

Knowledge on Self-care Management among Chronic Kidney Disease Patients Undergoing Hemodialysis in Tertiary Hospitals of Kathmandu

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Submitted

Apr 26, 2021

Accepted

Jul 22, 2021

ABSTRACT

Introduction

Chronic kidney disease (CKD) is an alarming public health problem worldwide which often needs maintenance hemodialysis. Self-care management involves the positive efforts of patients to participate in their health care in order to optimize health. Thus this study aims to assess the knowledge on self-care management among chronic kidney disease patients undergoing hemodialysis.

Methods

A descriptive cross-sectional study was carried out at Tertiary hospitals, Kathmandu among 173 hemodialysis patients using purposive sampling technique. Data was collected through face to face interview from June to July, 2018. Self-care management constituted four components: diet and fluid intake, physical activities and exercises, care of fistula and other general management of hemodialysis. Data was analyzed with SPSS version 20 by using descriptive statistics and inferential statistics.

Results

The mean age of respondents was 45.71±14.61 years. Seventy (40.5%) were on hemodialysis for less than one year and majority (79.8%) underwent hemodialysis twice a week. The overall mean score of knowledge was 60.26±8.90. The mean score of knowledge on diet and fluid intake, physical activities and exercises, care of fistula and other general management of hemodialysis were 62.41±7.70, 47.27±20.59, 68.08±12.43 and 42.69±17.33 respectively. There were significant association between level of knowledge score and educational status and attending educational programme on hemodialysis (p=0.001 and p=0.01).

Conclusion

Only few respondents had good level of knowledge on self-care management. Thus, it is immensely needed to conduct regular educational programme focused on diet and fluid, physical activities and exercise, fistula care and general management of stress and complications.

Keywords

Chronic kidney disease, hemodialysis, knowledge, self-care management

INTRODUCTION

The global prevalence of chronic kidney disease (CKD) is estimated to be 11-13% and it is increasing day by day.¹ It is assumed that the global prevalence of CKD will be double by 2030.² In India, it is estimated that 55,000 patients on dialysis and 10-20% population is growing annually.³ Similarly in Nepal, the prevalence of CKD is 8-16%.⁴ Approximately, 3,000 new cases of End stage kidney disease (ESKD) developed per year. The incidence of ESKD is 100 per million populations which need dialysis.⁵

Haemodialysis significantly and adversely affects the lives of patients, both physically and psychologically.⁶ There are several complications of hemodialysis like hypotension, hypoglycemia, electrolyte imbalance and air embolism, anemia, depression etc.⁷ Self-care management is defined as active participation in their own health care. It reflects individual responsibility for the management of their disease.⁸ A study conducted in selected hospital of Panjab, India, revealed that 25% of the respondents had excellent knowledge, 27.27% had good, 25% had average and 22.73% had below average level of knowledge.⁹ Study done in 2016 at National Kidney Center, Nepal showed that only 46% of the respondent had good knowledge about self-care and overall mean knowledge score was 83%.¹⁰ Similarly study done by Shah in 2016 revealed that there is positive correlation between the knowledge and quality of life. As the level of knowledge increases quality of life improves simultaneously.¹¹

Hence, this study was carried out to assess the knowledge on self-care management among CKD patients under hemodialysis.

METHODS

A descriptive cross-sectional research design was adapted to find out self-care management knowledge among CKD patients under hemodialysis with total sample of 173 at Tribhuvan University Teaching Hospital (TUTH), and National Kidney Centre (NKC), Kathmandu by using non probability purposive sampling technique. Face to face interview technique was followed for data collection with structured Nepali version questionnaire by researchers themselves. The study period was from June, 2018 to July, 2019. Ethical approval was taken from Institutional Research Committee (IRC) of Institute of Medicine (IOM), and permission letters were taken from administration of TUTH and NKC. Written Informed consent was taken from each respondents before data collection. Inclusion criteria of the study were only CKD patients who were under hemodialysis for last three months, age was 20-70 or above years and willing to participate and able to communicate well.

In this study selected socio-demographic variables are considered as respondents' age, educational status, marital status, duration of dialysis and attended in educational program on hemodialysis. Educational program on hemodialysis is considered as patient education on diet and fluid intake, physical activities and exercises, care of fistula and general management (stress, prevention from infection, disease progression, complications and laboratory tests) of patients under hemodialysis. Knowledge on self-care management included knowledge on some components of self-care management possessed by the respondents in terms of diet and fluid intake, physical activities and exercises, care of fistula and general management (stress, prevention from infection, disease progression, complications and laboratory tests). For Scoring the Knowledge, each correct response to an item was given one score and no score was given to wrong response. Diet and fluid intake constituted total 34 items among them 17 items had 130 sub items as a multiple response, rest 17 items had 1 correct response and others were wrong response for each. Physical activities and exercises had 4 items among them 2 items had 11 sub items as a multiple response, rest 2 had 1 correct response and others were wrong response for each. Care of fistula constituted 3 items included 22 sub items as a multiple response. Similarly general management (stress, prevention from infection, disease progression, complications and laboratory tests) had 5 items included 42 sub items as a multiple response. The total highest knowledge score on self-care management is 170. This score was transformed to 100 so that total possible score would range from 0 to 100 for making comparable between components of knowledge on self-care management.

The obtained data was analyzed by SPSS version 20 by using descriptive and inferential statistics and interpret in terms of frequency, percentage, mean and standard deviation and Chi Square test to find out the association between knowledge on self-care management and selected socio-demographic variables at p-value 0.05. Level of knowledge score was categorized based on study done by Jawadagi in 2014 as poor, average and good knowledge which was measured as poor knowledge ($< \text{Mean} - 1\text{SD}$), average knowledge ($\text{Mean} - 1\text{SD}$ to $\text{Mean} + 1\text{SD}$) and good knowledge ($> \text{Mean} + 1\text{SD}$).¹²

RESULTS

Table 1 shows socio-demographic characteristics of the respondents. More than one third (42.77%) were from age group of 40-59 years. More than half (61.3%) were male, more than one third (34.7%) were from disadvantaged janajati and majority (76.9%) were Hindu. More than half (55.5%) completed up to SLC level education. Most (81.5%)

Table 1. Socio-demographic characteristics of the respondents (n=173)

Characteristics	Frequency (%)
Age (in completed years)	
20-39	63 (36.42)
40-59	74 (42.77)
60 and above	36 (20.81)
Mean age : 45.71±14.61	
Age range : 20-70	
Sex	
Male	106 (61.3)
Female	67 (38.7)
Ethnicity	
Disadvantaged janajati	60 (34.7)
Relatively advantaged janajati	41 (23.7)
Upper caste group	59 (34.1)
Other*	13 (7.5)
Religion	
Hinduism	133 (76.9)
Buddhism	25 (14.5)
Other**	15 (8.7)
Level of education	
Unable to read and write	41 (23.7)
Up to School leaving certificate (SLC)	96 (55.5)
Proficiency certificate level (PCL)	19 (11.0)
Bachelor's and above	17 (9.8)
Marital status	
Married	141 (81.5)
Unmarried	15 (8.7)
Widowed/ Widower	10 (5.8)
Separated/ Divorced	7 (4.0)
Employment status	
Unemployed	126 (72.8)
Employed	47 (27.2)
Type of family	
Nuclear	75 (43.4)
Joint	98 (56.6)

*Other (Dalit, disadvantaged non Dalit Terai caste group and religious minorities).

**Other (Christianity, Islam and Kirat)

were married. Likewise, majority (72.8%) of the respondents were unemployed. Similarly, more than half (56.6%) were living in joint family.

Table 2. Hemodialysis related information of the respondents (n=173)

Characteristics	Frequency (%)
History of hemodialysis in family	
Positive family history	7 (4.0)
Duration of hemodialysis	
Less than 1 year	70 (40.5)
1-3 year	55 (31.8)
More than 3 year	48 (27.7)
Mean : 2.47±2.36	
Range : 0.25-13.50	
Median (Q1,Q3) : 1.5 (0.83, 3.5)	
Frequency of hemodialysis in a week	
Once	2 (1.2)
Twice	138 (79.8)
Thrice	33 (19.1)
Mean : 2.18±0.41	
Attended educational programme on hemodialysis	10 (5.8%)

Regarding history of hemodialysis in family, very few (4.0%) of the respondents had positive family history. More than one third (40.5%) were on hemodialysis for less than one year. Majority (79.8%) underwent for hemodialysis twice a week. Similarly, very few (5.8%) of the respondents had attended educational programme on hemodialysis as given in (Table 2).

Table 3 depicts that respondents had comparatively higher knowledge on care of fistula (68.08±12.43; Range: 42.72 to 93.44) followed by knowledge on diet and fluid intake (62.41±7.7; Range: 46.32 to 78.5). However, there is only 47.27±20.59 percent knowledge on Physical activities and exercises (Range: 5.91 to 88.63) and 42.69±17.33 percent knowledge on general management (Min-Max: 6.72 -78.66).

Regarding level of knowledge score on self-care management, only 14.5% of the respondents had good knowledge, 68.2% had average and 17.3% had poor knowledge (Table 4). Similarly, regarding association between level of knowledge on self-

Table 3. Knowledge on various components of self-care management (n=173)

Knowledge	Mean	SD	Min	Max
Diet and fluid Intake	62.41	7.7	46.32	78.50
Physical activities and exercises	47.27	20.59	5.91	88.63
Care of Fistula	68.08	12.43	42.72	93.44
General Management	42.69	17.33	6.72	78.66

Table 4. Level of Knowledge score on self-care management among CKD Patients under hemodialysis (n=173)

Level of knowledge score	n (%)
Poor (<Mean-1SD) (54-87)	30 (17.3%)
Average (Mean±1SD) (88-117)	118 (68.2%)
Good (≥Mean+1SD) (≥118)	25 (14.5%)
Mean score±SD 60.26±8.90	
Score in range 54-134 (in % 31.76-78.82)	

care management and selected socio-demographic variables of the respondents at 95% CL there is significant association with educational status and attended educational programme on hemodialysis ($p=0.001$ and $p=0.01$) (Table 5).

DISCUSSION

Regarding knowledge on diet intake, the result of this study shows that mean score 62.41 ± 7.70 which is similar to the study of Shrinivassan¹³ and Jawadagi¹² like mean score are 61.8 ± 12.75 and 65.10 ± 13.08 respectively. Similarly, finding of the study shows that mean score of physical activities and exercises is 47.27 ± 20.59 which is contradicted to the study done by Haloob AL-Abedi HM et al., as mentioned mean score is 75.0 ± 7.0 .¹⁴ Likewise knowledge on fistula care, study finding shows that mean score is 68.08 ± 12.43 which is contradicted with the

study of Clementino et al., as reported $\geq 80.3\%$.¹⁵ Regarding knowledge on self-care management of the respondents, study result shows that 68.2% had average level of knowledge whereas 17.3% and 14.5% had poor and good respectively. This results are consistent with the study of Shah and Pokharel stated that 65.26% had average level of knowledge whereas 23.15% and 11.57% had poor and good respectively.¹¹ Likewise, the finding is more or less similar to the study of Shukla and Kaur reported 25% had average knowledge, 22.73% had below average and 52.27% had good 9 but the findings was contrast from study of Haloob AL-Abedi HM et al., revealed that 54% had poor level of knowledge where as 46% had good.¹⁴ The present study findings shows that knowledge on self-care management is statistically significant with educational status ($p=0.001$) and attended educational programme on hemodialysis ($p=0.01$) which is supported by study done by Atashpeikar et al, concluded as the patients who have higher education level can better recognize their self-care needs.¹⁶

Findings of the study were limited to generalize in wider population as it was adopted non probability purposive sampling technique and was conducted only in two dialysis centers of tertiary hospital, Kathmandu. Though researchers had taken interview from each separate individual respondent but it had difficult to maintain privacy because interview was taken from bed patients during hemodialysis in hemodialysis unit/ward instead of separate room.

Table 5. Association between level of knowledge on self-care management and socio-demographic variables (n=173)

Variables	Level of knowledge			Total	x ²	p-value
	Poor	Average	Good			
Age						
20-40	8 (12.7%)	43 (68.3%)	12 (19.0%)	63	6.606	0.16
40-60	13 (17.6%)	49 (66.2%)	12 (16.2%)	74		
60 and above	9 (25.0%)	26 (72.2%)	1 (2.8%)	36		
Educational status						
Illiterate	9 (21.95%)	32 (78.05%)	0 (0.00%)	41	16.375	0.001*#
Literate	19 (14.39%)	86 (65.15%)	27 (20.46%)	132		
Marital status						
Unmarried	3 (20.0%)	8 (53.3%)	4 (26.7%)	15	2.296	0.32#
Married	27 (17.1%)	110 (69.6%)	21 (13.3%)	158		
Duration of dialysis						
Less than 1 year	15 (21.4%)	44 (62.8%)	11 (15.7%)	70	1.756	0.41
More than 1 year	15 (14.6%)	74 (71.8%)	14 (13.6%)	103		
Attended educational programme on hemodialysis						
Yes	0 (0%)	10 (100.0%)	0 (0%)	10	7.935	0.01*#
No	30 (18.4%)	108 (66.3%)	25 (15.3%)	163		

* Significant at 0.05; # Likelihood ratio test

CONCLUSION

Only a very small percentage of the studied patients on maintenance hemodialysis had good knowledge on self-care management. Educational status and attended educational programs on hemodialysis were positively associated with better knowledge on self-care management. Regular educational programs for the hemodialysis patients could potentially impact the self-care management and eventually the health outcomes.

ACKNOWLEDGEMENT

Researchers would like to acknowledge the University Grant Commission (UGC), Nepal for the financial support. Besides that we also thankful to the IRC of IOM, administration of TUTH and NKC and all participants for their valuable support.

CONFLICT OF INTEREST

None declared.

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