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### RESEARCH ARTICLE

#### PREVALENCE OF DEPRESSION AMONG HEMODIALYSIS PATIENTS IN AL-MADINAH AL-MUNAWWARAH, SAUDI ARABIA, 2021

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##### Manuscript History

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#### Abstract

**Background:** Among patients undergoing Hemodialysis, depression is one of the most common psychological problems. There is an association between depression and low quality of life, low adherence to treatment and high mortality rate among hemodialysis patients  
**Aim:** To estimate the prevalence of depression among hemodialysis patients in Al-Madinah Al-Munawwarah, Saudi Arabia, 2021.

**Methods:** A total of 200 hemodialysis patients were participated in this study. A questionnaire-based cross-sectional study was conducted from November 2021 to January 2022. Valid and reliable Arabic version of the Beck Depression Inventory II (BDI-II) have been used in the questionnaire.

**Results:** We found that 34.5% of patients had clinical depression. Among our participants, females had a significantly higher depression level than males ( $p < 0.05$ ). There is not a statistically significant difference between age, marital status, income, occupation and depression scale ( $p > 0.05$ ).

**Conclusion:** Our study has revealed that patients undergoing hemodialysis have a higher prevalence of clinical depression. Therefore, hemodialysis patients should be screened regularly. Early recognition and initiation of depression management will improve patients' quality of life. Also, it may decrease mortality and morbidity among hemodialysis patients.

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#### Introduction:-

##### Background:

According to WHO "depression is a common illness worldwide, with more than 264 million people affected. It can cause the affected person to suffer greatly and function poorly at work, at school and in the family"<sup>[1]</sup>. It is characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness, and poor concentration<sup>[2]</sup>.

For patients who cannot undergo a renal transplant, dialysis is a lifelong treatment for their end-stage renal disease<sup>[3]</sup>. There are two types of dialysis hemodialysis and peritoneal dialysis<sup>[4]</sup>. Patients need dialysis when they develop end-stage kidney failure (ESRD) usually by the time you lose about 85 to 90 percent of your kidney

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function and have a GFR of  $<15$  <sup>[4]</sup>. Usually, hemodialysis done three times per week each dialysis session lasts about 4 hours <sup>[5]</sup>.

Among patients undergoing Hemodialysis, depression is one of the most common psychological problems <sup>[6]</sup>. There is an association between depression and low quality of life, low adherence to treatment and high mortality rate among hemodialysis patients<sup>[7]</sup>. Healthcare provider's usually under-recognized depression among hemodialysis patients; therefore, regular screening should be implemented to those patients<sup>[8]</sup>.

#### **Rationale:**

Because of regular hemodialysis sessions, dietary restrictions, limited activity and associated chronic disease, patients undergoing hemodialysis at higher risk of depression and other emotional problems.

#### **General Objective:-**

To estimate the prevalence of depression among hemodialysis patients in Al-Madinah Al-Munawwarah, Saudi Arabia, 2021

#### **Specific objectives:**

1. To investigate the effects of sociodemographic characteristics on the prevalence of depression among hemodialysis patients.
2. To assess the severity of depression among hemodialysis patients.

#### **Literature Review:-**

Many studies were conducted in Saudi Arabia to estimate the prevalence of depression among hemodialysis patient. A study conducted at King Fahad hospital, Madinah, Saudi Arabia revealed that 24.6% of hemodialysis patients found to have depression (and 27% to have borderline depression)<sup>[9]</sup>. Another study done in Aseer region, Saudi Arabia found that 42% of hemodialysis patient had clinical depression (16% had severe depression) <sup>[10]</sup>. Old people were significantly associated with depression <sup>[9][10]</sup>. The probability of depression in a study conducted at Makkah, Saudi Arabia were 23.2% among Saudi ESRD patients (11.3% were already diagnosed with depression before ESRD onset) <sup>[8]</sup>. A cross-sectional study was conducted in the dialysis unit at Mansoura University, Egypt. Shows that 76.3% of hemodialysis patients were diagnosed as depression (23.7% of them were mild, 19.7% were moderate and 32.9% were severe depression) <sup>[11]</sup>. In Lebanon, a study conducted among 51 Lebanese patients undergoing hemodialysis found that 50% of patients suffering from depression symptoms (37% found to have suicidal ideation<sup>[12]</sup>). In the Northeast of Morocco, a cross-sectional study was carried out among hemodialysis patients found that 34% of hemodialysis patients had major depressive episodes (Suicidal ideation found in 16.5% and 1.9% of patients already planned their suicide)<sup>[13]</sup>. A systematic review and meta-analysis study were conducted in Iran including 27 studies on 2822 hemodialysis patients. The overall prevalence of depressive symptoms among hemodialysis patients in Iran was 62% (95% confidence interval, 0.54 to 0.71)<sup>[14]</sup>. A cross-sectional study conducted in Ghana found that depression symptoms were screened in 45% of hemodialysis patients<sup>[15]</sup>. Another study cross-sectional study conducted in Brazil among hemodialysis patients aged 60 years or older revealed that 43.3% of were having depressive symptoms and 22.5% of patients were having depression<sup>[16]</sup>.

#### **Methodology:-**

A questionnaire-based cross-sectional study was conducted from November 2021 to January 2022 aimed to assess the prevalence of depression among adult patients undergoing hemodialysis in the main private and governmental hemodialysis centers at Al-Madinah Al-Munawwarah, Saudi Arabia.

A total of 200 hemodialysis patients were participated in this study. After explaining the protocols and purpose of study to each participant, Verbal informed consent has been taken.

The questionnaire used in our study was self-administered by the patients. It consists of two main parts. The first part of the questionnaire consists of questions about Socio-demographics and clinical characteristics of patients. The second part involve the Beck Depression Inventory 2 (BDI-II) questions.

Valid and reliable Arabic version of BDI-II have been used in the questionnaire <sup>[17]</sup>. BDI-II measures existence and severity of depression symptoms. BDI-II consists of 21 questions that contain depression symptoms such as sadness,

suicidal ideation, loss of weight and social withdrawal. BDI-II divided into 2 subscales, 8 items for affective symptoms and 13 items for somatic symptoms. There is 4-point scale for each item ranging from 0-3. The result can be minimal range (0-13), mild (14-19), moderate (20-28), severe (29-63).

To be eligible, participants had to be Saudi, aged 18 years or older and undergoing regular hemodialysis sessions with no physical or cognitive limitations.

The data collected were entered and analyzed using Statistical Package for the Social Sciences (SPSS) version 20.

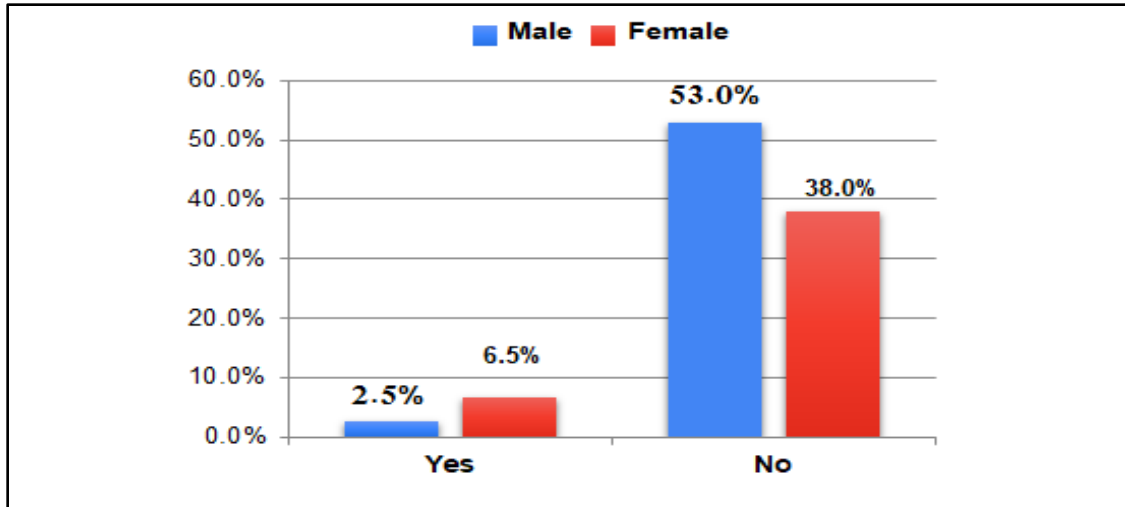
### Result:-

A total of 200 hemodialysis patients have participated in study. Table 1 shows that 55.5 % of the patients were males and 45.5% were females. The median age for the patients were 45.5 years (range: 18-88 years). 60.5% of patients were married, and 29.5 were single and 3% were divorce, and 7% were widow. Regarding education, we found that 11.5 of patients were illiterate and 14.5% were having primary school degree, 20.5% were secondary, 28.5 were graduated from high school. The vast majority of patients income were less than 5000 SAR (71%). When occupational status was evaluated, 57.5% of patients were unemployed, and 15.5% only were employed. When the duration of dialysis was examined, 46.5% of patients undergoing hemodialysis from 1 to 5 years. There was 9% of hemodialysis patients were diagnosed with depression before hemodialysis (Figure 1). Regarding coexisting chronic disease, 37% of patients having hypertension, and 6.5% having diabetes, and 28.5% having both diabetes and hypertension.

**Table 1:-** Sociodemographic characteristics of the participants.

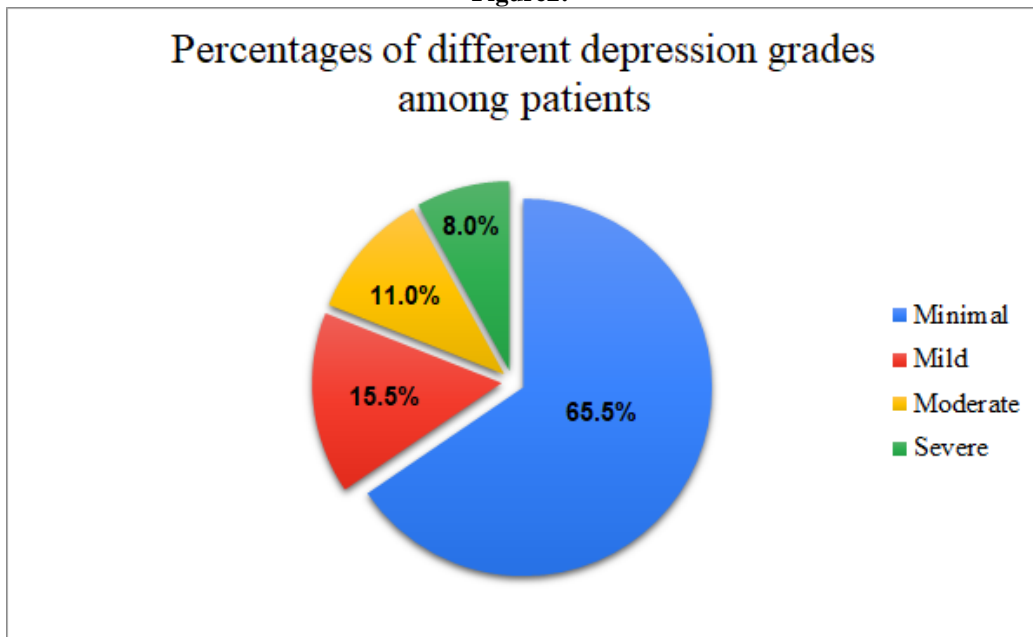
Sociodemographic variable	Frequency	Percent	
<b>Gender</b>	<b>Male</b>	111	55.5%
	<b>Female</b>	89	44.5%
<b>Social Status</b>	<b>Single</b>	59	29.5%
	<b>Married</b>	121	60.5%
	<b>Divorce</b>	6	3.0%
	<b>Widow</b>	14	7.0%
<b>Income</b>	<b>Less than 5.000</b>	142	71.0%
	<b>5.000-10.000</b>	42	21.0%
	<b>10.000 and more</b>	16	8.0%
<b>Education</b>	<b>Illiterate</b>	23	11.5%
	<b>Primary</b>	29	14.5%
	<b>Secondary</b>	41	20.5%
	<b>High</b>	57	28.5%
	<b>Bachelor</b>	50	25.0%
<b>Occupation</b>	<b>Employed</b>	31	15.5%
	<b>Unemployed</b>	115	57.5%
	<b>Free work</b>	12	6.0%
	<b>Retired</b>	42	21.0%
<b>Duration</b>	<b>Less than 1 year</b>	19	9.5%
	<b>1-5 years</b>	93	46.5%
	<b>5-10 years</b>	49	24.5%
	<b>More than 10 years</b>	39	19.5%
<b>Depression</b>	<b>Yes</b>	18	9.0%
	<b>No</b>	182	91.0%
<b>Chronic diseases</b>	<b>No</b>	56	28.0%
	<b>HTN only</b>	74	37.0%
	<b>DM only</b>	13	6.5%
	<b>DM and HTN</b>	57	28.5%
<b>Total</b>	<b>200</b>	<b>100.0%</b>	

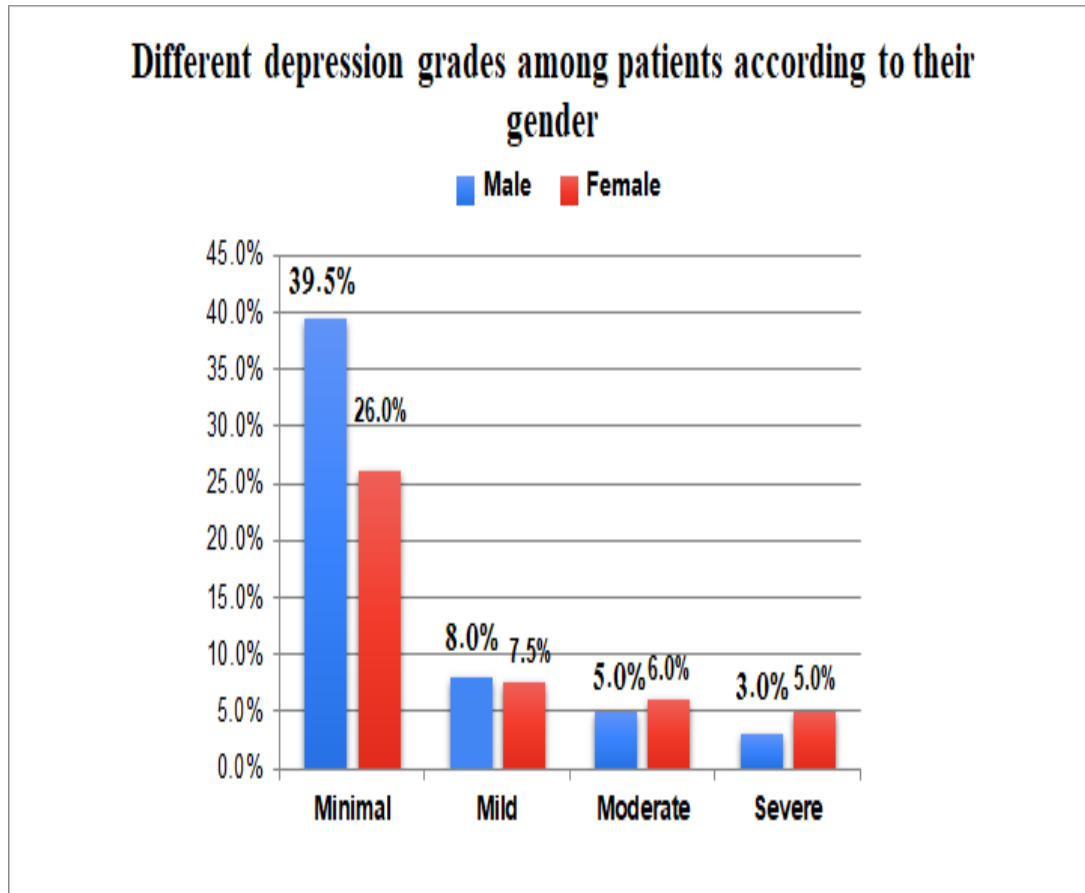
**Figure 1:-**



According to the Beck depression scale (BDI-II), 69 hemodialysis patients (34.5%) in the main hemodialysis centers at Al-Madinah Al-Munawwarahhad clinical depression. Figure 2 shows that 15.5% of patients had mild depression and 11% had moderate depression, and 8% had severe depression.

Figure2:-





### Discussion:-

Depression is a substantial comorbid illness usually recognized in patients undergoing hemodialysis<sup>[6]</sup>. Prevalence of depression varies widely in most published studies, which may be due to different tools used in those studies.

In our study, a sample of 200 hemodialysis patients were evaluated using BDI-II to measure clinical depression. We found that 34.5% of patients had clinical depression. The cut-off to consider HD patients as depression is 14 points or more based on the same BDI version used by previous studies<sup>[7, 19]</sup>. The prevalence of depression in our study is within the range of prevalence reported by previous studies (23.3% - 47.7%)<sup>[8, 9, 10, 18]</sup>.

Among our participants, females had a significantly higher depression level than males ( $p < 0.05$ ). There is not a statistically significant difference between age, marital status, income, occupation and depression scale ( $p > 0.05$ ).

In Saudi population, a study with 122 HD patients using the Hospital Anxiety and Depression Scale (HADS) questionnaire done in 2018 at King Fahad Hospital in Al-Madinah, found a depression rate of 24.6%<sup>[9]</sup>. In 2017, another cross-sectional study conducted in Aseer region using Beck's Depression Inventory- II (BDI-II) found that 42% of HD patients had depression<sup>[10]</sup>.

In Turkish, a cross-sectional study conducted in 2017 using BDI-II and including 65 hemodialysis participants found that 47.7% had major depression<sup>[18]</sup>.

### Conclusion:-

Our study has revealed that patients undergoing hemodialysis have a higher prevalence of clinical depression. Therefore, HD patients should be screened regularly. Early recognition and initiation of depression management will improve patients' quality of life. Also, it may decrease mortality and morbidity among hemodialysis patients.

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