

Prevalence of depression and the use of antidepressants among Iraqi medical students

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ABSTRACT

Background: Health, as defined by the World Health Organization (WHO), is "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity."

Objective: This research aims to explore the frequency of depression among medical students in Iraq

Design: This is a cross-sectional study with the participation of Iraqi medical students (n=1725) conducted in Iraq medical population using a multi-item questionnaire over 6 months (From March 2024 – September 2024). Beck's Depression Inventory was used as a tool for gathering the responses of the participants.

Results: The results of the study showed the superiority of women over men in having depression. Women constituted 65.9% (n = 866) of those with depressive symptoms compared to 56.4% (n = 232) of those without depression. The most prevalent antidepressant was Fluoxetine (37.9%) followed by Sertraline (27.6%) and Escitalopram (22.4%). In general the results revealed the increased prevalence of depression among Iraqi medical students.

Conclusion: Depression is a major mental health issue for future doctors in Iraq. Many students report a variety of symptoms, including sorrow, worry, weariness, difficulty in concentration, and lack of enthusiasm, suggesting that depression is common among this demographic. More research is needed to understand the complex processes that lead to depression in this demographic, but some studies have identified potential risk factors.

Keywords: Depression, Medical students, Antidepressants

INTRODUCTION

The major mental health disorder known as depression can have a negative impact on an individual's emotions, thoughts, and behavior.¹ Because of the academic and personal pressures they face while they are obtaining their medical degrees, the likelihood of medical students developing depression is significantly increased.² This is especially true in Iraq, where medical students encounter a distinct and varied set of obstacles in a society that is undergoing fast social, political, and economic transformation.

According to the findings of recent research, the incidence of clinical depression among Iraq's medical students is significantly higher than average.³ According to the findings of a study that was carried out in 2018, roughly 29% of Iraqi medical students exhibited symptoms consistent with depression. This is in line with the findings of studies conducted in other countries, which have shown that the prevalence of depression among medical students is consistently higher than that of the general population.⁴

There is a wide variety of interconnected factors that can lead to depression among Iraq's medical students. It's possible that the stresses of medical school, social expectations of success, and the demands of an ever-evolving healthcare system could all contribute to the development of depression in a student.⁵

In addition, the political instability and conflict in Iraq have created a tough atmosphere for medical students, which have led to a rise in stress and anxiety levels among Iraqi medical students.⁶

Because untreated depression can lead to major negative outcomes, including academic failure, social isolation, and even suicide, it is crucial to address the issue of depression among Iraqi medical students.⁷

Students' mental health should be given top priority at medical schools in Iraq. This can be accomplished by the implementation of programs that concentrate on the early diagnosis and treatment of depression, as well as the provision of counseling services and other resources to support students' mental health.⁸

The purpose of this study is to explore the frequency of depression among medical students in Iraq. This study aims to provide insights into the mental health of this vulnerable population by analyzing the prevalence of depression among Iraqi medical students. These insights will then be used to inform the development of effective preventative and intervention methods.

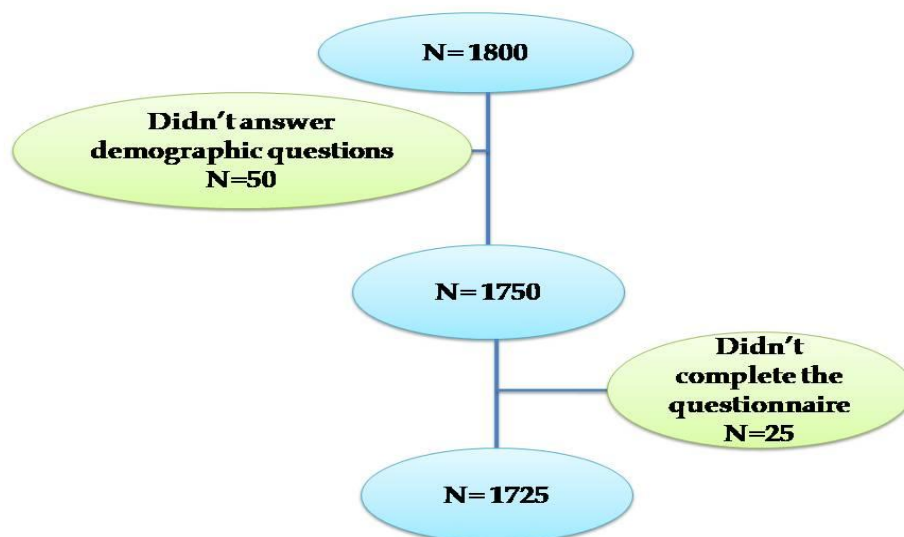
MATERIAL AND METHODS

Study Design

This is a cross-sectional study with a convenience sample conducted in Iraq medical population using a multi-item questionnaire over 6 months (From March 2024 – September 2024). Beck's Depression Inventory was used as a tool for gathering the responses of the participants. The inventory contains 21 questions. The scale used to screen for depression based on self-report. The answers were collected by an online questionnaire that was aimed at the medical students' population. The test link was distributed amongst medical students groups and answers were limited to one response.

Sample of the study

The study encountered the participation of 1725 medical students. The following flow chart show the total number of medical students who participated in the study.



Flow chart of the study

Figure 1: Flow chart of the study

Statistical analysis

Data was expressed by using frequencies and percentages of participant characteristics. The data analyses were performed utilizing the Statistical Package for the Social Sciences (SPSS) (IBM, USA) Program for Windows, version 22.0. Chi-Square test was used to examine the relationship between two qualitative variables. Monte Carlo 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, and family history with depression. the outcome variable (levels of depression). The statistically significant value was $P < 0.05$.

RESULTS

The sample of the study aged between 19 to 32 years old. Male and female medical students participated in the study with percentage of (36.3%) and (63.7%) respectively. 87.6% of the participants had no family history of depression, while 12.4% had depression history. Figure (1). Prevalence of depression among Iraqi medical students was demonstrated in Figure (2). The used antidepressants varied among medical students. The results revealed that the most prevalent antidepressant was Fluoxetine (37.9%) followed by Sertraline (27.6%) and Escitalopram (22.4%)

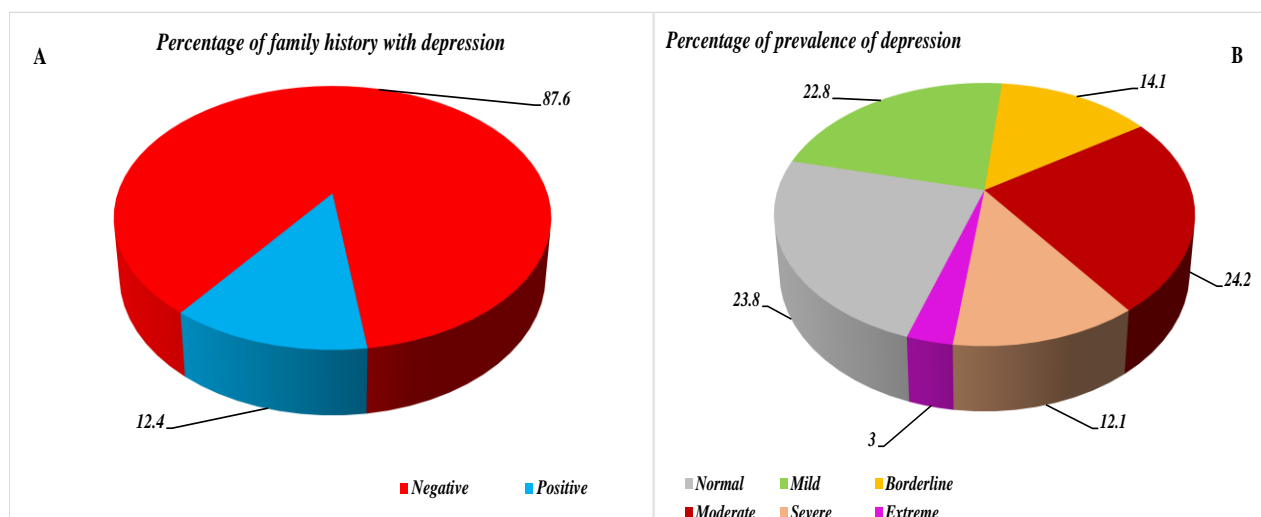


Figure 2: (A) Family history with depression among Iraqi medical students. (B) Prevalence of depression among Iraqi medical students

The study participants were young people as more than 90% less than 26 years. The study included 63.7% females and 36.3% males. The family history of depression was 12.4% of participants. According to the BDI, 76.2 % of the participants reported some level of depression symptoms. 411 (23.8 %) scored in the normal range, 393 (22.8 %) in the mild range, 243 (14.1 %) in the borderline range, 417 (24.2 %) in the moderate range, 209 (12.1 %) in the severe range and 52 (3.0 %) in the extreme range depression. Table (1)

Table 1: The participant characteristics among Iraqi medical students

	Iraqi medical students n = 1725	
	Number	Percent
Age		
19 – 25	1621	94.0
26 - 32	104	6.0
Gender		
Male	627	36.3
Female	1098	63.7
Marital status		
Single	1654	95.9
Married	66	3.8
Other	5	0.3
Diagnosed with depression	151	8.8
Using antidepressants	58	38.4
Treatment n = 58		
Citalopram	7	12.1
Desipramine	2	3.4
Escitalopram	13	22.4
Fluoxetine	22	37.9
Nortriptyline	1	1.7
Paroxetine	1	1.7
Sertraline	16	27.6
Venlafaxine	1	1.7
Other treatment	20	34.5
Family history with depression		
No	1511	87.6
Yes	214	12.4
Prevalence of depression		
Normal	411	23.8
Mild mood Disturbance	393	22.8
Borderline Depression	243	14.1

Moderate Depression	417	24.2
Severe Depression	209	12.1
Extreme Depression	52	3.0

The study showed that was statistically significant difference between student with depression and non-depression regarding to gender, Women constituted 65.9% (n = 866) of those with depressive symptoms compared to 56.4% (n = 232) of those without depression. The study showed that no association between depression and students age, also showed no association between depression and marital status, 96.0% from depressions were singles and 95.4% from non-depression were singles. Table (2)

Table 2: Association depression with demographic data

	Depression		Chi-Square p-value
	Normaln = 411	Abnormaln = 1314	
	N. (%)	N. (%)	
Age (years)			
19 - 25	387 (94.2%)	1234 (93.9%)	Chi-Square=0.034 p-value=0.853
26 - 32	24 (5.8%)	80 (6.1%)	
Gender			
Male	179 (43.6%)	448 (34.1%)	Chi-Square=12.11 p-value=0.001*
Female	232 (56.4%)	866 (65.9%)	
Marital status			
Single	392 (95.4%)	1262 (96.0%)	Chi-Square=1.980 Monte-Carlo p-value=0.342
Married	19 (4.6%)	47 (3.6%)	
Other	0 (0.0%)	5 (0.4%)	

*: Significant <0.05

Table 3: Sense of failure, loss of pleasure, and guilt among Iraqi medical students

	Iraqi medical students (n = 1725)	
	Number	Percent
Sense of failure		
I do not feel like a failure	762	44.2
I feel I have failed more than the average person.	711	41.2
As I look back on my life, all I can see is a lot of failures.	149	8.6
I feel I am a complete failure as a person.	103	6.0
Loss of pleasure		
I get as much satisfaction out of things as I used to	397	23.0
I don't enjoy things the way I used to.	792	45.9
I am dissatisfied or bored with everything	107	6.2
I don't get real satisfaction out of anything anymore.	429	24.9
Guilt		
I don't feel particularly guilty	318	18.4
I feel guilty a good part of the time.	830	48.1
I feel quite guilty most of the time.	187	10.8
I feel guilty all of the time.	390	22.6

The study presented answers for question of suicidal ideas, 69.7 of participants answered "I don't have any thoughts of killing myself", 20.7% of answers was "I have thoughts of killing myself, but I would not carry them out", 6.7% of answers was "It's better for me to die", 1.5% of answers was "It's better for my family to die", 1% from answers was "I would kill myself if I had the chance", and 0.5% of answers was "I have a definite plan to suicide". Table (4)

Table 4: Suicidal ideas among Iraqi medical students

	Iraqi medical students (n = 1725)	
	Number	Percent
Suicidal ideas		
I have a definite plan to suicide	8	0.5
It's better for my family to die	26	1.5
It's better for me to die	115	6.7

I would kill myself if I had the chance.	17	1.0
I have thoughts of killing myself, but I would not carry them out.	357	20.7
I don't have any thoughts of killing myself.	1202	69.7

Table 5: Irritability and social withdrawal among Iraqi medical students

	Iraqi medical students (n = 1725)	
	Number	Percent
Irritability		
I am no more irritated by things than I ever was.	423	24.5
I feel irritated all the time	106	6.1
I am slightly more irritated now than usual.	734	42.6
I am quite annoyed or irritated a good deal of the time.	462	26.8
Social withdrawal		
I have not lost interest in other people	1082	62.7
I have lost most of my interest in other people.	498	28.9
I have lost allof my interest in other people	145	8.4

The study showed that was statistically significant difference between patients with and without depression regarding to difficulty of concentration, fatigue, health of medical students, According to students with depression had difficult of concentration, 40.5% from answer was “I have to push myself very hard to do anything”, 34.7% was “It takes an extra effort to get started at doing something”, 16.4% was “I can work about as well as before.”, and only 8.4% were answered “I can't do any work at all” . Figure (2)

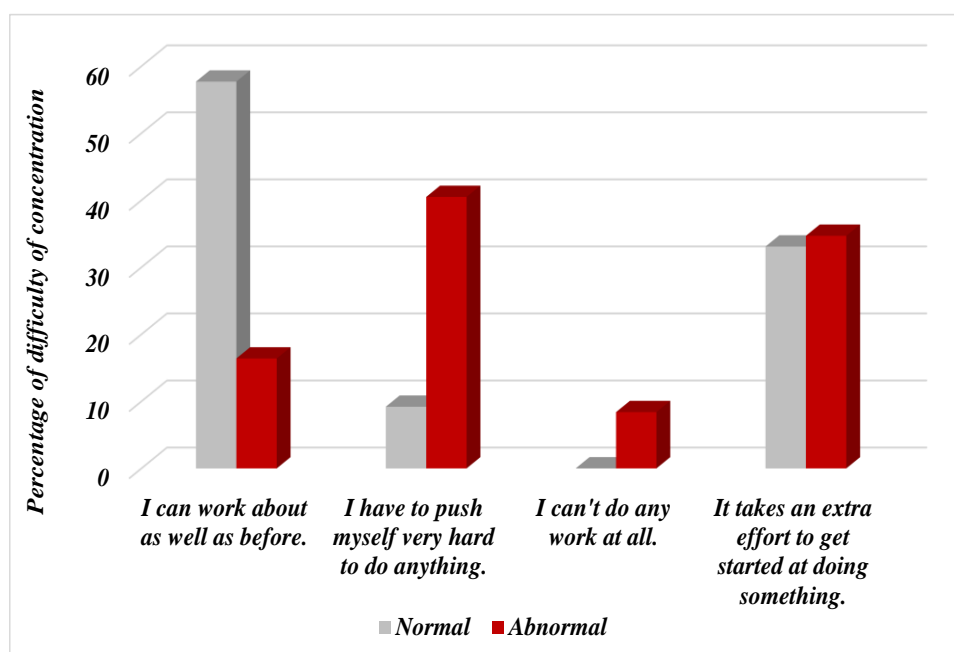


Figure 3: Association of depression with difficulty of concentration

According to fatigue 43.8% of students with abnormal depression answered “I get tired more easily than I used to” compared to 37.5% of students with no-depression, 28.2% of students with abnormal depression answered “I get tired from doing almost anything” compared to 3.6% students with no-depression, 16.3% of students with abnormal depression answered “I don't get more tired than usual” compared to 58.9% students with no-depression, and 11.6% of students with abnormal depression answered “I am too tired to do anything” compared to 0.0% students with no-depression. Figure (3)

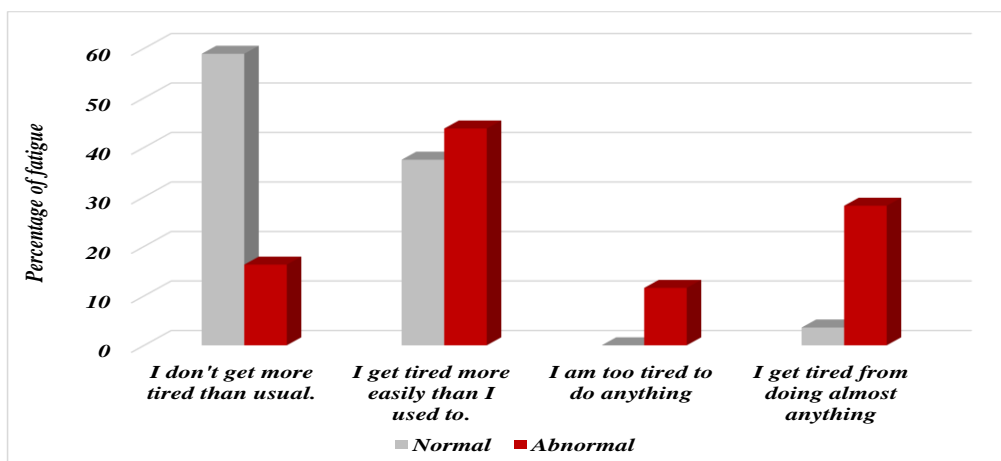


Figure 4: Association of depression with fatigue

According to health questions 50.1% of students with abnormal depression answered “I am no more worried about my health than usual” compared to 81.5% of students with no-depression, 29.0% of students with abnormal depression answered “I am worried about physical problems like aches, pains, upset stomach, or constipation” compared to 17.8% students with no-depression, 14.8% of students with abnormal depression answered “I am very worried about physical problems and it's hard to think of much else” compared to 0.2% students with no-depression, and 6.1% of students with abnormal depression answered “I am so worried about my physical problems that I cannot think of anything else” compared to 0.5% students with no-depression. Table (6), figure (4)

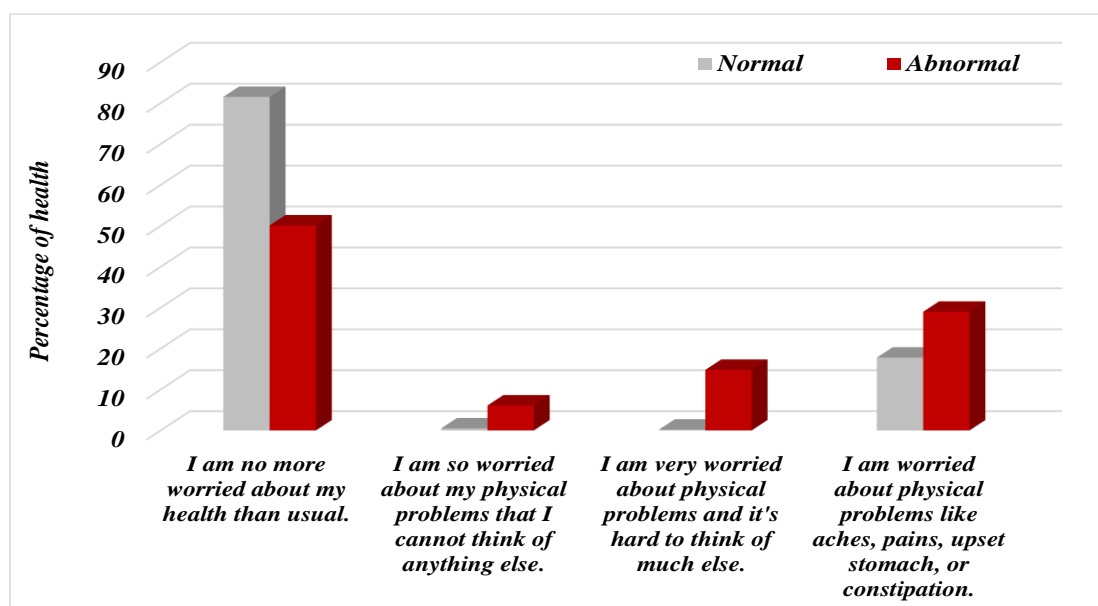


Figure 5: Association of depression with health.

Table 6: Association depression with difficulty of concentration, fatigue, health of doctors

	Depression			
	Normal n = 411		Abnormal n = 1314	
	Number	Percent	Number	Percent
Difficulty of concentration				
I can work about as well as before.	237	57.7	215	16.4
I have to push myself very hard to do anything.	38	9.2	532	40.5
I can't do any work at all.	0	0.0	111	8.4
It takes an extra effort to get started at doing something.	136	33.1	456	34.7
Test (p)	Chi-Square=331.248,p<0.001*			

Fatigue				
I don't get more tired than usual.	242	58.9	214	16.3
I get tired more easily than I used to.	154	37.5	576	43.8
I am too tired to do anything	0	0.0	153	11.6
I get tired from doing almost anything	15	3.6	371	28.2
Test (p)	Chi-Square=350.291,p<0.001*			
Health				
I am no more worried about my health than usual.	335	81.5	658	50.1
I am so worried about my physical problems that I cannot think of anything else.	2	0.5	80	6.1
I am very worried about physical problems and it's hard to think of much else.	1	0.2	195	14.8
I am worried about physical problems like aches, pains, upset stomach, or constipation.	73	17.8	381	29.0
Test (p)	Chi-Square=148.120,p<0.001*			

*: Significant <0.05

According to the multiple linear regression analysis, the result of interaction between age, gender, marital status, and family history showed that female most association with higher scores on the Beck Depression Inventory scale.

Table 7: 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	0.046	0.058	-0.009	0.582
Gender	0.123	<0.001*	0.233	0.520
Marital status	0.045	0.065	-0.022	0.712
Family history	-0.001	0.977	-0.212	0.206

*Significant (P-value < 0.05). Age: (19-25 is the reference), Gender:(Male is the reference), Marital status (Married is the reference) Level of expressions (Normal=0, Mild =1, Borderline=2. Moderate=3, Severe=4, Extreme =5)

DISCUSSION

Although medical students are more likely to experience depression than the general population, the prevalence of depression among medical students varies widely across studies.⁹The rate of depression or depressive symptoms among medical students was anywhere from 10% to 60%.¹⁰

Another study conducted in the United States found that 24.5 percent of medical students experienced depressive symptoms.¹¹

Several factors can contribute to the development of depression in medical students, including but not limited to: stress from schoolwork and other obligations¹²; financial difficulties¹³; long hours¹⁴; fatigue¹⁵; loneliness and isolation¹⁶. Long hours of study and clinical rotations can cause medical students to feel overwhelmed and depressed.¹⁷

There is a higher rate of burnout and suicidal thoughts among medical students than among the general population.¹⁸Medical students' academic performance, social lives, and professional futures have all been found to suffer significantly when students struggle with depression.¹⁹

People with this illness are more likely to have co-occurring mental health issues like anxiety and substance abuse.²⁰Primary research showed that between 1.4% to 80.6% of medical students experience depression symptoms.²¹Systematic reviews and meta-analyses have revealed the overall prevalence of such symptoms, accounting for variables including age, sex, geographic region, and sample size.²²

Our findings corroborate those of recent studies showing a greater propensity for women than males to suffer from depression. Anxiety and sadness are more common among female college students, according to Al Amin M, et al.²³

Our results also demonstrated that neither age nor marital status was linked to an increased risk of depression. However, there has been conflicting research on this topic in the recent past. In 2021, for instance, researchers discovered that older college students had a greater risk of depression than their younger counterparts.²⁴ However, a study conducted on college students and published in 2023 showed no correlation between marital status and depression.²⁵

According to Hashmi AM, et al.,²⁶ family history of depression is a known risk factor for developing depression among medical students. More precisely, the study found that the likelihood of depression among students who came from families with a history of depression was higher than among students who did not originate from such households.

Depression is characterized by a number of common symptoms, one of which is an inability to concentrate or find the drive to do things.²⁷ According to the findings of our study; a considerable number of students who suffer from depression also experience these symptoms to a significant degree.

According to Donoso F, et al.,²⁸ antidepressant medicines have been demonstrated to be beneficial in lowering the symptoms of depression, including difficulties with focus and motivation. These medications are included among the therapy choices for depression.

On the other hand, some students might find that non-pharmacological treatments, such cognitive-behavioral therapy or mindfulness meditation, are more effective than pharmaceutical options.²⁹ Both clinical and non-clinical groups have showed positive responses to these therapies, including reductions in depressive symptoms and improvements in cognitive performance.³⁰

Zugic M.³¹ found that Fluoxetine was the most effective antidepressant that is used for the treatment of depression among his clinical samples. As well as many other studies that referred to Fluoxetine as an effective antidepressant. Antidepressants like fluoxetine, which blocks the reuptake of serotonin, are categorized as SSRIs. Depression, OCD, and bulimia are just some of the conditions that it's used to treat. The chemical serotonin is the key to its effectiveness. It has been hypothesized that serotonin positively affects disposition, emotions, and slumber. Many people get relief from depression after using fluoxetine, which also has fewer negative effects than other antidepressants.

Sertraline is an SSRI, the neurotransmitter serotonin, which is increased by the medicine, is responsible for its beneficial effects on mood, energy, and anxiety.³² It may affect gastrointestinal tract according to Oliva V, et al.³³

When compared to traditional antidepressants, escitalopram and SSRIs present a lower risk of adverse effects. However, they have major risks associated with them. Sleeplessness, sexual dysfunction (most often low libido, anorgasmia, and male ejaculatory latency), nausea, increased perspiration, exhaustion, and somnolence are the most often reported negative side effects. Rare yet serious side effects of escitalopram include QT prolongation and serotonin syndrome.³⁴

Perhaps because of the medical background of the study sample and their awareness of the side effects of each drug, the majority chose Fluoxetine (37.9%) followed by Sertraline (27.6%) and Escitalopram (22.4%) due to the common side effects in the latest two over Fluoxetine.

CONCLUSION

In conclusion, depression is a major issue in the mental health of future doctors in Iraq. Many students report experiencing a variety of symptoms, including sorrow, worry, weariness, difficulty concentrating, and lack of enthusiasm, suggesting that depression is common among this demographic. A greater understanding of the complex processes contributing to depression in this demographic is needed, but some studies have identified potential risk factors for depression among medical students in Iraq, such as academic stress and financial demands. Counseling and other mental health services, as well as other forms of support, should be made available to medical students who are experiencing depression. It is important to take care of medical students' mental health so that they can continue to thrive as professionals and give their patients the best care possible.

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