



*Original Article*

**Assessment of the Depression Level among Medical Students at University of Baghdad, College of Medicine**

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**ABSTRACT**

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**Keywords:** depression, medical students, Iraq, medical college, PHQ-9.



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*Background:* Depression, a state of low mood and aversion to activity, can affect people's thoughts, behavior, tendencies, feelings, and sense of well-being. It can either be short-term or long-term, depending on the severity of the person's condition. Risk factors include personal or family history of depression, major life changes, trauma, stress, certain physical illnesses, and medications.

*Objective:* This study investigates the prevalence of depression among medical students at the University of Baghdad, college of medicine in Iraq, and the association between some variables and depression.

*Subjects and Methods:* A cross-sectional study design with a convenience sampling method was conducted. A sample of 323 medical students attending the University of Baghdad, college of medicine, were included in this study between July 2019 and September 2019, regardless of their age or gender. The study included five grades according to the year 2019-2020. An online survey was conducted using Google Forms which included two sections. Section 1 included questions about participants' demographics. The second section included the PHQ-9 (Patient Health Questionnaire-9) score.

*Results:* A total of 323 students of different demographics participated in this study. The number of males was 108 (33.4%), and the number of females was 215 (66.6%). The frequency of participants who got mild depression was the highest, i.e., 127 (39.3%), whereas 85 (26.3%) were non-depressed. Therefore, this study sample had a high prevalence of depression. On the other hand, the frequency of mild-moderate depression was 57.9%.

*Conclusion:* The prevalence of depression among medical students at the University of Baghdad was high. Gender, having friends, having a medical condition or disease, having family issues, whether it's easy to communicate with others, encountering an event that affected them, and having a family member who suffers from a psychological condition are associated with depression among students. In contrast, age, marital status, college year, seeking help in the past, and having a part-time job have no association with depression.

## **Introduction**

Depression is a low mood and aversion to the activity, affecting a person's thoughts, feelings, behavior, tendencies, and sense of well-being. Symptoms of this mood disorder are marked by sadness, difficulty in thinking and concentration, inactivity, and a significant increase/decrease in time spent sleeping and appetite. Many people also have feelings of dejection, hopelessness, and sometimes suicidal tendencies. It can be either short-term or long-term, depending on the severity of the person's condition. (1)

A depressed mood is a normal temporary reaction to life events, like losing a loved one. It is also a symptom of some physical diseases, a side effect of some drugs and medical treatments, and some mood disorders such as major depressive disorder or dysthymia. (2).

Depressive disorders often referred to as "clinical depression" involve major depression, dysthymia, and other related conditions that have plagued humanity throughout history. Unfortunately, this epidemic has often been nearly invisible; affected people have typically been stigmatized and ostracized, so they suffered in silence rather than seeking help. (3)

The underlying pathophysiology of major depressive disorder hasn't been clearly defined yet. Current evidence points that the symptoms might result from a complex interaction between neurotransmitter availability and receptor regulation and sensitivity. Clinical and preclinical trials propose that there's a disturbance in central nervous system serotonin (5-HT) activity as an important factor. Other neurotransmitters mentioned are dopamine (DA), norepinephrine (NE), brain-derived neurotrophic factor (BDNF), and glutamate. (4)

Some researchers suggest that depression is caused by a combination of genetic, biological, environmental, and psychological factors. Depression can happen at any age; however, it often begins in adulthood. Depression is now recognized in children and adolescents, although it might present with more prominent irritability than low mood. Risk factors include major life changes, stress, personal or family history of depression, trauma, or certain physical illnesses and medications. (5)

As many as 2/3 of people with depression don't realize that they have a treatable illness and therefore don't seek professional help. In addition to that, persistent ignorance and misperceptions of this disorder by the public, including many health providers, as a personal weakness or failing that can be willed or wished away leads to painful stigmatization and avoidance of the diagnosis by many of those affected. (2)

The PHQ-9 (Patient Health Questionnaire-9) is a multipurpose instrument for screening, diagnosing, measuring severity, and monitoring depression. The PHQ-9 incorporates DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, 4th Edition) depression diagnostic criteria with other leading major depressive symptoms into a brief self-report tool. (6) It is a questionnaire with nine items; each item scores 0–3. (7) The PHQ-9 has the potential of being a dual-purpose instrument that, with the same nine items, can establish depressive disorder diagnoses as well as grade depressive symptom severity. The severity level in the PHQ-9 score can range

from 0 to 27 since each of the nine items can be scored from 0 (not at all) to 3 (nearly every day). (8) The questionnaire is a useful and reliable tool for data validity. Gender is not identified or differentiated to avoid any bias being established. (7)

This study aims to investigate the prevalence of depression among medical students at the University of Baghdad, college of medicine in Iraq, and the association between some variables and depression.

## **Subjects and Method**

### **Study population: -**

The sample was selected from medical students attending the University of Baghdad, college of medicine in Iraq.

### **Study design:**

A cross-sectional study was designed, including medical students attending the University of Baghdad, college of medicine in Iraq. This study was conducted between April 2019 and October 2019. The questionnaire was handed over to participants to fill between July 2019 and September 2019.

### **Operational Definitions**

An online survey was conducted using Google Forms (free online surveys for personal use) which included two sections. Section 1 included questions about the participants' demographics, including gender, college year, marital status, and other questions. The second section included the PHQ-9 score; a questionnaire used to test depression using nine questions; each has four possible answers. The participants will be given a score according to their answers. The responses would range from "0" (Not at all) to "3" (nearly every day). The responses are (not at all = 0, several days = 1, more than half the days = 2 & nearly every day = 3). (9) The severity is according to the score the patient gets which was as follows (1 to 4 = none or minimal depression, 5 to 9 = mild depression, 10 to 14 = moderate depression, 15 to 19 = moderately severe depression & 20 to 27 = severe depression). (10) The scores were calculated using SPSS (Statistical Package for the Social Sciences).

### **Sampling procedure/method:**

#### **Convenience sampling:**

A sample of 323 medical students attending the University of Baghdad, college of medicine in Iraq, were included in this study between July 2019 and September 2019, regardless of their age or gender. The study included five grades according to the academic year 2019-2020, i.e., second to the sixth year. Students from other medical universities were excluded.

#### **Sample size:**

A sample size of at least 150 medical students was expected to participate in this study which means at least 30 students from each grade. Thankfully, the sample reached 323 medical students who participated in the study.

#### **Data collection:**

An online survey was conducted using Google Forms

#### **Statistical Analysis (Analysis plan):**

IBM SPSS (Statistical Package for the Social Sciences) Statistics version 21 Multilingual and Microsoft Excel 2010 were used to

analyze the data. The frequencies were stated first then Chi-Square test and Fisher's exact test were used to investigate the association. The p-value less than 0.05 was considered significant.

**Ethical issues (Human subject protection):**

There weren't questions asking about the participants' names, religions or ID numbers. The questionnaire kept the participants' anonymity i.e. the participant was Anonymous.

**Results**

A total of 323 students of different demographics participated in this study. The number of the males was 108 (33.4%) and the number of the females was 215 (66.6%). The frequencies in this study are shown in table 1.

**Table 1:** Distribution of participants according to their demographic data

	Variable	Frequency	%
Gender	Male	108	33.4
	Female	215	66.6
Marital status	Single (not married)	316	97.8
	Engaged	5	1.5
Do you have a Part time Job?	Married	2	0.6
	Yes, I work after I finish attending college sessions	16	5.0
	Yes, I work in the weekends	12	3.7
Have you Sought Help?	No	295	91.3
	Yes, I'm currently being treated	7	2.2
	Yes, I've sought help/been treated in the past	37	11.5
Do you have family issues?	No, I've never sought help	279	86.4
	Yes	122	37.8
Do you have friends?	No	201	62.2
	Yes, I have many	143	44.3
	Yes, I have a few	168	52.0
Is it easy for you to communicate with others?	No, I don't	12	3.7
	Yes, it's easy for me	86	26.6
	No, it's very difficult for me	28	8.7
Do you have any medical condition?	It depends. Sometimes it's easy, sometimes it's not	209	64.7
	Yes	83	25.7
Did you encounter any event that affected you?	No	240	74.3
	Yes	125	38.7
Do you have a family member who suffers from a mental or psychological issue?	No	198	61.3
	Yes	49	15.2
	No	195	60.4
	I don't know	79	24.5

The age groups were simplified into younger than 20 years old which were 78 (24.1%), 20-22 years old which were 215 (66.5%) and older than 22 years old which were 30 (9.3%).

Second & third years were counted as basic and their sum was 149 (46.2%) while fourth, fifth & sixth years were counted as clinical and their sum was 174 (53.8%).

**Table 2:** Distribution of participants according to PHQ questions

		Frequency	%
Little interest or pleasure in doing things	Not at all	86	26.6
	Several days	152	47.1
	More than half the days	49	15.2
Feeling down, depressed, or hopeless	Nearly every day	36	11.1
	Not at all	90	27.9
	Several days	160	49.5
Trouble falling or staying asleep, or sleeping too much	More than half the days	45	13.9
	Nearly every day	28	8.7
	Not at all	99	30.7
Feeling tired or having little energy	Several days	119	36.8
	More than half the days	54	16.7
	Nearly every day	51	15.8
Poor appetite or overeating	Not at all	50	15.5
	Several days	160	49.5
	More than half the days	59	18.3
Feeling bad about yourself — or that you are a failure or have let yourself or your family down	Nearly every day	54	16.7
	Not at all	125	38.7
	Several days	110	34.1
Trouble concentrating on things, such as reading the newspaper or watching television	More than half the days	45	13.9
	Nearly every day	43	13.3
	Not at all	134	41.5
Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	Several days	98	30.3
	More than half the days	46	14.2
	Nearly every day	45	13.9
Thoughts that you would be better off dead or of hurting yourself in some way	Not at all	180	55.7
	Several days	85	26.3
	More than half the days	27	8.4
Total	Nearly every day	31	9.6
	Not at all	207	64.1
	Several days	65	20.1
Total	More than half the days	26	8.0
	Nearly every day	25	7.7
	Not at all	231	71.5
Total	Several days	54	16.7
	More than half the days	17	5.3
	Nearly every day	21	6.5
Total		323	100.0

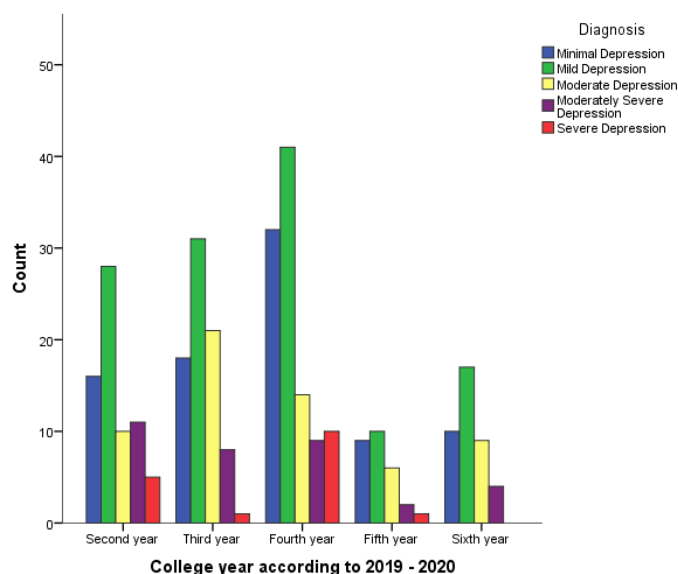
According to the PHQ questionnaire, the scores range between 0 and 27. In this study the mean of the scores is 8.49 with a standard deviation of 5.888. The frequencies of the diagnosis were Minimal Depression or None = 85 (26.3%), Mild Depression = 127 (39.3%), Moderate Depression = 60 (18.6%), Moderately Severe Depression\* = 34 (10.5%) and Severe Depression\* = 17 (5.3)

\* The moderately severe group was counted with the severe group in all of the calculations below because there were a few numbers of participants in the severe group and it was difficult to do the analysis.

Chi-Square and Fisher's exact tests were used to see the association or the lack of it (independence) between the diagnosis and some variables. The p value for each is shown in table 3.

**Table 3:** P values of Chi-Square and Fisher's exact Tests for the association between some variables and diagnosis

		Depression degrees					Total	P value
		Minimal	Mild	Moderate	Moderately Severe	Severe		
age	Younger than 20 years old	19	33	13	10	3	78	0.728
	20-22 years old	58	79	42	22	14	216	
	Older than 22 years old	8	15	5	2	0	29	
Gender	Male	40	41	13	9	5	108	0.008
	Female	45	86	47	25	12	215	
College year according to 2019-2020	Basic	34	59	31	19	6	149	0.531
	Clinical	51	68	29	15	11	174	
	Single (not married)	84	124	60	31	17	316	
Marital status	Engaged	1	2	0	2	0	5	
Do you have friends?	Married	0	1	0	1	0	2	0.001
	Yes, I have many	44	64	18	14	3	143	
	Yes, I have a few	39	62	40	17	10	168	
Do you have any medical conditions?	No, I don't	2	1	2	3	4	12	0.000
	Yes	10	31	19	15	8	83	
	No	75	96	41	19	9	240	
Total		85	127	60	34	17	323	



**Graph:1** Distribution of participants according to diagnosis and college year.

The p-values using Chi-Square and Fisher's exact tests for the rest of the demographic questions in relation to diagnosis is shown in table 4

**Table 4:** P-value for the rest of demographics in relation to diagnosis

	P-value
Did you seek help in the past?	0.251
Do you have a part time job?	0.490
Is it easy for you to communicate?	0.000
Do you have family issues?	0.000
Did you encounter any event that affected you?	0.000
Do you have a family member with a psychological condition?	0.000

The frequency of depressed participants is 238 (73.7%) while that of the non-depressed (minimal depression) participants is 85 (26.3%). The prevalence of depression among males was 68/108 = 0.629 (62.9%) while that of females was 170/215 = 0.79 (79%). The prevalence of non-depressed among males was 40/108 = 0.37 (37%) while that of females was 45/215 = 0.209 (20.9%).

### Discussion

This study has 323 participants, of which 108 (33.4%) were males, and 215 (66.6%) were females. According to one study, the female: male ratio suffering major depression is 1.7:1. (11) According to table 4, this study showed that the frequency of participants who got mild depression was the highest, i.e., 127 (39.3%), whereas 85 (26.3%) were non-depressed. This study sample had a high prevalence of depression. Comparing the frequency of mild-moderate depression of another study, this study had 57.9% while the Saudi study had 55.9%, so it was consistent. (7) It was also similar to another study in the UK. (12) This peak of depression in Saudi Arabia could be attributed to many factors such as competency for limited seats of residency programs among

graduated students, yearly updating requirements for residency application, and family and social pressure. (7)

This study had a higher prevalence of depression compared to other studies such as the study in Vietnam, which had a prevalence of 15.2%, the study in South Korea, which had a prevalence of 13.8%, the study in New Zealand, which had a prevalence of 16.9%, the study in Mexico which had a prevalence of 16.2% & the study in the United States which had a prevalence of 14.3%. All of them used the PHQ-9 questionnaire. (13-17)

According to table 3 and other calculations, the variables or the factors which had an association with diagnosis (statistically significant) were genders, having friends, having a medical condition or disease, having family issues, whether it's easy to communicate with others, encountering an event that affected them and having a family member who suffers from a psychological condition whereas age, marital status, college year, seeking help in the past and having a part-time job had no association with diagnosis (not statistically significant), i.e., they were independent.

There was no difference in depression and marital status frequency since the majority, about 316 (97.8%), were single.

According to graph 1, it was found that the higher college year, the lower the symptoms of depression which is almost similar to the result of 2 other studies, one in Saudi Arabia and the other in India, where they discovered that the numbers decreased starting from year 1 to year five. However, this study has less number of participants. (7,18).

## Conclusion

The prevalence of depression among medical students at university of Baghdad was high. Gender, having friends, having a medical condition or disease, having family issues, whether it's easy to communicate with others, encountering an event that affected them and having a family member who suffers from a psychological condition have an association with depression among students while age, marital status, college year, seeking help in the past and having a part time job have no association with depression.

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## Conflict of Interest

No conflict of interest.

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