



## IMPACT OF PREVALENCE OF DEPRESSION AMONG NURSES IN MAJOR HOSPITALS DURING THE COVID-19 OUTBREAK IN MAKKAH AL-MUKARRAMAH SAUDI ARABIA 2022

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### Abstract

#### Background

Nursing staff are exposed to numerous stresses that affect their psychological status. no study has examined the depression level and coping strategies among nurses in Saudi Arabia especially nursing. Depression and anxiety are common conditions with prevalence ranging between ten to twenty percent in the general population for any twelve month period from work. Depression in the working age population is estimated to cost \$12 billion annually in medical care and approximately \$44 billion annually in lost productivity. Mental health affects physical health, job performance and healthcare utilization. Stress, depression and anxiety disorders contribute to absenteeism and lack of confidence. Nursing are exposed to many stressors, such as the burden imposed by expectations of a high degree of professionalism, responsibility for patient well-being and maintenance of relationships with patients and health workers, depression among nurses during the COVID-19 pandemic in the Saudi Arabia are not well described and their modifiable causes are poorly understood. Depression is an emotional disturbance that leads to deterioration of abilities and daily activities.

**Aim of study:** To assessment Impact of Prevalence of depression among nurses in major hospitals during the COVID-19 outbreak in Makkah Al-Mukarramah Saudi Arabia 2022.

**Methods** this was a Cross-sectional study among nursing in major hospitals during the COVID-19 outbreak in Makkah Al-Mukarramah Saudi Arabia , this study has be conducted only 2 major hospitals in ministry of health inside the Makkah Al-Mukarramah city (in King Abdul-Aziz Specialist Hospital and King Faisal Hospital), a sample size through the epi program was (200) nurses. The researcher has been using a questionnaire covering socio-demographic data and Patient Health Questionnaire-9 (PHQ-9).

**Results:** prevalence of depression in the nursing is (19.0%). 38 out of the 200 respondents met the PHQ-9 negative criteria for depression. show that  $X^2$  (47.2) and is a significant while p-value =0.001. Of the 200 participants 66 (33.0 %) scored into the minimal depression category, also scored into the mild depression category, (29.0%),

**Conclusion** the studies demonstrates of existing evidence confirming the incidence of depressive disorders symptoms among nurses during the work hours and also the studies demonstrates that depression symptoms are common among nursing; the nurses-patient relationship issue is particularly stressful.

**Keywords:** Prevalence, depression, physicians, Saudi Arabia, Makkah.

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## **Introduction**

World Health Organization nursing represent the first line in the fight against the pandemic [1]. depression among health care workers is common among working population worldwide and among health care-workers (HCWs) and in particular nurses. The prevalence of depression among HCWs varies significantly when taking in account different groups like among physician or among nursing staff or using different scales to assess depression.[2]

Depression has been known to impair job performance and productivity as found among Saudi Arabia employees in 2019 that it increased employee turnover experiencing depression [3]. At its worst, depression is common among working population worldwide and the prevalence of work-related stress among health care-workers (HCWs) was estimated in Amsterdam in 2016 that showed about 22% of HCWs had general stress, 17% had work-related fatigue, 12% were distressed, and 6% burned out [4]. There are probably many reasons for this problem; these might change the environment, media, socioeconomic status changes, and stress at work [5]. the World Health Organization reported that depression is the leading cause of disability for both males and females. However, the depression is 50% higher for females than males [6]. Depression is one of the leading causes of mortality and morbidity worldwide, accounted for 4.4% of the global disability [7]. During the COVID-19 pandemic, frontline nurses , especially those who have close contacts with infected patients, regularly experienced anxiety and depressive symptoms (depression hereafter), emotional breakdown and sleep disturbances due to the limited clinical knowledge of the new virus and the insufficient provision of protective gears and other medical supplies, which may lead to poor morale at work, absenteeism, apathy, and poor work performance leading to patient dissatisfaction [8] the World Health Organization reported that depression is the leading cause of disability for both males and females. However, the depression is 50% higher for females than males [9]. Depression is one of the leading causes of mortality and morbidity worldwide, accounted for 4.4% of the global disability [10].

Depression is defined as any discomfort perceived by the individual that is stimulated by activities perceived as too intense and frequent, which exceed a person's coping capabilities and resources to manage.[11] Successfully management or minimization of stress depends on the individual's ability to identify and adapt using

coping strategies.[12] The purpose of coping is to maintain psychological health and inhibit manifestations of depression-associated symptoms. Badger defined coping as the person's response to a stressful situation perceived as exceeding to the person's resources.[13]

In late 2019, the novel coronavirus disease (COVID-19) was first found in China. On the 30th January, 2020,[14] the World Health Organization (WHO) declared COVID-19 a public health emergency of international concern. [15] In order to reduce the rapid transmission of the COVID-19 and to take care of confirmed and suspected patients, additional services, such as fever clinics and isolation infectious units, have been set up in emergency departments (ED) in many hospitals.[16]

Depression influences roughly 121 million individuals worldwide paying little heed to religion, race, age, or sex.[17] Universally, depressive disorders are the third driving reason for illness trouble for all ages and the main source for ladies matured 15-44 years . Between 45-95% (in general 69%) of patients with depression present with physical symptoms.[18]

## **Literature Review**

Unfortunately, few researches have been completed with respect to Prevalence of depression among nurses in exclusive specialties. The following is précis of currently executed research in this regard.

Since the outbreak of the COVID-19, some studies have examined the epidemiology of nurse's problems and frontline clinicians. For instance, a recent cross-sectional study reported that the prevalence of depressive, anxiety, insomnia and non-specific distress symptoms was 50.4%, 44.6%, 34.0%, and 71.5%, respectively in frontline clinicians including nurses [19]

A few examinations have assessed the mental health of nurses in developed countries such as the US, Britain, Canada, China, Japan, and Dutch. Past studies demonstrated that the commonness of depressive indications among nurses and doctors went from 10% to 15% in the US, Britain, Norway, and Japan.[20]. One of the most widely used for Depression scale is Patient Health Questionnaire which is derived from the Patient Health Questionnaire. This study the researcher need to know the prevalence of depression of physicians and nurses in major specialties.[21]

Naser et al (2020) Reported recommended that resolving depression is a shared responsibility wherein workplace improvement should be integrated with the individual's own

strategies.[22] Improving the workplace environment and developing culturally relevant resilience building programs for HCPs in Arab countries is one of the strategic steps in stress reduction.9 Internal (personal) and external factors play a crucial role in determining coping strategies and the consequences of stress. Personal factors include beliefs, values, age, and experience, while external factors include financial and social support.[23,24]

Health Report of WHO, almost 15% of patients with significant depression have lifetime danger of ending by suicide [25].

In developing countries, 10-44% experience the depression and anxiety disorders and anxiety problems, and under 35% of the depressed receive medical care[20]. Pakistan has a general prevalence of 34% [21]. In Qatar, the pervasiveness is 27.8% [26].

Depression among medical students addresses a dismissed general health problem in India. It is vital to avoid the problem impacts of depression on one's instructive accomplishment and profession through early recognition and legitimate interventional measures. Few research have been led at a worldwide level to measures the prevalence of depression among medical students. Every one of these investigations have been led in western nations just as in different pieces of the world.[25]

A cross sectional research was done in China and did an overview to study pervasiveness and related variables of depressive symptoms (2010). This research was performed during the time of September/October 2008. The research population comprised 1,890 specialists registered and working in the 20 public hospitals in Liaoning area, northeast of China.

A cross sectional research was done in 2015 and completed a study to investigate the depression, anxiety and signs of stress among Hong Kong Nurses. An aggregate of survey was filled by 850 members; the greater part of them was female (745 female) which is finished the online study. An expected 73 men (69.5%) depression signs and 32 men (30.5%) had depression signs, in any case 472 females (63.4%) not had depression symptoms and 273 females (36.6%) had depression manifestations [27].

Study carried out a study to discover the Anxiety and Depression among Nursing Staff at King Fahad Medical City, Riyadh, and Kingdom of Saudi Arabia. The survey population comprised nursing staff from all hospitals and centers inside KFMC, 1300 questionnaires and HAD scale were disseminated; cooperation was discretionary and

715 (55%) nurses had been taken an interest in this investigation. result 539 typical 75% , 107 reason for concern 15% and 69 convenient clinical reason 10% [23].

#### **Rationale:**

According to the researcher's knowledge, There was no much research about prevalence of depression among nurses in different specialties in Makkah Al-Mukarramah the prevalence of depression among nurses and the way to protect them from exposure to depression and decrease it among nurses and it was suggested that by interventions and health-promoting activities for nurses and also changing their working conditions that affect mental health can be helpful . In the health sectors, the most exposed employees to high challenges were physicians and nurses. nurses were exposed to depression due to their occupation as previous studies showed that the prevalence of depressive symptoms among nurses in Saudi Arabia. Another study was conducted in the Saudi Arabia among nurses and found that 38% of nurses had depressive symptoms

#### **Aim of the study**

To assess the Prevalence of depression among physicians in major hospitals in Makkah Al-Mukarramah Saudi Arabia 2021.

#### **Objectives:**

To estimate prevalence rate of depression among physicians in different specialties selected in major hospitals, in Makkah Al-Mukarramah Saudi Arabia 2021.

#### **Subjects and methods**

##### **Study design:**

##### **Cross-sectional study.**

##### **Study setting / study area:**

Makkah Al-Mukarramah city is located in the Saudi Arabia . comprised nursing staff from all hospitals inside King Abdul-Aziz, Specialist Hospital, King Faisal Hospital , the questionnaires has be distributed; participation was optional and (200) nurses had been participated in this study. Participants' consent and ethical approval were obtained. One of the most important characteristics of Makkah Al-Mukarramah It includes a number of Islamic monuments. It is visited by many tourists from inside and outside the Kingdom, especially foreigners interested in natural scenes and to moderate its atmosphere throughout the year[29]

In Makkah Al-Mukarramah , there are 3 major hospitals belonging to ministry of health inside the

city and 11 peripheral hospitals outside Makkah city. include: (in King Abdul-Aziz, Specialist Hospital, King Faisal Hospital and Ajyad General Hospital),with 500 beds capacity. Mental health hospital is the first mental hospital established in kingdom of Saudi Arabia. It was built at 1378H with 750 beds capacity. Maternity and children hospital is manage all patients under 12 years old with 300 beds capacity.

**Study population:**

The researcher selected nurses in all hospital in ministry of health (2 hospitals) in Makkah city. The hospitals are include : King Abdul-Aziz, Specialist Hospital, King Faisal Hospital .

**Inclusion Criteria:**

Nurses in different hospital departments at ministry of health (medicine, surgery, obstetrics and gynecology, pediatric, emergency medicine ect...).

**Exclusion Criteria:** Paramedical specialties, primary health care nurses.

**Sample size:**

The researcher went to the directorate of health affairs and the statistics of the number of doctors in 2 hospitals has been 1100 nurses .Then, the final calculated sample size through the epi program has been (200) doctors with 95% confidence level.

**Sampling technique:**

The researcher has been using simple random sample technique

The researcher obtained the approval from family medicine program administrator, after that, the researcher has been Permission from the regional Research and Ethical Committee It has been delivered to hospitals. The researcher has been meeting a head of department and collected the total number of nurses and distribution from each hospitals which are participate voluntarily in our study.

Data has been collected by using PHQ-9 Depression scale which has been filled by nurses. The researcher select all hospitals in Makkah city which are include :

King Abdul-Aziz, Specialist Hospital  
King Faisal Hospital

**Data collection tools:**

The researcher was used a questionnaire covering socio-demographic data and Patient Health Questionnaire-9 (PHQ-9).

The socio-demographic data contains 15 multiple-choice questions which include: Hospital name, Age, Sex, Marital state ,Number of family, Specialty, Medical degree, Any history of diabetes mellitus, hypertension, cardiac disease and Other chronic disease ,Take extra salary for psychiatric allowance ,Take any kind of psychiatric medication, many hospital on call per month, satisfied about your specialty. It was written in English language and was valid from 3 consultant. About the PHQ-9 depression questionnaire, the scale contains 9 multiple-choice questions, English versions. Scores for each item range from zero to three, and the global score for each scale range from zero to 27. To interpret the scores, it is considered that, over 20 has been severe depression score,15 to19 Moderately severe ,10 to14 Moderate and 5 to 9 Mild Depression.

**A Pilot study** was carried out at Hospitals. This study has been conducted and all suggestions taken into consideration .

Collected data has been processed using SPSS v.24 software. Descriptive statistics has be performed. The primary study outcome (Prevalence of depression among nurses in major hospitals during the COVID-19 outbreak in Makkah Al-Mukarramah Saudi Arabia 2022) has be presented as percentage and 95% CI.

**Ethical consideration:**

Permission from family medicine program was obtained.

Permission from the regional Research and Ethical Committee was be given the hospitals to conduct our study.

All the subjects has been participate voluntarily in the study.

permission from directorate of health affairs in Makkah

Privacy of nursing information and confidentiality has been maintained.

Full explanation about the study and its purpose was carried out to nurses to obtain their participation.

**Budget:** Self-funded.

**Results**

A total of (200) nursing participated in the study out of invited 250 (response rate:100%) The researcher selected nursing in 2 hospitals in ministry of health (2 hospitals) in Makkah city.

**Table 1** Distribution of socio-demographic data to prevalence of depression among nursing in major hospitals during the COVID-19 outbreak ( Age, Gender, Nationality, Marital state, Number of Children, hospitals name).(n=200)

	N	%
<b>Age</b>		
24-34	70	35
35-44	90	45
45 and older	40	20
<b>Gender</b>		
Female	90	45
Male	110	55
<b>Nationality</b>		
Non-Saudi	60	30
Saudi	140	70
<b>Marital state</b>		
Married	132	66
Single	42	21
Divorce	12	6
Widow	14	7
<b>Number of Children</b>		
No one	74	37
One child	30	15
Two children	48	24
Three children	36	18
More than three children	12	6
<b>Hospital name</b>		
King Abdul-Aziz specialists hospital.	90	45
King Faisal hospital .	66	33
Maternity and children hospital.	32	16
Mental health hospital.	4	2
Obstetrics and Gynecology hospitals.	8	4
<b>Educational level</b>		
Diploma Nursing	150	75
Baccalaureate Nursing	50	25

In our study showed that the only(45.0%)of the participated were(35-44)years while(35.0%) were(24-34), Male nursing were 110 (55.0%), while females constituted 90(45.0%) of the whole nursing. The nursing (70.0%) were Saudi while (30.0%), non-Saudi. Regarding Marital state the most of participant married (66.0%)and (21.0%)were single. The majority of the participated they had no children had were

(37.0%) ,followed by two children were(24.0%). The majority of the participated from King Abdul-Aziz specialists hospital were (45.0%) followed by King Faisal hospital were(33.0%). Regarding Educational level the most of participant Diploma Nursing (75.0%)and (25.0%)were Baccalaureate Nursing.

**Table2** Distribution of socio-demographic data to prevalence of depression among nursing in major hospitals during the COVID-19 outbreak. ( Type of residency, Working place, depression, Do you have a history of disease , average number of patients have you seen daily, How many working shift do you have per month, How many hospital on-call per month, Are you satisfied about your specialty )

	N	%
<b>Type of residency</b>		
Private	98	49
Rented	102	51
<b>Working place</b>		
Emergency	24	12



Intensive Care Unit (ICU)	24	12
Medicine	58	29
Neurology	36	18
Obstetrics and gynecology	12	6
Pediatric	22	11
Psychiatry department	12	6
Surgery	12	6
<b>depression</b>		
Low stress	36	18
Moderate stress	54	27
Severe stress	66	33
Overall Perceived stress	44	22
<b>Do you have a history of</b>		
Diabetes mellitus	24	12
Hypertension	18	9
Cardiac disease	6	3
Bronchial asthma	38	19
Other chronic disease	32	16
Depression	22	11
Take any kind of psychiatric medication	34	17
<b>What is the average number of patients have you care daily?</b>		
0 - 20	136	68
21- 40	38	19
41-60	12	6
More than 60	14	7
<b>How many working shifts do you have per month?</b>		
Null	40	20
11-20.	68	34
More than 20	92	46
<b>How many hospitals on-call per month?</b>		
Null	38	19
1-3.	38	19
4-5.	54	27
More than 5	70	35
<b>Are you satisfied about your specialty?</b>		
No	58	29
Yes	142	71

Table 2 showed regarding type of residency more than half of participated (51.0%) they rented, follow by private residency were (49.0%). Regarding the Working place of nursing the most of participant from the medicine department constituted (29.0%) , followed by Neurology (18.0%). Regarding the depression level the most of participant have Severe stress depression constituted (33.0%) followed by Moderate stress were(27.0%), Regarding the do you have a history of diseases the nursing have Bronchial asthma were (19.0%), followed by those have taken any kind of psychiatric medication also

other chronic disease were (constituted respectively (17.0%, 16.0%), regarding what is the average numbers of patients have you care daily the majority of nursing care daily from (0 - 20) constituted (68.0%), followed by from 21- 40 were(19.0%) , regarding number of shift you have per month more than 20 were(46.0%), regarding number of the hospital on-call per month more than 5 consisting (35.0%), while(4-5) were(27.0%). Regarding you satisfied about your specialty mostly yes were (71.0%) but No (29.0%).

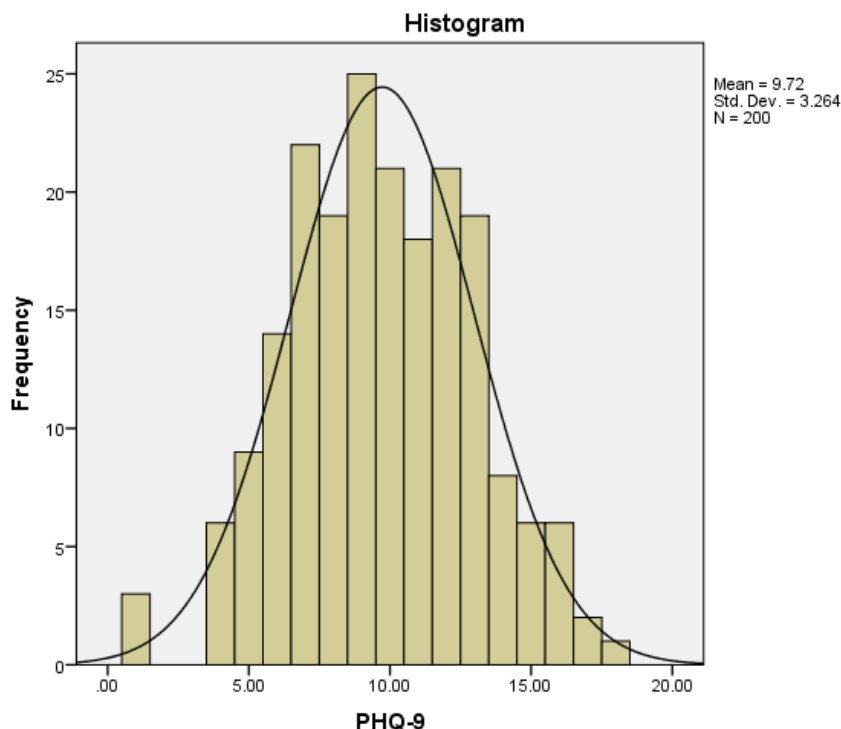
**Table 3** Distribution of the PHQ-9 scale prevalence of depression among nursing in major hospitals during the COVID-19 outbreak . (has been severe depression score, Moderately severe , Moderate and Mild Depression).

PHQ-9			Score	
	N	%	Range	Mean±SD
Negative	38	19	0-24	10.123±3.288
Minimal	66	33		
Mild	58	29		
Moderate	20	10		
Severe	18	9		
Total	200	100		
Chi-square	X <sup>2</sup>	47.2		
	P-value	<0.001*		

The prevalence of depression in the nursing is (19.0%). 38 out of the 200 respondents met the PHQ-9 negative criteria for depression. Of the 200 participants 66 (33.0 %) scored into the minimal depression category, also scored into the mild depression category, (29.0%), but into the

moderate depression category (10.0%) but the severe depression category (9.0%) and the data ranged from(0- 24) by mean +SD (10.123±3.288), also show that X<sup>2</sup> (47.2) and is a significant while p-value =0.001

**Figure 1** Histogram with normal curve description of the PHQ-9 score prevalence of depression and frequency.



**Discussion**

A total of (200) nurses participated in the study out of invited 250 The researcher selected nurses in tow hospital in ministry of health 2 hospitals in Makkah city, Makkah city is located in Saudi Arabia. One of the most important characteristics of Makkah is its location, which is characterized

by proximity to Makkah. In our study showed that the only (45.0%) of the participated were (35-44) years while (35.0%) were (24-34), Male nursing were 110 (55.0%), while females constituted 90(45.0%) of the whole nursing. The nursing (70.0%) were Saudi while (30.0%), non-Saudi. Regarding Marital state the most of participant

married (66.0%) and (21.0%) were single. The majority of the participated they had no children had been (37.0%), followed by two children were (24.0%). The majority of the participated from King Abdul-Aziz specialists hospital were (45.0%) followed by King Faisal hospital were (33.0%). Regarding Educational level the most of participant Diploma Nursing (75.0%) and (25.0%) were Baccalaureate Nursing. (See table 1). In similar study the prevalence of depression among primary health care nurses was lower than expected, which is characterized by Makkah being a holy city and stress alleviation easily accessible by visiting the Haram Makkah AlMokarramah. This was in contrast to other studies showing lower prevalence of depressions by using different scales and different study groups.[28]. A translated Arabic version of the PHQ-9 scale was used for the study. This version has been previously tested its validity and reliability as a suitable tool for the detection of depressive symptoms in the Saudi Arabian context [29]. The PHQ-9 is self-administered instrument consists of nine items (from 1 to 9), each is based on a four-point Likert-type scale that scores for the presence of depression symptoms from zero to three as follow: “not at all”, “several days”, “more than half the days”, and “nearly every day”, respectively. Participants diagnosed with depression if their responses to the below depressive symptoms criteria were met and existing for the past two weeks. Therefore, major depressive was accounted for if the answer to item number 1 or 2 and four or more of the remaining PHQ-9 items recorded at least as “more than half the days”. Based on these criteria, a PHQ-9 score of  $\geq 10$  was used as a diagnostic cutoff point for depressive symptoms as previously recommended in the literature [30]. In the present study, we indented a combination of predicted factors associated with depression. Nurses who have Bronchial asthma to get depressive symptoms than other. Also take any kind of psychiatric medication, this association has been reported by many authors [31]. However, our result failed to determine a significant association between depression and other chronic disease and take any kind of psychiatric medication. (See table 2). Regarding depression PHQ-9 scale the majority of the nurses had the prevalence of depression in the nursing is (19.0%). 38 out of the 200 respondents met the PHQ-9 negative criteria for depression. Of the 200 participants 66 (33.0 %) scored into the minimal depression category, also scored into the mild depression category, (29.0%), but into the moderate depression category (10.0%) but the

severe depression category (9.0%) and the data ranged from (0- 24) by mean +SD (10.123 $\pm$ 3.288), also show that X<sup>2</sup> (47.2) and is a significant while p-value =0.001(see table 3). Similar findings were reported by [32] depression PHQ-9 scale i.e. about minimal depression 36.5% [32], whereas Bodhare TN et al reported it as 45%. [28] The possible explanation for this variation could be attributed to differences in the screening instruments used and social and cultural factors. In contrast, a study done in Pakistan found that the prevalence rate varied from 49% to 66% among medical students.[33] Another study has shown that 39.4% of the medical students are depressed by using the instrument Depression Anxiety Stress Scale. A study among adolescents in India showed the prevalence among college going girls as 29%. Another study done in Iran among high school and Pre-University students found out that 34% of them were depressed according to cut- off score of BDI 16.[34] (See Figure 1).

### Conclusion:

Depression is highly prevalent among physicians in major hospitals. Our findings point to the importance of broad screening and psychiatric counseling of this vulnerable nursing in major hospitals. Depression is highly prevalent among physicians one of the risk seeing more numbers of patients, therefore; need more numbers of physicians to be assigned in major hospitals to take this load out. Majority of the cases were mild to moderate cases. As screening tools, PHQ-9 correlate. Our results need further validation by conducting more studies.

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