The Effect of Standardized Guidelines on Nurse's Knowledge and Practices Regarding Hemodialysis at Tertiary Care Hospital Lahore

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ABSTRACT

Objective: To assess the effect of standardized guidelines on nurse's knowledge and practices regarding hemodialysis

Study Design: Quasi-experimental study

Place and Duration of Study: This study was conducted at the Dialysis Unit of Tertiary Care Unit of Lahore from May, 2022 to September, 2022.

Materials and Methods: Thirty two nurses who were working in the dialysis unit having at least 6 months of working experience. Nurses who had excellent knowledge regarding patient care or enrolled in any other program were excluded from the study. The knowledge of the participants was assessed through adopted questionnaire and the performance of the participants was evaluated via hemodialysis unit performance checklist.

Results: Twenty (62.5%) nurses were between 25-30 years, 9 (28.1%) were between 31-35 years and only 3(9.4%) were between 36-40 years, at baseline, only 3.1% of respondents had some good knowledge of the guidelines while after getting the educational sessions, 90.6% showed excellent knowledge. Furthermore, when the practice was evaluated, it was noted that only 12.5% of nurses were doing safe practices according to the standardized guidelines and after all the sessions, 87.5% of the participants started safe practices.

Conclusion: Majority of the nurses had no knowledge and orientation of Standardized Guidelines for hemodialysis patients at the start of the study. After all the educational sessions, the most of the nurses exhibited excellent to good knowledge whereas safe practices for the above mentioned population of patients. There was statistically significant difference among the knowledge and practice scores before and after sessions and a significant effect of standardized guidelines on nurses' knowledge and practice regarding hemodialysis.

Key Words: Hemodialysis, Nurses, Knowledge, Practices

INTRODUCTION

Hemodialysis is a long-lasting treatment for the end stage renal disease patients.[1] Hemodialysis is the procedure in which the blood is passed through a dialysis machine to remove nitrogenous waste and excessive water from the blood. Hemodialysis is usually carried out two to three time a week depending on the condition of the patients.[2]

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The statistic of hemodialysis is high as compared to renal transplantation. Worldwide, 89% of patients with CKD undergo hemodialysis.[3] In Brazil, 133,464 patients receive dialysis treatment for CKD of which approximately 93% of the patients are undergoing hemodialysis treatment therapy and 7.7% of people are on peritoneal treatment therapy.[4]

In developing countries like Pakistan, most CKD patients undergo long-life dialysis. Similarly, these patients experience a variety of complications that create a huge burden on the health care system.[5] Nurses are mainly involved in the care of dialysis patients. The nurses are not only to provide care to the dialysis patients but also followed the strict protocol of the dialysis unit. In the dialysis unit the nurses are responsible to immediately react to the vomiting, reactions, hypotension or hypertension, break the chain of infection transmission, fistula care, calculating weight and focus on the diet.[6] Several adverse effects may occur during hemodialysis. Among these effects the most common are low blood pressure, access site infection, muscle cramps, itchy skin, blood clots and fistula malfunction.[7]

The nurses have a very vast role in managing the dialysis unit. They should focus on the environment of the dialysis, dealing of the patients in dialysis unit and the patients' needs in dialysis unit. Nurse should also address all the issues related to dialysis like diet, behavioral modification, and exercise, fluids restrictions, teaching about health life styles, medication adherence, fistula care, self-care activities and self-management of the patient.[8] To provide good care and motivate the dialysis patients for positive outcomes, the nurses need to have good understanding and excellent competency in dialysis setting.[9] To provide standard care to the hemodialysis patients, the nurses should have good awareness regarding the dialysis. Besides, good performance of the nurses are very important for providing standard care in dialysis unit.[10,11]

Similarly, a study highlighted the knowledge and performance of nurses towards dialysis. The study reported low level of performance and knowledge among the nurses in dialysis setting.[11] n addition, another study also highlighted the knowledge of nurses regarding hemodialysis and reported adequate understanding of nurses regarding hemodialysis but still there is space for improvement of nurses understanding through educational interventions.[12] According to a study, in Pakistan, nurses had poor understanding regarding diet and fluid management among dialysis patients.[13]

Nurses are the most responsible health care workers to manage the hemodialysis patients. The role of health care professionals is not only to provide treatment to dialysis patients but to enable the patients to take care of their selves, effectively manage the patient during dialysis and get ready for any unexpected event during dialysis. The nurses are responsible to manage the dialysis unit in terms of preparation of the unit, patient and also focus on the other staff to follow the standards of dialysis. The goal to provide standard care to the dialysis patients can only be achieved if the health care professional especially the nursing staff have enough understanding and good performance in dialysis setups. Good practices of the nurses not only prevent the patient from the adverse effects but also help in reduction of the future associated problems. The findings of the study will provide a gateway for the nurses to improve their knowledge through following the educational trainings. The study will create insight among the hospital administration in creating educational sessions for enhancing the knowledge and practices of nurses regarding hemodialysis. There is limited literature available on the current problem and this will be the first study in Lahore to evaluate the effect of an educational program based on clinical practice guidelines to improve the performance and knowledge of nurses in hemodialysis setting.

MATERIALS AND METHODS

The current study was a quasi-experimental study carried out in Dialysis unit of Tertiary Care Hospital Lahore which was completed within nine months after approval of the synopsis; from May 2022 to September 2022. All the nurses working in the dialysis unit, who had at least six months of experience in the dialysis unit, and nurses working in all three shifts were included in this study. In addition, nurses who have excellent knowledge regarding patient care or enrolled in any other educational or research program were excluded. The participants for this study were selected using purposive sampling technique and sample size of 26 cases was calculated with 95% confidence interval, d=0.10 and mean difference of pre-post practice scores as 4.04 ± 0.26.[14] After adding a 20% dropout rate the sample size became 32.The knowledge of the participants was assessed through adopted questionnaire and the performance of the participants was evaluated via Hemodialysis Unit performance checklist. The questionnaire was consisted of three sections. Section "A" consisted of six questions regarding Socio-demographic profile of the study participants. Section "B" consisted of 33 questions regarding nurses' knowledge towards hemodialysis care. The knowledge of the participants was assessed through an adopted questionnaire. The knowledge of the participants were categorized as excellent, good, and poor in which scores more than or equal to 75% ($\geq$ 25 out of 33) were considered as having excellent knowledge. Furthermore, good score was between 50-74% (17-24) and poor knowledge score was (score less than 50%) or who have correct answers (<17). Section "C" was consisting of 25 questions regarding the practices of nurses towards hemodialysis setting and hemodialysis patient's care in which the maximum score was 50 whereas minimum was 0.[15] The practices were reported as safe and unsafe practices according the following; Participants observed through checklist having >60% (>30) correctly done were considered as doing safe practices. While those who scored <60% (<30) correctly done were considered as doing unsafe practices. In pre-interventional phase the schedule of sessions was provided to the participants whereas, pre-interventional data was collected from all the participants using questionnaire. In the interventional phase, the participants were educated in 16 sessions and there was 2 sessions of one and half hour per week for each group. In the Post-interventional phase, the post data were collected using the same questionnaire and was entered in SPSS for analysis. Data were entered and analyzed in SPSS version 24. Shapiro-Wilk test was applied to test the normality and data were not normally distributed. Therefore, Wilcoxon signed rank test was used and a p-value less than or equal to 0.05 were considered statistically significant.

RESULTS

There were 20 (62.5%) nurses between 25-30 years, 9 (28.1%) between 31-35 years and only 3 (9.4%) between 36-40 years. The majority of nurses were having a Diploma in nursing whereas only 21.9% of nurses had Bachelor's degree in Nursing. More than half of nurses had working experience from 2 years to 5 years while 15.6% had experienced between 5-10 years and 9.4% had working experience above 10 years. Most of the (87.5%) respondents had no knowledge and orientation of standardized guidelines for hemodialysis whereas only 12.5% had know-how about the guidelines. (Table 1)

Only 3.1% of respondents had some good knowledge of the guidelines while after getting the educational lectures/sessions, 90.6% showed excellent knowledge. When the practice was evaluated, it was noted that only 12.5% of nurses were doing safe practices according to the standardized guidelines and after all the sessions, 87.5% of the participants started safe practice (Table 2). The mean rank value for pre and post-sessions of knowledge in nurses was 16.50 to 0.00 with a z-value of -5.387 and p-value of <0.0001. It depicts that there was a statistically significant difference from baseline to post-educational sessions in the level of knowledge among all nurses. In the case of practice, pre and post-sessions, the mean rank value was 12.50 with a z-value of -4.491 and p-value of <0.0001. It also indicates the same that there was a statistically significant difference before and after the educational lectures. The Wilcoxon signed rank analysis direct to accept the alternate hypothesis which states that there is an effect of Standardized Guidelines on nurses' knowledge and practices regarding hemodialysis (Table 3).

Table No.1: Demographic variables

Variable	No.	%
Age (years)		
25-30	20	62.5
31-35	9	28.1
36-40	3	9.4
Qualification		
Diploma in Nursing	25	78.1
Bachelor of Nursing	7	21.9
Experience (years)		
<2	12	37.5
2-5	12	37.5
5-10	5	15.6
>10	3	9.4
Have knowledge of standard guidelines for hemodialysis?		
Yes	4	12.5
No	28	87.5
Have orientation of standard guidelines for hemodialysis?		
Yes	4	12.5
No	28	87.5

Table 2: Knowledge and practice of nurses before and after sessions

Variable	No.	%
Knowledge at baseline		
Good knowledge	1	3.1
Poor knowledge	31	96.9
Knowledge after sessions		
Excellent knowledge	29	90.6
Good knowledge	3	9.4
Practice at baseline		
Safe practices	4	12.5
Unsafe practices	28	87.5
Practice after sessions		
Safe practices	26	81.3
Unsafe practices	6	18.8

Table 3: Wilcoxon Signed Rank Test for Knowledge and Practice at two intervals

Variable	Mean Rank	Z-Value	P-Value
Knowledge at baseline	16.50	-5.387	<0.0001
Knowledge after sessions	0.00		
Practice at baseline	12.50	-4.491	<0.0001
Practice after sessions	12.50		

DISCUSSION

Twenty (62.5%) nurses were between 25-30 years, 9 (28.1%) were between 31-35 years and only 3(9.4%) were between 36-40 years. Most of the (87.5%) respondents had no knowledge and orientation of standardized guidelines for hemodialysis whereas only 12.5% had know-how about the guidelines in the study. The study found that while after getting the educational lectures/sessions, 90.6% of the nurses showed excellent knowledge and majority of the nurses have started safe practice. The study found significant difference regarding safe practice and knowledge in nurses after educational trainings/sessions or lectures. Similar to the current study, another study by Abeid et al[16] was conducted in year 2021 to evaluate the knowledge of Standard Precautions and Practice among Nurses working in Hemodialysis in Hawari Center in Benghazi. The study found similar results like the current \study that majority of the nurses were showed good knowledge and about 73.2% of the nurses demonstrated good practice. Just like the current study, the study also recommended providing regular training, especially for nurses who just got their licenses.

In harmonious with the present study, one more study conducted by Saleh et al[10] in year 2018 in Egypt to evaluate the efficacy of education and training interventions on nurse's compliance to standard of nursing care for hemodialysis patient. The study found similar results like the current study. According to that study 68.3% nurses were unaware of hemodialysis

nursing care standards. About half of nurses have not attended any program from last five years. The study revealed that there is significant relationship among knowledge and their practices in posttest at ($p<0.0001$). Just like the current study, it also recommended that education and training programs are effective for nurses to improve skills and performance according to adopted standards for hemodialysis patients.

The findings of the current study suggest that a standardized nursing education program, which includes nursing interventions, improved the quality and efficacy of health care provided to patients with hemodialysis, increased the skills and effectiveness of nurses, as well as reduced some of the problems related to medical errors. Hospitals should arrange training sessions for the staff nurses to be able to deal with the difficult situations of hemodialysis patients in a new way and to improve their knowledge related to complications of hemodialysis.

CONCLUSION

Majority of the nurses had no knowledge and orientation of Standardized Guidelines for hemodialysis patients at the start of the study. After all the educational lectures, the most of the nurses exhibited excellent to good knowledge whereas safe practices for the above mentioned population of patients. Furthermore, to support this, there was statistically significant difference among the knowledge and practice scores before and after sessions. Hence, it is summarized that that there is a significant effect of standardized guidelines on nurses' knowledge and practice regarding hemodialysis.

Author's Contribution:

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