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ORIGINAL ARTICLE

The relationship between Scio-demographic Characteristics and the Application of Self Care Instruction Program for Patients with Double Lumen Catheter

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ABSTRACT

Objective: to identify the influence of Socio-demographic Characteristics in the Application of Self Care Instruction Program for Patients with Double Lumen Catheter.

Methodology: A quasi-experimental (non-randomized) design was used. Descriptive studies are conducted to describe the distribution of variables, provide information about health status, behavior, attitudes and characteristics of a specific population

Conclusion: There a significant relationship between age and patients' knowledge pretest level, and also Showed significant relationships between knowledge of patients with their age and gender at the post-test level.

Result: There was a significant relationship between age and patients knowledge pretest level at (P.value=.011), and also Showed significant relationships between knowledge of patients with their age at (P= .02) and gender at (P= .047) at the post - test level.

Recommendations: Recommendations to Ministry of Health (Establishment of centers concerned with hemodialysis patients' rehabilitation, and Conducting specialized courses for medical and health staff concerned with the implementation of self-care programs for hemodialysis patients with double lumen catheters in hemodialysis units)

Keywords: Scio-demographic Characteristics, Self Care, Instruction Program, Double Lumen Catheter,

INTRODUCTION

Chronic kidney disease (CKD) is the 12th death cause globally, which in 2017 resulted in one million deaths, with the expectation to rise to 2.2 million in 2040 [(1)(2)]

A hemodialysis (HD) is a treatment option for patients with CKD who reach glomerular filtration rate (GFR), 30ml/min/1.73 m2 (stage 4). Indications for commencing maintenance dialysis include the evaluation of uremia signs and symptoms, protein-energy wasting, metabolic abnormalities, and kidney function. Short, frequent hemodialysis three times weekly is recommended after considering patient preferences, risks of therapy, and potential quality-of-life benefits. Education about treatment options for patients and family members is needed[(3)]

Several elements are required in hemodialysis. One of them is vascular access[(4)] .

Patients with end-stage renal disease (ESRD) requires urgent start access. An arteriovenous fistula (AVF) or arteriovenous graft (AVG) implantation needs time to maturate. So, immediate hemodialysis access should be simple, without delay available for use, and have minimal complications within few next days or weeks. Central venous catheters (CVCs) are preferred in acute and chronic hemodialysis treatment, which provide immediate access to blood vessels in urgent cases needed for renal replacement therapy (RRT). A catheter insertion procedure can be performed bedside in the emergency room. The catheter is removed once the fistula or graft can be functionally used [(5)].

Hemodialysis catheters are the most essential devices utilized in the treatment of ESRD patients. These devices are associated with a high risk of morbidity and mortality. Long-term use (mean duration is 20.6 days) is an important factor of catheter-related infection development. Double lumen catheter (DLC) use is associated with more deaths compared with fistula use [(6)(7)].

The two types of CVCs are temporary catheters (made of polyurethane), which have a length of 16–20 cm and have swan-neck-shaped ends). And permanent tunneled catheters (made of silicon). The varying lengths can be used according to the patient's body size (19, 23, or 28 cm). The nephrologists use ultrasound equipment to insert the DLC into the right internal jugular vein for first-time dialysis session patients, and into the left jugular vein if a thrombus or stenosis formed from previous insertion [(4)(8)]. The large veins that ensure sufficient blood flow (jugular internal, subclavian, and femoral vein) are preferred for all patients needing urgent hemodialysis [(9)(10)].

MATERIAL AND METHOD

Design of the study: To obtain the study goals a quasi-experimental (non-randomized) design was used. Descriptive studies are conducted to describe the distribution of variables, provide information about health status, behavior, attitudes and characteristics of a specific population

Ethical Consideration: One of the basic principles for protecting the participant's beliefs and dignity before gathering data is the ethical considerations. The researcher obtained written informed approval from each participant patient after inform them that their participation in this study is voluntary, and also assured them that he will safeguard the confidentiality of the data and they will be securely maintained during and after conducting the study according to the subject's agreement sheet.

Prior to performing the research, a researcher requested permission from the supervisor to send an introduction letter to the administrators of the selected participants at the place where the study was done. The researcher assured all participants that their identities would not be exposed in order to increase their confidence. The researcher requested respondents' informed permission and protected their rights. The researcher adhered to research ethics and verified that respondents were not harmed.

The setting of the study: The study was conducted at Imam AL-Sadiq Teaching Hospital, hemodialysis unit, and the Medical City of Marjan, artificial kidney center. These hospitals were chosen by the researcher because they are the only teaching hospitals that have a hemodialysis unit in Al-Hilla city.

The purposive sampling method was used in the current study: A non-probability (purposive) sample based on population characteristics and study objectives was used to obtain representative and accurate data. Two groups (control and interventional group) are used in this study, (10) patient has been excluded for the pilot study. So, the total number of hemodialysis patients participating in this study was 40 patients for each group, with a total sample size of 90 patients.

After obtaining the official approval from all the aforementioned parties, including: the College of Nursing, University of Baghdad; the Babylon Health Directorate; and the targeted hospitals, the researcher started by conducting a pilot study.

Inclusion Criteria: All patients on hemodialysis sessions who used double lumen catheters as vascular access and were older

than 18 years are included in this study. Voluntarily, all study patients agreed to participate in the study

Exclusion Criteria: Hemodialysis patients with arterio-venous (AV) fistula and graft, illiterate patients, and who refuse to participate in the study are excluded.

Data Collection: The data collection started from 1th March to 30th April, 2022. A Pre-test for knowledge of double lumen catheter patients was completed before applying educational program. The time required to answer the questionnaire test (10-15) minutes. A post-test for patients with double lumen catheters in the interventional group after applying an educational program has been done.

RESULT

Table 1: Distribution of hemodialysis patients Socio-Demographic Characteristics for Study & Comparison groups.

Socio-Demographic Characteristics	Study group		Comparison group	
	Freq.	%	Freq.	%
Age groups				
18-27	1	2.5	0	0
28-37	6	15	6	15
38-47	13	32.5	11	27.5
48 and more	20	50	23	57.5
Total	40	100	40	100
x+SD	48.28 + 10.2		49.78 + 10.4	
Gender				
Male	27	67.5	29	72.5
Female	13	32.5	11	27.5
Total	40	100	40	100
Level of education				
Primary	25	62.5	28	70
Secondary	10	25	10	25
Academic	5	12.5	2	5
Total	40	100	40	100
Marital status				
Single	1	2.5	0	0
Married	38	95	40	100
Widowed	1	2.5	0	0
Total	40	100	40	100
Self-care information				
Yes	24	60	22	55
No	16	40	18	45
Total	40	100	40	100
Social media				
Yes	8	20	4	10
No	32	80	36	90
Total	40	100	40	100
Nursing staff				
Yes	14	35	6	15
No	26	65	34	85
Total	40	100	40	100
Medical staff				
Yes	2	5	2	5
No	38	95	38	95
Total	40	100	40	100
Other patients				
Yes	6	15	11	27.5
No	34	85	29	72.5
Total	40	100	40	100
Economic status (income)				
Less than 300.000 IQD	23	57.5	20	50
301.000 – 600.000 IQD	13	32.5	17	42.5
601.000 – 900.000 IQD	4	10	3	7.5
Total	40	100	40	100

Note. Freq.= frequency, % = percentage, x+SD = arithmetic Mean ($\bar{x}$) and Standard Deviation (S.D.)

Table (1) presented that 50 percent of the study group and 57.5 percent of the comparison group were within age group 48 years and more. Moreover, 67.5 percent of the study group and 72.5 percent of the comparison group were males. In relation to the education level, 62.5 percent of the study group and 70 percent of the comparison group were within primary school stage. In addition, 95 percent of the study group and 100 percent of the comparison group were married. Approximately, the same percent of the study group and the comparison group have self-care information, in which the study group get their information 20 percent from social media, 35 percent from nurses, five percent from medical staff and 15 percent from other patients. Finally, 57.5 percent of the study group and 50 percent of the comparison group were within low monthly income (less than 300.000 IQD).

Table 2: Comparison significant of pre and post-test knowledge score for the study group.

Total score of knowledge	N	Pretest			Post-test			t	P- value	Sig.
		M.	SD	df	M.	SD	df			
Pre and post- test of the study group	40	2.12	.463	39	2.67	.474	39	6.29	.000	H.S

N= number, M= mean, SD= standard deviation, df= degree of freedom, t= t.test, H.S=highly significant at P =.000

Table 3: Comparison significant of post-test of the study and comparison groups.

Total score of knowledge	N	Post-test study group			Post-test comparison group			t	P- value	Sig.
		M.	SD	df	M.	SD	df			
Post - test of the study and comparison groups	40	2.67	.474	39	1.87	.33	39	8.97	.000	H.S

N= number, M= mean, SD= standard deviation, df= degree of freedom, t= t.test, H.S=highly significant at P = .000

Table 4: The correlation between socio-demographic variables with patients' knowledge for study group (pre and posttest) by ANOVA.

Socio-demographic variable	study group (N=40)											
	Pre-test						Post-test					
	Sum of squares	df	M.S	F	Sig.		Sum of squares	df	M.S	F	Sig.	
Age												
Between groups	2.194	3	.731	4.26	.011	S	2.083	3	.694	3.73	.02	S.
Within groups	6.181	36	.172				6.692	36	.186			
Total	8.375	39					8.775	39				
Gender												
Between groups	.785	1	.785	3.932	.055	N.S	.878	1	.878	4.223	.047	S.
Within groups	7.59	38	.2				7.897	38	.208			
Total	8.375	39					8.775	39				
Level of education												
Between group	.135	2	.068	.303	.74	N.S	.115	2	.057	.246	.78	N.S
Within groups	8.24	37	.223				8.66	37	.234			
Total	8.375	39					8.775	39				

M.S= mean of score, df= degree of freedom, NS = non-significant at P>0.05, S=significant at P<0.05

Table (3) presented that there was a highly significant difference between the knowledge of both the study group and comparison group within the post-test level at (P = .000).

Table (4) Showed that there was a significant relationship between age and patients knowledge pretest level at (P.value=.011), and also Showed significant relationships between knowledge of patients with their age at (P= .02) and gender at (P= .047) at the post -test level.

DISCUSSION

According to the study findings in Table (1), half of the participants in the study groups and more than half of the control study sample were 40 years of age or older. These findings indicate that people aged 48 and up are more likely to develop renal disease and its consequences, necessitating hemodialysis.

Studies have shown the same percentages in these age groups [(12)(13)].

In terms of gender, the finding show that males composed more than half of the study groups and less than three-quarters of the control study participants.

In a similar manner, similar studies have revealed that more than half of the hemodialysis patients studied are male [(13)(14)(15)] .

According to the findings, more than half of the sample in the study group and less than three-quarters of the patients in the comparison group had a primary School graduate.

Hemodialysis patients in the same geographic region of study have a high percentage of illiteracy or those who can read and write and have only a primary level of education [(15)(16)(17)].

Patients in the study group and more than half of those in the comparison group had self-care information. They received their information as percentages from nursing staff, social media, other patients, and medical staff (35, 20, 15, and 5%). In contrast, research showed that the majority of hemodialysis patients receive proper self-care knowledge, with physicians acting as the primary source of this information [(17)].

Finally, more than half and half of the study and comparison group were both in the low monthly income class (less than 300.000 IQD). This contrasts with the findings of previous research, which showed that more than half of hemodialysis patients had an adequate or middle-class income [(13)(14)(15)(17)].

Also result presented that there was a highly significant difference between the knowledge of the study group and the comparison group within the post-test level at (P = .000). The results of a study to assess the effectiveness of a self-instructional module for hemodialysis patients for knowledge regarding homecare management at Kollam, showed that 10 percent of patients obtained ordinary knowledge after completing the self-instructional module, 63.33 percent obtained good information, and 26.67 percent obtained exceptional knowledge, according to the results of the post-test. Analyses indicate that post-test knowledge scores have significantly increased [(18)].

As shown in Tables (3), there was a significant association between age and patients' knowledge at the pre-test level (P =.011), and there were also significant post-test correlations between patients' knowledge and their age (P =.02) and gender (P =.047). Other characteristics, such as gender and education level, had no significant relationship with patients' pre-test knowledge.

A previous study found that age and education level positively correlate with patients' vascular access knowledge [(18)]. In research conducted to assess personal care for dialysis patients in the Najaf Governorate report that age is associated with positive self-care activities [(12)]. Age correlates positively with self-care among CKD patients, according to research examining variables influencing self-care. Similarly, a favorable correlation was found between self-care and patient knowledge [(19)] .

CONCLUSION

From the study result and discussion, we can conclude that there was a significant relationship between age and patients' knowledge pretest level, and also Showed significant relationships between knowledge of patients with their age and gender at the post-test level.

Recommendations: Recommendations to Ministry of Health

1 Establishment of centers concerned with hemodialysis patients' rehabilitation.

2 Conducting specialized courses for medical and health staff concerned with the implementation of self-care programs for hemodialysis patients with double lumen catheters in hemodialysis units

3 Making awareness brochures and educational videos in the hemodialysis units, urging and encouraging patients to increase their knowledge about their self-care after the insertion of a double lumen catheter for hemodialysis.

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