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PREVALENCE OF DEPRESSION SYMPTOMS AND ASSOCIATED FACTORS AMONG PATIENTS VISITING THE FAMILY MEDICINE CLINICS IN THE EMPLOYEE HEALTH DEPARTMENT IN KING FAHAD MEDICAL CITY

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Abstract:

Objective: The present study aimed at measuring the prevalence of depression and identifying its associated factors among patients visiting the family medicine clinics in the employee health department in King Fahad Medical City in Riyadh city, Saudi Arabia.

Method: This was a cross-sectional study that was performed in the employee health department at King Fahad Medical City in Riyadh city. A convenient sample of 297 patients was recruited in this study. To collect data, the researchers used a questionnaire consisting of a demographic data section and the Patient Health Questionnaire-9 (PHQ-9) scale to achieve the study objectives.

Results: The results of the study showed that depression was prevalent at all levels among the study participants as follows: mild depression (27.6%), moderate depression (17.5%), moderately severe depression (6.7%), and severe depression (4.7%). In addition, the study found that there were no significant statistical differences in depression score between the enrolled patients based on employment status (p=0.92), gender (p=0.74), marital status (p=0.06), nationality (p=0.88), educational level (p=0.94), monthly income (0.41), BMI (p=0.27) and physical activity time (p=0.16).

Conclusion: The study concluded that there is an increase in moderate depression levels among the patients attending the family medicine clinic at the employee health department in King Fahad Medical city. In addition, the study concluded that patients ' employment status, gender, marital status, nationality, educational level, monthly income, BMI and physical activity time are not associated with depression levels among the study participants. The study recommended increasing patients 'awareness and knowledge regarding coping strategies and the identification of depressive symptoms and depression signs and symptoms.

Keywords: *Depression, Prevalence, employee health, PHQ-9, King Fahad Medical City.*

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INTRODUCTION:

Depression is a serious, common, and growing illness, and according to World Health Organization; depression is the leading cause of disability worldwide (Ren et al., 2017), major depression course is usually chronic and recurrent (Kessler et al., 2013), It affects the patients, their family members, and it imposes a great economic burden on the country directly by spending 22.8 billion on depression treatment, or indirectly; 23 billion as a cost of lost productivity in USA (Gallup et al., 2019).

Depression prevalence varies widely between countries (Kessler et al., 2013), in a large systematic review and meta-analysis published in August 2017 they found the estimated pooled prevalence of depression among outpatients to be 27%, with a huge variation between different specialties ranging from 17.0% to 53.0% (Wang et al., 2017). The National Institute of Mental Health reported that 6.7% of all U.S. adults had at least one major depressive episode in 2016 (Nakic et al., 2022), In Saudi Arabia, there is no large well conducted a community-based study to estimate the prevalence of depression in the general population, on the other side, many studies are conducted to estimate the prevalence of depression among patients with a specific disease or occupation, like sickle cell disease (Alsubaie et al., 2018), chronic renal disease (Hawamdeh et al., 2017), chronic pain (Abolkhair et al., 2018), plastic surgery residents (Andejani et al., 2017), type 2 diabetes mellitus (Albasheer et al., 2018), health-care givers of disabled patients (Alzahrani et al., 2017), end-stage renal disease (Turkistani et al., 2014), pregnant women attending the antenatal care clinics in primary health care centers (Bawahab et al., 2017), migrant workers (Nadim et al., 2016), dermatology patients (Ahmed et al., 2016), medical students (Kulsoom & Afsar, 2015), obstructive sleep apnea (BaHammam et al., 2015), gastroenterological patients (Alosaimi et al., 2014), secondary school girls (Al Gelban, 2009), social anxiety disorder (Bassiony, 2005), and many other studies to estimate the prevalence in a specific population.

In 2016 the US Preventive Services Task Force (USPSTF) recommended screening for depression in the general adult population, including pregnant and postpartum women (Siu et al., 2016), and since it can be reliably diagnosed and treated by primary health physicians (Ansseau et al., 2004; Wahlbeck, 2015), we have to consider implementing screening and management programs for depression in our primary care centers, and the first step for this project is to know the magnitude and extent of depression in our population by estimating its prevalence. Thus, the present study sought to measure the prevalence of depression and identify its associated factors among the patients visiting the family medicine clinics.

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MATERIALS AND METHODS:

The research will be conducted using a cross-sectional study, and the planned overall duration is going to be around 10 months including data collection, data analysis, and writing the final paper.

Target Population: Data were collected over a pre-determined duration from all adult patients visiting the family medicine clinics in the employee health department, King Fahad Medical City, Riyad, Saudi Arabia by using a validated self-administered questionnaire.

Inclusion Criteria: Adults (>18 years), **Exclusion Criteria:** Adolescents and Pediatrics (< 18).

Sampling procedure and sample size:
Convenient sampling was used in the present study. The sample size was calculated using a single proportion estimation equation, and the prevalence which was found to be 25.5% in a similar study done in Zagreb, Croatia* was used in this equation to give us an estimation of 297 as our targeted sample size.

Data collection instrument :
Data were collected using Patient Health Questionnaire – 9 (PHQ-9), which is a validated depression screening tool it is used to assist clinicians in making the diagnosis of depression, quantifying depression symptoms and monitoring severity. The PHQ-9 is a 9-question instrument given to patients in a primary care setting to screen the presence and severity of depression. The Arabic version of the PHQ-9 was used in the present study to collect data from the study participants. The Arabic version was validated in Al-Hadi et al (2017) study. The reliability score of the questionnaire was 0.857 using Cronbach's Alpha coefficient method. Moreover,. demographic and clinical characteristics of the study participants were rewcorded. It elicited data regarding participants 'age, gender, occupation, marital status, educational level, nationality, physical activity, and the presence of specific disorders, such as DM, hypertension, dyslipidemia, etc.

Data collection procedure:
The consent form was added at the beginning of the questionnaire as the participants were required to agree to participate in the study to get access to the study questionnaire. The study questionnaire link was

distributed to the possible subjects through social media platforms. The participants received a brief introduction to the study objectives and significance before starting to fill in the questionnaire items.

Ethical considerations:

The study included some ethical considerations, including obtaining written informed consent from the study participants to include them in the study. In addition, the researchers obtained ethical approval from the Institutional Review Board (IRB) at King Fahad Medical City (IRB Registration number: H-01-R-012). Moreover, the researchers ensured the privacy and confidentiality of the study participants 'identities and responses throughout and during the study procedure. Also, the researchers obtained permission to use the PHQ-9 questionnaire from the authors.

Data Analysis:

The study used the Statistical Package of Social Science (SPSS) (v. 26.0, IBM Corp, NY, USA). Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to analyze the participants 'demographic characteristics and responses to the PHQ-9 items. In addition, independent samples t-test and One-Way analysis of variance (ANOVA) were used to identify any significant statistical differences in depression scores based on the participants 'demographic

characteristics. A statistical significance threshold of ($\alpha \leq 0.05$) was used in this study.

RESULTS:

A total of 297 patients were recruited in the present study. The mean age score of the study participants was (36.6 ± 10.8). Females constituted about 71.7% (n=213) of the total study participants. Distributing the study participants based on their occupation revealed that nurses were the most represented category (23.6%, n=70), followed by office-based employees (20.2%, n=60) and healthcare workers (14.1%, n=42) (Table 1).

The married patients constituted 63.3% (n=186), whereas single patients were ranked second with a percentage of 31.3% (n=92). Around 67 % (n=197) and 18% (n=52) were bachelor degree holders and diploma A total of 136 (47.6%) practice physical activity for lessthan 30 minutes per week, whereas 27.6% (n=79) and 11.2% (n=32) practice physical activity in a range of 30-90 minutes per week and more than 150 minutes per week, respectively.

The mean BMI score was (27.6 ± 5.5). Underweight patients constituted 3.2% (n=9), whereas normal and overweight patients constituted 31.8% (n=90) for each category.

Table 1: Socio-demographic characteristics of the recruited medical residents (n=297)

Variable	M±SD	F (%)
Age`	36.6± 10.8	

Gender
       Male
   Female
		84 (28.3)
		213 (71.7)

Occupation
    Healthcare worker
    Housewife
    Nurse
    Office-based
    Physical therapists
    Physician
    Radiation technician
    Retired
    Student
    Trainee
    Other
		42 (14.1)
		20 (6.7)
		70 (23.6)
		60 (20.2)
		1 (0.3)
		20 (6.7)
		1 (0.3)
		9 (3.0)
		1 (0.3)
		23 (7.7)
		19 (16.4)

Variable	M±SD	F (%)
Marital Status Married Single Widowed Divorced		186 (63.3) 92 (31.3) 13 (4.4) 3 (1)
Educational Level Illiterate Diploma Bachelor Higher studies		3 (1) 52 (17.8) 197 (67.2) 41 (14)
Nationality Saudi Non-Saudi		207 (69.9) 89 (30.1)
Physical Activity Time Never < 30 min/week 30-90 min/week 90-150 min/week >150 min/week		11 (3.9) 136 (47.6) 79 (27.6) 28 (9.8) 32 (11.2)
Monthly income None < 10,000 SAR 10,000-15,000 15,000-20,000 20,000-25,000 > 25,000		14 (4.9) 134 (47.2) 73 (25.7) 35 (12.3) 12 (4.2) 16 (5.6)
BMI Underweight Normal Overweight Obesity class 1 Obesity class 2 Extreme obesity class 3	27.6±5.5	9 (3.2) 90 (31.8) 90 (31.8) 70 (24.7) 18 (6.4) 6 (2.1)

About 13% (n=38) had previous depression and 8.8% (n=26) had received treatment. Twenty- two (7.4%) patient were diabetic, 10.8% (n=32) were hypertensive, 14.9% (n=44) and 4% (n=12) had other disorders (table 2).

Table 2: Presence of different disorders among the study participants (n=297).

Disorder	Yes	No
Previous depression	38 (12.8)	259 (87.2)
Received treatment	26 (8.8)	271 (91.2)
Diabetes Miletus (DM)	22 (7.4)	275 (92.6)
Hypertension (HTN)	32 (10.8)	265 (89.2)
Dyslipidemia (DLD)	44 (14.9)	253 (85.1)
Hypothyroidism	28 (9.5)	269 (90.5)
Bronchial Asthma	17 (5.7)	280 (94.3)
Other disorders	12 (4)	

The results presented in table (3) show that 39.4% (n=117) had little interest in doing things for several days, whereas 37.7% (n=112) had not at all little interest in doing things. In addition, it was found that 40.7% (n=121) felt down or depressed for several days during the last two weeks. Moreover, it was found that 43.1% (n=128) had no trouble falling asleep or sleeping too much during the last two weeks. Further, the results showed that during the last two weeks, about 41.8% (n=124) felt tired or low energy, 42.4% (n=126) had no poor appetite or overeating, 56.6% (n=168) did not feel bad about themselves, 55.9% (n=166) had no troubles of concentration when doing simple activities such as reading a newspaper, 73.4% (n=218) had not at all any psychomotor problems, such as to move or speak slowly, and 88.9% (n=264) had no suicidal thoughts or thoughts of hurting themselves.

Table 3. Participants 'responses to the Patient Hospital Questionnaire domains (n=297)

Domain	Not at all	Several days	More than half the days	Nearly every day
Little interest or pleasure in doing things	112 (37.7)	117 (39.4)	39 (13.1)	29 (9.8)
Feeling down, depressed, or hopeless	114 (38.4)	121 (40.7)	45 (15.2)	17 (5.7)
Trouble falling or staying asleep, or sleeping too much	128 (43.1)	88 (29.6)	47 (15.8)	34 (11.4)
Feeling tired or having little energy	68 (22.9)	124 (41.8)	74 (24.9)	31 (10.4)
Poor appetite or overeating	126 (42.4)	96 (32.3)	41 (13.8)	34 (11.4)
Feeling bad about yourself — or that you are a failure or have let yourself or your family down	168 (56.6)	73 (24.6)	32 (10.8)	24 (8.1)
Trouble concentrating on things, such as reading the newspaper or watching television	166 (55.9)	82 (27.6)	27 (9.1)	22 (7.4)
Moving or speaking so slowly that other people could have noticed?	218 (73.4)	49 (16.5)	16 (5.4)	14 (4.7)
Thoughts that you would be better off dead or of hurting Yourself in some way	264 (88.9)	23 (7.7)	6 (2)	4 (1.3)

The results presented in table (4) show the prevalence rates of depression among the study participants. one hundred twenty-nine (43.5%) had minimal or no depression, 27.6% (n=82) had mild depression, and 4.7% (n=14) had severe depression.

Table 4. Prevalence of depression among the recruited patients visiting the family medicine clinics (n=297)

Domain	N	%
None-minimal	129	43.5
Mild	82	27.6
Moderate	52	17.5
Moderately severe	20	6.7
Severe	14	4.7

The results presented in table (5) show the independent samples t-test and One-way Analysis of Variance (ANOVA) test results for the association of the patient's demographic variables and the depression score. The results revealed that there were no significant statistical differences in depression score between employed (7.04±5.94) and non-employed (6.83±5.47) patients (p=0.92).

In addition, it was found that there were no significant statistical differences in depression score between male (6.93±6.39) and female (6.31±5.59) patients (p=0.74). Moreover, it was found that there were no significant statistical differences in depression scores between married (6.31±5.42), single (7.42±6.24), widowed (9.62±6.40) and divorced (12.67±7.77) patients (p=0.06).

Furthermore, it was found that there was no significant statistical difference in the depression score between Saudi (7.66±5.79) and non-Saudi (5.17±5.57) patients (p=0.88). The findings showed that there were no significant statistical differences in depression scores between illiterate (9.33±8.39), diploma-holding (6.85±5.91), bachelor degree holding (7.02±5.88), and higher studies (6.71±5.50) patients (p=0.94).

Investigating the significant statistical differences in depression scores based on the enrolled patients' monthly income revealed that there were no significant statistical differences in depression scores between those having no income (7.14±596), less than 10.000 SAR (6.40±5.80), 10.000-15.000 SAR (7.59±5.57), 15.000-20.00 SAR (7.51±6.49), 20.000-25.000 SAR (6.17±6.62), and more than 25.000 SAR patients (p=0.41).

Besides, it was found that there were no significant statistical differences in depression scores between underweight (5.11±4.43), normal weight (6.60±5.39), overweight (5.98±5.42), class I obese (8.30±6.8), class II obese (7.94±6.50), and class III obese (4.50±2.66) patients (p=0.27).

Finally, the results revealed that there were no significant statistical differences in depression scores between patients who never practiced physical activities (5.00±6.74), patients who practiced physical activities for less than 30 minutes per week (7.48±5.99), 30-90 minutes per week (6.33±5.41), 90-150 minutes (5.61±5.35), and more than 150 minutes per week (p=0.16).

Table 5. Independent samples t-test and ANOVA results to assess differences in depression scores based on demographic variables (n=297)

Variable	Categories	M	SD	P value
Employment	Yes	7.04	5.94	0.92
	No	6.83	5.47	
Gender	Male	6.93	6.39	0.74
	Female	6.91	5.59	
Marital Status	Married	6.31	5.42	0.06
	Single	7.42	6.24	
	Widowed	9.62	6.40	
	Divorced	12.67	7.77	
Nationality	Saudi	7.66	5.79	0.88
	Non-Saudi	5.17	5.57	
Educational Level	Illiterate	9.33	8.39	0.94
	Diploma	6.85	5.91	
	Bachelor	7.02	5.88	
	Higher studies	6.71	5.50	
Monthly Income	None	7.14	5.96	0.41
	< 10,000 SAR	6.40	5.80	
	10,000-15,000	7.59	5.57	
	15,000-20,000	7.51	6.49	
	20,000-25,000	6.17	6.62	
	> 25,000	6.88	5.85	
BMI Category	Underweight	5.11	4.43	0.27
	Normal	6.60	5.39	
	Overweight	5.98	5.42	
	Obesity class I	8.30	6.80	
	Obesity Class II	7.94	6.50	
	Extreme obesity class III	4.50	2.66	
Physical activity time	Never	5.00	6.74	0.16
	< 30 min/wk	7.48	5.99	
	30-90 min/wk	6.33	5.41	

	90-150 min/wk	5.61	5.35	
	>150 min/wk	6.78	5.39	

DISCUSSION:

The present study sought to investigate the prevalence of depression and its associated factors among patients attending the family medicine clinics in the employee health department at King Fahad Medical city. The findings of the study showed that there is a significant prevalence of depression at moderate, moderately severe and severe levels among the enrolled patients. The significant prevalence of moderate depression is an alarming issue that indicates the likelihood of developing moderately severe and severe depression. A possible explanation of the study findings might be that the majority of the recruited patients were healthcare workers especially since the setting of the study is the family medicine clinics in the employee health departments, which receive patients from the healthcare setting employees, which makes the findings of the study closer to depression levels among healthcare workers. Therefore, the existing depression prevalence, at moderate, moderately severe, and severe, could be of occupation and work-related sources, especially in light of the previous reports highlighting the increased prevalence of psychological disturbances in the healthcare environment. This is evidenced by the findings reported by Almarhapi & Khalil (2021), which pointed to a significant level of depression among healthcare workers in Saudi Arabia. In addition, these findings are supported by the results reported by Abo-Ali et al (2021), which highlighted the prevalence of depression among healthcare workers in Saudi Arabia.

The prevalence of depression among the patients enrolled in this study, which included a high majority of healthcare workers, might be referred to the negative effects of occupational stress experienced by those healthcare workers. In clinical settings, occupational stress among healthcare workers has been reported. Stress is an expression used by any individual in different aspects of the environment, either academic, social, or employment settings, especially in psychiatric hospitals. Healthcare professions are stressful jobs, which could be a critical factor that can affect any healthcare organization (Abdalrahim, 2013; Yoshizawaa, 2016). It has been found that most people at significant risk of being negatively affected by stress at the workplace are healthcare providers (Lukose, 2015; Jafari et al., 2017; Teixeira et al., 2017).

Moreover, a possible source of depression among the enrolled patients might be the presence of different disorders, such as DM, hypertension, dyslipidemia, bronchial asthma, and others. This is supported by the findings reported by Seo et al (2017) highlighting the significant association between multiple chronic diseases and the increased risk of depressive symptoms among adult patients.

The findings of the present study indicated that there was no significant association between employment, gender, marital status, nationality, educational level, monthly income, BMI, and physical activity on one hand, and depression on the other hand. This result might be contradictory to most of the studies examining the association between these variables, as different studies reported a significant association between depression and these demographic variables. However, the researchers found no research-based evidence to justify that result. The findings of the present study are contradictory to the findings reported by Salk et al (2017), which provided research-based evidence that there were significant statistical differences in depression and depressive disorders between males and females, as they were more prevalent among females. In addition, the findings of this study are consistent with the findings reported by Sonbol et al (2021) who found that there were no significant statistical differences in depression based on a marital status variable. Moreover, the results of this study were inconsistent with the findings reported by Cohen et al (2020) who found that depression level differs significantly among different categories of participants 'educational level.

Despite the updated data provided in this study regarding the prevalence of depression and its associated factors among patients visiting the family medicine clinic at the employee health department at King Fahad Hospital, still there are several limitations that could limit the generalizability of the study findings. First is the geographical limitations, as the present study was performed in King Fahad Hospital in Riyadh city, which makes the findings more specific to the setting of the study and restricted to a narrow geographical zone. A second limitation is the psychometric properties of the data collection instrument, as most of the enrolled patients are healthcare workers, it could be more beneficial if an instrument specific to measure depression among healthcare workers is used.

However, the study still has strong points including that it is one of the few studies that examine and measure the level of depression among patients attending the family medicine clinic at the employee health department. In addition, this study examines the association between depression and several demographic variables that were investigated separately in different studies.

CONCLUSION:

The present study concluded that there is a significant prevalence rate of depression among patients attending the family medicine clinics at the employee health department. The study findings are alarming and highlight the likelihood of increasing levels of depression shortly due to the elevated levels of moderate depression among those patients, which requires more attention and care for the employees' health. The study recommends conducting further studies to measure the prevalence of depression and its associated factors among patients attending family medicine clinics, in addition, to conduct focused studies that measure the level of depression among nurses, physicians and other categories of healthcare workers in different healthcare facilities in Saudi Arabia.

Authors 'contribution :
The authors would like to declare that all authors had contributed equally in producing this research paper. The authors collaboratively formulated the research problem, reviewed the literature, formulated the research question, designed the procedure of the study, performed the data collection process, analyzed the participants 'responses, interpreted the results and drawn conclusions.

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