Effectiveness of Guidelines on Nurse's Performance Regarding Care of Patient with Non-Tunneled Hemodialysis Catheter

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Abstract

Background: Non-tunneled hemodialysis catheters are typically used when vascular access is required for urgent renal replacement therapy Nurses play a crucial role in tracking the occurrence of complications such as catheter exit site infection, thrombosis, and bleeding. **Aim**: This study aimed to evaluate the effect of guidelines on nurses' performance regarding care of patient with non-tunneled hemodialysis catheter. **Research design**: Quasi-experimental design study was conducted to achieve the aim of the study. **Setting:** This study was conducted in the dialysis unit at Benha University Hospital. **Sample**: A Convenient sample of (58) nurses working in dialysis unit during the period of the study. **Tools:** Two tools were used in this study, **Tool 1:** Structured questionnaire to assess nurses' knowledge regarding care of patient with non-tunneled hemodialysis catheter. **Tool 2:** Included nurses' practice observational checklist toward care of patient with non-tunneled hemodialysis catheter**. Results:** 6.9% of the studied nurses respectively have good level of total knowledge regarding care of patient with non-tunneled hemodialysis catheter pre implementation of educational guidelines. While improved to 89.7% post implementation and slightly decreased to 84% & 86.7% at follow-up phase. 82.8% of the studied nurses respectively were satisfactory in the use of the Observational Tool pre implementation of educational guidelines. While improved to 86.2% post implementation and slightly decreased to 84% at follow-up phase. There was a highly significant statistical positive correlation between nurses' knowledge and practice in Benha University Hospital at phases of educational guidelines implementation at $p < 0.01$. **Conclusion:** Implementation of educational guidelines had statistically significant improvement of nurses' knowledge, and practice regarding care of patient with non-tunneled hemodialysis catheter. **Recommendations**: The present study recommended that continues education and in service training program for nurses to improve their performance regarding care of patient with non-tunneled hemodialysis catheter.

Keywords: Hemodialysis patients, guideline, Nurses` performance, non-tunneled catheter

Introduction

Chronic kidney disease is one of the most frequent pathologies, worldwide one in ten people suffers from it1, 2. During chronic kidney disease, the kidney gradually loses the ability to perform physiological functions such as deleting metabolism products (acids and nitrogenous wastes) and regulating water, salts, and minerals in the blood **(Ammirati, 2020)**.

Hemodialysis is the most commonly used method of dialysis. It is used for patients who are acutely ill and require short-term dialysis (days to weeks) and for patients with end-stage renal disease who require long-term

or permanent therapy. Access to the patient's vascular system must be established to allow blood to be removed, cleansed, and returned to the patient's vascular system at rates between 200 and 800 ml/min. Several types of access are available. Immediate access to the patient's circulation for acute hemodialysis is achieved by inserting a double-lumen or a millilumen catheter into the subclavian, internal jugular, or femoral vein (**Bossola, 2019)**

Vascular access infections can occur at the time of insertion, maintenance, or removal of the catheter. Nursing personnel participate in all these stages and play a fundamental role in preventing catheter-related infections. Many of the recommendations to reduce infection rates are applied directly by these personnel, in addition, they participate in patient education on vascular access care. Nursing indoctrination in vascular access management has been associated with a better prognosis and lower infection rates. central venous dialysis catheter infection can be classified as exit-site infection, tunneled infection, and catheter-related bacteremia **(Kumbar & Yee, 2019)**

Non-tunneled hemodialysis catheters are currently the preferred vascular access method for critically ill patients with acute kidney injury (AKI) requiring renal replacement therapy (RRT). Despite progress in the management of AKI and high-quality catheter practices, vascular access remains the weak link in the chain of RRT and contributes to increased morbidity in hemodialysis patients, particularly through catheter dysfunction (stenosis and/or thrombosis) and infection (**Shingarev et al., 2015)**.

Nursing staff play an important role in preventing these infectious complications. Following the insertion of central venous dialysis catheter, it is the nurse who carries out connection/disconnection procedures and insertion-site dressing procedures. they were responsible for applying their knowledge to reduce infection incidents (**Tahoun et al., (2022.**

Significance of the study:

In the developing world, 80% of hemodialysis (HD) are initiated via a non-cuffed catheter as their primary vascular access **(Xue et al., 2018).** Catheter-related bloodstream infection (CRBSI) is one of the most feared consequences of hemodialysis catheter use due to its associated increased risk of morbidity and mortality. Unfortunately, CRBSI remains common in the United States hemodialysis population. In one large observational study of nearly 500 incident hemodialysis patients, the cumulative risk of CRBSI exceeded 50% in 6 months **(Shingarev et al., 2015)**.

Aim of the study:

The aim of this study was to evaluate the effectiveness of guideline on nurses' performance regarding care of patient with non-tunneled hemodialysis catheter.

Research hypotheses:

H1: Nurses` knowledge regarding care of patient with non-tunneled hemodialysis catheter would be improved after implementing guideline.

H2: Nurses` practice regarding care of patients with non -tunneled hemodialysis catheter would be improved after implementing guideline.

Subjects and methods:

Research design:

Quasi experimental design was utilized to achieve the aim of the study.

Setting:

The study was conducted in hemodialysis unit at Benha University Hospital affiliated to Benha University, Qalyubia Governorate, Egypt. The dialysis unit is located on the first floor including 25 beds.

Sampling:

A Convenient sample of 58 (after exclusion of the nurses who participated in the pilot study) nurses working in dialysis unit during six months

from December 2022 to May 2023 and willing to participate in the study.

Tools of data collection:

Tool (I): A structured interviewing questionnaire:

Part (I): Nurses' personal data: It was designed by the researcher and included 7 questions about age, gender, educational qualifications, years of work experience in nursing and in dialysis unit and previous educational training program about non-tunneled hemodialysis catheter.

Part (II): Nurses' knowledge Assessment: It was designed by researchers. It contained 20 multiple choice questions with scores ranged from 0 to 20 that concerned with assessment of nurses' knowledge regarding care of patient with non-tunneled hemodialysis catheter which consisted of three sections**:**

Scoring system:

Each item will be evaluated and scored in terms of correct answer = (1), incorrect answer=zero. The total scoring level will be classified as following; A score equal or more than 85% was considered satisfactory level of knowledge. A score less than 85% was considered unsatisfactory knowledge level.

Tool (II): Observational Tool application checklist: It was used to assess nurses practice regarding care of non -tunneled hemodialysis catheter which include skills during catheter connection, disconnection, catheter exit-site care, catheter removal.

Scoring system:

Each item will be evaluated and scored in terms of done = (1), not done = zero. The total scoring level will be classified as follows.

A score equal or more than 85% was considered adherence with practice. A score less than 85% was considered not adherence with practice.

Validity of the tool:

Tools of data collection and the educational guidelines were investigated for their content validity by panel of five expertise in the field of Medical Surgical Nursing at Faculty of Nursing, Benha University, to judge its clarity, relevance, comprehensiveness, understanding and applicability. The opinions were elicited regarding the layout, format and sequence of the questions and all of their remarks were taken into consideration.

Reliability of the tool:

Reliability of the tool was applied by the researcher for test the internal consistency of the tool by administration of the same tools to the same subjects under similar condition on one or more occasion. Answers from repeated testing were compared (test-re-test reliability). The reliability was done Cronbach Alpha coefficients test which revealed that the tool consisted of relatively homogenous items as indicated by moderate to high reliability of each tool. The internal consistency of the knowledge was 0.83, while reliability of practices was 0.89.

Ethical considerations:

This study was conducted after primary approval obtained from Ethics Committee, Faculty of Nursing, Benha University. Then, Official permission was obtained from Dean of Benha University Hospital in order to conduct the study. Then, the researcher explained the aim and nature of the study to study subjects. They also had informed that their participation is optional, and that they had the right to withdraw at any time without any consequences. The researchers assured maintaining anonymity and confidentiality of data and that all gathered information will be used only for their benefit and for the purpose of the study. Then, written consent was obtained from each participant enrolled into the study.

Pilot study:

A pilot study was conducted on 10% (n=6 nurses) of the total studied nurses (58) to test the applicability of the constructed tools and the clarity of the included questions. The pilot has also served to estimate the time needed for each subject to fill in the questions and to

identify the problems that may be encountered during the study. According to the results of the pilot, some modifications were done so the sample of pilot study was excluded from the main study sample.

Field work:

The following phases were designed to achieve the aim of the current study; assessment, planning, implementation and evaluation phases. These phases were conveyed from December 2022 to May 2023 covering 6 months.

I. Assessment phase:

Assessment phase involved meeting with nurses to collect baseline data. The researchers visited dialysis Unit at Benha University Hospital three days/ weeks by rotation from 9:00 AM and extended to 1:00 PM, number of nurses taken every day was 5nurses. At the beginning of interview; the researchers welcomed nurses, explained the purpose, duration, activity of the study and take their oral approval to participate in the study prior to data collection.

An individual meeting was conducted for every nurse to collect the necessary data using tools for data collection, the average time needed for tool I to assess nurses' personal data and knowledge was around 5-10 minutes, about 10-15 minutes for tool II to assess nurses' practice regarding Care of non-tunneled hemodialysis catheter Observational Tool

II. Planning phase:

Based on information obtained from pilot study and assessment phase; in addition to reviewing of recent related literatures, the researchers designed educational guidelines to improve the patients' knowledge, practice regarding care of patient with non- tunneled hemodialysis catheter.

Educational guidelines had the following objectives:

General objectives:

Improve nurses' performance regarding care of patient with non-tunneled hemodialysis catheter in dialysis unit in Benha University Hospital.

Specific objectives:

At the end of educational guidelines the nurses should be able to:

- **Knowledge:**
  - Enumerate kidney function.
  - Definition and types of hemodialysis.
  - Types of hemodialysis access.
  - List types of hemodialysis catheters.
  - Nursing care of non- tunneled hemodialysis catheter insertion.
  - Nursing care during catheter connection/disconnection.
  - Nursing care during catheter removal exit -site care.
  - Explain complication and infection of non-tunneled hemodialysis catheter.
- **Practice:**
  - Assess care of non-tunneled hemodialysis catheter.
  - Observe signs of catheter complication.
  - Assess skills of catheter removal.
  - Include skills during catheter connection.
  - Disconnection.
  - Catheter exit-site care.
  - Assess skills of catheter removal.
  - Document signs of catheter infection.

The contents were prepared in simple, clear Arabic language and supplemented by photos and illustrations for better understanding of contents. Different methods of teaching were used

as modified lecture; group discussion and role play, suitable teaching media were included as hand out, to help proper understanding of the content by nurses**.** It was divided into theoretical and practical parts.

Theoretical part about non-tunneled hemodialysis catheter which include general knowledge about non tunneled hemodialysis catheter, nursing care of non tunneled hemodialysis catheter insertion., nursing care during catheter connection/disconnection , Nursing care during catheter removal exit - site care and documentation, non-tunneled hemodialysis catheter infections and complications . and discharge care plan.

- **The practical part** included instructions regarding care of non-tunneled hemodialysis catheter.

III. Implementation phase:

Based on data collection tools and determination of nurses' knowledge and practice the researchers developed the educational guidelines, the appointment for starting educational guidelines scheduled with nurses according to their working schedule, and implementation of educational guidelines for nurses'. The researchers offer the guidelines for every nurse, nurses allowed to ask questions, or ask for further explanation in case of misunderstanding then posttest had been done immediately after guidelines implementation and three months later using the same tools.

The implementation phase was achieved through sessions, each session started by a summary of the previous session and objective of the new one. Taking into consideration the use of Arabic language that suits the nurses' educational level. Motivation and reinforcement during sessions were used to enhance for the sharing in the study.

The studied nurses were divided into fifteen groups; each group consisted of 6-7 nurses. The total number of sessions was three sessions, two sessions for the theoretical part and one session for practical part, these sessions were repeated to each group. It took a period of four months in addition to one month for preprogram for baseline assessment and another one month for post program for evaluation.

Theoretical part as the following:

- **Session one:** (introductory session): which included orientation and explanation of reasons and importance of educational guidelines; give an explanation about concept of non-tunneled hemodialysis catheter.
- **Session two:** which included an explanation about methods and challenges or barriers of assessment of non-tunneled hemodialysis catheter.

Practical part as the following:

- **Session three:** including instructions regarding non-tunneled hemodialysis skills during catheter connection, disconnection, catheter exit-site care, catheter removal.

IV. The Evaluation phase:

Evaluation of the effect of implementing guidelines on nurses' knowledge, practice was done as following:

- Post-test - immediately after implementing the guideline.
- Follow up - after 3 months.

Statistical analysis:

All data collected were organized, tabulated and analyzed by using the statistical test, The data were analyzed by using the statistical package for social science (SPSS), which was applied to calculate frequencies and percentages for qualitative descriptive data and

chi-square coefficient x2 was used for relation tests, mean and standard deviation (SD) was used for qualitative data, person correlation coefficient (r)was used for correlation analysis and degree of significance was identified.

Statistically significance was considered at:

Highly statistically significant when P-value >0.001.

Statistically significant result when P-value <0.05.

Not significant result when P-value >0.05.

Results:

Table (1): Shows the distribution of the studied nurses according to their demographic data. It was observed from the table that, 81.0% of the studied nurses were aged between 20-<30 years old with mean age of 26.41±6.06 years; females were more prevalent and constituted 96.6% of the studied nurses. Also, 41.4% of the studied nurses have technical institute of nursing. Moreover, 56.9% of them have years of experience in nursing between 5-<10 years with mean experience of 7.45±2.16 years and 55.2% of them have years of experience in dialysis department between 5-<10 years with mean experience of 6.89±2.02 years. Furthermore, only 6.9% of studied nurses attended training courses on non-tunneled hemodialysis catheter, 100.0% of them attended only one course from > 1 year.

Table (2): Shows that; there was only (6.9%) of the studied nurses had satisfactory level of total knowledge pre implementing guideline. While improved to (89.7%) post implementing guideline and (84.5%) after three months of implementing guideline with a highly statistically significant difference at (P= < 0.001) between pre, immediate post and after three months of implementing guideline.,

Figure (1): Shows that, 6.9% of the studied nurses had satisfactory level of total knowledge pre implementing guideline. While changed to 89.7% post implementing guideline and 84.5% after three months of implementing guideline.

Table (3): Shows that, there was only 8.6% of the studied nurses were adherence to practice regarding care of non- tunneled hemodialysis catheter pre implementing guideline while improved to 86.2% post implementing guideline and 82.8% after three months of implementing guideline with a highly statistically significant difference at (P= < 0.001) between pre, immediate post and after three months of implementing guideline.

Figure (2): Shows that, only 8.6% of the studied nurses were adherence to practice regarding care of non-tunneled hemodialysis catheter pre implementing guideline while improved to 86.2% post implementing guideline and after three months of implementing guideline 82.8%.

Table (4): Clarifies that, there were high significant statistical positive correlation between nurses' knowledge and practice at pre, immediate post and after three months of implementing guideline at p< 0.01.

Table (1): Distribution of the studied nurses according to their demographic data (n=58). demographic data (n=58).

Demographic data of the studied nurses		
Age (years) 20-<30 31-<40 41-<50 51-<60	47 7 4 0	81.0 12.1 6.9 0.0
Mean ±SD	26.41±6.06	
Gender Male Female	 2 56	 3.4 96.6
Number of years of work experience in nursing <2 yrs. 2-<5 yrs. 5-<10 yrs. ≥ 10 yrs.	 0 19 33 6	 0.0 32.8 56.9 10.3
Mean ±SD	7.45±2.16	
Number of years of work experience in dialysis department <2 yrs. 2-<5 yrs. 5-<10 yrs. ≥ 10 yrs.	 0 21 32 5	 0.0 36.2 55.2 8.6
Mean ±SD	6.89±2.02	
Attending training courses on non-tunneled hemodialysis catheter Yes No If yes, how many training courses have you attended? (n=4). One	 4 54 4	 6.9 93.1 100.0

Table (2): Comparison between the studied nurses according to their total knowledge about care of patient with non tunneled hemodialysis catheter at pre, immediate post and after three months of implementing guideline (n=58).

Items	Studied sample (n=58)												Test of Sig. (p1)	Test of Sig. (p2)	Test of Sig. (p3)
	Pre				Immediate post				After three months						
	Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Kidney and its functions	7	12.1	51	87.9	50	86.2	8	13.8	46	79.3	12	20.7	X2=44.91 P=.000**	X2=1.506 p=0.206	F=62.54 p=.000**
Hemodialysis	8	13.8	50	86.2	54	93.1	4	6.9	50	86.2	8	13.8	X2=49.74 P=.000**	X2=1.240 p=0.301	F=60.22 p=.000**
Non tunneled hemodialysis catheter	11	19.0	47	81.0	50	86.2	8	13.8	48	82.8	10	17.2	X2=41.04 P=.000**	X2=1.011 p=.540	F=57.33 p=.000**
Nursing care for non-tunneled hemodialysis catheter placement	5	8.6	53	91.4	52	89.7	6	10.3	48	82.8	10	17.2	X2=51.69 P=.000**	X2=1.047 p=.511	F=65.74 p=.000**
Connection and disconnection of the catheter to	4	6.9	54	93.1	50	86.2	8	13.8	47	81.0	11	19.0	X2=50.60 P=.000**	X2= 0.994 p= .421	F=66.25 p=.000**
Catheter care	5	8.6	53	91.4	50	86.2	8	13.8	47	81.0	11	19.0	X2=49.93 P=.000**	X2=1.105 P=0.399	F=62.17 p=.000**
Documentation	4	6.9	54	93.1	54	93.1	4	6.9	51	87.9	7	12.1	X2=55.47 P=.000**	X2=0.531 P=0.714	F=67.80 p=.000**
Infection and complications of non-tunneled hemodialysis catheters	6	10.3	52	89.7	51	87.9	7	12.1	48	82.8	10	17.2	X2=46.21 P=.000**	X2=1.100 p=.540	F=60.10 p=.000**
Total knowledge	4	6.9	54	93.1	52	89.7	6	10.3	49	84.5	9	15.5	X2=53.99 P=.000**	X2=1.050 P=.498	F=67.90 p=.000**
Mean SD	2-28 12.78±6.09				12-31 25.69±4.85				10-31 23.48±5.73				t=37.41 P=.000**	t=1.164 p=.475	F=41.95 P=.000**

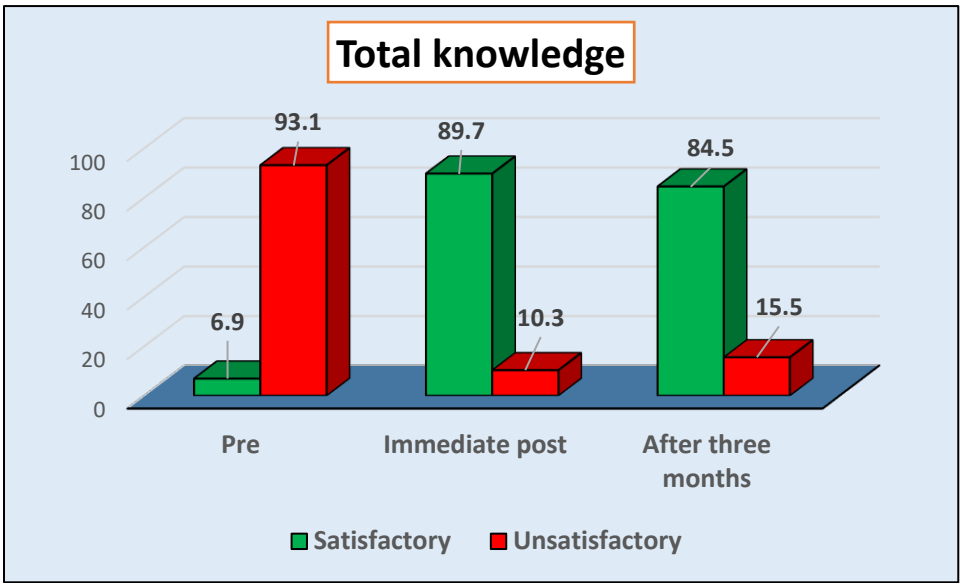

Figure (1): Distribution of the studied nurses' total knowledge about care of patient with non tunneled hemodialysis catheter during three phases of the study (n=58).

Table (3): Comparison between the studied nurses according to their total practice regarding care of non tunneled hemodialysis catheter at pre, immediate post and after three months of implementing guideline (n=58).

Items	Studied sample (n=58)												Test of Sig. (p1)	Test of Sig. (p2)	Test of Sig. (p3)
	Pre				Immediate post				After three months						
	Adherence		Not adherence		Adherence		Not adherence		Adherence		Not adherence				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Nursing care for hemodialysis catheter connections	4	6.9	54	93.1	50	86.2	8	13.8	48	82.8	10	17.2	X2=46.40 P=.000**	X2=1.001 P=0.429	F=59.08 P=.000**
Nursing care for hemodialysis catheter disconnections	5	8.6	53	91.4	52	89.7	6	10.3	50	86.2	8	13.8	X2=48.11 P=.000**	X2=1.050 P=0.441	F=55.89 P=.000**
Nursing care for catheter exit site care	4	6.9	54	93.1	50	86.2	8	13.8	47	81.0	11	19.0	X2=45.05 P=.000**	X2=0.992 P=0.500	F=54.10 P=.000**
Nursing care for catheter removal	6	10.3	52	89.7	51	87.9	7	12.1	49	84.5	9	15.5	X2=41.26 P=.000**	X2=1.110 P=0.357	F=56.01 P=.000**
Total practice	5	8.6	53	91.4	50	86.2	8	13.8	48	82.8	10	17.2	X2=40.06 P=.000**	X2=0.966 P=0.400	F=50.01 P=.000**
Range Mean SD	23-50 29.28±4.70				35-54 48.29±5.34				35-52 47.89±5.10				t=29.40 P=.000**	t=1.064 p=.391	F=47.09 P=.000**

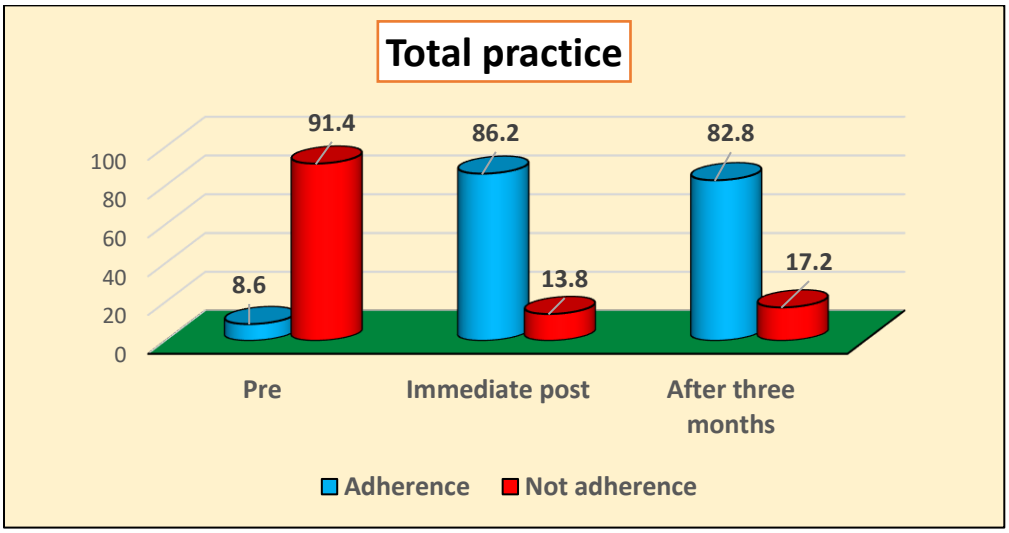

Figure (3): Distribution of the studied nurses total practice regarding care of non tunneled hemodialysis catheter during three phases of the study (n=58).

Table (4): Correlation between total nurses' knowledge and practice at pre, immediate post and after three months of implementing guideline (n=58).

Variables		Total nurses' practice		
		Pre	Immediate post	After three months
Total nurses' knowledge	r	0.617	0.651	0.660
	p	0.000**	0.000**	.000**

Discussion:

Regarding the studied nurses' personal data, the result of this study revealed that the majority of the studied sample ranged in **age** from 20 to less 30 years old. this could be related to the fact that this age range lines within the reproductive age in the work force in the hospital. This result is similar to a study conducted by **Hosney, et. al. (2021),** to assess (Nurses' Aseptic Technique Knowledge, Practice, and Compliance for Patients Receiving Hemodialysis) and stated that more than half of studied nurses were 20-30 years old.

As for gender, the result of this study reported that the majority of the studied nurses were females. The high percentage of female nurses in this study could be related to the fact that males were recently engaged in nursing profession in Egypt. This result also agreed with a study performed by **(Besely, 2020)** who studied "Effect of Implementing A Health Education Program For Nurses on Satisfaction Level of Patients Undergoing Hemodialysis" that mentioned the majority of the studied sample was females.

Concerning educational level, the result of this study showed that more than one quarter of the studied nurses qualified by bachelor of nursing. This may be due to the Ministry of health has tried to make effort in increasing the number of trained nurses. This result was similar **(E Khalifa, 2022),** that was about" Effect of Nursing Care Bundle on Nurse's Performance Regarding Central Venous Line-Associated Blood Stream Infection" and found majority of the nurses that participated in the study had technical institute of Nursing Science.

According to years of experience, the result of this study represented that more than half of studied nurses have years of experience in nursing between 5-<10 years and about more than half of them have years of experience in dialysis unit between 5-<10 years. This result was in the same line with a study done **Rasheed et al (2018),** to assess "Nurses' knowledge of the nutritional management of renal failure in Erbil City" reported that more than half of respondents had 6-10 years'

This result was disagreed with that of **(Abdel-Latif et al., 2019),** who studied "Assessment of Nurses Knowledge and Practices Regarding Complications of Hemodialysis Patients in Intensive Care Unit" and mentioned that the majority of the sample has attended the training programs. This difference is may be due to Hospital regulations that require nurses to take training courses. The present study revealed that the majority of the study sample had an unsatisfactory level of knowledge regarding nursing management of the non-tunneled hemodialysis catheter. This result might be due to lack of continuous training, evaluation, lack of incentives, and time to improve their knowledge, especially among those who are working in the hemodialysis unit for long hours and overloaded by increased number of patients and being overwhelmed by a lot of duties.

This finding was corresponded with the results of **(Esposito et al. 2017)** entitled "Knowledge, attitudes, and practice on the prevention of central line associated bloodstream infections among nurses in oncological care" who demonstrated that nurses have an adequate level of knowledge concerning evidence-based recommendations for preventing central line associated blood stream infections, where the majority of studied nurses were aware about the main recommendations for patients with central venous catheters , such as the type of dressing and / or frequency changes of the catheter insertion site.

The results of the present study revealed that the majority of participants had unsatisfactory practice levels regarding non-tunneled hemodialysis catheter management. From the researchers` point of view, these results could be due to lack of proper training, lack of awareness of job description, poor monitoring and supervision, absence of an instructional poster and booklets, and inadequate equipment. Other possible reasons might be due to carelessness of nurses.

This finding was supported by **(Venkatesan and Manikandan's, 2018)** study about, "Effectiveness of central line bundle care on the knowledge and compliance of ICU staff nurses." They found that nurses' general pre-test practice regarding the insertion and management of CVC catheters was poor, with a significant difference between the pretest and post-test. This indicates that the nursing care bundle was successful in enhancing nurses' performance.

A statistical significant relationship was identified between nurses practice levels and their level of education. This result was

supported by study by **(Moursy and Sharaf, 2017),** titled" Vascular access care at hemodialysis unit; nurses compliance to infection prevention and control practices" who found that nurses with bachelor degree had significantly higher mean percent score practice than those with diploma degree.

This results were supported by the study of **(Sakshi and Saluja, 2019)** entitled "Effectiveness of education program regarding central venous catheter (CVC) care bundle in terms of knowledge and practice of nursing" who revealed that there was no significant association found between knowledge scores and practice scores of nursing personnel regarding CVC Care.

This results were supported by the study of **(Sakshi and Saluja, 2019)** entitled "Effectiveness of education program regarding central venous catheter (CVC) care bundle in terms of knowledge and practice of nursing" who revealed that there was no significant association found between knowledge scores and practice scores of nursing personnel regarding CVC Care.

Conclusion:

Implementation of educational guidelines had statistically significant improvement of nurses' knowledge, and practice regarding care of patient with non-tunneled hemodialysis catheter**.**

Recommendations

1-Conducting training program for nurses to enhance their performance regarding care of patient with non- tunneled hemodialysis catheter.

2-Policy makers should prepare policies and guidelines regarding care of patient with non-tunneled hemodialysis catheter and make it available to all nurses.

3-Health service managers should identify the perceived barriers of pain assessment and then minimize these barriers as much as possible to prevent consequences of non- tunneled hemodialysis catheter infection.

4-Further studies should be carried out about effect of educational program patients regarding care of patient with non-tunneled hemodialysis catheter on patients' health outcomes.

5-Colored illustrated booklet should be available and distributed to each patient with diabetic foot about self-care management practices regarding diabetic foot care.

6-Encourage the use of different modalities of telemedicine (TM) as a communication tool between caregivers across the health care sectors and help patients with DFUs opens up for multi-sectoral and interdisciplinary close follow-up.

References

Abdel-Latif, N. A., ELghany, O. A., AbdEl-Aziz, M. A., & Abd ELhamid, S. K. (2019). Assessment of Nurses Knowledge and Practices Regarding Complications of Hemodialysis Patients in Intensive Care Unit. Assiut Scientific Nursing Journal, 7(19), 165-17.

Ammirati, A. L. (2020). Chronic kidney disease. Revista da Associação Médica Brasileira, 66, s03-s09.

Bossola, M. (2019, September). Xerostomia in patients on chronic hemodialysis: an update. In Seminars in Dialysis (Vol. 32, No. 5, pp. 467-474).

Besely, W. N., Faheim, S., & Aly, E. M. (2020). Effect of Implementing a health education program for nurses on satisfaction level of patients undergoing

hemodialysis. IOSR Journal and Health Science, 7(4), 45-57.

E Khalifa, M., K Omar, T., M El-Gendy, F., M Ahmed, H., & A Saad, A. (2022). Effect of Nursing Care Bundle on Nurse's Performance Regarding Central Venous Line-Associated Blood Stream Infection. International Egyptian Journal of Nursing Sciences and Research, 3(1), 554-570.

Esposito, M. R., Guillari, A., & Angelillo, I. F. (2017). Knowledge, attitudes, and practice on the prevention of central lineassociated bloodstream infections among nurses in oncological care: A crosssectional study in an area of southern Italy. PloS one, 12(6), e0180473.

Hosney, Z. A., Mohamed, M. A., Abdelmowla, R. A. A., & Azouz, N. (2021). Nurses' Aseptic Technique Knowledge, **Shingarev ,R., Barker-Finkel, J. and Allon,M.,(2015).** Natural history of tunneled dialysis catheters placed for hemodialysis initiation. J VascIntervRadiol. Sep;24(9):1289–94.

Sakshi, M. V., & Saluja, V. (2019). Effectiveness of education program regarding central venous catheter (CVC) care bundle in terms of knowledge and practice of nursing. International Journal of Advanced Research, 7(10), 1026-1033

Tahoun, A. M., Salem, Y. M., Bedier, N. A., & Ghaleb, M. A. (2022). Nurses' Knowledge and Practices regarding Tunneled Catheter Care among Patients on Maintenance Hemodialysis. Alexandria Scientific Nursing Journal, 24(1), 100-109.

Practice, and Compliance for Patients Receiving Hemodialysis. Assiut Scientific Nursing Journal, 9(25.0), 145-154

Kumbar, L., & Yee, J. (2019). Current concepts in hemodialysis vascular access infections. Advances in chronic kidney disease, 26(1), 16-22.

Moursy, A., & Sharaf, A. (2017). Vascular access care at hemodialysis unit; nurses compliance to infection prevention and control practices. IORS Journal of Nursing and Health Science, 6(2), 61-69.

Rasheed, H., Aziz, N., Osman, G., & Younis, Y. (2018): Nurses' knowledge of the nutritional management of renal failure in Erbil City, Kurdistan Region, Iraq. Zanco Journal of Medical Sciences (Zanco J Med Sci), 22(3), 385-393.

Venkatesan, L., & Manikandan, J.(2018). Effectiveness of central line bundle care upon the knowledge and compliance staff nurses in the ICU. International journal of advance research, Ideas and Innovations in Technology, , 4 (3), 2059, 2063.

Xue ,H., Ix , J.H., Wang ,W., Brunelli ,S.M., Lazarus ,M. and Hakim, R. (2018). Hemodialysis access usage patterns in the incident dialysis year and associated catheter-related complications, Am J Kidney Dis. 61(1):123–30.

تاثير الارشادات على أداء الممرضات فيما يتعلق برعاية المريض بقسطرة غسيل الكلى غير النفقية

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غسيل الكلى هو أحد انواع العلاج فى الغسيل الكلوى فى المرحله الاخيرهو يعد الحفاظ على وصول مناسب ، وبراءة اختراع ، ومستقر للأوعية الدموية هو المفتاح لضمان إكمال وفعالية غسيل الكلى. يعتبر الناسور الشرياني الوريدي الجراحى الذاتي هو الوسيلة المفضلة للوصول إلى الأوعية الدموية. لذا هدفت الدراسة إلى تقييم فعالية تاثير الارشادات على أداء الممرضات فيما يتعلق برعاية المريض بقسطرة غسيل الكلى غير النفقية. أجريت الدراسة بوحدة غسيل الكلى بمستشفى بنها الجامعي التابع لجامعة بنها بمحافظة القليوبية ، مصر. اشتملت عينة الدراسه على ثمانيه وخمسون ممرضا عملوا في وحدة غسيل الكلى خلال فترة الدراسة يترواح اعمارهم بين ٣٠ -٤٠ سنه من كلا الجنسين وعلى استعداد للمشاركه فى الدراسه . وأظهرت نتائج الدراسة أن أقلية من الممرضات الخاضعات للدراسة كانت لديهن معرفة إجمالية مرضية قبل تنفيذ الدليل الإرشادي ، كلما كان لدى الغالبية مستوى مرضٍ من المعرفة بعد تنفيذ الإرشادات والمتابعة. بالإضافة إلى ذلك ، كان لدى أقلية من الممرضين الخاضعات للدراسة مستوى إجمالي مُرضٍ من الممارسة قبل تنفيذ الإرشادات ، كلما كان لدى الغالبية مستوى مرضٍ من الممارسة علاوة على تنفيذ الدليل الإرشادي ومتابعته. التأثير على المعرفة والممارسة الكلية للممرضات الخاضعات لرعاية الأداء للمريض بقسطرة غسيل الكلى غير النفقية ، والتي تدعم فرضية الدراسة. وأوصت الدراسة بتنفيذ برنامج تدريبي للممرضات لتحسين أدائهم فيما يتعلق برعاية المرضى بقسطرة غسيل الكلى غير النفقية.