Assessment of the Severity of Depression Symptoms, Knowledge, and Medication Adherence in Patients with Major Depressive Disorder in Sulaimaniyah, Iraq

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Abstract

Objectives: To assess the severity of depressive symptoms, as well as patients' knowledge regarding their disease and their medication adherence, within the population diagnosed with MDD.

Methods: A cross-sectional study was conducted at the Ali-Kamal Psychiatric Clinic in Sulaimaniyah City, Iraq, on 102 individuals diagnosed with MDD. Data collection utilized questionnaires covering participant characteristics, depression assessment tools such as Beck's Depression Inventory, Patient Health Questionnaires, and Quick Inventory of Depressive Symptomatology, questions concerning participants' knowledge regarding depression, and medication adherence utilizing Morisky's Medication Adherence Scale-8.

Results: The level of depression severity was mild to moderate for 42%, and it was severe for 34.3% of patients. The severity of depression symptoms was moderately severe in most patients (52.9%), followed by moderate (26.5%) and then severe (12.7%). The change in weight and appetite was most common (2.11 ± 0.84), while suicide ideation was the least common (1.15 ± 0.65). The knowledge of 65.7% was poor, and 87.3% was poorly adhered to medication.

Conclusions: Nearly one-third of participants exhibited severe depression, while the majority experienced moderately severe symptoms. Additionally, many had insufficient knowledge and demonstrated low medication adherence.

Keywords: Depression, knowledge, major depressive disorder, medication adherence

Introduction

Major depressive disorder (MDD) is a prevalent mental health condition characterized by persistent feelings of sadness, hopelessness, and a loss of interest or pleasure in daily activities. Recent research highlights the multifactorial nature of MDD, involving genetic, biological, and environmental factors.[1] MDD is a significant global public health concern, affecting people of all ages and backgrounds. The prevalence of MDD varies across regions and is influenced by cultural, socioeconomic, and environmental factors. According to the World Health Organization (WHO), >300 million people worldwide suffer from depression.[2,3]

MDD is a highly prevalent psychiatric disorder that has a lifetime prevalence of about 5–17%, with an average of 12%. Its prevalence rate is almost double in women than in men.[4] Non-Hispanic Asian adults were least likely to experience mild, moderate, or severe symptoms of depression compared with Hispanic, non-Hispanic white, and non-Hispanic black adults.[5]

In Iraq, the epidemiology of MDD reflects the broader global trends, with specific nuances influenced by the country's unique socio-political context; lifetime and 12-month prevalence of MDE were 7.4% and 4.0%, respectively.[6] Abdulkarim et al. (2021) reported a high prevalence of MDD in Iraq emphasizing the impact of social upheaval on mental health.[7] Although pharmacological treatment of depressive disorders has shown considerable efficacy, patients do not always take their medication as instructed. Regarding the behaviours of patients in taking medication, adherence and persistence need to be examined.[8]

Individuals with MDD often experience persistent feelings of sadness, hopelessness, or a pervasive sense of emptiness. They may lose interest or pleasure in activities they once enjoyed, leading to social withdrawal and isolation. Changes in appetite and weight, either significant loss or gain, are common physical manifestations of MDD. Sleep disturbances contribute to the overall burden of the disorder. Fatigue and low energy levels are prevalent, making even simple tasks overwhelming.[9] Also, they may exhibit slowed thinking and physical movements. Feelings of worthlessness or excessive guilt are also frequent cognitive manifestations, leading to self-critical thoughts and a negative self-perception.[10]

Patients' knowledge about depression and its holistic management is crucial in the management of MDD. A well-informed patient is better equipped to actively participate in their treatment plan actively, fostering a sense of empowerment and engagement in the therapeutic process.[9] Knowledge about the course of the illness, causes, risk factors, side effects of medications, and coping strategies enhances treatment adherence and reduces the stigma associated with mental health conditions. Healthcare providers play a crucial role in imparting accurate and understandable information to individuals with MDD, fostering a collaborative and patient-centred approach to care.[11] Medication adherence is essential in the management of MDD as it ensures the maintenance of therapeutic regimens, optimizing the efficacy of treatment and reducing the risk of relapse. Non-adherence (intentional/unintentional) can significantly compromise treatment outcomes, leading to persistent depressive symptoms, functional impairment, and an increased recurrence.[9] The significance of medication adherence extends beyond symptom control and influencing the overall quality of life. Adherent patients are more likely to experience improvements in daily functioning, social relationships, and occupational performance.[12] This underscores the crucial role of nurses in fostering patient

education, addressing concerns related to medication, and monitoring adherence throughout treatment.[4] Thus, this study aimed to assess the severity of depression symptoms, knowledge, and medication adherence in patients with MDD.

Subjects and Methods

Study Setting and Design

A descriptive cross-sectional study was conducted on 102 patients with MDD at a psychiatric outpatient clinic in Sulaimaniyah City, Iraq, from October 10th, 2020, to March 28th, 2022.

Inclusion Criteria

Patients diagnosed with MDD aged ≥ 20 years old who used anti-depression drugs were able to communicate in the Kurdish language and were willing to participate.

Exclusion Criteria

The patients with severe physical and mental disability were excluded from the study.

Questionnaire

The participants were recruited according to the convince sample technique. A contractive questionnaire was used to collect patients' data through direct face-to-face interviews composed of the following items:

Participants' Characteristics

General demographic information includes age, gender, marital status, educational level, occupation, income, residency, disease duration, smoking, and alcohol drinking.

Beck Depression Inventory-II (BDI-II)

It was composed of 21 items, and each item had four response alternatives (0–3), corresponding to escalating degrees of depressed symptomatology. The overall score on the BDI-II ranged from 0 to 63, and higher scores indicate more severe depression symptoms. The accepted cut-off points for adjusting the intensity/severity were no depression (0–9), mild depression (10–18), moderate depression (19–29), and severe depression (≥30).[13] The BDI was selected for its good internal consistency, validity, sensitivity to change, and the fact that it includes an assessment of cognitive and psychosocial symptoms.[14]

Patient Health Questionnaire (PHQ-9)

The PHQ-9 instrument was selected based on its acceptance and everyday use in the professional and scientific community. The PHQ-9 provides numerical coding of 1 (not at all), 2 (several days), 3 (more than half the days), and 4 (nearly every day). The participants' responses were recorded for the past two weeks before completing the questionnaire. The instrument provides a total score from 9 to 36 with thresholds of 14–18 (mild depressive symptoms), 19–24 (moderate depressive symptoms), 25–29 (moderately severe depressive symptoms), and >29 (severe depressive symptoms). Thus, the higher the total score, the more severe the depression.[15] The PHQ-9 is aligned with the DSM-5 symptom criteria for MDD and has been validated as a valuable tool for the screening of depressive disorders and as a reliable and valid measure of depression symptom severity by a multitude of studies.[16,17]

Quick Inventory of Depressive Symptomatology (QIDS)

The QIDS is a new measure of depressive symptom severity derived from the 30 items that are available in both self-report [QIDS-SR (16)] and clinician-rated [QIDS-C (16)] formats. The QIDS-SR (16) has highly acceptable psychometric properties, which supports the usefulness of depressive symptom severity ratings in both clinical and research settings.[18] The QIDS-SR was designed to assess the severity of depressive symptoms. It was intended for clinical research and practice use, focusing on the 9 DSM-IV criteria symptom domains.[19] These domains included sad mood, concentration, self-criticism, suicidal ideation, interest; energy/fatigue; sleep disturbance (initial, middle, and late insomnia or hypersomnia); decrease/increase in appetite/weight, and psychomotor agitation/retardation.[18] The QIDS comprises 16 items, each corresponding to a specific symptom of depression, with multiple response options for each item. By covering a range of symptoms, the QIDS provides a comprehensive snapshot of an individual's depressive state, aiding clinicians in diagnosis and treatment planning.

Knowledge

Knowledge regarding the self-rating depression questionnaire developed from the previous version in the literature.[11] The questionnaire comprised of 4 sections. The first section, consisting of 9 items, mainly focused on the symptoms of depression; the second section included three questions on the impact of depression; the third section consisted of 8 questions on the management of depression; and the last section consisted of 9 items regarding depression risk factors. The score of each question was rated as agreeing, doubtful, and disagreeing, and all questions were positively directed. Each agreed answer was scored 1, and each disagreed/doubtful was 0. The sum of each section and the total score was calculated, and the scores were converted to 0–100, in which a score of 0 to <50 was considered poor knowledge, 50 to <75 was regarded as fair knowledge, and 75–100 was considered good knowledge.

Morisky's Medication Adherence Scale-8 (MMAS-8)

The MMAS-8 evaluates adherence behaviours and barriers through 8 questions, encompassing aspects such as forgetting to take medications, altering dosages without consulting a healthcare professional, and difficulties adhering to prescribed regimens due to side effects or cost. Each item offers multiple response options, allowing for a nuanced understanding of adherence patterns. This scale is a valuable resource for healthcare providers to identify patients at risk of non-adherence and tailor interventions to address specific barriers. Its brevity and simplicity make it practical in various clinical settings, facilitating routine screening and monitoring medication adherence. Furthermore, the reliability and validity of the MMAS-8 across different patient populations and medical conditions, underscoring its utility in both clinical practice and research endeavours. The overall score ranges from 0–8, with values <6, 6–7, and 8 denoting low, moderate, and high medication adherence, respectively.[20]

Data Analysis

Statistical Package for Social Science (SPSS, IBM, Chicago, USA, Version 26) was used to analyze participants'

characteristics, knowledge of MDD, medication adherence, and severity/type of depression. Data were presented as frequencies, proportions, and means ± standard deviation (SD). The correlation coefficient was used to find out the correlation among independent variables.

Results

The mean age of patients was 30.7 ± 10.5 years and most patients (37.3%) were aged 30–39 years old, females (76.5%), secondary school graduates (45.1%), housewives (52%), had income equal to their expenditure (68.6%), from urban areas (70.6%), had depression for >3 years (44.1%), not smokers (76.5%) and not alcohol drinkers (93.1%), while 50% were married (Table 1). The level of depression, according to BIS, was predominantly mild to moderate (42.2%), followed by severe (34.3%), then moderate to severe (19.6%), and 3.9% had extremely severe depression (Figure 1). Whereas, based on PHQ, the common depression type was moderate to severe (52.9%), followed by moderate (26.5%), then severe (12.7%), and lastly mild type (7.8%) (Figure 2).

Figure 3 shows the severity of depression's symptoms according to QIDS, in which 41.2% of patients had moderate, 37.3% had severe, 16.7% had mild, and 4.9 had very severe depression.

Table 2 demonstrates the severity of depression symptoms. It reveals that weight and appetite change is more severe than other symptoms (2.11 ± 0.84), followed by losing interest in things (1.96 ± 0.60), feeling guilt (1.86 ± 0.56), sleep disturbance (1.84 ± 0.48), mood's symptoms (1.64 ± 0.66), fatigue/loss of energy (1.63 ± 0.69), decreased concentration (1.42 ± 0.64), psychomotor change (1.35 ± 0.69), and less affected aspect was suicide ideation (1.15 ± 0.65). The total mean of the QIDS was 14.96 ± 3.9 (out of 0 – 24). A strong correlation was found between PHQ and QIDS (r: 0694: $P < 0.01$), while the correlation of BDI was moderate with each of PHQ and QIDS (r: 0.265 and 0.284) with $P = 0.007$ and $P = 0.004$, respectively (Table 3).

Table 1. Distribution of participants socio-demographic/clinical characteristics

Characteristics		Frequency	%
Age groups (Years)	< 20	19	18.6
	20–29	27	26.5
	30–39	38	37.3
	40–49	13	12.7
	≥ 50	5	4.9
Gender	Female	78	76.5
	Male	24	23.5
Marital status	Married	51	50.0
	Single	39	38.2
	Divorce	12	11.8
Level of education	No formal education	16	15.7
	Primary school	24	23.5
	Secondary school	46	45.1
	Institute/University	16	15.7
Occupation	Employee	23	22.5
	Housewives	53	52.0
	jobless	26	25.5
Financial status	Income < Expenditure	27	26.5
	Income = Expenditure	70	68.6
	Income > Expenditure	5	4.9
Residency	Urban	72	70.6
	Rural	30	29.4
Duration (Years)	<1	26	25.5
	1–3	31	30.4
	>3	45	44.1
Smoking status	No	78	76.5
	Yes	24	23.5
Alcohol consumption	No	95	93.1
	Yes	7	6.9
Total		102	100

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L.R. Darwesh et.al.   Assessment of the Severity of Depression Symptoms, Knowledge, and Medication
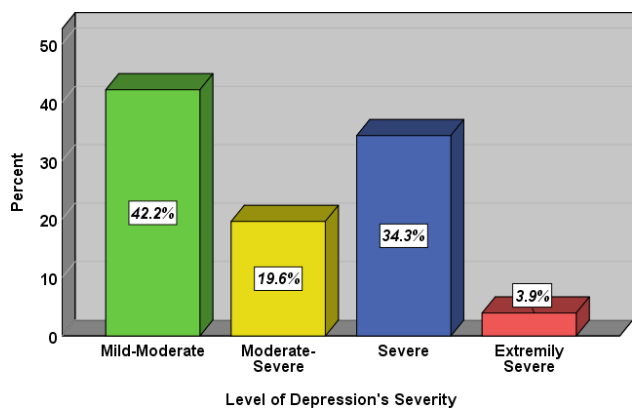
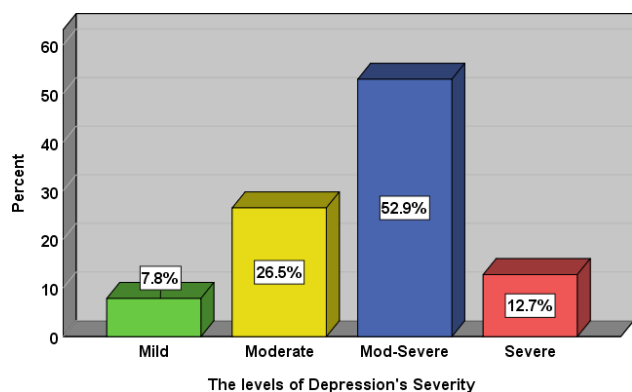Fig. 1 **Depression severity according to beck inventory scale.**

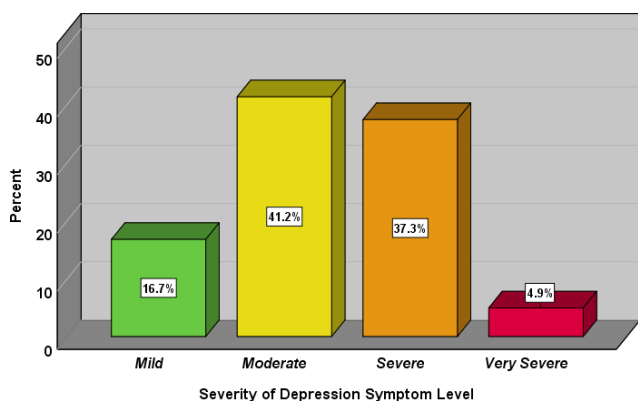Fig. 2 **Depression severity according to patient health questionnaire.**

Fig. 3 **Severity of depression symptoms according to quick inventory depression symptomology.**

Table 2. **Distribution and severity of depression symptoms according to the quick inventory of depressive symptomatology**

Symptom scores (0–3)	Mean ± SD	Minimum	Maximum
Sleep disturbances	1.84 ± 0.48	1	3
Mood change	1.64 ± 0.66	0.7	3
Wight/Appetite	2.11 ± 0.84	1	3
Concentration	1.42 ± 0.64	0	3
Feeling guilt	1.86 ± 0.56	0	3
Suicide ideation	1.15 ± 0.65	0	3
Loss of interest	1.96 ± 0.60	1	3
Fatigue/Energy	1.63 ± 0.69	0.0	3
Psychomotor change	1.35 ± 0.69	0.0	2
Total (0–24)	14.96 ± 3.90	7.0	23.0

Table 3. **Correlation among Beck Depression Inventory (BDI), Patient Health Assessment Questionnaire (PHQ), and Quick Inventory of Depressive Symptomatology (QIDS)**

Scale		PHQ	QIDS
BDI	Correlation (r)	0.265	0.284
	P-value	0.007	0.004
PHQ	Correlation (r)		0.694
	P-value		0.000*

*, Significant difference.
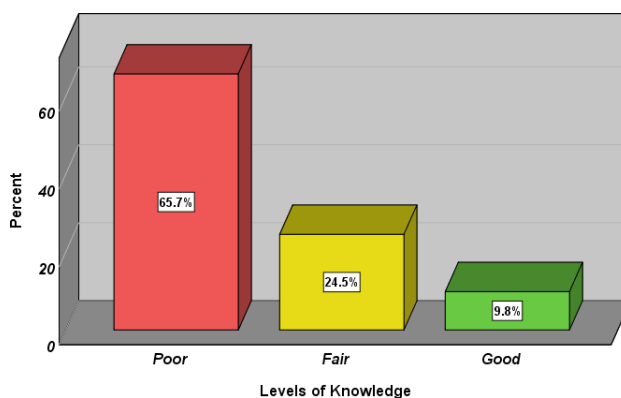
Fig. 4 **The levels of participants' knowledge.**

Most patients had poor knowledge regarding their condition (65.7%), while 24.5 had fair knowledge, and only 9.8% had good knowledge (Figure 4).

Participants' knowledge regarding the symptoms of depression was better (63 ± 23) when compared to the impact of depression on patients (56 ± 33), knowledge regarding the cause and risk factors of depression (42 ± 32), and management of depression (23 ± 23). Overall knowledge regarding depression was 44 ± 21 (Table 4). Most participants had low medication adherence (87.3%), 12.7% had medium, and no one had good adherence (Figure 5).
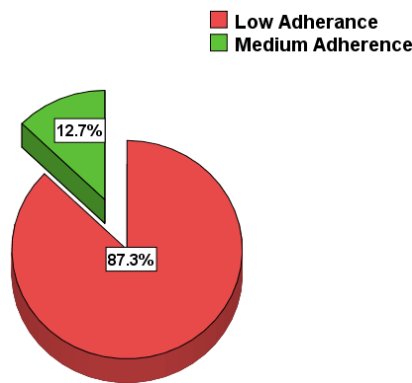
Table 4. **Distribution of participants' knowledge regarding aspects of depression**

Knowledge aspects	Mean ± SD	Minimum	Maximum
Symptom of depression	63 ± 23	0	100
Impact of depression	56 ± 33	0	100
Management of depression	23 ± 23	0	100
Causes and risk factors	42 ± 32	0	100
Overall knowledge	44 ± 21	0	0.97

Fig. 5 **Participants' level of medication adherence.**

Discussion

This is the first study from the Iraqi Kurdistan region to explore the knowledge of MDD and medication adherence among patients with MDD. The prevalence of MDD was higher among young adults (30.7 ± 10.5 years old), females, secondary school graduates, homemakers, those who had income equal to their expenditure, from urban areas, had depression for >3 years, not smokers and not alcohol drinkers. In this regard, Anzolin et al. (2022) stated that MDD is a common condition that affects the general population over a wide range of ages, regardless of gender and social background. Early onset of MDD in adulthood (18–30 years) is associated with worse outcomes and increased years of disability.[21] In 2021, 8% of adults in the United States reported MDD. However, among those aged 18–25 years, almost 19% reported MDD. Although depression can affect anyone, women are more likely to report MDD than men; around 10% of women in the United States had MDD compared to 6% of men.[22]

Additionally, Hasin et al. (2018) stated that the 12-month and lifetime prevalence of MDD was 10.4% and 20.6%, respectively. MDD was significantly lower in men and African Americans and was higher in younger adults (18–29 years) and those with low incomes. Associations of MDD with substance use disorders ranged from an OR of 1.8 (95% CI, 1.63–2.01) for alcohol to an OR of 3.0 (95% CI, 2.57–3.55) for any drug. Most MDD cases were moderate (39.7%) or severe (49.5%). Almost 70% of patients with MDD had some treatment.[23]

The standard level of depression according to BIS was mild to moderate, while based on PHQ, it was moderate to severe, and according to QIDS, it was moderate. Another study by Chhetri et al. (2023) reported the overall prevalence of MDD (PHQ-9 score ≥10) among the participants to be 38% and according to the PHQ-9 score, 29.7% of the participants had mild depression (PHQ-9 score = 5–9), 23.3% had moderate (PHQ-9 score = 10–14), 10.3% had moderately severe (PHQ-9 score = 15–19), and 4.5% had severe (PHQ-9 score = 20–27).[24] Also, Haro et al. (2019) reported a HAQ-9 mean of 17.6 ± 5.3.[25] Furthermore, based on PHQ-9 scores, 26.9% of patients had none/minimal depression symptom severity, 16.4% had mild, 24.7% had moderate, 19.6% had moderately severe, and 12.5% had severe.[15] Baryshnikov et al. (2023) found the mean PHQ-9 scores of 16.5 ± 5.2 in the sample of 61 women and 19 men with a mean age of 35 ± 12 years.[26]

In this study, the severity of the symptoms was more significant in weight and appetite change, losing interest in things, feelings of guilt, and sleep disturbance, respectively. The severity of symptoms was moderate for mood symptoms, fatigue or loss of energy, and decreasing concentration, while the less severe symptoms were psychomotor change and suicide ideation.

The WHO estimated that MDD would rank first by 2030, making it the third leading cause of illness burden worldwide in 2008. It is identified when a person exhibits symptoms such as a chronically low or depressed mood, anhedonia, or a diminished interest in enjoyable activities, feelings of worthlessness or guilt, lethargy, difficulty concentrating, changes in appetite, agitation or psychomotor retardation, insomnia, or suicidal thoughts. One of the leading causes of impairment worldwide is MDD, emphasizing the need for an interprofessional team.[4]

In the current study, the overall participants' knowledge regarding the disease was poor for 2/3, fair for 1/4, and reasonable for <1/10. The best aspect of participants was knowledge of the symptoms of depression, which was acceptable for almost 2/3, followed by knowledge regarding the impact of depression on their lives, which was acceptable for >50% of the participants; knowledge regarding the cause and risk factors of depression was acceptable for >40%; knowledge regarding the management of depression was the poorest aspect.

Bains et al. (2022) stated that patient knowledge regarding the condition plays a crucial role, and education profoundly impacts the overall outcome of MDD. Since MDD is one of the most common psychiatric disorders causing disability worldwide and people in different parts of the world are hesitant to discuss and seek treatment for depression due to the stigma associated with mental illness, educating patients is very crucial for their better understanding of the mental illness and better compliance with the mental health treatment.[4] Family education also plays a vital role in the successful treatment of MDD. As per the literature, 25–45% and 60% of the general population had poor knowledge of MDD and discriminatory attitudes toward MDD, respectively.[11] In addition, 60–70% of individuals with MDD were reported to be medication non-adherent.[27,28] Similarly, Cheng et al. (2024) stated overall knowledge regarding depression was poor (15/23), and the best aspect of knowledge was general, and symptoms and the poorest aspect was treatment and prevention. Also, they reported poor knowledge of MDD patients regarding the treatment of their disease.[29]

Most participants in the current study (9/10) are lowly adhered to medications, and 1/10 mediumly adhered. In India, Santi et al. (2023) used MMAS-8 to assess medication adherence among patients with MDD. They stated similar findings: most participants had low medication adherence, and only 1% had high medication adherence.[30]

Khalifeh et al. (2020) reviewed the prevalence, contributing factors, methods of measurement, and interventions related to medication adherence among patients with MDD in a review article. They found the prevalence of medication adherence among patients with MDD to be 10.6–85.4%. Approximately 67% of studies used self-reported data collection. Illness-related factors (onset of illness, duration of disease, symptoms, illness severity), medication-related factors (adverse reactions, duration of treatment, cost of treatment), and patient-related factors (beliefs, attitudes, knowledge, and self-stigma) were the most reported factors associated with medication adherence.[31] The analysis of Khalifeh et al. (2023)

showed that the mean scores of the baseline indicated non-adherence, moderate general benefits beliefs about the medication, high beliefs that medication is harmful, high beliefs about potential adverse effects from medication, and patients had moderately severe depressive symptoms.[32]

As previously reported, poor adherence to antidepressants in patients with MDD has been consistently reported over the last 20 years in different contexts and settings.[33] Adherence to medications in MDD patients and, more likely, adherence to psychotropics in patients suffering from psychiatric disorders is a multifaceted issue and depends on multiple factors that have been clustered mainly into patient-related and clinician-related ones. The quality and accessibility of information provided during the first prescription visit can make a difference in improving treatment adherence; the impact of non-adherence to antidepressants increases the likelihood of relapse and recurrence, emergency department visits, and hospitalization rates; increases symptom severity and decreases treatment response and remission rates.[34]

Conclusions

The most common level of depression severity among patients was mild to moderate, and the severity of depression symptoms was moderately severe in most patients. The change in weight and appetite was the most common, while suicide ideation was the least common. The knowledge of most patients was poor, and most of them were poorly adhered to medication. A positive correlation was noted between the depression assessment scales and the severity of symptoms. Thus, offering sufficient information to improve patient understanding is crucial, and potentially boosting adherence to medication regimens is vital.

Ethical Consideration

The Scientific and Ethical Committees approved the proposal for the present study at the College of Medicine, University of Sulaimani, Sulaimaniyah, Iraq (No. 150 on Nov 08, 2021). Written informed consent was obtained from patients or their guardians, and comprehensive information about the study's purpose, procedures, risks, and benefits was provided to participants, enabling them to make autonomous decisions regarding their involvement. Additionally, researchers prioritize confidentiality and privacy.

Conflict of Interest

It is not declared. ■

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