

A Study to Assess the Knowledge and Practice of Staff Nurses Regarding Clabsi Bundle

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Abstract

A non-experimental descriptive study to assess the knowledge and practice about the use of central line associated bloodstream infection care bundle (CLABSI) to prevent central line associated bloodstream infection, among staff nurses working in selected hospitals, Hyderabad, with a view to develop an information booklet with the objectives To assess the knowledge and practice regarding CLABSI bundle, to find out correlation between knowledge and practice among staff nurses, to find out association between knowledge and practice among staff nurses with their selected demographic variables, to develop information booklet on CLABSI bundle for staff nurses. Research design selected for the present study was non experimental descriptive research design. A structured questionnaire was used to collect the data from the staff nurses and an observational CLABSI bundle checklist was used to assess the practice score of the CLABSI bundle practices. Purposive sampling technique was used for the selection of sample. Total sample size for the study was 60. Majority of the staff nurses had below average knowledge on CLABSI bundles that is 45(75%) having below average knowledge, whereas 15 (25%) demonstrated average knowledge. The result of the study is majority of the staff nurses had below average practice to CLABSI bundle that is 48 (80%) scored below average practice scores. 11(18.6%) staff nurses were in average practice scores, whereas 1(1.7%) staff nurse scored above average practice scores. The study shows that there is moderately positive correlation between knowledge and practice among staff nurses, ($r=0.4$). The study shows that there is no significant association between knowledge and practice regarding CLABSI bundle among staff nurses with selected demographic variables. An information booklet was provided to all intensive care nurses, regarding knowledge and practice of CLABSI bundle and advised to implement CLABSI bundle checklist wherever needed in order to prevent central line associated bloodstream infection.

Keywords: CLABSI bundle checklist wherever needed in order to prevent central line associated bloodstream infection.

Introduction

Central Line Associated Bloodstream Infections (CLABSI) is defined as a laboratory-confirmed bloodstream infection (not related to an infection at another site) where a central line was in place

within 48 hour period before the development of bloodstream infection. Of all the health care associated infections, CLABSIs are the most expensive; accounting for 46,000 per case in world and in India the rate being 7.9 per 1000 central line-days that is 19,030 as per 2018 survey. A vast majority of the cases are preventable through proper aseptic techniques, surveillance, and management strategies. In many hospitals in Canada, United Kingdom and United states these CLABSI bundles are in practice since many years. In India, many multispecialty hospitals have implemented these bundles, since 2010. Especially those hospitals are accredited with National Accreditation Board for Hospitals and Health care Providers (NABH) and Joint Commission International (JCI) standards.

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Need for the Study

Central Venous Catheter (CVCs) is widely used in critically ill patients throughout the developed world. Approximately 5 million CVCs are used each year. Each year, approximately 80,000 CVC-associated Blood Stream Infections (BSIs) occur in patients in ICUs and up to 250,000 occur throughout the health care system. Increased use of CVC over the past 20 years has been associated with at least a doubling of resultant CVC-associated bacteremia. According to a survey conducted in the year 2017 by International Nosocomial Infection control Consortium (INICC) CLABSI rate percentile in India per year is 75 – 90%. A study was conducted on ICU nursing staff about the catheter related blood stream infections. After the implementation of the education module, the number of primary blood stream infections fell to 26 in 7044 catheter days (3.7 per 1000 catheter days), a decrease of 66%. Recent prevalence study conducted on 2014 by CDC there are 28% of acute care patients had a central line 14% of HAIs were BSI. All BSIs identified were CLABSI. The study estimated there are 41,000 CLABSI annually hospital-wide and in that 18,000 CLABSI annually in ICUs. Despite of broad implementation of a bundle strategy aimed at preventing central line associated blood steam infections rates in many hospitals, gaps exist between awareness of the evidence based guidelines into daily practice. I could feel that a study is required to assess the staff nurses knowledge and practice on usage of CLABSI bundle and it may in turn help me to develop an information booklet for the staff nurses.

Review of Literature

Mohammad Al Qadire RN, PhD (2017) conducted a descriptive cross-sectional survey evaluated Jordanian oncology nurses' knowledge of the guidelines for preventing central venous catheter-associated infection. 170 oncology nurses were selected using purposive sampling technique; a structured questionnaire was used based on the Guidelines for the Prevention of Intravascular Catheter-Related Infections. Of the 170 oncology nurses, 133 completed the study questionnaire (response rate, 78%). Poor knowledge was evident from the very low mean total scores and the low percentage of correct answers for each item in the questionnaire.

Maria Rosaria Esposito¹, Assunta Guillari² (2017), conducted a cross sectional study on Knowledge, attitudes, and practice on the prevention of central line-associated bloodstream

infections among nurses in oncological care. Random sampling was used to select the samples. 335 nurses participated in the study. A questionnaire was self-administered. The vast majority of the 335 nurses answered questions correctly about the main recommendations to prevent CLABSIs (use sterile gauze or sterile transparent semi permeable dressing to cover the catheter site, disinfect the needleless connectors before administering medication or fluid, disinfect with hydrogen peroxide the catheter insertion site, and use routinely anticoagulants solutions). Nurses aged 36 to 50 years were less likely to know these main recommendations to prevent CLABSIs, whereas this knowledge was higher in those who have received information about the prevention of these infections from courses. Nurses with lower education and those who do not know two of the main recommendations on the site's care to prevent the CLABSIs, were more likely to perceive the risk of transmitting an infection. The study concluded that educational interventions should be implemented to address the gaps regarding knowledge and practice regarding the prevention of CLABSIs and to ensure that nurses use evidence-based prevention interventions.

Neha John (2016) conducted a descriptive study to assess the knowledge staff nurses regarding central line associated blood stream infection. The tool for data collection was a structured knowledge questionnaire and 50 staff nurses working in HAH Hospital, New Delhi, were selected using convenient sampling technique. The findings of the study concluded that majority (96%) of staff nurses had inadequate knowledge and only 4% had adequate knowledge. Thus it can be concluded that most of the staff nurses of HAH Hospital have inadequate knowledge regarding CLABSI

Statement of the Problem

"A study to assess the knowledge and practice among staff nurses regarding CLABSI (central line associated blood stream infection) bundle in selected hospitals, Hyderabad with a view to develop an information booklet."

Objective of the Study

1. To assess the knowledge and practice regarding CLABSI bundle.
2. To find out correlation between knowledge and practice among staff nurses.
3. To find out association between knowledge

and practice among staff nurses with their selected demographic variables.

- To develop information booklet on CLABSI bundle for staff nurses.

Hypotheses

H₁: There will be a significant correlation between knowledge and practice of staff nurses regarding CLABSI bundle

H₂: There will be association between knowledge and practice with selected demographic variables.

Methodology

Research design selected for the present study was non experimental descriptive research design. A structured questionnaire was used to collect the data from the staff nurses and an observational CLABSI bundle checklist was used to assess the practice score of the CLABSI bundle practices. The content validity of the tool was obtained from experts in the field of Medicine and Nursing. Written consent were taken from all the participants. Study protocol was approved by institutional review board.

The pilot study was conducted from 21st January 2019 to 26th January 2019 at selected hospital, Hyderabad. Prior permission from the authorities was obtained. The reliability of the tool was tested by using the split - half method and Karl Pearson’s formula and the tool was found to be highly reliable (r = 0.9)

The present study was conducted at selected hospital Hyderabad, during a specified period from 1st March 2019 to 11th March 2019. Prior permission from the authorities was obtained. Purposive sampling technique was used for the selection of sample. Total sample size for the study was 60. The conceptual framework for the study was based on audit cycle. The main aim of the model was to assess the knowledge and practice regarding CLABSI bundle among staff nurses and integrating research findings in such a way so as to facilitate the generation of testable hypothesis.

Results

The current study revealed that staff nurses had poor knowledge and practice on CLABSI and its preventive strategies. Majority of the staff nurses had below average knowledge on CLABSI bundles that is 45(75%) having below average knowledge, whereas 15 (25%) demonstrated average knowledge. Majority of the staff nurses had below average practice to CLABSI bundle that

is 48 (80%) scored below average practice scores. 11(18.6%) staff nurses were in average practice scores, whereas 1(1.7%) staff nurse scored above average practice scores. The study shows that there is moderately positive correlation between knowledge and practice among staff nurses, (r=0.4). The study shows that there is no significant association between knowledge and practice regarding CLABSI bundle among staff nurses with selected demographic variables. An information booklet was provided to all intensive care nurses, regarding knowledge and practice of CLABSI bundle and advised to implement CLABSI bundle checklist wherever needed in order to prevent central line associated bloodstream infection.

Table 1: Frequency and percentage distribution of staff nurses according to demographic variables

Age in years	Frequency	Percentage
20- 23	0	0
24- 26	0	0
27- 29	0	0
>30	60	100
Gender		
Male	0	0
Female	60	100
Religion		
Hindu	13	22
Muslim	8	13
Christian	39	65
Others	0	0
Educational qualification		
GNM (N)	41	68
B.Sc. (N)	14	23
PB B.Sc. (N)	5	9
M.Sc. (N)	0	0
Total clinical experience		
6 months - 1 year	0	0
1 -5 year	0	0
6 -10 years	6	10
11 years and above	54	90
Area of work		
Surgical ICU	27	45
Medical ICU	33	55
Duration of experience		
0-1 year	4	6.6
2-3 years	3	5
4-5 years	2	3.4
>5 years	51	85

Table 2: Frequency and percentage distribution of staff nurses according to the grading of their knowledge scores.

Knowledge score	Frequency(n)	Percentage (%)
Below average	45	75
Average	15	25
Above average	–	–
Total	60	100

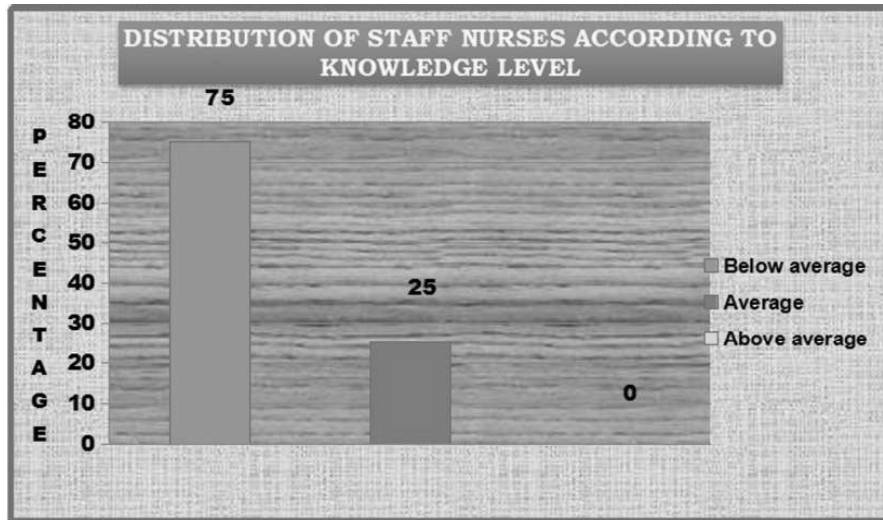


Fig. 1: Percentage of distribution of staff nurses according to knowledge level.

Table 3: Frequency and percentage distribution of staff nurses according to the grading of CLABSI bundle practice scores

CLABSI bundle practice score	Frequency(n)	Percentage (%)
Below average	48	80
Average	11	18.3
Above average	1	1.7
Total	60	100

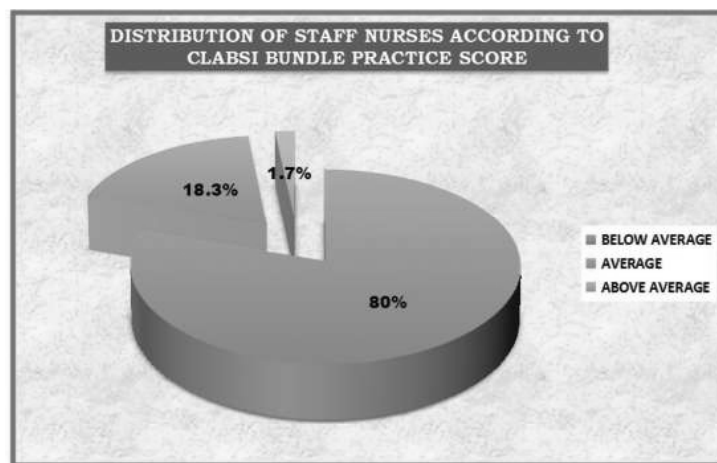


Fig. 2: Percentage of distribution of staff nurses according to CLABSI bundle practice score.

Table 4: Correlation between knowledge and practice of CLABSI bundle among staff nurses working in selected hospital

Variable	r-value	P-value
Knowledge and Practice	0.4	0.05

Table 4: Shows moderately positive correlation between knowledge and practice among staff nurses ($r=0.4$) at the p value 0.05. Hence we accept the stated hypothesis

H_1 : There will be a significant correlation between knowledge and practice of staff nurses regarding CLABSI bundle

Table 5: Over all mean and standard deviation of knowledge and practice of staff nurse regarding CLABSI bundle

Variables	Mean	Standard deviation
Knowledge	9.08	5.76
Practice	2.75	6.14

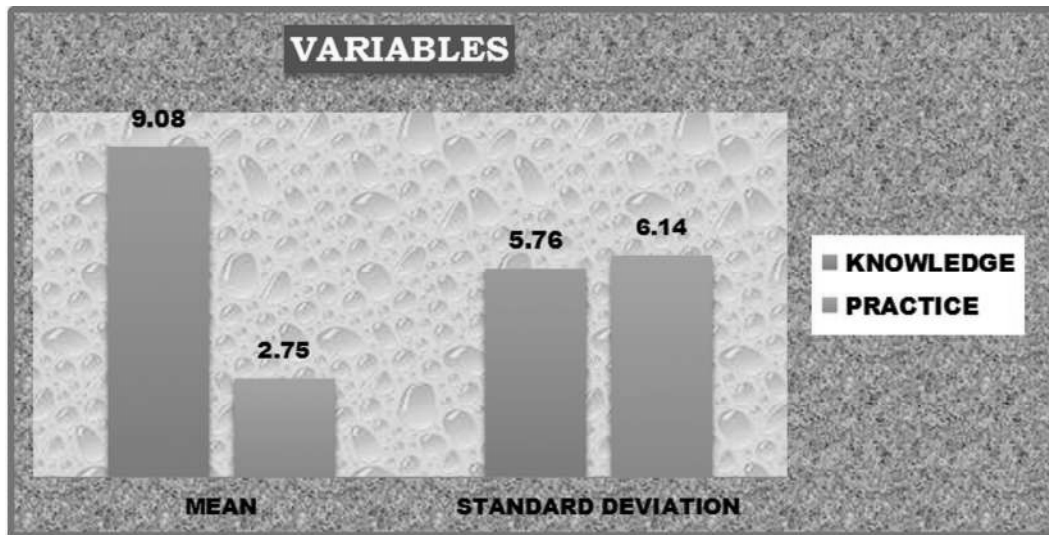


Fig. 3: Over all mean and standard deviation of knowledge and practice of staff nurse regarding CLABSI bundle

Table 6: Chi square values of Knowledge scores of staff nurses with their selected demographic variables

SI No	Demographic variables	Chi-square value	Degree of Freedom	Table value	Level of significance	Significance
1.	Age	2.06	6	12.59	0.05	NS
2.	Educational qualification	0.6	6	12.59	0.05	NS
3.	Years of experience	1.3	6	12.59	0.05	NS
4.	Area of work	2.7	6	12.59	0.05	NS
5.	Duration of experience in caring the patients with central line	15.8	6	12.59	0.05	S

Table 7: Chi square values of Practice compliance of staff nurses with their selected demographic variables

SI No	Demographic variables	Chi-square value	Degree of Freedom	Table value	Level of significance	Significance
1.	Age	2.09	6	12.59	0.05	NS
2.	Educational qualification	19.5	6	12.59	0.05	S
3.	Years of experience	0.8	6	12.59	0.05	NS
4.	Area of work	2.3	6	12.59	0.05	NS
5.	Duration of experience in caring the patients with central line	2.2	6	12.59	0.05	NS

Discussion

The present study revealed Majority of the staff nurses I knowledge scores, 45(75%) having below average knowledge, whereas 15 (25%) demonstrated average knowledge and majority of the staff nurses 48 (80%) scored below average practice scores, 11(18.6%) staff nurses were in average practice scores, whereas 1(1.7%) staff nurse scored above average practice scores. The similar study was conducted by Neha John (2016) conducted a descriptive study to assess the knowledge staff nurses regarding central line associated blood stream infection. The tool for data collection was a structured knowledge questionnaire and 50 staff nurses working in HAHC Hospital, New Delhi, were selected using convenient sampling technique. The findings of the study concluded that majority (96%) of staff nurses had inadequate knowledge and only 4% had adequate knowledge. Thus it can be concluded that most of the staff nurses of HAHC Hospital have inadequate knowledge regarding CLABSI.

Limitations

Investigator could experience difficulties in conducting written examination by using a structured questionnaire. Nurses were not interested in spending time after their duty shifts. Gathering nursing staff from different shift duties were also was a herculean task. Since it was a purposive sampling method getting samples was also difficult.

Implication

a. In Nursing Practice

- Nursing professionals working in the hospitals can understand the importance of prevention of central line associated bloodstream infections by practicing and adhering to CLABSI bundle.
- Nurses working in the intensive care units and wards need to practice CLABSI bundle, which will help in prevention of central line associated bloodstream infections.
- Staff nurses needs to enhance their knowledge and skills on prevention of central line associated bloodstream infections through continuous in - service education.
- Posters on CLABSI bundle practices can be displayed within the units.
- Information booklets on CLABSI bundle practices can help staff nurses in improving their knowledge.

- Procedure manuals and structured operating procedures to be updated after review by experts regarding latest guidelines and evidence-based best nursing practices should implement.
- An Innovative teaching drive regarding the newer devices, infection control practices and protocols in Critical Care for central-line insertion and maintenance and centralizing equipment should be undertaken.
- Audits and quality monitors are crucial for better patient outcomes.

b. In Nursing Education

- Nursing education is an integral part of nursing practice, which helps in updating the knowledge of nursing personnel
- Ongoing education should be provided to nursing personnel regarding CLABSI bundles and its practices
- The important role of nursing educator is to educate all nursing staff regarding central line associated bloodstream infections and its prevention by the use of CLABSI bundles
- Once staff nurses master the preventive measures of central line associated bloodstream infections, the number of incidences may come down and there by patient outcome will improve

c. Nursing Administration

- With technological advances and ever growing challenges in nursing, the nurse administrators have responsibility to provide the nurses with adequate educational opportunities
- Nursing administrators should plan and organize in-service education programmes for staff nurses on CLABSI bundles
- Nursing administrators should prepare nurses by providing in depth knowledge regarding central line associated bloodstream infections and its prevention
- Nursing administrators should guide and motivate staff nurses in participating certain surveillance activities so that nursing quality will improve further
- The nurse administrators can share new research findings and conduct researches in improving knowledge and practice compliance on prevention of other similar

diseases

d. In Nursing Research

- The study will be a valuable reference for further research.
- The study will motivate researchers who are beginners to conduct similar study on large scale basis and on comparative basis.
- Nurse researchers can develop appropriate health education tools for educating staff nurses on central line associated bloodstream infections preventions.
- The public and private agencies should also encourage researchers in the field of prevention of diseases through improvement in quality services through means of materials and funds.
- The findings of the study would help to expand the scientific body of professional knowledge upon which further research can be conducted.

Conclusion

The Majority of the staff nurses had below average knowledge on CLABSI bundles that is 45(75%) having below average knowledge, whereas 15 (25%) demonstrated average knowledge. Majority of the staff nurses had below average practice to CLABSI bundle that is 48 (80%) scored below average practice scores. 11(18.6%) staff nurses were in average practice scores, whereas 1(1.7%) staff nurse scored above average practice scores. The study shows that there is moderately positive correlation between knowledge and practice among staff nurses, ($r=0.4$) at the p value 0.05. There was no significant association between knowledge and practice regarding CLABSI bundle among staff nurses with selected demographic variables. An information booklet was developed and distributed among staff nurses, which will help them to improve their knowledge and there by practice on CLABSI bundle and ultimately there will be a definite reduction in central line associated bloodstream infections. The researcher took an added interest to distribute the CLABSI bundle

checklist to the selected hospital where the study was conducted in a hope to consider the usage of the checklist regularly to prevent CLABSI's.

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