IJBPAS, December, Special Issue, 2023, 12(12): 176-182
ISSN: 2277–4998

International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)
'A Bridge Between Laboratory and Reader'
www.ijbpas.com

ASSESS THE EFFECTIVENESS OF DEMONSTRATION ON PICC IN TERMS OF KNOWLEDGE AND PRACTICE AMONG THIRD YEAR B.SC. NURSING STUDENTS IN SELECTED NURSING COLLEGES, VADODARA, GUJARAT

SOLANKI P*[1], PATEL KHUSHI[2], PATEL KRUPAL[2], PATEL MAITRI[2] AND PATEL MANSI[2]

1: Assistant Professor, Department of Child Health Nursing, Sumandeep Nursing College, Sumandeep Vidyapeeth deemed to be University, Vadodara, Gujarat.

2: Undergraduate Nursing Student, Sumandeep Nursing College, Sumandeep Vidyapeeth deemed to be University, Vadodara, Gujarat

***Corresponding Author: Ms. Priyanka Solanki: E Mail: pinkuamin8894@gmail.com**

Received 15th July 2023; Revised 19th Aug. 2023; Accepted 22nd Nov. 2023; Available online 15th Dec. 2023

https://doi.org/10.31032/IJBPAS/2023/12.12.1023

ABSTRACT

BACKGROUND: A catheter inserted into a large vein is called a central venous catheter (CVC), sometimes known as a central venous line. The internal jugular vein in the neck, the subclavian or axillary vein in the chest, the femoral vein in the neck, or veins in the arms (also known as PICC lines or peripherally inserted central catheters) are all possible sites. These are single, double or triple lumen catheters that are 50-60 cm long and end in the chest after insertion into a peripheral vein in the arm. PICC lines are significantly more useful for continuous intravenous usage. They are utilized both inside and outside of hospitals in nearly every department. Peripherally inserted central catheters (PICC) adequately and safely meet the needs of patients requiring short-term or long-term care in many clinical situations. Chemotherapy as a primary form of treatment, like systemic therapy, requires infusions over a long period of time in multiple cycles. **AIMS AND OBJECTIVES:** The aim of the study was to assess the effectiveness of demonstration on PICC in terms of knowledge and practice among third year B.Sc. Nursing Students in selected Nursing Colleges, Vadodara, Gujarat.

MATERIAL AND METHOD: Pre experimental one group pre- test post-test research design, and a non probability convenience sampling technique was adopted to achieve the goal of the study. The tool consists of two parts. First part consists demographic data of the sample and second part consists of structured knowledge questionnaire. The sample was 30 3rd year B.Sc. Nursing students those were taken from selected nursing colleges of Vadodara, Gujarat. **RESULTS:** The pretest score of level of knowledge regarding PICC revealed that majority (63.3%) had poor knowledge and (36.7%) had average knowledge, where as in posttest majority (90%) had good knowledge and (10%) had average knowledge. The pretest score of level of practice regarding PICC revealed that majority of third year B.Sc. Nursing Students (53.3%) had poor practice and (46.7%) had moderate practice where as in posttest majority (83.3%) had good practice and (16.7%) had moderate practice. **CONCLUSION:** According to the calculation of both pre-test and post test score it indicates that there was improvement in knowledge level among 3rd year B.Sc. Nursing students. Hence it indicates that the demonstration was effective.

Keywords: Demonstration, Effectiveness, Nursing Students, PICC, Assess, Knowledge

INTRODUCTION

In medicine, a catheter inserted into a large vein is called a central venous catheter (CVC), sometimes known as a central venous line. The internal jugular vein in the neck, the subclavian or axillary vein in the chest, the femoral vein in the neck, or veins in the arms (also known as PICC lines or peripherally inserted central catheters) are all possible sites for catheter placement. It is used to take blood samples (specifically central venous oxygen saturation), measure central venous pressure, and provide medications or fluids that cannot be taken orally or that may damage a smaller peripheral vein **[1]**.

Some central venous catheters are peripherally inserted central catheters (PICC). These are single-, double- or triple-lumen catheters that are 50-60 cm long and end in the chest after insertion into a peripheral vein in the arm. They are suitable for medium-term IV access, lasting from a few weeks to six months **[2]**. This catheter can be made of polyurethane or silicone, both biocompatible and less thrombogenic, which prevents the colonization of microorganisms. PICCs can also reduce catheter-related risks such as infection, thrombophlebitis and insertion complications **[3-10]**.

MATERIALS AND METHODS

The research approach adopted for present study was quantitative evaluatory approach, where the research design selected for present study was experimental research design. The sample of this research study were 30 students to assess the effectiveness

of demonstration on PICC line procedure in term of knowledge and practice among 3rd year B.Sc. nursing student. Non probability convenience sampling technique was used to select the sample the independent variable this study was demonstration on knowledge and practice regarding insertion PICC line in children and the perception of 3rdyear B.Sc. nursing student regarding PICC line procedure was dependent variable in the study. The instrument used for the study was structured knowledge questionnaire and practice checklist regarding PICC line procedure among 3rd year B.Sc. nursing students. The data was analyzed using descriptive and inference statistics, the duration of this research was 6 month. Pre-post test used assess to the knowledge and practice regarding PICC line procedure. The data was collected after getting permission from principal mam of Sumandeep Nursing College. The objectives of the study were explained to the participants and their return consent was taken. The Research tool for data collection it consists three sections:

Section 1:

Demographic variable on characteristics of B.Sc. Nursing students such as age, education, experience of teaching, sex, number of children in family, previous knowledge regarding PICC line procedure.

Section 2:

Self structured questionnaire will be used to assess the knowledge regarding PICC line procedure among B.Sc. Nursing students in selected Nursing colleges, Vadodara, Gujarat.

Section 3:

Checklist will be used to assess the practice regarding PICC line procedure among BSc nursing students in selected nursing colleges, Vadodara, Gujarat.

RESULT:

Table 1 depicts the frequency and percentage distribution of socio-demographic variables of third year B.Sc. Nursing students. According to gender, maximum 18(60%) were female and 12(40%) were male.

With regard to Medium of instruction for 12th standard of third year B.Sc. Nursing students, maximum 16(53.3%) were Gujarati medium and 14(46.7%) were English medium.

Regarding any nurses in the family of third year B.Sc. Nursing students, majority 25(83.3%) had no nurses in their family and 5(16.7%) had nurses in their family.

According to source of knowledge of third year B.Sc. Nursing students, majority 20(66.7%) had knowledge from books, 8(26.7%) had knowledge from media, 1(3.3%) had knowledge from newspaper and 1(3.3%) had knowledge from magazine.

As per Any previous knowledge regarding PICC of third year B.Sc. Nursing students, maximum 26(86.7%) had no previous knowledge and 4(13.3%) had previous knowledge regarding PICC.

Table 2 depicts the pre-test and post-test level of knowledge regarding PICC among third year B.Sc. Nursing Students. Results revealed that in pretest majority 19(63.3%) had poor knowledge and 11(36.7%) had average knowledge where as in posttest majority 27(90%) had good knowledge and 3(10%) had average knowledge regarding PICC among third year B.Sc. Nursing Students.

Table 3 depicts the pre-test and post-test level of practice regarding PICC among third year B.Sc. Nursing Students. Results revealed that in pretest majority of third year B.Sc. Nursing Students 16(53.3%) had poor practice and 14(46.7%) had moderate practice where as in posttest majority 25(83.3%) had good practice and 5(16.7%) had moderate practice regarding PICC among third year B.Sc. Nursing Students.

Table 4 depicts the effectiveness of Demonstration regarding Knowledge and practice on PICC among third year B.Sc. Nursing Students which was tested by using paired t test.

Results regarding knowledge showed that mean post-test knowledge score was 24.66±2.21 higher than mean pre-test knowledge score 10.33±2.73 with mean difference of 13.93 and obtained (t value=20.25, df=29, p=0.001) was found statistically highly significant at $p<0.05$ level.

Results regarding practice showed that mean post-test practice score was 22.10±2.24 higher than mean pre-test practice score 9.43±2.48 with mean difference of 12.66 and obtained (t value=20.12, df=29, p=0.001) was found statistically highly significant at $p<0.05$ level.

Findings indicate that Demonstration was effective in improving the Knowledge and practice on PICC among third year B.Sc. Nursing Students.

Table 5 depicts the association between pre-test knowledge regarding PICC among third year B.Sc. Nursing Students with their selected demographic variables which was tested by using chi-square test. Result revealed demographic variables such as gender, Medium of instruction for 12^{th} standard, any nurses in the family, source of knowledge and any previous knowledge regarding PICC line procedure were not found any significant association at $p<0.05$ level with pre-test knowledge regarding PICC among third year B.Sc. Nursing Students.

Table 6 depicts the association between pre-test practice regarding PICC among third year B.Sc. Nursing Students with their selected demographic variables which was

tested by using chi-square test. Result revealed demographic variables such as gender, Medium of instruction for 12th standard, any nurses in the family, source of knowledge and any previous knowledge regarding PICC were not found any significant association at $p<0.05$ level with pre-test practice regarding PICC among third year B.Sc. Nursing Students.

Table 1: Frequency and Percentage Distribution of Demographic Variables (N=30)

S. No.	Demographic Variables	frequency	percentage
1	Gender		
	a. Male	12	40
	b. Female	18	60
2	Medium of instruction for 12th standard		
	a. English	14	46.7
	b. Gujarati	16	53.3
3	Any nurses in the family		
	a. Yes	5	16.7
	b. No	25	83.3
4	Source of knowledge		
	a. Media	8	26.7
	b. Books	20	66.7
	c. Newspaper	1	3.3
	d. Magazine	1	3.3
5	Any previous knowledge regarding PICC		
	a. Yes	4	13.3
	b. No	26	86.7

Table 2: Pre-test and post-test level of knowledge regarding PICC among third year B.Sc. Nursing Students (N=30)

LEVEL OF KNOWLEDGE	Pre-Test		Post-Test	
	f	%	f	%
Poor knowledge	19	63.3	0	0
Average knowledge	11	36.7	3	10
Good knowledge	0	0	27	90

Table 3: Pre-test and post-test level of practice regarding PICC among third year B.Sc. Nursing Students (N=30)

LEVEL OF PRACTICE	Pre-Test		Post-Test	
	F	%	f	%
Poor practice	16	53.3	0	0
Moderate practice	14	46.7	5	16.7
Good practice	0	0	25	83.3

Table 4: Effectiveness of Demonstration regarding Knowledge and practice on PICC among third year B.Sc. Nursing Students (N=30)

Effectiveness	Pre-test Mean (SD)	Post-test Mean (SD)	Mean D	t value	df	P value
Knowledge	10.33 (2.73)	24.66 (2.21)	13.93	20.25	29	0.001*
Practice	9.43 (2.48)	22.10 (2.24)	12.66	20.12	29	0.001*

*p<0.05 level of significance

Table 5: Association between pre-test Knowledge on PICC among third year B.Sc. Nursing Students with their selected demographic variables (N=30)

S. No	Demographic Variables	Pre-test knowledge		χ2 value	df	p value
		Poor	Average			
1	Gender					
	a. Male	8	4	0.096	1	0.757^{NS}
	b. Female	11	7			
2	Medium of instruction for 12th standard					
	a. English					
	b. Gujarati	10	4	0.741	1	0.389^{NS}
		9	7			
3	Any nurses in the family					
	a. Yes	2	3	1.407	1	0.236^{NS}
	b. No	17	8			
4	Source of knowledge					
	a. Media	7	1	4.701	3	0.195^{NS}
	b. Books	10	10			
	c. Newspaper	1	0			
	d. Magazine	1	0			
5	Any previous knowledge regarding PICC					
	a. Yes	4	0	2.672	1	0.102^{NS}
	b. No	15	11			

*p value < 0.05 level of significance; NS-Non Significant

Table 6: Association between pre-test practice on PICC among third year B.Sc. Nursing Students with their selected demographic variables (N=30)

S. No.	Demographic Variables	Pre-test practice		χ2 value	df	p value
		Poor	Moderate			
1	Gender					
	a. Male	5	7	1.094	1	0.296^{NS}
	b. Female	11	7			
2	Medium of instruction for 12th standard					
	a. English	6	8	1.158	1	0.282^{NS}
	b. Gujarati	10	6			
3	Any nurses in the family					
	a. Yes	4	1	1.714	1	0.190^{NS}
	b. No	12	13			
4	Source of knowledge					
	a. Media	6	2	4.085	3	0.252^{NS}
	b. Books	9	11			
	c. Newspaper	0	1			
	d. Magazine	1	0			
5	Any previous knowledge regarding PICC					
	a. Yes	2	2	0.021	1	0.886^{NS}
	b. No	14	12			

*p value < 0.05 level of significance; NS-Non Significant

CONCLUSION

Based on the findings of the present study the demonstration was effective for students. In addition there was a statistically significant difference between the pre-test and post-test score.

CONSENT

As per international standard or university standard, students written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

The study was approved from ethical committee of Sumandeep Vidyapeeth institutional ethical committee and ethical approval number is SVIEC/ ON/ NURS/

SRP/SEP/23/22.

REFERENCES

[1] Allison B, Nasia S (2009). Catheter-Related Bloodstream Infections. Infect Dis

[2] Jonczyk M, Gebauer B, Schnapauff D, Rotzinger R, Hamm B, Collettini F. Peripherally inserted central catheters: Dependency of radiation exposure from puncture site and level of training. Acta Radiol. 2018 Jun;59(6):688-693.

[3] Al Hamod DA, Zeidan S, Al Bizri A, Baaklini G, Nassif Y. Ultrasound-guided Central Line Insertion and Standard Peripherally Inserted Catheter Placement in Preterm Infants: Comparing Results from Prospective Study in a Singlecenter. N Am J Med Sci. 2016 May;8(5):205-9.

[4] Arul GS, Livingstone H, Bromley P, Bennett J. Ultrasound-guided percutaneous insertion of 2.7 Fr tunnelled Broviac Lines in neonates and small infants. Pediatr Surg Int. 2010 Aug;26(8):815-8.

[5] Todd J. Br J Nurs. 1999 Feb 11-24;8(3):140-2, 144, 146-8. Doi: 10.12968/bjon.1999.8.3.6699.

[6] de Souza RRB, Alves VH, Rodrigues DP, Paiva ED. The knowledge of nurses in terms of the peripherally inserted Central catheter. Braz JNurs. 2009;15(1).

[7] Schiffer CA, Mangu PB, Wade JC, *et al*. Central venous catheter care for the patient with cancer: American Society of Clinical Oncology clinical practice guideline. J Clin Oncol 2013; 31(10): 1357–1370.

[8] Yun WS, Yang SS. Comparison of peripherally inserted central catheters and totally implanted venous access devices as chemotherapy delivery routes in oncology patients: A retrospective cohort study. Sci Prog. 2021 AprJun;104(2):368504211011871. Doi: 10.1177/00368504211011871. PMID: 33950754.

[9] Rani R, Kaur A. Knowledge regarding PICC (peripherally inserted central catheter) line care among primary caregivers of PICC line patients undergoing chemotherapy. IP Int J Med Paediatr Oncol 2020;6(2):56-60.

[10] Rumbidzai Anne Gumbie, Bukhari Elham, Genna Relojo, Linda Atiyeh. Nursing Education, King Abdulaziz Medical City Jeddah 10.1136/bmjoq-2019-PSF.45.