁷Dental Technician, Al Zaher Health Center in Makkah, Saudi Arabia.

⁸Technician Public Health, Department of joint services in community health in the first health cluster in Riyadh, Saudi Arabia.

⁹Dental technician, King Abdulaziz Hospital, Health Administration specialist, Saudi Arabia.

¹⁰Nursing technician, Almnsoor pHC, Makkah Al Mukarramah, Saudi Arabia.

¹¹Senior Specialist-Health Administration, Director of the Human Resources Planning Department, King Faisal Complex, Taif, Saudi Arabia.

¹²Senior Specialist-Health, Administration, Directorate of cssd in Taif& king Faisal hospital, Saudi Arabia.

¹³Senior Specialist-Health, Administration, King Faisal Complex -Directorate of Health Affairs in Taif, Saudi Arabia.

¹⁴Health services pharmacist, Support management, King Faisal Hospital in Makkah Al-Mukarramah, Saudi Arabia.

¹⁵Nursing technician, AlSharae Al Olya Phc, Makkah Al Mukarramah, Saudi Arabia.

Abstract:

Background

The emerging novel Corona's disease 2019 (COVID-19) has become one of the leading cause of deaths worldwide in 2020. Corona's disease puts great pressure on healthcare workers. Consequently, healthcare workers may have impaired sleep because they need to deal with the illness, suffer from the high risk of death, and adapt to irregular work schedules and frequent shifts. They may experience sleep disorders, anxiety, depression, and stress when faced with this major public health threat. Due to their job demands, they are in frequent contact with patients and therefore suffer from extremely high-level stress. Therefore, they may develop acute sleep disorders, including poor sleep quality and experience too little sleep. Given that healthcare professionals are the frontline workers who take care of patients, their health is extremely important. More specifically, if healthcare providers have any health issues that prevent them from taking care of patients, their local communities more specifically, and their country more generally, will encounter a huge challenge of healthcare burden and consequently impact on all residents' health.

Aim of the study: To assessment Corona's effect on sleep disorders among the medical staff in primary health care in Makkah Al-Mokarramah Saudi Arabia2022.

Method: Cross sectional study, was conducted among the medical staff in primary the primary health care center in Makkah Al-Mukarramah. All participants were requested to fill in the Pittsburgh Sleep Quality Index (PSQI) questionnaire to evaluate their sleep quality. In addition, they were inquired about their sleep schedule during day and night. Our total participants were(200)

Results: Regarding Pittsburgh Sleep Quality Index (PSQI) of the participant the majority of participant Bad sleep quality were (71.0%) while Good sleep quality were (29.0%) Show that is a significant correlation in (PSQI) were p-value =0.001 and X^2 34.445.

Conclusion: sleep problems appear to have been common during the Corona's disease pandemic. One in every three individuals reported the sleep problems. Nearly half of the healthcare professionals encountered sleep problems during the pandemic period. Healthcare providers may want to design appropriate programs to help individuals overcome their sleep problems.

Keywords: Assessment, Corona's, Sleep, disorders, medical, staff, PHC, Makkah, Saudi Arab

Introduction

Background

In 2020, healthcare workers (HCWs) have been facing a dramatic pandemic due to a new, poorly known, and deadly disease: Coronavirus 2019 disease (1). HCWs have been working in

critical care conditions, including unprepared doctors and nurses who had to work in urgently opened critical care departments (2). Doctors and nurses have been facing extreme work pressure, fast adaptations to intense critical care situations, unseen amounts of severe critical patients, numerous deaths of patients, and risks of infection (3). Quality of care is known to be related to the mental status of HCWs (4). Therefore, focusing on the mental health of HCWs during the COVID-19 pandemic is necessary for their wellbeing and for healthcare quality. Finally, these mental health problems contribute to the high turnover rate of HCWs, which affects the costs of medical institutions through training costs and decreased productivity(5)

In addition to healthcare workers, the general population is likely health and sleep problems due to the impacts of COVID-19(6) because a substantial change in lifestyle is a huge stressor (7). For example, individuals may need to self-isolate and quarantine at home, avoid social activities for leisure and recreation that they had participated in previously, and strictly obey the new policies to minimize spread of the virus (e.g., wearing a mask in public areas) (9). The general healthcare workers may also receive threatening information such as daily statistics concerning COVID-19 infection and deaths reported from the news or social media (10). With the lifestyle changes and threatening information, the healthcare workers may avoid contact with other individuals due to great fear of infection, developing feelings of helplessness or suffering from panic (11). In other words, the healthcare workers might experience psychological problems directly due to the COVID-19 pandemic (12).

The lack of personal protective equipment, the reorganization of units and services with the integration of new teams, the fear of being infected or infecting family members or patients, the need to make difficult ethical choices about prioritizing care, feeling of helplessness, and the loss of social support due to lockdown could have a psychological impact on healthcare workers (13). Moreover, some HCWs have been working in somehow dehumanized conditions, wearing protective personal equipment, and dramatically limiting family visits to all patients, including terminally ill ones (14).

In recent months, people have been directed to stay at home to minimize the spread of COVID-19; however, healthcare workers(HWs) are at high risk of infection due to the nature of their work in fighting the virus. According to official statistics, a total of 3,387 Chinese HWs were infected with COVID-19 during the COVID-19 pandemic, and more than 90% of them were from Hubei (15). As the number of cases in Saudi Arabia increased, HWs had to care for an increasing number of confirmed and suspected cases that required strict isolation. Due heavy workloads, HWs tended to experience excessive fatigue, sleep disorders, tension, and even exhaustion (16). They were worried about themselves and their families being infected, and they were also concerned about

their family members' worrying about them. In addition, they may have become overexcited in clinical work and refused reasonable rest to ensure their health (17). Recently, sleep disturbance become a potential risk factor for Corona's effect on sleep disorders among the medical staff. (18) And about 50%-70% of Corona's patients have sleep disorders.(19)

Literature Review

By reviewing the literature ; the researcher found that the relation of sleep duration and sleep quality with among the medical staff in primary health care and effected by corona's patients have been studied in many researches internationally.

A previous study in Toronto reported that 29% of HWs suffered from emotional distress during the acute respiratory syndrome (SARS) outbreak (16). Another study in Hong Kong found that 68% of frontline HWs experienced high levels of stress, sleep disorders and 57% reported psychological distress (20). COVID- 19 has a stronger ability to spread than SARS (21). The COVID- 19 pandemic was more panic-inducing than the SARS epidemic and created new challenges regarding the sleep disorders of key population subgroups, such as HWs. HWs experienced high levels of work stress during the COVID-19 pandemic, which may have led to an increased risk of sleep disturbances (22).

Zhou et, al.(2020)report that poor sleep can weaken HWs' attention and decision-making ability and reduce clinical work efficiency , which may hinder the fight against COVID-19. Moreover, sleep disturbances can contribute to the development of many other mental health problems in HWs, such as depression, sleep disturbances and anxiety , and may have an impact on their long-term health (23).

Studies from previous epidemics, such as SARS, Ebola or MERS, have shown that the sudden onset of an unknown disease with a high mortality rate would affect the mental health of HCWs (24). Some studies have sought to assess the Anxiety, depression, trauma-related, and sleep disorders among healthcare workers during the COVID-19 pandemic of caregivers at earlier stages of the pandemic (4). However, the pandemic is evolving fastly, and numerous studies have been published in the last months. There is a need to gather these data to get a worldwide overview on the mental health of healthcare workers during the COVID-19 pandemic. In addition, early reviews could not capture easily post-traumatic stress disorders, which need a one-month delay after exposure to traumatic events (26).

The present systematic review and meta-analysis synthesized data from 177 recently published studies on this topic to more rigorously investigate the prevalence of sleep problems and how sleep associated with psychological distress.(27) The synthesized results showed that the pooled

estimated prevalence of sleep problems regardless of gender and population was 37% during the COVID-19 outbreak. Additionally, a much higher prevalence rate of sleep problems was identified among patients with COVID-19 infection (55%) and healthcare professionals (43%).(28) who reported in their meta-analysis that the highest prevalence rate of sleep problems was found among COVID-19 patients. Meta-regression in the present review further indicated that country, age, gender, and marital status did not contribute to the estimated prevalence in sleep problems.(29)

The prevalence of sleep disturbances in Chinese HWs during the COVID-19 pandemic varies greatly among studies, ranging from 11.3 to 100% (30).

American Psychiatric Association, 2013, reported chose to study four indicators (anxiety, depression, trauma-related, and sleep disorders) for several reasons: First, they are renowned and validated outcomes described in DSM-5 , for which there are validated scales usable in the general population (4); Second, many studies have been led on these outcomes among healthcare workers; Third, some specific interventions exist on these outcomes; Finally, these four outcomes are also well described when facing stress factors or psychological trauma in case of crisis (such as COVID-19 pandemic) (31).

Because sleep is important for human beings to maintain daily functions (32), several studies have focused on sleep problems all with the use of self-report data during the COVID-19 pandemic. Different findings regarding the sleep and psychological problems during COVID-19 in different populations have been reported among these studies. For example, Zhang et al. reported that the prevalence of insomnia was higher among non-medical healthcare workers (e.g., students, community workers, and volunteers) than among medical healthcare workers (prevalence rate of 38.4 vs. 30.5%, $p<.01$). Wang et al. reported higher prevalence of sleep problem among medical staff compared to non-medical staff comprising students, community workers, and volunteers (66.1% vs. 47.8, $p<.01$) and frontline healthcare providers compared to non-frontline medical workers (68.1 vs. 64.5, $p=0.14$) (33).

Rationale

The association of sleep problems with depression and anxiety among medical staff in primary health care was reported in two studies. The pooled estimated effect size showed moderate correlation between sleep problems and depression with coronas, the prevalence of sleep disturbances was very high in Saudi Arabia HWs during the COVID-19 pandemic, particularly in frontline and infected HWs. Our results indicate a heavy mental health burden on HWs during the COVID-19 pandemic in Saudi Arabia and provide other countries with valuable information that may help guide interventions during the crisis. Targeted interventions are urgently needed to protect

the vulnerable group of HWs from mental injury and enhance their resilience.

Aim of Study

To assessment Corona's effect on sleep disorders among the medical staff in primary health care in Makkah Al-Mokarramah Saudi Arabia2022

Specific Objectives

To assessment Corona's effect on sleep disorders among the medical staff in primary health care in Makkah Al-Mokarramah Saudi Arabia2022.

METHODOLOGY

Study Area

This study will be conducted in 2022 in primary health care center in Saudi Arabia was conducted among medical staff in primary health care in Makkah Al-Mukarramah . The Corona's effect on sleep disorders among the medical staff in primary health care in Makkah Al-Mokarramah . A study participant has been recruited on Makkah including PHC centers under supervision of Directorate of Health Affairs of Makkah in Saudi Arabia. The study has been carried out in the city of Makkah, Makkah is the holiest spot on Earth. It is the birthplace of the Prophet Mohammad and the principal place of the pilgrims to perform Umrah and Hajj. The most important cities in Saudi Arabiam . It is the holy city for all Muslims, and is located in the western region. It is located in the western area in Kingdom of Saudi Arabia contains a population around 1.978 million

Study Design:

This is a cross sectional study.

Study Population and Selection Criteria

The target populations are those medical staff in primary health care who are working in primary health care to participate in this study .

Inclusion Criteria:

- Medical staff in primary health care Both genders.
- Age above 30 years
- All nationalities
- Arabic speakers

Exclusion Criteria:

- Younger than 30 years old.
- Non-Arabic speakers.
- Medical staff in primary health care with psychiatric problems.
-

Medical

staff in primary health care refuse to participant in the study .

Sample Size:

Based on the statistics of the patients affairs in PHC in Makkah Al-mukarramh, the researcher found that the average number of medical staff in primary health care center is (50) staff . Multiplying this average by the number of working days during the period of study(one month) ; the estimated population of the study found to be 200 subjects.

Using EPI info version 24 , sample size of population is determined as follows: with expected frequency of participants awareness = 50%. Worst acceptable result = 5% with 95% confidence interval; it's believed that a sample size of about 200 participants 10% increase in the number to compensate for drop rate) is adequate to achieve degree of precision in estimating the true prevalence across the medical staff in primary health care

Sampling Method :

Systematic random sampling technique has be adopted to select the study medical staff in primary health care. An average of 50 medical staff in primary health care . One clinic has be selected randomly every shift (one morning and one afternoon). Accordingly, approximately one month will be needed to collect data. In case of illegible medical staff, the next ones will be selected till the required number reached every working day. During the study period, the researcher will invite the selected clinics medical staff to participate in the study while they are in the clinics. For those who will accept to participate in the study, a self-administered Arabic questionnaire will be distributed. Any question or clarification will be clarified by the researcher.

Data Collection Tool and Technique :

Information about socio-demographic characteristics including age, sex, occupation, height, and smoking habits will be taken from the participants a cover letter explaining the purpose of the study without mentioning names to ensure confidentiality.

An Arabic version of the Pittsburgh sleep quality index (PSQI), a valid and reliable self-administered questionnaire will be distributed to the participants to evaluate their quality of sleep.

The PSQI is a score conducted by a self-rated questionnaire containing 9 questions that

establish a wide variety of factors related to sleep quality in the last month. These included estimates of sleep latency and duration as well as severity and frequency of specific sleep-related problems. The nine questions were grouped into seven component scores, each weighted equally on a 0–3 scale. The seven components has be gathered to give a global PSQI score (range: 0–21); higher scores indicate worse sleep quality. The seven components of the PSQI are: (1) subjective sleep quality, (2) sleep latency, (3) sleep duration, (4) sleep efficiency, (5) sleep disturbances, (6) use of sleeping medications and (7) daytime dysfunction. Scores equal or less than five are categorized as good sleep quality , scores between 5-8 are categorized as average sleep quality and score of more than eight is categorized as poor sleep quality,

Pilot Study:

A pilot study will be carried out on (35) attendees of the PHC in Makkah Al-mukarramh that met the inclusion criteria . The purpose is to examine the clarity of the questionnaire, to estimate the time needed to complete it as well as to give an actual situation of the main study.

Data Entry and Analysis:

Collected data has be coded, verified and analyzed with a help of a biostatistician using Statistical Package for the Social Sciences (SPSS) program version 20 developed by International Business Machines (*IBM*®) corporation. Descriptive statistics, e.g., number, proportions, cumulative proportions, mean and standard deviation, etc. will be displayed, as appropriate.

Analytically, parametric and non-parametric techniques has be used as required. In order to control for the effect of confounding, multivariate logistic regression will be adopted. All results of medical staff in primary health care tests with p -values less than <0.05 will be considered “statistically significant.”

Ethical Considerations:

Also a verbal consent will be taken from each participant to voluntary participate in the study and the data will be treated confidentially and will be used only for the purpose of research.

Budget:

It will be a self- funded research.

Result

Table 1 distribution of demographic characteristics of the research. (n=200)

	N	%
Age		
<30	32	16
30-50	46	23
50-70	90	45
>70	32	16
Gender		
Male	76	38
Female	124	62
Profession		
Frontline healthcare workers	44	22
Consultants	20	10
Physicians	52	26
Nurses	64	32
Clinical pharmacists	20	10
Second-line healthcare workers		
Lab technicians	44	22
Others	156	78
Area of workplace		
Emergency department	50	25
Ward	40	20
Intensive care unit (ICU)	60	30
Labs	40	20
Other	10	5
HCWs' involvement with COVID-19 patients		
No involvement	38	19
Diagnosis	32	16
Treatment	44	22
Nursing care	58	29
Other	28	14

Table 1 shows that most of the participants (45.0%) were in the age group 50-70 years, followed by 30-50 were(23.0%), the majority of them were female (62.0%) while male(38.0%), regarding the Profession most of participants Nurses were (32.0%) , regarding Second-line healthcare workers the majority of participant are Others were(78.0%) . regarding Area of workplace the majority of participant are Intensive care unit (ICU) were(30.0%), regarding HCWs' involvement with COVID-19 patients the majority of participant are Nursing care were(29.0%) .

Table 2 Distribution of the characteristics of the participant habits of the study

	N	%
Smoking		
Non-smoker	86	43
Smoker	90	45
Former smoker	24	12
Professional title		
Consultant	24	12
Physician	52	26
Nurses	62	31
Clinical pharmacist	32	16
Lab technician	22	11
Others	8	4
HCWs' involvement with COVID-19 patients		
No involvement	38	19
Diagnosis	56	28
Treatment	40	20
Nursing care	62	31
Other	4	2
Do you know the short duration of sleep		
Yes	62	31
No	138	69
Definition of short sleep 5 h 2		
Yes	58	29
No	142	71

Do you know long duration of sleep		
Yes	66	33
No	134	67
Sleep quality		
Poor quality PSQI >7	74	37
Good quality, PSQI <5	126	63

Table 2 shows regarding Smoking the majority of participant are Smoker were(45.0%), regarding the Professional title most of participants Nurses were (31.0%) , regarding HCWs' involvement with COVID-19 patients the majority of participant are Nursing care were(31.0%) . regarding Do you know the short duration of sleep the majority of participant answer No were(69.0%), regarding Definition of short sleep 5 h 2 the majority of participant answer No were(71.0%), regarding Do you know long duration of sleep the majority of participant answer No were(67.0%), regarding Sleep quality the majority of participant Good quality, PSQI <5 were(63.0%).

Table 3 Table Distribution of the Coronas effect on Pittsburgh Sleep Quality Index (PSQI) questionnaire among the medical staff in primary health care

PSQI		
	N	%
Good sleep quality	58	29
Bad sleep quality	142	71
Total	200	100
Chi-square	X²	34.445
	P-value	<0.001*

Table 3 show Regarding Pittsburgh Sleep Quality Index (PSQI) of the participant the majority of participant Bad sleep quality were (71.0%) while Good sleep quality were (29.0%) Show that is a significant correlation in (PSQI) were p-value =0.001 and X^2 34.445.

Figure (1) Distribution of the Coronas effect on Pittsburgh Sleep Quality Index (PSQI) questionnaire among the medical staff in primary health care

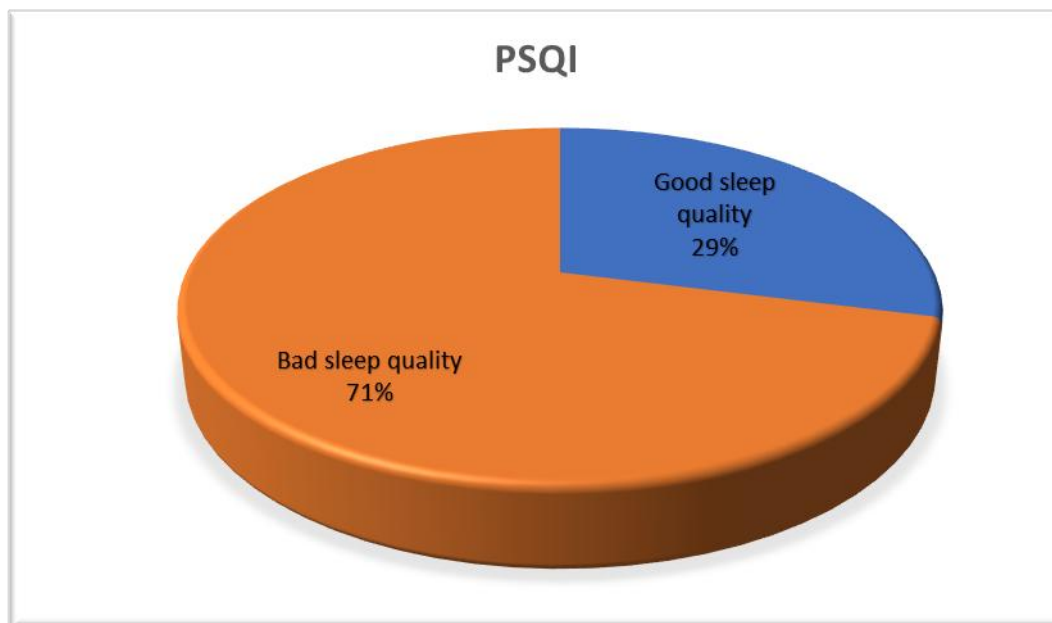


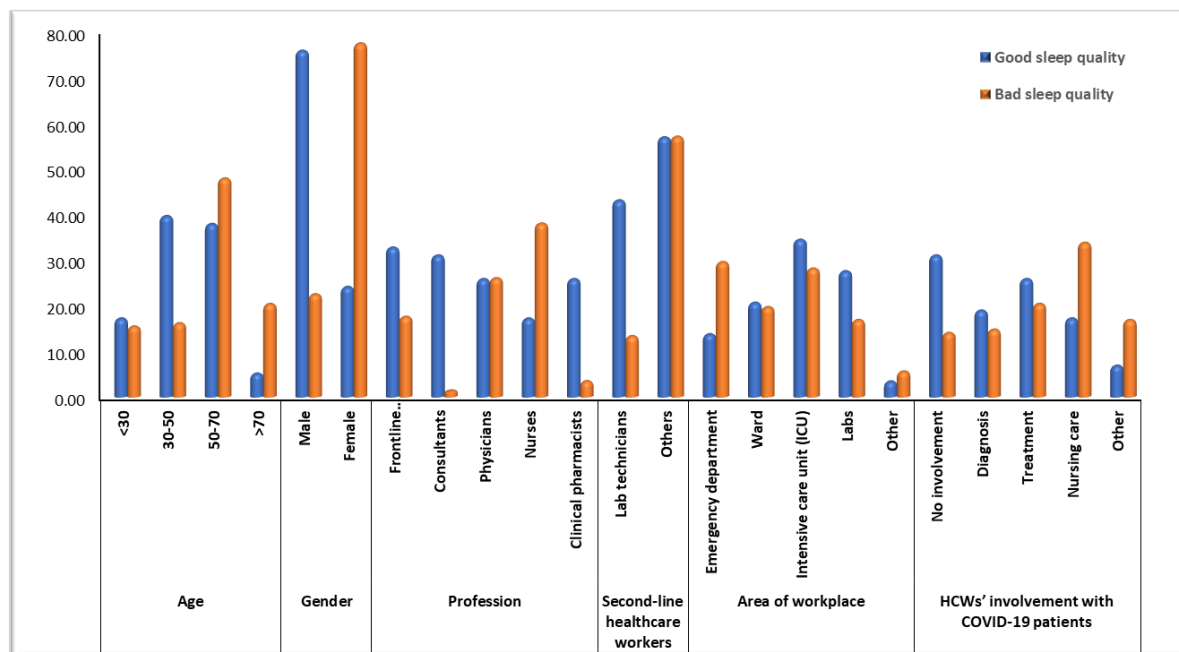
Table 4 Distribution the relation of characteristics of the participant habits (Age, gender, Profession, Second-line healthcare workers and area of workplace) and Coronas effect on sleep disorders among the medical staff in primary health care in (PSQI)

		Good sleep quality (n=58)		Bad sleep quality (n=142)		Chi-square	
		N	%	N	%	X ²	P-value
Age	<30	10	17.24	22	15.49	16.824	0.001*
	30-50	23	39.66	23	16.20		
	50-70	22	37.93	68	47.89		
	>70	3	5.17	29	20.42		
Gender	Male	44	75.86	32	22.54	49.705	0.000*
	Female	14	24.14	110	77.46		
Profession	Frontline healthcare workers	19	32.76	25	17.61	50.254	0.000*
	Consultants	18	31.03	2	1.41		
	Physicians	15	25.86	37	26.06		
	Nurses	10	17.24	54	38.03		

	Clinical pharmacists	15	25.86	5	3.52		
Second-line healthcare workers	Lab technicians	25	43.10	19	13.38	9.448	0.002*
	Others	33	56.90	81	57.04		
Area of workplace	Emergency department	8	13.79	42	29.58	7.415	0.116
	Ward	12	20.69	28	19.72		
	Intensive care unit (ICU)	20	34.48	40	28.17		
	Labs	16	27.59	24	16.90		
	Other	2	3.45	8	5.63		
HCWs' involvement with COVID-19 patients	No involvement	18	31.03	20	14.08	14.069	0.007*
	Diagnosis	11	18.97	21	14.79		
	Treatment	15	25.86	29	20.42		
	Nursing care	10	17.24	48	33.80		
	Other	4	6.90	24	16.90		

Table 4 Regarding age, results show a significant relation between the (PSQI and age were $X^2=16.824$ and $P\text{-value}=0.001$, increase(Good sleep quality and age 30-50were 39.66% followed by Bad sleep quality were(47.89%). Regarding gender, results show a significant relation between the (PSQI) and gender were $X^2=49.705$ and $P\text{-value}=0.001$, increase(Good sleep quality and in male were 75.86 flowed by female in Bad sleep quality were 77.46%), Regarding Profession, results show a significant relation between the (PSQI) and Profession were $X^2=50.254$ and $P\text{-value}=0.000$, increase(Good sleep quality in Consultants were 31.03 while Bad sleep quality in nurses were 38.03%) . Regarding Second-line healthcare workers, results show a significant relation between the (PSQI) and Second-line healthcare workers were $X^2=9.448$ and $P\text{-value}=0.002$, increase(bad sleep quality in others were57.04%). Regarding Area of workplace, results show no significant relation between the (PSQI) and Area of workplace were $X^2=9.448$ and $P\text{-value}=0.116$, increase(good sleep quality in Intensive care unit (ICU) were34.48%). Regarding HCWs' involvement with COVID-19 patients, results show a significant relation between the (PSQI)and HCWs' involvement with COVID-19 patients were $X^2=14.069$ and $P\text{-value}=0.007$, increase(bad sleep quality in nursing care were 33.80)

Figure (2) Distribution the relation of characteristics of the participant habits (Age, gender, Profession, Second-line healthcare workers and area of workplace) and Coronas effect on sleep disorders among the medical staff in primary health care in (PSQI)



Discussion

The purpose of this study was To assessment coronas effect on sleep disorders among the medical staff in primary health care in Makkah Al-Mokarramah , Saudi Arabia2022 . Socioeconomic characteristics of the medical staff to obtain information that could be used awareness campaign and to determine whether medical staff knowledge differed based on particular characteristics of the target medical staff. shows that most of the participants (45.0%) were in the age group 50-70 years, followed by 30-50 were(23.0%), the majority of them were female (62.0%) while male(38.0%), regarding the Profession most of participants Nurses were (32.0%) , regarding Second-line healthcare workers the majority of participant are Others were(78.0%) . regarding Area of workplace the majority of participant are Intensive care unit (ICU) were(30.0%), regarding HCWs' involvement with COVID-19 patients the majority of participant are Nursing care were(29.0%) (See Table 1)

To our Coronas effect on sleep disorders among the medical staff in primary health care, our study is the first study to examine the Coronas effect on sleep disorders among the medical staff in primary health care, the COVID-19 pandemic. Both the high prevalence of sleep disturbances and poor sleep quality revealed that the COVID-19 pandemic had a serious negative impact on the mental health. Regarding the coronas effect on Pittsburgh Sleep Quality Index (PSQI) questionnaire among the medical staff in primary health care found Pittsburgh Sleep Quality Index (PSQI) of the

participant the majority of participant Bad sleep quality were (71.0%) while Good sleep quality were (29.0%) Show that is a significant correlation in (PSQI) were $p\text{-value} = 0.001$ and $X^2 = 34.445$.(See Table 4)

Health professionals, especially those who are frontline workers dealing with COVID-19 infected patients on a daily basis, encounter much higher high risk of infection and irregular work schedules than those working in other occupations Lockdown was found to be a significant factor in explaining sleep problems. However, this finding may be confounded by the different policies implemented to inhibit the spread of COVID-19 across the 39 countries analyzed . For example, mainland Saudi Arabia launched a strict lockdown policy to prohibit almost all outdoor activities, while the lockdown policy in other countries was not as strict. Nevertheless, the present findings support prior evidence that lockdown negatively impacted individuals 'psychological health and sleep (34). Regarding the relation of characteristics of the participant habits (Age, gender, Profession, Second-line healthcare workers and area of workplace) and Coronas effect on sleep disorders among the medical staff in primary health care in (PSQI) . Regarding age, results show a significant relation between the (PSQI and age were $X^2 = 16.824$ and $P\text{-value} = 0.001$, increase(Good sleep quality and age 30-50 were 39.66% followed by Bad sleep quality were(47.89%). Regarding gender, results show a significant relation between the (PSQI) and gender were $X^2 = 49.705$ and $P\text{-value} = 0.001$, increase(Good sleep quality and in male were 75.86 flowed by female in Bad sleep quality were 77.46%), show profession, results show a significant relation between the (PSQI) and Profession were $X^2 = 50.254$ and $P\text{-value} = 0.000$, increase(Good sleep quality in Consultants were 31.03 while Bad sleep quality in nurses were 38.03%) . Regarding Second-line healthcare workers, results show a significant relation between the (PSQI) and Second-line healthcare workers were $X^2 = 9.448$ and $P\text{-value} = 0.002$, increase(bad sleep quality in others were 57.04%). Regarding Area of workplace, results show no significant relation between the (PSQI) and Area of workplace were $X^2 = 9.448$ and $P\text{-value} = 0.116$, increase(good sleep quality in Intensive care unit (ICU) were 34.48%). Regarding HCWs' involvement with COVID-19 patients, results show a significant relation between the (PSQI) and HCWs' involvement with COVID-19 patients were $X^2 = 14.069$ and $P\text{-value} = 0.007$, increase(bad sleep quality in nursing care were 33.80)(See table 5)

Conclusion

The present study results have established that the COVID-19 pandemic has more extensive negative psychological features on the mental health and sleep disorders among the medical staff in primary health care of frontline healthcare workers, associated with severe anxiety and poor sleep disorders and quality of sleep , than second-line healthcare workers. The study findings confer great

opportunities for healthcare officials and policymakers to account for workplace context when planning for mental health prevention programs for healthcare workers during the pandemic period. The protection of mental health in HCWs is of paramount importance. Medical and paramedical staff must take appropriate rest, have a healthy diet, and engage in regular physical exercise to reduce anxiety levels and maintain sleep quality. Health officials must support the healthcare workers who are sacrificing their mental health for the future of our nations. This study highlights the importance of providing comprehensive support strategies to reduce the psychological allied symptoms of the COVID-19 outbreak among healthcare workers under pandemic conditions..

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