



E-ISSN: 2663-2268
P-ISSN: 2663-225X
www.surgicalnursingjournal.com
IJARMSN 2024; 6(2): 06-09
Received: 04-05-2024
Accepted: 07-06-2024

Ramalingayya
M.Sc. Nursing Student,
Department of Medical
Surgical Nursing, AL Kareem
College of Nursing,
Kalaburagi, Karnataka, India

Shaik Nawaz
Associate Professor,
Department of Medical
Surgical Nursing, AL Kareem
College of Nursing,
Kalaburagi, Karnataka, India

Corresponding Author:
Ramalingayya
M.Sc. Nursing Student,
Department of Medical
Surgical Nursing, AL Kareem
College of Nursing,
Kalaburagi, Karnataka, India

International Journal of Advance Research in Medical Surgical Nursing

To assess the effectiveness of intervention program on knowledge regarding central line associated blood stream infections (CLABSI) bundle care among staff nurses at selected hospitals of Kalaburagi

Ramalingayya and Shaik Nawaz

DOI: <https://doi.org/10.33545/surgicalnursing.2024.v6.i2a.188>

Abstract

Central lines are being used increasingly in the inpatient and outpatient setting to provide long-term venous access. Central lines disrupt the integrity of the skin, making infection with bacteria and/or fungi possible.

Objective: To assess the evaluate the effectiveness of intervention program on knowledge regarding Central line associated blood stream infections (CLABSI) bundle care among staff nurses at selected hospitals of Kalaburagi.

Methodology: An evaluative approach with one group pretest posttest design was adopted for the study. The samples from the selected hospitals were selected using convenient sampling technique. The tools used for data collection was structured knowledge questionnaire and intervention program was prepared for intervention.

Research: The pretest knowledge scores respondents mean was 13.04, median was 12.50, mode was 12 with standard deviation 4.63 and score range was 5-21. The posttest knowledge scores respondents mean was 18.24, median was 18.50, mode was 22 with standard deviation 3.68 and score range was 11-24. With regard to pretest level of knowledge it shows that, maximum 31(62%) respondents were having average knowledge, 10(20%) respondents were having poor knowledge and remaining 9(18%) of respondents were having good knowledge. During post-test equal number 25(50%) of respondents were having good knowledge and average knowledge. The statistical paired 't' implies that the difference in the pretest and post-test value was found statistically significant at 5% level ($p < 0.05$) with a paired 't' value of 9.25. There exists a statistical significance in the difference of knowledge score indicating the positive impact of intervention program.

Conclusion: Interventional program was effective to enhance the knowledge of participants. Since a very few studies have been conducted regarding this topic in India, so the nurse researcher can take further studies on the same topic.

Keywords: CLABSI bundle care, knowledge, hospitals, staff nurses, intervention program

Introduction

Nosocomial infections, commonly referred to as hospital acquired infections, are infections that occur during a hospital stay. The National Nosocomial illnesses Surveillance System (NNIS) of the Centres for Disease Control (CDC) provides a comprehensive definition of all nosocomial illnesses. NNIS also provides a clear definition for blood infections related to central lines and central lines themselves. Most interchangeable terminology, such as Central Line Bloodstream Infections (CLBSI), Central Line-Associated Bloodstream Infections (CLABSI), and Catheter-Related Bloodstream Infections (CR-BSI), are used to describe central line infections. But most of them made use of CLABSI, or central line-associated bloodstream infections.

One of the intravascular access tools that is essential for the treatment of critically unwell hospitalised patients is the central venous catheter. For clinical purposes such drug infusion, nutritional assistance, and hemodynamic monitoring, they offer dependable venous access. Critical nursing care is required for patients with illnesses and injuries that could be fatal. It generally happens in an intensive care unit (ICU) or trauma centre, where equipment such as ventilators, feeding tubes, IVs, catheters, and other common items are used. While these can support life, they also raise the possibility of infection.

Intravascular catheters have become indispensable tools for the treatment of critically and persistently sick patients. However, using them is linked to major infections; these infections can cause complications that lead to considerable morbidity, longer nursing collagenization times, and higher medical expenses.

An indwelling device called a central venous catheter is placed into a big central vein, usually the subclavian, femoral, or internal jugular, and progressed until the terminal lumen is located in the right atrium, inferior vena cava, or superior vena cava. These devices are synonymous with "central line" or "central venous access," as are the placement techniques used for them. The first description of CVC placement dates back to 1929. Central venous access quickly evolved over the ensuing decades into a vital clinical tool for treating numerous disease processes as well as a crucial experimental tool for researching heart physiology.

Long-term venous access with central lines is becoming more and more common in both inpatient and outpatient settings. Because central lines compromise the integrity of the skin, fungus and/or bacteria can infect the area. Bloodstream infection can result in hemodynamic alterations, organ failure, and severe sepsis, which can be fatal. Central lines are involved in about 90% of central line-associated bloodstream infections (CLABSIs).

The bundle approach to a limited set of interventions encourages cooperation and teamwork; it is not meant to be an exhaustive list of all aspects of care associated with central lines. Guidelines from the CDC and others may suggest various aspects of care, such as daily site maintenance and dressing material selection.

These facts and proof showed that CLABSI bundle care is a crucial area of care that hospital staff members, particularly those in intensive or critical care units, need to be well-versed in. So, the researcher decided to look at the nurses' current level of knowledge about CLABSI bundle care. This would be followed by an educational intervention to see how the intervention affects the nurses' level of knowledge about CLABSI bundle care.

Objectives

1. To assess the knowledge of staff nurses regarding Central line associated blood stream infections (CLABSI) bundle care in terms of pre-test and post test knowledge scores.
2. To evaluate the effectiveness of intervention program on knowledge of staff nurses regarding Central line associated blood stream infections (CLABSI) bundle care by comparing pre-test and post-test knowledge scores.
3. To find out the association between the pre-test knowledge scores of staff nurses regarding Central line

associated blood stream infections (CLABSI) bundle care and selected demographic variables.

Hypothesis

- **H₁:** The mean posttest knowledge scores of staff nurses regarding Central line associated blood stream infections (CLABSI) bundle care, who have undergone the intervention program, will be significantly higher than their mean pre-test knowledge scores at 0.05 levels of significance
- **H₂:** The levels of knowledge of staff nurses regarding Central line associated blood stream infections (CLABSI) bundle care will be significantly associated with their selected personal variables at 0.05 levels of significance

Methodology

- **Research Approach:** Evaluative research approach.
- **Research Design:** Pre-Experimental one group pre-test post- test design.
- **Sampling technique:** Non-Probability Purposive Sampling Technique.
- **Sample size:** 50.
- **Setting of study:** Selected hospital, Kalaburagi, Karnataka.
- **Population:** Comprises Staff Nurses.

Tool used for data collection

Section I: Demographic data: It consists of 8 items related to demographic data of participants.

Section II: Structured knowledge questionnaire: This section consists of 28 structured multiple choice items with the multiple options for each item to assess the knowledge of staff nurses regarding Central line associated blood stream infections (CLABSI) bundle care.

Procedure of data collection: Data collection procedure for main study began from 15.03.2024 to 15.04.2024, after obtaining permission from concerned authority of selected hospital, Kalaburagi and consent from subjects the pre-test was conducted to 50 participants using structured knowledge scale; approximately 45 minutes were spent for collecting data. The investigator gathered participants in a comfortable room and conducted Pre-Test in selected hospital, Kalaburagi, Soon after the test, the structured interventional program was administered. On 8th day post-test was given with the same structured knowledge scale and took about 45 minutes to complete the post-test.

Results

Section I: Demographic Profile

Table 1: Frequency & Percentage Distribution of Respondents by socio demographic variables, n=50

Sl. No.	Demographic variables	Frequency (f)	Percentage (%)
1.	Age in years		
	20-30 years	11	22
	31-40 years	15	30
	41-50 years	11	22
2.	> 50 years	13	26
	Gender		
	Female	31	62
	Male	19	38
3.	Educational qualification		
	Diploma Nursing	29	58
	Basic Bsc Nursing	13	26
	Post Basic Bsc Nursing	8	16

4.	Religion		
	Hindu	25	50
	Muslim	12	24
	Christian	7	14
	Other	6	12
5.	Years of experience		
	0 - 1 year	18	36
	1 - 5 years	11	22
	5 - 10 years	15	30
	>10 years	6	12
6.	Previous knowledge regarding CLABSI bundle care		
	Yes	23	46
	No	27	54
7.	Sources of information		
	News papers	15	30
	Family & friends	19	38
	Social Media	10	20
	Other	6	12

SECTION II: Distribution Respondent’s Scores according To Their Level of knowledge during pretest and post test

Area wise and total distribution of pretest and posttest knowledge scores of respondents

Table 2: Mean, median, mode, standard deviation and range of pretest and posttest knowledge scores of Respondents, n = 50

Area of Knowledge	Number of Items	Mean	Median	Mode	Standard deviation	Range
Pre test	28	13.04	12.50	12	4.63	5-21
Post test	28	18.24	18.50	22	3.68	11-24

Table 2 reveals pretest knowledge score of respondents regarding Central line associated blood stream infections (CLABSI) bundle care, it shows that; The pretest knowledge scores respondents mean was 13.04, median was 12.50, mode was 12 with standard deviation 4.63 and score range was 5-21.

The posttest knowledge scores respondents mean was 18.24, median was 18.50, mode was 22 with standard deviation 3.68 and score range was 11-24.

Distribution respondent’s pretest and post test scores according to their level of knowledge

Table 3: Frequency and Percentage distribution of respondents according to level of Knowledge regarding Central line associated blood stream infections (CLABSI) bundle care, n=50

Level of Knowledge					
Pre test			Post test		
Poor f(%)	Average f(%)	Good f (%)	Poor f(%)	Average f(%)	Good f (%)
10(20%)	31 (62%)	9(18%)	00	25 (50%)	25 (50%)

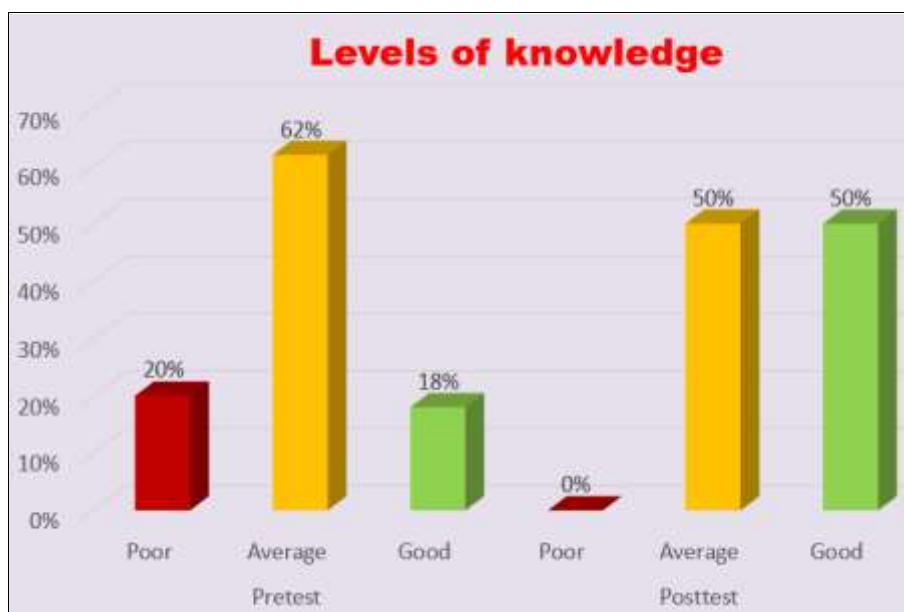


Fig 1: Pretest and posttest level of knowledge

The data presented in the Table 3 depicts the respondent’s level of knowledge during pretest and posttest regarding Central line associated blood stream infections (CLABSI)

bundle care; With regard to pretest level of knowledge it shows that, maximum 31(62%) respondents were having average

knowledge, 10(20%) respondents were having poor knowledge and remaining 9(18%) of respondents were having good knowledge.

During post-test equal number 25 (50%) of respondents were having good knowledge and average knowledge.

Effectiveness of Intervention Program

Table 4: Mean, standard deviation, standard error of difference and 't' value of pre-test and post-test knowledge scores, N=50

Area	Aspects	Mean	Sd	SEMD	Paired t Test
Knowledge	Pre-test	13.04	4.63	0.56	9.25*
	Post-test	18.24	3.68		

* Significant at 5% level

Table 4 indicates the overall mean knowledge scores of pre-test and post-test scores -

With respect to knowledge scores of participants, the findings reveal that the post-test mean knowledge scores was found higher [mean=18.24, SD of 3.68] when compared with pre-test mean knowledge score value which was 13.04 with SD of 4.63.

The statistical paired 't' implies that the difference in the pretest and post-test value was found statistically significant at 5% level ($p < 0.05$) with a paired 't' value of 9.25. There exists a statistical significance in the difference of knowledge score indicating the positive impact of intervention program. Hence, the research hypothesis H_1 is supported. This indicates that the enhancement in knowledge is not by chance and the staff nurses who exposed to intervention program on Central line associated blood stream infections (CLABSI) bundle care, significantly improved in their knowledge.

Association between Level of Knowledge and Selected Socio Demographic Variables

The computed Chi-square value for association between level of knowledge of staff nurses regarding Central line associated blood stream infections (CLABSI) bundle care and their selected demographic variables is found to be statistically not significant at 0.05 levels any of the selected socio demographic variables. Therefore, the findings do not support the hypothesis H_2 , inferring that staff nurses level of knowledge regarding Central line associated blood stream infections (CLABSI) bundle care is significantly not associated with any of the selected socio demographic variables.

Conclusion

Further, the conclusion brought on the basis of the finding of the study includes:

- The overall pretest knowledge of participants regarding Central line associated blood stream infections (CLABSI) bundle care was average.
- There was a need for teaching program regarding Central line associated blood stream infections (CLABSI) bundle care among participants.
- Post test results showed significant improvement in the level of knowledge regarding Central line associated blood stream infections (CLABSI) bundle care. Thus, it can be concluded that intervention program was effective to increase and update their knowledge on Central line associated blood stream infections (CLABSI) bundle care.
- The results revealed that there was association found between pre-test knowledge and type of family.

Conflict of Interest

Not available.

Financial Support

Not available.

References

1. Institute for Healthcare Improvement. How-to Guide: Prevent Central Line-Associated Bloodstream Infections (CLABSI). Cambridge, MA; c2012.
2. Wilma PJ, Long BC. Shafer's Medical nursing. New Delhi: B. T. Publication; c1995. p. 404-405.
3. Stewart BP, Strawn RM. Ready reference for critical nursing care. Sudbury: Jones and Barlet Publication; 2004:280-286.
4. Heffner AC, Androes MP. Overview of central venous access. In: UpToDate. Waltham (MA): UpToDate; c2017 Mar 16.
5. Mermel LA. Prevention of Intravascular Catheter-Related Infections. *Ann Intern Med.* 2000;132(5):391-402.
6. Klevens RM, Edwards JR, Richards CL, Horan TC, Gaynes RP, Pollock DA, *et al.* Estimating health care-associated infections and deaths in U.S. Hospitals, 2002. *Public Health Rep.* 2007;122(2):160-166.
7. Berenholtz SM, Pronovost PJ, Lipsett PA, Hobson D, Earsing K, Parley JE, *et al.* Eliminating catheter-related bloodstream infections in the intensive care unit. *Crit Care Med.* 2004;32(10):2014-2020.
8. Esposito MR, Guillari A, Angelillo IF. Knowledge, attitudes, and practice on the prevention of central line-associated bloodstream infections among nurses in oncological care: A cross-sectional study in an area of southern Italy. *PLoS One.* 2017;12(6):e0180473.
9. Dyk D, Matusiak A, Cudak E, Gutysz-Wojnicka A, Mędrzycka-Dąbrowska W. Assessment of Knowledge on the Prevention of Central-Line-Associated Bloodstream Infections among Intensive Care Nurses in Poland-A Prospective Multicentre Study. *Int J Environ Res Public Health.* 2021 Dec, 18(23).

How to Cite This Article

Ramalingayya, Nawaz S. To assess the effectiveness of intervention program on knowledge regarding central line associated blood stream infections (CLABSI) bundle care among staff nurses at selected hospitals of Kalaburagi. *International Journal of Advance Research in Medical Surgical Nursing.* 2024;6(2):06-09.

Creative Commons (CC) License

This is an open-access journal, and articles are distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 International (CC BY-NC-SA 4.0) License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.