

Level of Depression in Chronic Kidney Disease Patient Undergoing Hemodialysis at Kathmandu District

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ABSTRACT

Background: Depression is a condition of low mood. It causes lack of interest and pleasure in daily activities that could lead to feeling of worthlessness, hopelessness, and helplessness. It is a common mental illness among patient with chronic physical health problems. The objective of this study was to measure the level of depression among chronic kidney disease (CKD) patient who are undergoing hemodialysis at Kathmandu district.

Methods: We used descriptive cross-sectional study. In total, 17 hemodialysis centers exist in Kathmandu. For the study, we purposively selected National Kidney Center (NKC), Vanasthali. We used systematic random sampling to select 186 samples out of 430 hemodialysis patient attending the National Kidney Center. Semi structured questionnaire along with Nepali version Beck Depression Inventory (BDI) was used. We obtained ethical approval from Nepal Health Research Council (Ref. 543). Data were analyzed using data base created in the SPSS.

Results: Out of 186 participants, 45.6% had severe depression followed by mild depression (nearly 19.9%), and moderate depression (approximately 19.4%). The least numbers of participants (15.1%) had minimal depression. Age of the participants was significantly associated with the level of depression (P=0.04) with moderate relationship (Cramer's V= 0.186). Most of the participants (70%) were male. The highest numbers of participants were from disadvantaged janajati. The majority (80.6%) of the participants had below SLC level educational qualification.

Conclusion: Nearly half of the participants having hemodialysis due to CKD were suffered from severe depression. The age of the participants had moderate association with the level of depression.

Key Words: Depression, Kathmandu, Hemodialysis, Chronic Kidney Disease

INTRODUCTION

Chronic Kidney Disease (CKD) is a group of heterogeneous disease that affects the function and structure of kidney characterized by progressive loss of renal functions.¹ Hemodialysis is a procedure used to remove fluid and waste products from the blood and to correct electrolyte imbalances. It is done using a machine and a dialyzer, and is used to treat both acute and chronic renal failure.² Depression is common among the hemodialysis patients.

Low level of depression has better quality of life in hemodialysis patients as compared to the moderate and high levels of depression.³

The prevalence of depression is as higher as of anxiety and insomnia in chronic kidney disease patient undergoing hemodialysis.⁴ Moreover; high levels of depressive symptoms have been reported by maintenance hemodialysis patients.⁵ Depression among hemodialysis patients was in increasing trend from the first visit to

the subsequent visit for the hemodialysis. The lifelong dialysis therapy, economic burden on patients and their families and altered family and social relationships might cause depression among the dialysis patients.⁶

Depression lessens the survival of person having hemodialysis (HD).⁷ It is essential to identify the prevalence of depression and its associated socio-demographic variables among the CKD patients taking regular hemodialysis. Thus, the study aimed to find out the level of depression and its association with socio-demographic characteristics among the Chronic Kidney Disease patient having hemodialysis.

MATERIALS AND METHODS

We used descriptive cross sectional study. Total 17 hemodialysis centers exist in Kathmandu district. Total 1,165 patients were registered for hemodialysis in Kathmandu. Out of 1,165 patients, 430 patients (approximately 37%) were at National Kidney Center (NKC), Banasthali. We purposively selected National Kidney Center Vanasthali for our study as it has the highest numbers (430) of patients having hemodialysis. The sample size for this study was 186.

We developed the sampling frame of 430 CKD patients from the register of NKC and selected the participants using systematic random sampling technique.

We used semi structured questionnaire along with Nepali version of "Beck Depression Inventory" (sensitivity-0.85, specificity-0.86). BDI assess the presence and severity of 21 symptoms over the past week. The score 0-13 indicates minimal depression, 14-19 indicates mild depression, 20-28 indicates moderate depression, and 29-63 indicates severe depression. It was validated in Nepali language, which shows acceptable validity based on item differences, reliability and factor score.⁸ The Beck Depression Inventory (BDI) is the most used self-rating scales for measuring depression world-

wide.⁹ The BDI differentiates subtypes of depression and differentiates depression from anxiety.¹⁰ We did pretest of the research tool in 19 hemodialysis patients in Himal hospital and checked the internal consistency (Chronbach's alpha-0.95). We used face to face interview to collect data.

We took ethical approval from Nepal Health Research Council (NHRC). We followed the National Ethical Guidelines for Health Research in Nepal.¹¹ We took written informed consent from the patients before interview. The participants who had severe depression were referred to psychiatric consultation.

RESULTS

Table 1: Socio-demographic characteristics, n=186

Characteristics	Frequency	Percentage
Age group		
17 to 39yrs	68	36.6
40 to 59yrs	87	46.8
60 years and above	31	16.7
Sex		
Male	134	72.0
Female	52	28.0
Marital Status		
Married	145	78.0
Unmarried	28	15.1
Widow/widower	11	5.9
Divorced	2	1.1
Ethnicity		
Dalit	10	3.8
Disadvantaged Janajati	69	37.1
Relatively advantaged Janajati	51	27.4
Upper caste group	56	30.1
Educational level		
Below S.L.C	150	80.6
Above S.L.C	36	19.3

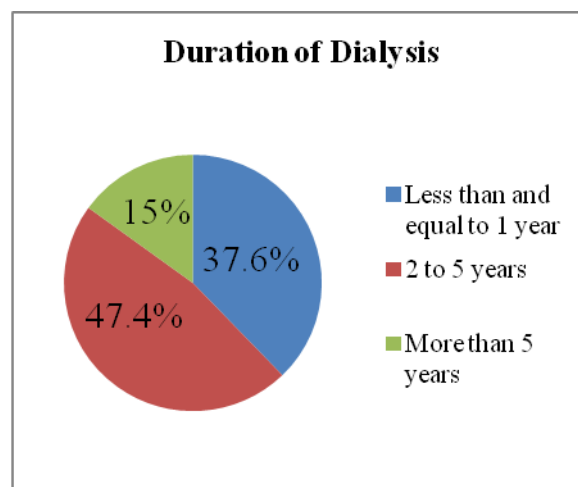


Figure 1: Duration of dialysis among the participants, n=186

Table 1 shows that, nearly half of the participants (46.8%) were aged of 40 to 59

years, however, the least numbers of participants (16.7%) were aged 60 and above. Male participants were in higher numbers (72%) than the female. Furthermore, disadvantaged Janajati were in highest numbers (37.1%). Approximately, four fifth (78%) participants were married.

In addition, majority of the participants (80.6%) had below SLC education level.

Figure 1 depicts that nearly half of the participants (47.4%) had 2 to 5 years duration of dialysis, whereas 15% participants had more than 5 years duration of dialysis.

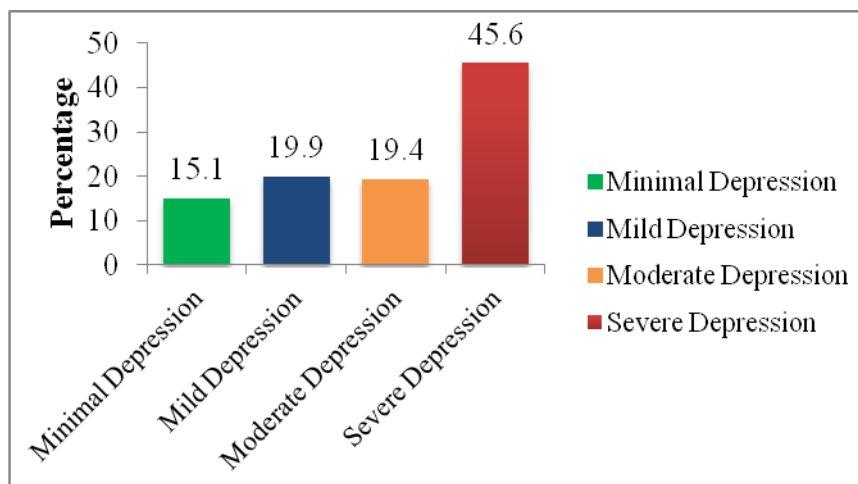


Figure 2: Level of depression among Chronic Kidney Disease patients undergoing hemodialysis, n=186

Figure 2 reveals that nearly half (45.6%) of the participants had severe depression; the numbers of participants having mild and moderate depression were almost the same (19.9 % and 19.4% respectively) and 15.1% participants had minimal depression.

Table 2: Association between socio-demographic characteristics and level of depression, n=186

Variables	Minimal Depression f (%)	Mild Depression f (%)	Moderate Depression f (%)	Severe Depression f (%)	Cramer's V	P value
Age Group					0.186	*0.04
17 to 42 yrs	12(17.7%)	15(22.0%)	17(25.0%)	24(35.3%)		
43 yrs & above	15(17.2%)	12(13.8%)	16(18.4%)	44(50.6%)		
60 and above	1(3.2%)	10(32.2%)	3(9.8%)	17(54.8%)		
Sex					0.140	0.30
Male	24(17.9%)	24(17.9%)	26(19.4%)	60(44.8%)		
Female	4(7.7%)	13(25.0%)	10(15.2%)	25(48.1%)		
Marital status						
Married	24(16.6%)	29(20.0%)	26(17.9%)	66(45.5%)	0.095	0.64
Singlehood	4(9.8%)	8(19.5%)	10(24.4%)	19(46.3%)		
Ethnicity					0.125	0.46
Dalit	3(30.0%)	1(10.0%)	1(10.0%)	5(50.0%)		
Disadvantaged Janajati	7(10.1%)	14(20.2%)	15(21.8%)	33(47.9%)		
Relatively Advantaged Janajati	6(11.8%)	13(25.4%)	12(23.6%)	20(39.2%)		
Upper caste Group	12(21.4%)	9(16.0%)	8(14.2%)	27(48.2%)		
Educational level					0.066	0.84
Below S.L.C	21(14.0%)	31(20.7%)	29(19.3%)	69(46%)		
Above S.L.C	7(19.4%)	6(16.7%)	7(19.4%)	16(44.4%)		

*P value significant at 95% Confidence Interval

Table 3: Association between level of depression and duration of dialysis, n=186

Variables	Minimal Depression	Mild Depression	Moderate Depression	Severe Depression	Cramer's V	P value
Dialysis duration					0.020	0.96
Less than and equal to 1 year	6(8.6%)	11(15.7%)	15(21.4%)	38(54.3%)		
2-5 years	12(13%)	20 (22.7%)	16(18.2%)	40(45.5%)		
More than 5years	10(35.7%)	6(21.4%)	5(17.9%)	7(25%)		

Table 2 displays that, the age of the participants was significantly associated

with the level of depression (P-0.04) with moderate relationship (Cramer's V- 0.186).

However, sex, marital status, ethnicity, educational levels were not significantly associated with level of depression among hemodialysis patients.

Table 3 reveals that there was no significant association between duration of dialysis and level of depression.

DISCUSSION

The study aimed to find out the level of depression and its association with socio-demographic characteristics among the Chronic Kidney Disease patient having hemodialysis. In current study, nearly half of the participants were aged of 40 to 59 years; disadvantaged Janajati ethnic participants were in the highest number among all other ethnicity. Majority of the participants (80.6%) had below SLC level education. More than three quarter participants were married. Approximately half of the participants had more than 5 year duration of dialysis. A survey conducted by Nepal health research council on non communicable disease found that prevalence of CKD was slightly higher among the male as compared to female. In addition, the religious minorities had highest prevalence among all ethnic diversities in Nepal. Regarding education, the rate of CKD was highest in illiterate/no formal schooling. In regard to the marital status, widowed participants had highest prevalence.¹²

In our study, 45.6% participants had severe depression whereas 15.1% participants had minimal depression. The participants having mild and moderate depression were almost in equal numbers. A study conducted in India showed that 15.7% hemodialysis patients had severe depression and 27.3% had mild depression.¹³ A study from Iran showed that 27.4% participants had severe depression.¹⁴ Compared to India and Iran the prevalence of depression among the CKD patients is higher in our study.

In this study, age of the participants was moderately associated with the level of depression. Furthermore, the higher

percentage of older aged participants had severe depression. In the line with this finding, a study from Greek found that, older participants had a significantly higher level of depression.¹⁵

In current study, sex of the participants was not associated significantly with the level of depression; however the proportion of female participants having severe depression was higher as compared to the male. In regard to the educational level, our study found that the percentage of participants having educational level below school leaving certificate (SLC/10th grade) had slightly higher percentage of severe depression but the educational level was not significantly associated with the level of depression. In regard to the marital status, it was not significantly associated with the level of depression but the percentage of singlehood participants having moderate and severe depression was higher as compared to the married participants. A study from Greek found that the female patients had higher score of severe depression as compared to male. Less educated (<9 years education) had higher score of severe depression.¹⁵

CONCLUSIONS

The study concluded that the severe level of depression was more common among the patient having hemodialysis. Male and the disadvantaged janajati participants were in highest numbers. Age was significantly associated with the level of depression among the CKD patients undergoing hemodialysis. Regular psychological testing and counseling is needed to early detect and intervene for depressive symptoms among the hemodialysis patients.

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REFERENCES

1. Webster AC, Nagler EV, Morton RL, Masson P. Chronic kidney disease. *The Lancet*. 2017 Mar 25;389 (10075):1238-52.
2. MedicineNet [Internet]. Medterms Medical Dictionary. www.medicinenet.com/hemodialysis/definition.htm (accessed on 10 February 2021).
3. Vasilopoulou C, Bourtsi E, Giaple S, Koutelekos I, Theofilou P, Polikandrioti M. The impact of anxiety and depression on the quality of life of hemodialysis patients. *Global Journal of Health Science*. 2016 Jan;8(1):45.
4. Aggarwal HK, Jain D, Dabas G, Yadav RK. Prevalence of depression, anxiety and insomnia in chronic kidney disease patients and their co-relation with the demographic variables. *Prilozi*. 2017 Sep 1;38(2):35-44.
5. Utiérrez-Peredo GB, Martins MT, da Silva FA, Lopes MB, Lopes GB, Lopes AA. Functional dependence and the mental dimension of quality of life in Hemodialysis patients: The PROHEMO study. *Health and Quality of Life Outcomes*. 2020 Dec;18(1):1-0.
6. Khan A, Khan AH, Adnan AS, Sulaiman SA, Mushtaq S. Prevalence and predictors of depression among hemodialysis patients: a prospective follow-up study. *BMC Public Health*. 2019 Dec;19(1):1-3.
7. de Alencar SB, do Amaral Dias L, do Amaral Dias V, de Lima FM, Montarroyos UR, de Petribú KC. Quality of life may be a more valuable prognostic factor than depression in older hemodialysis patients. *Quality of Life Research*. 2020 Feb 15:1-0.
8. Kohrt BA, Kunz RD, Koirala NR, Sharma VD, Nepal MK. Validation of the Nepali version of Beck depression inventory. *Nepalese Journal of Psychiatry*, 2002; 2(4):123-130.
9. Richter P, Werner J, Heerlein A, Kraus A, Sauer H. On the validity of the Beck Depression Inventory. A review. *Psychopathology*, 1998; 31(3):160-8. doi:10.1159/000066239).
10. Beck, AT, Steer RA, & Carbin, MG. Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review*, 1988; 8(1):77-100. doi: [https://doi.org/10.1016/0272-7358\(88\)90050-5](https://doi.org/10.1016/0272-7358(88)90050-5)
11. Nepal Health Research Council (NHRC). National Ethical Guidelines for Health Research in Nepal. Kathmandu; June, 2019.
12. NHRC. Population Based Prevalence of Selected Non-Communicable Diseases in Nepal. available from <http://nhrc.gov.np/wp-content/uploads/2019/07/CKD-Report-pdf-resize.pdf>. 2019,
13. Nelson V, Gopalakrishnan S, Rakesh PS, Simon S, Babu V, Vikraman V. Depression Among Dialysis Patients. *National Kidney Foundation Journal of Nephrology Social Work*. 2016;40(2):34-37.
14. Anjomshoa F, Esmaeli Abdar M, Rafiei H, Arjmand Kermani M, Hassanarabi F, Hasani A, Esmaeili Z. Depression among hemodialysis patients: a cross-sectional study in southeast of Iran. *International Journal of Epidemiologic Research*. 2014;1(1):24-8.
15. Theofilou P. Depression and anxiety in patients with chronic renal failure: the effect of sociodemographic characteristics. *International Journal of Nephrology*. 2011 Jan 1; vol 2011. <https://doi.org/10.4061/2011/514070>

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