



Original Research Article

Effectiveness of SIM (Self Instructional Module) on Knowledge Regarding Prevention of Nosocomial Infection in NICU among Nursing Students

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ABSTRACT

Aims & Objectives:

- ✓ To assess the knowledge of nursing students regarding prevention of nosocomial infection in NICU.
- ✓ To evaluate the effectiveness of self-instructional module (SIM) on knowledge regarding prevention of nosocomial infection in NICU among nursing students.
- ✓ To find out the association of knowledge score of nursing students regarding prevention of nosocomial infections with selected socio demographic variables of nursing students.

Methods: 55 nursing students were selected by purposive sampling technique from selected School of Nursing in western Maharashtra. A single group pre test and post test research design was adopted. Self structured knowledge questionnaire was used to collect the data. Data was analyzed by descriptive & inferential statistics.

Results & Conclusion: In pre test knowledge of nursing students only 19(34.05%) had good, 35 (63.06%) average, and 1(01.08%) had poor knowledge. In post test knowledge of nursing students 54 (98.02) have good, 1(01.08%) had poor knowledge. The mean post test knowledge score 23.1(SD=1.896) of nursing students was significantly higher than their pre test knowledge score 16.9 (SD=2.631). The calculated paired t value 13.96 is greater than table value (t=1.011) at 0.05 level of significance. There was no association of pre test knowledge scores with the selected demographic variables of nursing students. The self-instructional module was effective in improving the knowledge of nursing students.

Key words: Knowledge, Self-instructional module, nosocomial infection, nursing students, NICU.

INTRODUCTION

Neonatal deaths account for over a one third of the global burden of child mortality. ^[1] Nosocomial infections are one of the most important causes of mortality and morbidity in hospitals; particularly in developing countries. Nosocomial infections

have common frequency in pediatrics wards and represent one of the major causes of morbidity in the neonatal intensive care units (NICUs). ^[2] Developing countries were reported to have up to 20 times the risk of contracting a nosocomial infection compared with developed countries. ^[3]

The term nosocomial comes from the Greek word nosokomeian, nosos meaning disease and komeian meaning hospital. Nosocomial infection is thus any infection causing illness that was not present, or in its incubation period, during the time of admission and includes those infections, which occur after 48 hours of admission to the hospital. [4]

In many developing countries neonatal mortality rates (deaths in the first 28 days of life) is as high as 40/1000 live births with infections being the major cause of death. [5]

Health care-associated infections have long been recognized as crucial factors bedeviling the quality and outcomes of health care delivery. Renewed effort geared towards education in terms of training and retraining about standard infection control, as well as strict adherence by health care staff and students to aseptic practice can reduce the extent of these risks. [6] Student nurses are often exposed to various infections during their clinical education. Knowledge and compliance with standard precautions is essential to prevent hospital associated infections and protect patients as well as medical workers from exposure to infectious agents. [7]

Problem Statement:

“A Study to assess the effectiveness of SIM (Self Instructional Module) on knowledge regarding prevention of nosocomial infection in NICU among nursing students at selected nursing school at Western Maharashtra.”

Objectives:-

- 1) To assess the knowledge of nursing students regarding prevention of nosocomial infection in NICU.
- 2) To evaluate the effectiveness of self-instructional module (SIM) on knowledge regarding prevention of nosocomial infection in NICU among nursing students.

- 3) To find out association of knowledge score of nursing students regarding prevention of nosocomial infections with selected socio demographic variables of nursing students.

Assumption:-

This Study assumes that nursing student possess some knowledge regarding Prevention of nosocomial infection in NICU.

SIM will help to increase the knowledge regarding prevention of nosocomial infection in NICU among nursing students.

Hypotheses:-

H₀:-There will be no significant difference between per-test and post-test knowledge score regarding prevention of nosocomial infection NICU among nursing students.

H₁:-There will be a significant difference between per-test and post-test knowledge score regarding prevention of nosocomial infection NICU among nursing students.

H₂:-There will be significant association of knowledge scores regarding prevention of nosocomial infection with selected socio demographic variables.

MATERIALS & METHODS

It was felt that an evaluative approach enables the investigator to evaluate the effectiveness of SIM on knowledge regarding prevention of nosocomial infection in NICU among nursing students. A single group pre- test and post-test design was chosen for study. The population was composed of nursing students and the sample for the present study comprised of Revised General Nursing and Midwifery internship nursing students. The sample size is 55 nursing students selected by purposive sampling technique from selected nursing schools at western Maharashtra. Structured knowledge questionnaire was used to collect data from internship nursing students.

Structured knowledge questionnaire was prepared which consisted of 26

questions regarding prevention of nosocomial infection in NICU.

The tool consists of three parts.

PART I-

Consisted of demographic data which include the variables like age, gender, source of information and religion.

PART II-

It consists of 7 structured knowledge questionnaire related to sepsis.

PART III-

It consists 19 items to assess the knowledge regarding nosocomial infection in NICU, risk factors, prevention, and management.

Procedure for data collection:

The research investigator took permission from the principal of school of nursing to collect data for study. The steps used for data collection were as mention the below

- 1) On the day of pre-test, at the very beginning, the client where explained purpose of the study and informed written consent was obtained from each student.
- 2) The pre-test was conducted to assess the knowledge regarding prevention of nosocomial infection in NICU among nursing student by administration of knowledge questionnaire. The time given to the students to answer the question was 40 min.
- 4) SIM on knowledge regarding prevention of nosocomial infection was given to participants.
- 5) The post-test was taken 7 days later using the same knowledge questionnaire on prevention of nosocomial infection in NICU is used for the pre-test on the same sample.
- 6) Data collected was then tabulated and analyzed.

Data analysis plan:

The investigator analyses the collected data with use of descriptive and inferential statistics i.e. frequency, percentage, standard deviation, paired “t” test and chi-square test. The result of

analysis was interpreted in terms of gain in knowledge,

Knowledge regarding prevention of nosocomial infection in NICU among nursing student.

Organizing data on a master sheet.

Computation of frequency, percentage to describe data and computation of mean, standard deviation range to describe data on knowledge score by logical or arbitrary method.

A score 1 was awarded scored to a corrected the response while a score 0 was awarded to in correct response for the 26 knowledge items.

Inferential statistics used to draw the following conclusion.

Paired “t” test computation of “p” value to test the effectiveness of SIM.

Chi-square test & Fisher Exact tests were used to find the association between pre- test knowledge and selected variables

RESULTS

The results have been organized presented parts:

Part I: Description of demographic characteristics of nursing students.

Part II: Assessment of Knowledge of nursing students regarding prevention of nosocomial infection in NICU among nursing students.

Section A: Area wise Assessment of the level of knowledge of nursing students on prevention of nosocomial infection in NICU.

Section B: Assessment of knowledge of nursing students regarding prevention of nosocomial infection in NICU before and after administration of self instruction module.

Part III: Association of knowledge score of nursing students regarding prevention of nosocomial infections with selected socio demographic variables of nursing students.

Part 1: Description of Demographic characteristics of nursing students regarding prevention of nosocomial infection.

Table 1: Distribution of nursing students according to demographic characteristics:

S. No.	Demographic variables	Frequency	Percentage
1.Age of nursing students in years			
	20-22	37	67.3
	23-25	16	29.1
	26-28	2	3.6
2.Gender			
	Male	6	10.9
	Female	49	89.1
3.Source of information			
	Book	33	60.0
	Library	12	21.8
	Lecture	8	14.5
	Internet	2	3.6
4.Place			
	Urban	46	83.6
	Rural	9	16.4
5.Religion			
	Hindu	48	87.3
	Muslim	1	1.8
	Christian	2	3.6
	Other	4	7.3

Part II: Knowledge of nursing students regarding prevention of nosocomial infection in NICU among nursing students.

Section A: Area wise Assessment of the level of knowledge of nursing students on prevention of nosocomial infection in NICU.

Table No. 2: Frequency and Percentage distribution of Area wise Knowledge

S. No.	Knowledge Level	Frequency	Percentage
Section A			
1	Pre Test		
	Poor (0-2)	02	03.06
	Average (3-4)	33	60.00
	Good (4-6)	20	36.04
2	Post Test		
	Average (3-4)	05	09.01
	Good (5-6)	50	90.09
Section B			
1	Pre Test		
	Average (7-12)	42	76.04
	Good (13-19)	13	23.06
2	Post Test		
	Average (7-12)	01	01.08
	Good (13-19)	54	98.02

Table 1: shows the distribution of nursing students according to their demographic

characteristics, where in the majority (67.3%) were in the age group of 20-22 years, (89.1%) were females, it was observed that a large majority (60.0%) had a source of information as book, most of the nursing students(87.35%) were Hindus and (83.6%) were from urban area.

The data presented table 2 shows area wise knowledge and in section A 33(60%) Student are performed average 20 (36.04%) students are performed good and only 2(3.6%) students are performed poor knowledge in pre test and in post test students knowledge 05(09.01 %) had average and 50(90.9%) students performed good.

In section B area wise knowledge scores of pre-test 42(76.4%) students performed average and 13(23.6%) students performed good. In Post test 1(1.8%) student performed average and 54(98.2%) students performed good.

Section B: Assessment of knowledge of nursing students regarding prevention of nosocomial infection in NICU before and after administration of self instruction module.

Table No. 3: Frequency and Percentage distribution of Overall Knowledge

S. No.	Knowledge Level	Frequency	Percentage
1	Pre Test		
	Poor (0-9)	01	01.08
	Average (10-18)	35	63.06
	Good (19-26)	19	34.05
2	Post Test		
	Average (10-18)	1	01.08
	Good (19-26)	54	98.02

Table No.3: shows in pretest maximum students 35 (63.06%) had average, 19(34.05%) students had good and 1(01.08%) had poor knowledge where as in post-test 54 (98.02) students had good and only 1(01.08%) students had average knowledge regarding prevention of nosocomial infection in NICU.

Table No. 4: Comparison of mean of knowledge regarding prevention of Nosocomial Infection in NICU before and after SIM through paired 't'-test.

	Paired Differences		't'	df	Sig. (2-tailed)
	Mean	Std. Deviation			
Before SIM knowledge	16.9	2.631	13.996	54	.000
After SIM knowledge	23.1	1.896			

The data presented in table show that there was significant increase in post test scores. The mean post test knowledge score 23.1(SD=1.896) of nursing students was significantly higher than their pre test knowledge score 16.9 (SD=2.631). The

calculated paired 't' value 13.96 is greater than table value (t=1.011) at 0.05 level of significance, so that SIM on knowledge regarding prevention of nosocomial infection in NICU is effective method for improving the knowledge.

Part III: Association of knowledge score of nursing students regarding prevention of nosocomial infections with selected socio demographic variables of nursing students.

Table no.5: Association between pre-test knowledge score and selected demographic variables of nursing students.

S. No		Level of Knowledge			Chi-square	Fisher's Exact
		Poor	Average	Good		
1	Age				5.003 (0.189)	5.9 (0.217)
	20 -22	1	23	13		
	23 -25	0	12	4		
2	26 -28	0	0	2	1.156 (0.472)	1.589 (0.472)
	Gender					
	Male	0	5	1		
3.	Female	1	30	18	1.480 (0.973)	4.005 (0.936)
	Source of information					
	Book	1	21	11		
4.	Library	0	7	5	1.007 (0.555)	1.230 (0.555)
	Lecture	0	6	2		
	Internet	0	1	1		
	Place of residence					
5.	Urban	1	28	17	3.949 (0.407)	8.763 (0.374)
	Rural	0	7	2		
	Religion					
	Hindu	1	32	15		
	Muslim	0	1	0		
Christian	0	1	1			
Other	0	1	3			

Table no.6 shows that all the variables i.e. age in years, gender, source of information, place of residence, religion, received prior information related to prevention of nosocomial infection in NICU and are independent each other. Thus there was no significant association between knowledge scores and selected demographic variables.

DISCUSSION

The present study has been under taken to assess the effectiveness of SIM on

regarding prevention of nosocomial infection in NICU among nursing students at selected nursing school at western Maharashtra. The data was collected from 55 nursing students and analyzed by descriptive & inferential statistics. The results shows that in Pre test knowledge 34.5% had good, 63.6% had average knowledge and 1.8% poor knowledge. After the giving SIM 98.2 % had good knowledge and 1.8 % is average and no one was having poor knowledge level. The mean pretest Knowledge scores of the student was 16.9

(SD=2.631) and in post test the score increased to 23.1(SD=1.896). The knowledge increased to a great extent and there is no one, who is having poor knowledge level. Findings of the chi square & Fisher's exact test values for the knowledge is less than the table chi square values, null hypothesis is accepted and there is no significant association between pre test knowledge regarding prevention of nosocomial infection in NICU and selected demographic variables.

A descriptive study conducted by Prathibha D'Souza.V & Umarani. J to assess the knowledge of final year B.Sc. nursing students regarding prevention of nosocomial infection in pediatric wards in selected colleges of Mangalore, India is supporting the findings of present study and the results shows that majority (88%) of students had moderate level of knowledge, only (12%) had adequate knowledge and none of them were had inadequate knowledge on prevention of nosocomial infection in paediatric wards. The overall mean knowledge score found was (84.63%) and there was no significant association between level of knowledge and selected demographic variables.^[8]

Results of present study are similar to study conducted by Hany Girgis Eskander, Warda Youssef Mohammed Morsy, Hanaa Ali Ahmed Elfeky to assess the Intensive Care Nurses' Knowledge & Practices regarding Infection Control Standard Precautions at a Selected Egyptian Cancer Hospital shows that, approximately two thirds (63.6%) of the studied sample had unsatisfactory knowledge level (<75%) with a mean total knowledge score of 102.5 + 13.7. study recommended that updating knowledge and performance of ICU nurses through continuing in-service educational programs and providing training programs for newly joined ICU nurses about infection control standard precautions and at regular

intervals will prevent nosocomial infection.^[9]

A study conducted by Malihe Asadollahi, Mohammad Arshadi Bostanabad, Mahnaz Jebraili, Majid Mahalle, Alehe Seyyed Rasooli, Marzieh Abdolalipour to assess the Nurses' Knowledge Regarding Hand Hygiene and Its Individual and Organizational Predictors. Results of study are supporting the findings of present study. The mean score of nurses' knowledge was 10.39 (SD = 2.44). Additionally, 1.9%, 29.9%, and 68.1% of nurses obtained low, moderate, and high levels of knowledge respectively.^[10]

CONCLUSION

Results of the study concludes that student's nurse's knowledge on prevention of nosocomial infection in NICU was average in pretest after administration of SIM there was a gain in knowledge of nursing students so Self Instructional Module was effective in increasing the knowledge of students.

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