

**Research Article****Prevalence of Depression among Hemodialysis Patients Admitted  
in Gorgan (Iran) During 2014**

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**ABSTRACT**

**Background:** Hemodialysis, the main treatment for chronic kidney disease, is known as a stressful process followed by a lot of mental, emotional and social pressures. The aim of present study was to examine the prevalence of depression and related risk factors in hemodialysis patients.

**Methods:** In this cross-sectional study, all hemodialysis patients admitted to 5<sup>th</sup> Azar Hospital in Gorgan during 2014 were examined. Personal information including age, sex, ethnicity, educational level, marital status, occupation, financial condition and information about renal disease, including the period of hemodialysis, history of diabetes, hypertension, anemia and nutritional status were extracted from the medical history of the patients. For the mental conditions, the *Beck Depression Inventory* (BDI) was used.

**Results:** Mental status of only 16.1% of the patients was normal; and 83.9 % of patients showed signs for different levels of depression in their BDI test. The fact that 31.7% of the patients suffered from clinical depression is a proof for the seriousness of this issue and the necessity of it. Also, results showed that in these patients, the risk factors associated with depression were in relation with factors such as, marital status, occupation, the number of dialysis sessions per week and other variables.

**Conclusions:** This study was done for the first time in northeast of Iran and based on the results of present study recommended that the doctors and technicians should pay close attention to the patient's mental condition in addition to hemodialysis.

**Keywords:** Depression, Gorgan, Hemodialysis, Prevalence

**INTRODUCTION:**

End-stage renal disease (ESRD) is a progressive and irreversible kidney disorder in which the body loses its ability to keep fluids and electrolytes in

balance (1). In 2003 almost two million people suffered from kidney failure in the United States (1). The statistics show that each year there is a 15

% increase in the number of people with kidney disorders in the worlds (2, 4). Hemodialysis as the main treatment for chronic kidney disease is a stressful procedure which is followed by a lot of emotional, psychological and social problems (5). Although hemodialysis will improve life span of the patients, it causes a lot of hardships like mental problems for the patients (6). Dialysis cannot compensate for the lack of metabolic activities, which is yet another reason for mental distress of the patient (7). Therefore, it is necessary to intervene psychologically as a major part of treatment in these patients.

Some of the known most common mental disorders in ESRD patients are depression, organic mental disorder, drug abuse and anxiety (8). There is no consensus about the severity of the emergence of psychiatric problems in dialysis patients, but everyone agrees that depression, and after that, anxiety are the most common sign of mental problem in these patients (9). Psychological disorders like depression may discourage the patient from following a diet compatible with their dialysis condition. Weight gain due to refusal of following an appropriate diet, excess fluid intake, malnutrition and sleep disorders are way more common in these patients than the patients who don't suffer from psychological disorders (7, 8).

Although depression is very common among hemodialysis patients due to the similarity of its symptoms such as appetite loss, fatigue, restlessness, loss of libido and sleep disorders, with those of some physical illnesses, it's very hard to diagnose (10). Therefore the epidemiology of depression induced by chronic kidney disease is still not very well known. On the other hand depression is one of the disorders that are very costly. In the United States depression is one of the top ten most costly diseases (11). This may be due to the fact that depression is an important factor in the patient's refusal of treatment and lack of cooperation by the patient will add to their medical problems and endangers their health; eventually leading to premature death (12). Therefore an early diagnosis and an effective

treatment of depression can improve the patient's prognosis, quality of life, and survival rate (13-15). For treatment, knowing the prevalence and risk factors of depression in any area is necessary; however, there is a little research in this regard in North of Iran. So, the present study was designed to examine the prevalence of depression and related risk factors in some Iranian hemodialysis patients.

#### **MATERIALS AND METHODS:**

In this cross-sectional study, which done during 2014 in Gorgan northeast of Iran, 194 hemodialysis patients whom were admitted to 5<sup>th</sup> Azar hemodialysis center were examined. Inclusion criteria were: being on hemodialysis, the age of over 18 years old and having the ability to answer the provided questionnaire. personal information including age, sex, ethnicity, educational level, marital status, occupation and financial status, and the medical information like the period of hemodialysis, history of dialysis, number of dialysis sessions per week, dialysis efficiency, history of diabetes, hypertension, anemia, nutritional status, serum albumin level and vascular access sites for dialysis were extracted from the patients' medical files. For examining the mental condition, Persian version of *Beck Depression Inventory* (BDI) was used. Beck depression inventory consists of 21 questions which analyzes the severity of depression and rates it from 0 to 63; in addition to screening. If the score is above 10 in healthy people and above 15 in dialysis patients it indicates depression. The severity of depression will be assessed based on the scores as follows: (11-16) mild depression, (17-20) mild depression with a need for therapy, (21-30) regular depression, (31-40) severe depression, (41-63) very severe depression. The criteria for being excluded from the study were a known history of mental disorder and the use of antidepressants in the previous month.

#### **STATISTICAL ANALYSIS:**

For data analysis we used SPSS v.21. Continuous variables were presented by mean and standard

deviation. Spearman correlation coefficient, independent t-test and ANOVA were applied for correlation and comparison. P-value less than 0.05 were considered as statistically significant.

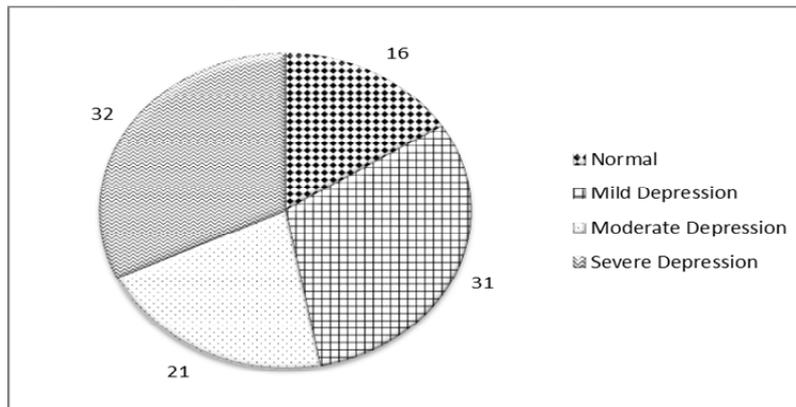
**RESULTS:**

194 eligible hemodialysis patients' entered the study. 14 patients were excluded because of a lack of willingness to cooperate. 180 patients cooperated in the study. Demographic data (age, gender, occupational status, marital status and socio-economic status) of patients is shown in Table 1.

**Table 1.** Demographic data of patients

| Variable                                |                   | hemodialysis patients |
|---|-------------------|-----------------------|
| Age (yrs)                               |                   | 54.01±13.9            |
| Gender (Male N-%)                       |                   | 97 (53.8)             |
| Occupational status (employed %)        |                   | 10.6                  |
| Marital status (widowed and divorced %) |                   | 15.6                  |
| Hypertension (%)                        |                   | 126 (70%)             |
| Diabetes (%)                            |                   | 69 (38.3)             |
| Dialysis duration(hrs)                  |                   | 3.7±0.3               |
| Socio-economic status (%)               | Poor Condition    | 47.2                  |
|   | regular condition | 42.2                  |
|   | good condition    | 8.9                   |

Analysis on the Beck test scores of the patients showed that 29 patients (16.1%) were normal and 31.7 % of the patients showed signs of severe depression in their results. The results are shown in the figure 1.



**Figure 1:** Frequency (%) of depression among the patients.

Mean depression score was higher in female patients than in male patients (31.3±8.1 vs. 21.8±5.4), the results of independent t-test showed a statistically significant difference (P=0.05). Results also showed that there is a relation between socio-economic status and depression. 94.11% of poor patients were more prone to severe depression versus 48.2% of rich patients (P <0.001). Married patients were more prone to depression, according to Beck test (69% with depression vs 31% normal, P<0.001), however, the differences in these test results were not noticeable in the single patients. (P>0.05)

**Table 2.** Number and percentage of different level of depression among the hemodialysis patients

|                      |                      | Normal      | Depressed   | P-value |
|----------------------|----------------------|-------------|-------------|---------|
| occupational status  | Employed             | 12 (63.15%) | 7 (36.85%)  | <0.001  |
|                      | Unemployed           | 19 (11.8%)  | 142 (88.2%) |         |
| duration of dialysis | <4 hours             | 19 (31.1%)  | 42 (68.9%)  | <0.001  |
|                      | ≥4 hours             | 4 (3.4%)    | 115 (96.6%) |         |
| Diabetes             | Diabetic             | 11 (15.9%)  | 58 (84.1%)  | 0.5     |
|                      | Non-diabetic         | 25 (22.5%)  | 86 (77.5%)  |         |
| Hypertension         | With hypertension    | 30 (23.8%)  | 96 (76.2%)  | 0.6     |
|                      | Without hypertension | 10 (18.5%)  | 44 (81.5%)  |         |

The results (Table 2) showed that employed patients had lower scores in the Beck test ( $P<0.001$ ), increases in dialysis duration cause an increase in the possibility of depression ( $P<0.001$ ),

#### **DISCUSSION:**

The aim of the present study was to determine the prevalence of depression and its related risk factors in hemodialysis patients. According to the results of this study, 84% of hemodialysis patients reported some levels of depression. Findings also showed that increases in dialysis duration cause an increase in the possibility of depression.

In 2014 Afshaar et al, showed that there is a 70% prevalence of depression in hemodialysis patients in two hemodialysis centers in Tehran. 26.7 % of them suffered from severe depression. These results were almost in sync with this study. None of the variables including age, sex, underlying disease, dialysis duration, history of kidney transplant, anemia, marital status, occupational status and serum albumin level had a meaningful correlation with depression statistically. But in this study age, dialysis duration, marital status and occupational status had a meaningful relation with Beck test results. This difference in the results is an indicative of the need to analyze this subject deeper and more extensively. (9)

Mahmoody et al (2010) studied the level of depression in hemodialysis and kidney transplant patients. In their study, There wasn't a significant difference between the two groups statistically, that is similar with our study. The degree of depression in women and men did not show any meaningful difference in comparison. In general, 93% of the dialysis patients suffered from depression with different degrees (mild to severe) that was higher than the finding of the present study. Regarding the relation of the depression level with age, sex, marital status and educational level, there wasn't a meaningful difference. The results showed that the level of depression in each group is very high, and also the depression level is way higher in dialysis patients than transplant patients. By using self-evaluation tests and Beck Depression Inventory we can avoid the confusion of the similarity of the symptoms of

patients who suffered from diabetes had increased prevalence of depression ( $P=0.5$ ), patients with hypertension showed signs of different degrees of depression ( $P=0.6$ ).

ESRD and depression in diagnosis and screening of the depressed patients; which is a simple and low cost method of early diagnosis and treatment in these patients (11). The results of this study also suggest that dialysis patients should be under special attention for the possibility of depression.

In another study, Joshwa et al. examined the prevalence of depression, fatigue and sleep problems in hemodialysis patients in India. (16) They used BDI and found out the prevalence of depression equal to 73% (59.7% reported mild and moderate level and 12.6% reported severe level) that was lower than the finding of the present study. (12)

#### **CONCLUSION:**

Overall, the findings of this study emphasize the prevalence of depression in hemodialysis patients; which is also correlated with factors like marital status, occupational status, employment status, economic condition, number of dialysis sessions per week, age, nutritional status and educational level of the patients.

With respect to the destructive impact of depression on the individual and their family, the doctors and technicians must pay special attention to psychological disorders in the patients, in addition to hemodialysis.

#### **Conflict of interest:**

The authors declare that they have no conflict of interests.

#### **ACKNOWLEDGEMENTS:**

The authors gratefully thank the patients for their cooperation and thoughtful responses.

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