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Depression and antidepressant use among Iraqi doctors, an investigative study using beck depression inventory

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Abstract

Introduction: Doctors are more likely to experience depression because they are subjected to more stress at work than members of many other professions. Long hours, heavy workloads, increasing severity and difficulty of the work and ongoing patient interaction with illness and emergencies, high level of accountability, fast shift within healthcare, organizational limitations such as discriminatory practices and intimidation a lack of independence, inadequate assistance, a decrease in job satisfaction, low morale, and an inability to handle personal responsibilities are just some of the stresses that healthcare workers face.

Objectives: The present study aims to evaluate the prevalence of depression and antidepressant utilization among Iraqi doctors, an investigative study using the Beck Depression Inventory.

Method: This is a cross-sectional study with a convenience sample conducted on Iraq's medical population using a multi-item questionnaire over 6 months (March – September 2022). Beck's Depression Inventory was used, which contains 21 questions. We used this scale to screen for depression based on self-report. The answers were collected by an online questionnaire that was aimed at the medical population. The test link was distributed amongst doctors groups and answers were limited to one response.

Results: The results revealed that there was a high prevalence of depression and use of antidepressants among Iraqi doctors

Conclusion: Due to the stressful nature of their line of work, doctors have a higher risk of developing depression and are more likely to seek treatment with antidepressants.

Keywords: Antidepressants; Beck Depression Inventory; Doctors; Physician; Depression

1. Introduction

With the higher rates in North America, Latin America, and Australasia, the global burden of mental disorders has grown from 80.0 million disability-adjusted life-years in 1990 to 125.3 million in 2019. The majority of the time; psychotropic drugs are used to treat these ailments. [1]

High-income nations are the most likely to make use of this treatment method. For instance, the number of people who take antidepressants, particularly those that have been developed more recently, is anywhere from two to four times higher in high-income nations than in low-income nations. Because people in countries with lower incomes sometimes

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have less access to treatment because mental health facilities are less readily available than in countries with higher incomes. [2]

Antidepressant use was more common among those with poor health and multi-morbidity in 2019 than it was in 2015, but it was comparatively low among those without employment and informal workers. [2]

The use of psychotropic medications was significantly lower among young adults, individuals without a partner, and individuals working in informal employment, while it was significantly higher among individuals with poor health, who had visited a doctor and an orthodontist in the previous year, and individuals with multiple medical conditions. [3]

The present study aiming at evaluating the prevalence of antidepressants utilization among Iraqi doctors, an investigative study using Beck Depression inventory.

2. Method

2.1. Study design

A cross-sectional study with a convenience sample conducted among Iraqi medical population using a multi-item questionnaire over 6 months starting from March 2022 to September 2022. To collect the data of the study Beck's Depression Inventory was used. The inventory consisted of 21 questions which we used to screen for depression based on self-report. The answers were collected by an online questionnaire that was aiming at the medical population. The test link was distributed amongst doctors' groups and answers were limited to one response.

2.2. Statistical analysis

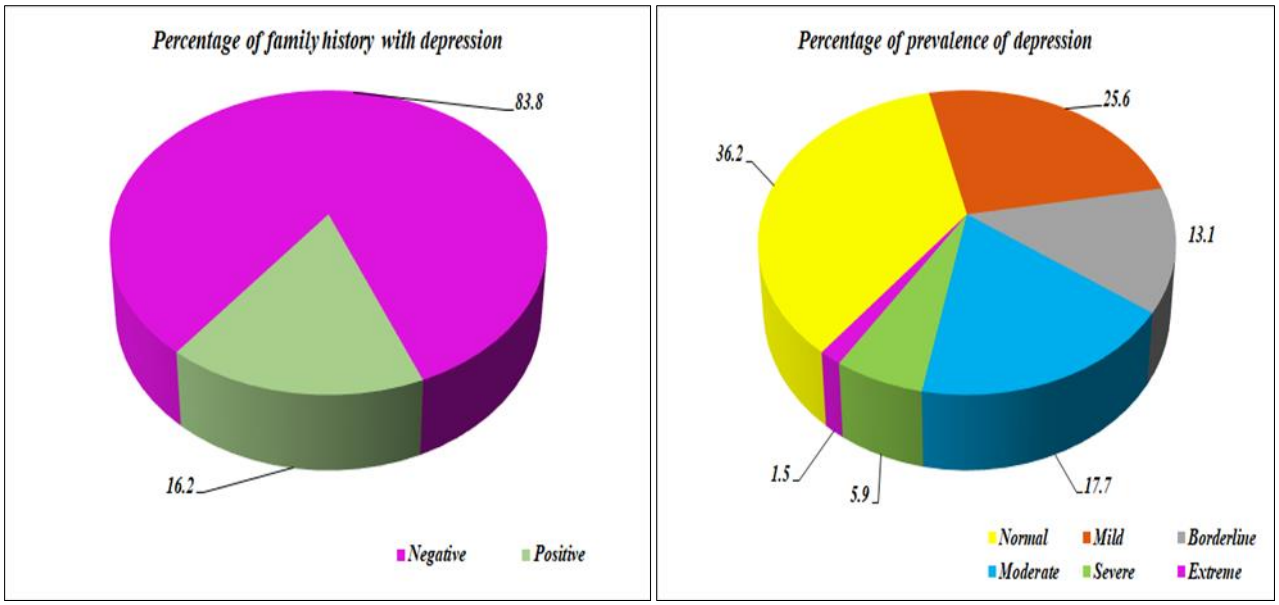
Data was expressed by using frequencies and percentages of participant characteristics. Version 22.0 of the Statistical Package for the Social Sciences (SPSS) program for Windows (IBM, USA) was used to analyze the data.

The chi-square test was used to examine the relationship between two qualitative variables. Fisher's exact test was used to examine the relationship between two qualitative variables when the expected count is less than 5 in more than 20% of cells. Multiple linear regression analysis was used to measure the relationship between the independent factors (age, gender, marital status, family history with depression, and experiencing chronic disease(s)) and the outcome variable (levels of depression). The statistically significant value was $P < 0.05$

3. Results

The sample of the study was 4306 doctors aged between 24 and over 60 years old. Male and female doctors participated in the study with percentages of (31.6%) and (68.4%) respectively. 83.8% of the participants had no family history of depression, while 16.2% had a depression history. Figure (1). The prevalence of depression among Iraqi doctors is demonstrated in Figure (2)

The used antidepressants varied among doctors. The results revealed that the most prevalent antidepressant was Fluoxetine (36.4%) followed by Sertraline (24.5%) and Escitalopram *(*21.8%). More antidepressants were used by the doctors in this study as mentioned in Table (1).



A B

Figure 1 (A) Family history of depression among Iraqi doctors. (B) Prevalence of depression among Iraqi doctors.

Table 1 The participant characteristics among Iraqi doctors

	Iraqi doctors n = 4306	
	Number	**Percent**
Age		
24 – 25	756	17.6
26 – 32	2676	62.1
33 – 40	667	15.5
41 – 50	167	3.9
51 – 60	36	0.8
More than 60	4	0.1
Gender		
Male	1362	31.6
Female	2944	68.4
Marital status		
Single	2166	50.3
Married	2059	47.8
Other	81	1.9
Profession		
Intern doctor	1685	39.1
Junior doctor	1449	33.7
General Physician	551	12.8
Specialist doctor	621	14.4

Diagnosed with depression	**318**	**7.4**
Doctors not using anti-depressants	208	65.4
Doctors using anti-depressants	**110**	**34.6**
Treatment n = 110		
Amoxapine	1	0.9
Citalopram	5	4.5
Desipramine	2	1.8
Escitalopram	24	21.8
Fluoxetine	40	36.4
Nortriptyline	4	3.6
Paroxetine	5	4.5
Sertraline	27	24.5
Venlafaxine	1	0.9
Other treatment	36	32.7
Family history of depression	697	16.2
Other disease	**627**	**14.6**
Respiratory diseases	137	21.9
Cardiovascular Diseases	120	19.1
Diseases of the digestive system	124	19.8
Obesity	134	21.4
Cancer	14	2.2
Seizures	12	1.9
Arthritis	90	14.4
Hemorrhagic diseases	11	1.8
Diabetes	56	8.9
Oral health problems	62	9.9
Hypothyroidism	86	13.7
Dyslipidymia	32	5.1
Chronic kidney disease	6	1.0
Multiple sclerosis +Parkinson’s disease	5	0.8
Prevalence of depression		
Normal	1560	36.2
Mild Mood Disturbance	1104	25.6
Borderline Depression	563	13.1
Moderate Depression	762	17.7
Severe Depression	254	5.9
Extreme Depression	63	1.5

The study participants were young people more than 75% less than 33 years. The study included 68.4% females and 31.6% males. The study included 39.1% of participants who were intern doctors, 33.7% were juniors, 14.4% were specialist doctors, and only 12.8% were general physicians. The family history of depression was 16.2% of participants. Approximately 14.6% of the participants suffered from one or more chronic diseases. including respiratory diseases, cardiovascular diseases, diseases of the digestive system, obesity, cancer, seizures, arthritis, hemorrhagic diseases, diabetes, oral health problems, hypothyroidism, dyslipidemia, chronic kidney disease, and multiple sclerosis. Depending on the BDI more than half (63.8%) of the participants reported having some degree of depression symptoms, 1560 (36.2%) had a normal range score, 1104 (25.6%) a mild range score, 563 (13.1%) a borderline range score, 762 (17.7%) a moderate range score, 254 (5.9%) a severe range score, and 63 (1.5%) an extreme range depression score. The majority (88.5%) of those reporting depression symptoms (N=2746) reported mild, borderline, or moderate symptoms. Table 1

The study showed that 72.5 % (N=1991) of the participants with depression symptoms were women and 27.5 % (N=755) were men. The study showed that most of the participants were young people 61.5% (N=1688) ranged from 26-32 years. The study showed a statistically significant difference between patients with depression and non-depression regarding marital status, 52.5% of depressions were single compared to 52.6% of non-depression were married. Table (2)

Table 2 Association of depression with demographic data

	Depression		**Chi-Square p-value**
	Normal n = 1560	**Abnormal n = 2746**	
	N. (%)	**N. (%)**	
Age (years)			
24 - 25	261 (16.7%)	495 (18.0%)	Chi-Square=2.681 p-value=0.749
26 - 32	988 (63.3%)	1688 (61.5%)	
33 - 40	234 (15.0%)	433 (15.8%)	
41 - 50	60 (3.8%)	107 (3.9%)	
51 - 60	15 (1.0%)	21 (0.8%)	
More than 60	2 (0.13%)	2 (0.07%)	
Gender			
Male	607 (38.9%)	755 (27.5%)	Chi-Square=59.95 p-value<0.001*
Female	953 (61.1%)	1991 (72.5%)	
Marital status			
Single	724 (46.4%)	1442 (52.5%)	Chi-Square=30.2 p-value<0.001*
Married	821 (52.6%)	1238 (45.1%)	
Other	15 (1.0%)	66 (2.4%)	

* Significant ≤0.05

The study showed that there was a statistically significant difference between patients with and without depression regarding chronic disease, 16.5% of patients with depression had chronic diseases compared to 11.2% without depression. Patients with depression had one or more chronic diseases, 23.6% had diseases of the digestive system, 23% with obesity, 22.5% had respiratory disease, 15% with cardiovascular, 15.2% had arthritis, 11.9% had oral health problems, 11.9% had hypothyroidism, and other diseases. Table (3)

Table 3 Association of depression with chronic diseases

	Depression		**Test (p)**
	Normal n = 1560	Abnormal n = 2746	
	Num. (%)	Num. (%)	
Other diseases (Chronic diseases)			
No	1386 (88.8%)	2293 (83.5%)	Chi-Square=22.83, p<0.001*
Yes	174 (11.2%)	453 (16.5%)	
Respiratory diseases	35 (20.1%)	102 (22.5%)	Chi-Square=0.425, p=0.515
Cardiovascular Diseases	52 (29.9%)	68 (15.0%)	Chi-Square=17.97, p<0.001*
Diseases of the digestive system	17 (9.8%)	107 (23.6%)	Chi-Square=15.2, p<0.001*
Obesity	30 (17.2%)	104 (23.0%)	Chi-Square=2.445, p=0.118
Cancer	7 (4.0%)	7 (1.5%)	Chi-Square=3.53,FEp=0.072
Seizures	1 (0.6%)	11 (2.4%)	Chi-Square=2.30, FEp=0.195
Arthritis	21 (12.1%)	69 (15.2%)	Chi-Square=1.023, p=0.312
Hemorrhagic diseases	1 (0.6%)	10 (2.2%)	Chi-Square=1.944, FEp=0.306
Diabetes	17 (9.8%)	39 (8.6%)	Chi-Square=0.208, p=0.648
Oral health problems	8 (4.6%)	54 (11.9%)	Chi-Square=7.565, p=0.006*
Hypothyroidism	32 (18.4%)	54 (11.9%)	Chi-Square=4.447, p=0.035*
Dyslipidymia	9 (5.2%)	23 (5.1%)	Chi-Square=0.002, p=0.961
Chronic kidney disease	0 (0.0%)	6 (1.3%)	Chi-Square=2.327, FEp=0.194
Multiple sclerosis	0 (0.0%)	4 (0.9%)	Chi-Square=1.546, FEp=0.580
Parkinson's disease	0 (0.0%)	1 (0.2%)	Chi-Square=0.385, FEp=1.0

*Significant ≤0.05

The study showed that there was a statistically significant difference between patients with and without depression regarding the difficulty in concentration, fatigue, and health of doctors, According to patients with depression had difficulty concentrating, 37.7% answered "It takes an extra effort to get started at doing something", 33.8% was "I can work about as well as before", 26.1% were "I have to push myself very hard to do anything", and only 2.3% were answered, "I can't do any work at all". Figure (2)

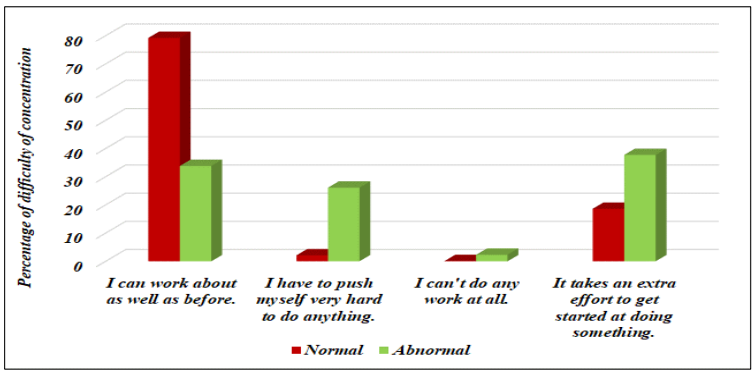


Figure 2 Association of depression with difficulty of concentration

According to fatigue, 53% answered were "I get tired more easily than I used to", 23% answered "I get tired from doing almost anything", 6.1% answered "I am too tired to do anything", and 17.9% answered "I don't get more tired than usual" Figure (3)

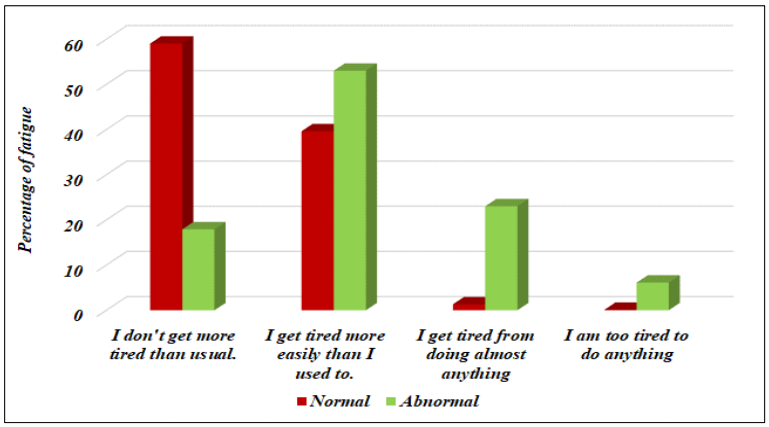


Figure 3 Association of depression with fatigue

According to questions of health, 52.8% of patients with depression answered "I am no more worried about my health than usual" versus 85.8% of patients without depression, 3.9% of a patient with depression answered "I am so worried about my physical problems that I cannot think of anything else" versus 0.4% from patients without depression, 14.5% from a patient with depression answered "I am very worried about physical problems and it's hard to think of much else" versus 1.3% from patients without depression, 28.8% from a patient with depression answered "I am worried about physical problems like aches, pains, upset stomach, or constipation" versus 12.4% from patients without depression. Table (4), figure (4)

Table 4 Association of depression with difficulty of concentration, fatigue, and health of doctors

	Depression			
	Normal (n = 1560)		**Abnormal (n = 2746)**	
	Number	**Percent**	**Number**	**Percent**
Difficulty of concentration				
I can work about as well as before.	1236	79.2	928	33.8
I have to push myself very hard to do anything.	32	2.1	718	26.1
I can't do any work at all.	2	0.1	64	2.3
It takes an extra effort to get started at doing something.	290	18.6	1036	37.7
Test (p)	**Chi-Square=890.1 ,p<0.001***			
Fatigue				
I don't get more tired than usual.	920	59.0	491	17.9
I get tired more easily than I used to.	618	39.6	1455	53.0
I get tired from doing almost anything	20	1.3	632	23.0
I am too tired to do anything	2	0.1	168	6.1
Test (p)	**Chi-Square=950.4, p<0.001***			
Health				
I am no more worried about my health than usual.	1339	85.8	1449	52.8
I am so worried about my physical problems that I cannot think of anything else.	6	0.4	108	3.9
I am very worried about physical problems and it's hard to think of much else.	21	1.3	398	14.5
I am worried about physical problems like aches, pains, upset stomach, or constipation.	194	12.4	791	28.8
Test (p)	**Chi-Square=508.6, p<0.001***			

*Significant ≤0.05

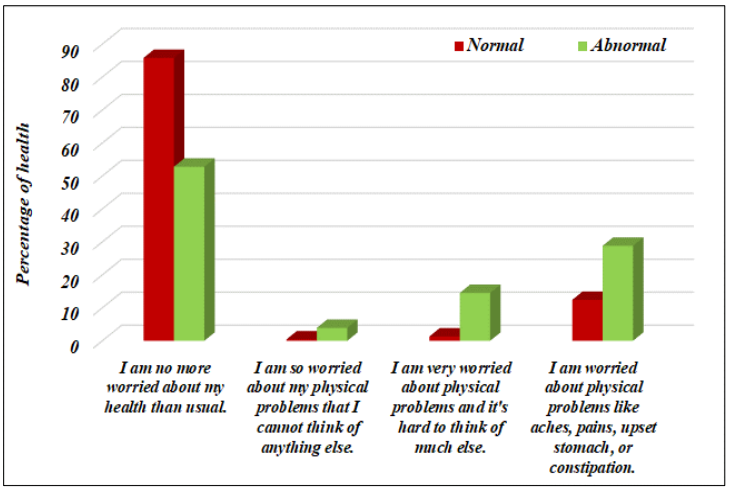


Figure 4 Association of depression with health

The study showed that 38.3% (N=1052) of patients with depression were junior doctors, 34.3% (N=942) were intern doctors, 13.8% (N=380) were general physicians, and 13.5% (N=372) were specialist doctors. 13.2% were Pediatrics specialists, 11.8% were obstetrics and gynecologists, 8.6% were internal medicine, 6.5% were anesthesia and intensive care specialists, 6.5% were radiology, 5.1% were general surgery, etc. Table (5)

Table 5 Association of depression with branches of medicine for specialist doctors only

	Depression			
	Normal n = 1560		Abnormal n = 2746	
	Number	Percent	Number	Percent
Profession				
Junior doctor	633	40.6	1052	38.3
Intern doctor	507	32.5	942	34.3
General physician	171	11.0	380	13.8
Specialist doctor	249	16.0	372	13.5
Test (p)	Chi-Square=12.725, p=0.005*			
Branches of medicine for specialist doctors only				
Paediatrics	29	11.6	49	13.2
Obstetrics and Gynaecology	21	8.4	44	11.8
Internal medicine	23	9.2	32	8.6
Anaesthesia and intensive care	22	8.8	24	6.5
Radiology	22	8.8	24	6.5
General Surgery	21	8.4	19	5.1
Dermatology	6	2.4	15	4.0
Neurosurgery	1	0.4	2	0.5
Paediatric Surgery	1	0.4	6	1.6
ENT	4	1.6	10	2.7
Rheumatology	6	2.4	13	3.5
Orthopaedic surgery and fractures	8	3.2	5	1.3
Neuromedicine	4	1.6	5	1.3

Urology	1	0.4	7	1.9
Clinical Haematology	4	1.6	3	0.8
Psychiatry	4	1.6	1	0.3
Oncology	4	1.6	5	1.3
Ophthalmology	3	1.2	9	2.4
Cardiovascular surgery	0	0.0	2	0.5
Emergency	3	1.2	1	0.3
Other	62	24.9	96	25.8

*Significant ≤0.05

Depending on Multiple linear regression analysis reveals a significant difference (P-value < 0.05). Gender and depression symptoms were significantly correlated (female individuals scored higher on the BDI than male participants). Symptoms of depression and marital status were significantly correlated (those who were single or of other status scored higher on the BDI than those who were married). A family history of depression was positively correlated with symptoms of depression. Lastly, there is a positive correlation between having a chronic illness and having higher Beck Depression Inventory scores.

Table 6 The multiple linear regression analysis of factors influencing the level of depression

Factors	**Standardized Coefficients Beta**	**P-value**	**95.0% Confidence Interval for Beta**	
			Lower Bound	Upper Bound
Age	-0.018	0.530	-0.074	0.038
Gender	0.323	<0.001*	0.239	0.406
Marital status	0.222	<0.001*	0.138	0.306
Family history	0.217	<0.001*	0.111	0.322
Chronic disease	0.447	<0.001*	0.336	0.558

*Significant (P-value < 0.05). Gender:(Male is the reference), Marital status (Married is the reference) Level of expressions (Normal=0, Mild =1, Moderate=2, Severe=3, Extreme =4)

4. Discussion

In their report issued in 2020, the CDC revealed the increased rate of using antidepressants worldwide. The report revealed that the percentage of adults who have recently used antidepressants (13.2%) increased between 2015 and 2018. A larger percentage of women (17.7%) reported use than men (8.4%). In addition; the report pointed to the prevalence of antidepressants among adults aged 18–39 was the highest rate of antidepressant use (7.9%), followed by those aged 40–59 (14.4%), and those aged 60+ (19.0%). For both sexes, depression drug use increased with age. The percentage of men who used was lowest (5.5% of those 18-39) and highest (12.8% of those 60+). Statistics show that among women, consumption increased from 10.3% among those aged 18-39 to 24.3% among all those aged 60 and up. In every age group, females used antidepressants at higher rates than males [4].

Antidepressants are the medication of choice when it comes to the treatment of mental health conditions. These drugs are also frequently used for purposes other than treating mental illness, a practice known as "off-label" usage. Even though the number of prescriptions written for antidepressants has increased over the last several decades, there has been no exhaustive research done on the widespread usage of antidepressants in the general population [5-7].

More than 280 million people all around the world suffer from depression. Swings in mood and transitory emotional responses to everyday pressures are not analogous to the incapacitating low that is characteristic of depression. [8]. When it happens regularly and the severity of it ranges from mild to severe, depression can constitute a threat to a person's life. It has the potential to cause serious anguish and impede a person's capacity to perform in many facets of life, including their professional, academic, and interpersonal responsibilities [9].

Despite the availability of effective therapies, more than 75% of people living in low- and middle-income countries do not seek help for their mental health issues. [10] This is although there are treatments accessible. [11]

A lack of effective treatment is caused in part by the social stigma that is linked to mental illnesses, a paucity of educated healthcare providers, and a deficiency in the amount of resources that are accessible. Antidepressants are prescribed to those who do not have depression, and those who do not have depression are occasionally mistakenly diagnosed as having depression and given antidepressants; this occurs in nations with different levels of financial development. [12]

These disorders are typically treated with psychotropic medications, which are more widely utilized in high-income countries. For instance, antidepressant use is two to four times more common in high-income countries than in low-income countries, especially for more recent antidepressants [13]. When compared to high-income economies, countries with lower incomes often have less access to mental health care, making research into the use of psychotropic medicines all the more important. [14]

There have been several studies conducted all around the world that look at how common depression and anxiety are among medical professionals. The Standardized Hospital Anxiety and Depression Scale found that 34 percent of men and 24.8 percent of women in Lahore, Pakistan suffered from mild to moderate anxiety and depression. On the other end of the spectrum, 7.2 percent of men and 1 percent of women suffered from severe anxiety and depression (HADS) [15, 16]

In the present study, a self-report questionnaire was used to investigate the prevalence of using antidepressants among Iraqi doctors. Analyzing the collected data revealed that the majority of the participants had a family history of depression with percentage (83.8%). It's commonly known that depression can be inherited, supporting the idea that genetics play a role in depression susceptibility [17]. However, depression genetics research is still in its infancy, and little is known about the genetic components that cause the condition [18]. Several studies have linked depression to changes in several genes, each of which has a tiny effect [19].

Depression-related genetic variations may differ between men and women. Researchers think larger research is needed to find the genetic variations that increase depression risk [20]. These genes may regulate neurotransmitter production, transport, and action. Neurotransmitters send chemical impulses between neurons. Synaptic plasticity is the ability of neuronal connections (synapses) to adjust to experience [21]. Other genes involved in neuron growth, maturation, and synaptic adaptation may increase depression risk. Family depression is not proven. People with a first-degree relative with depression, such as a parent or sibling, are two to three times more likely to develop the condition [22]. However, many people with depression do not have a family history of the disorder, and many persons with a depressed relative do not develop depression [23].

About (14.6%) of the participants in the present study had one or more chronic disease(s) including respiratory diseases, cardiovascular diseases, diseases of the digestive system, obesity, cancer, seizures, arthritis, hemorrhagic diseases, diabetes, oral health problems, hypothyroidism, dyslipidemia, chronic kidney disease, and multiple sclerosis. Recent studies reported the association of depression with chronic diseases such as the study of Birk JL, et al [24] who reported the importance of the screen for and treating depression in people who are at risk for having these ailments because depression plays a basic role in multimorbidity patterns and is associated with incident disease for some of the most common chronic diseases. Researchers need to investigate the mediating and moderating impacts of health behaviors in order to gain a deeper comprehension of the connection that exists between depression and the gradual advent of clusters of multimorbidity chronic diseases over the course of time [25]. Many other studies reported the same findings such as the study of Yan R, et al. [26], Sporinova B, et al. [27], and Li H, et al. [28].

The current study showed that there was a statistically significant difference between patients with and without depression regarding difficulty of concentration, fatigue, and the health of doctors. These findings are consistent with the study of Newland P, Bettencourt BA. [29] who reported fatigue as a common symptom among depressed persons. Khesht-Masjedi MF, et al.[30] reported an association of depression with difficulty concentrating.

The study showed that 38.3% (N=1052) of patients with depression were junior doctors, 34.3% (N=942) were intern doctors, 13.8% (N=380) were general physicians, and 13.5% (N=372) were specialist doctors. 13.2% were Pediatrics specialists, 11.8% were obstetrics and gynecologists, 8.6% were internal medicine, 6.5% were anesthesia and intensive care specialist, 6.5% were radiology, 5.1% general surgery.

Pandey U, et al. [31] and Riley R, et al.[32] reported the highest prevalence of depression among junior doctors. While many other studies reported the opposite with general surgeons, as many studies reported that general surgeons have

lower levels of depression [33]. The studies revealed that self-efficiency and feeling capable are responsible for the lower level of depression among general surgeons [34, 35].

Female doctors were found to have a higher degree of depression rather than male doctors. These findings were mentioned in the study of Pandey U, et al [31] and the study of Sriharan A, et al. [36] who reported their findings on female doctors during the COVID-19 pandemic.

To our knowledge, there was not any study that investigated the use of antidepressants among doctors. The present study reported that the majority of the participating Iraqi doctors are using antidepressants as a treatment for mental health issues and depression. These findings are considered red flags and raise more questions about the effectiveness of these drugs in the treatment of depression as the majority of the doctors who reported using it reported the presence of depression symptoms as well. These findings open the door for more investigations concerning the high prevalence of depression among Iraqi doctors.

5. Conclusion

In conclusion, due to the stressful nature of their line of work, doctors have a higher risk of developing depression and are more likely to seek treatment with antidepressants.

Compliance with ethical standards

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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