

Original Research Article

Effectiveness of Structured Teaching Programme on Prevention of Nosocomial Infection among Nurses Working at Tertiary Hospital

Nutan Potdar¹, Mahadeo Shinde², Sharvari Sadare³

¹Assistant Professor, ²Professor, ³Clinical Instructor,
KIMSUDU's Faculty of Nursing Sciences, Karad (India).

Corresponding Author: Nutan Potdar

Received: 28/03/2016

Revised: 23/04/2016

Accepted: 30/04/2016

ABSTRACT

Nosocomial infection is an infection originating in a patient in hospital. It is a serious hospital health hazard worldwide. In spite of advance in the prevention and control programmes of Nosocomial infection, they continue to be a major side effect of hospital and contribute significantly to the rate of morbidity, mortality and cost of care.

Objectives

1. To assess the existing knowledge on prevention of nosocomial infection among nurses.
2. To evaluate the effectiveness of structured teaching programme on prevention of Nosocomial infection among nurses.
3. To find out an association between existing knowledge score and selected demographic variables.

Methodology: An evaluatory approach was used to assess the effectiveness of STP. One group pretest and post test pre-experimental design was used. The study was conducted at Krishna Hospital, Karad. The sample selected was staff nurses and Sample size was 50. Purposive sampling technique was used. Data was analysed by using SPSS 20 version software.

Major Findings: The majority of participants 32(64%) belongs to age group 21-25 years. In terms of gender maximum number of participants 38(76%) were females. Majority of participants 24(48%) were general Nursing. Majority of participants 19(38%) have 1 year of experience.

The calculated paired "t" value, $t=18.985$ is greater than tabulated "t" value, $t=2.01$. Hence H1 is to be accepted. This indicates that the gain in knowledge score is statistically significant at $P<0.05$ levels.

Conclusion: Overall pre-test knowledge about prevention of Nosocomial infection was average. Post-test result showed significant improvement in the level of knowledge on prevention of Nosocomial infection.

Key words: Effectiveness, Structured teaching programme, Nosocomial infection, nurses, tertiary hospital.

INTRODUCTION

Learning is the addition of new knowledge and experience Interpreted in the light of past knowledge and experience. Teaching and learning is an integral part of nursing. Nurses have the responsibility to educate patients related to various aspects and keep themselves updated. Various teaching strategies are used to increase

knowledge, such as lecturing, demonstration, discussion and self-education. This method of self-education has an advantage over the others as the learner can educate himself at his own pace and it also stresses on rereading. [1] The term infection refers to a state in which parasitic organism attached themselves to the body or to the inside of the body, of another

organism causing contamination and disease in the host organism. Infection falls into two general categories; endogenous that occurs when the body's resistance is lowered and exogenous or those that originate outside the body. Nosocomial infection is an exogenous type of infection. [2]

Nosocomial infection is an infection originating in a patient in hospital. It is a serious hospital health hazard worldwide. In spite of advance in the prevention and control programmes of Nosocomial infection, they continue to be a major side effect of hospital and contribute significantly to the rate of morbidity, mortality and cost of care. The Nosocomial infection is a problem, world over all the hospital. However, due to emergency of HIV Infection the need to prevent and control Nosocomial infection is being emphasized. The aim is to reduce Nosocomial infection and ensure that no one acquires HIV infection from the hospital by strictly observing the precaution recommended for handling blood and the body fluids, precautions related to injections, skin piercing and invasive procedures, effective use of sterilization, disinfection and disposal of infective waste.

Deshmukh concluded that structured education was effective on knowledge and practice of staff nurses regarding venous access device working in oncology units. Staff nurses working in the hospital setting need to know about complications due to use of venous access device. Staff nurses should know how to prevent the patient from complications. One of the roles of nurse is to prevent the patient from complications. For that purpose, the nurse should know various methods for the prevention of complications. These methods can be obtained by improving the knowledge and practice with the help of structured education given at periodic intervals. In this study too, significant improvement in knowledge and practice regarding venous access device care is observed after imparting structured education. Such structured education will

improve the knowledge and practice of staff nurses. Suitable intervention packages need to be developed and in service education need to be given periodically for the effectiveness of qualitative nursing services. [3]

Shinde found in their study that an appropriate nursing information and assistance focusing on rehabilitation and stroke caregiver's needs should be provided to stroke caregivers performing informal care to ensure that both patients and caregivers have the best possible quality of life. [4] Kadam, A. found that structured education programme was highly effective to improve the knowledge score and to improve the attitude score of subjects/caregiver towards colostomy care of patient. [5] Anjum, S. conducted that study to assess knowledge of contraceptives methods and appraisal of health education among married women and concluded After the health education married women knowledge was improved to 100% about female sterilization followed by condom 99%, skin implants 86%, oral pills 85% and emergency contraceptives 85%. Sociodemographic variable were significantly associated with existing knowledge and level of married women specially age at marriage, age at first child, occupation, income, education. [6,7] Babu, R. L. concluded that care takers had inadequate knowledge regarding non-curative care of terminally ill cancer patients. The planned education programme on noncurative care of terminally ill cancer patients was highly effective in improving the knowledge of care takers regarding non-curative care of terminally ill cancer patients. [8]

According to the report published by urban waste expertise programme in Karachi, it was found that in spite of the high sickness rate, sanitation staff lacked awareness regarding protection of their bodies and manual handling of biomedical wastes. On the other hand few private hospitals offered regular courses on waste handling and management to create

awareness among the staff member and workers. [9]

The knowledge of infection control is essential if health care providers understand the rational measures employed in prevention and control of the infection. Not only to himself or herself, and also to the patients who require holistic care. From the previous researcher, the authors concluded that there is a need and opportunity for international cooperation in finding and applying effective means of prevention and control. Infection occurs within 48 hours after admission are considered as nosocomial infection cannot be eradicated entirely but many of them can be prevented by proper aseptic measures.

Objectives –

1. To assess the knowledge of staff nurses on prevention of Nosocomial infection.
2. To evaluate the effectiveness of structured teaching programme on prevention of Nosocomial infection.
3. To find out an association between knowledge score and selected demographic values.

Research Methodology

Research methods refer to steps, procedures and strategies for gathering and analyzing data in research involved. Research methodology is a way to systematically solve the research problem. It is a science of studying how research is done scientifically. [10]

An Evaluatory approach is used to assess the effectiveness of structured teaching programme among staff nurses. One group pre-test and post-test, pre-experimental design to evaluate the effectiveness of structured teaching programme among the staff nurses. A population is a group whose members possess specific attributes that a research is interesting in studying. The target populations for the study are staff nurses in KH, Karad. A finite subset of the population selected from it with the objective of investigating its properties is called a sample. The sample size of the study is 50 staff nurses. Pre-test and Post-test method is used. Multiple choice

questionnaires is prepared to identify the knowledge of the staff nurses regarding prevention of Nosocomial infection.

The steps used for data collection were as mentioned below:

1. The investigator introduced themselves and explained purpose of the study
2. On the day of pre-test, at the very beginning, the staff nurses were explained the purpose of the study and informed consent was obtained.
3. The pre-test was conducted on 06-05-2015 which included assessment of knowledge of staff nurses through the administration of
4. Structured teaching programme was administered at end of pre-test
5. The post test was taken 7 days later using the same structured knowledge questionnaire on prevention of Nosocomial infection used for the pre-test on the same sample
6. Data collected was then tabulated and analysed

The investigator collected the data for analysis and interpretation using a structured knowledge questionnaire. In order to examine the proposed association the data was tabulated analysed and interpreted in terms of objectives of the study using descriptive and inferential statistics. The plan for data analysis was developed under excellent direction of the experts in the field of nursing and statistics. The plan for data analysis is as follows:

- a) Organizing data on master sheet
- b) Computation of frequency, percentage to describe background data and computation of mean, standard deviation (SD), range to describe the data on knowledge scores
- c) Classifying knowledge score using mean and standard deviation(SD) in terms of good, average and poor is as follows:

A total score of 20 consisting of

For Pre-Test:

0-6 (poor score)

7-11 (average score)

12-20 (good score)

For Post Test:
 0-13 (poor)
 14-16 (average)
 17-20 (good)

d) inferential statistics were used to draw the following conclusion:

- 1) paired t test and computation of p value to test the effectiveness of STP
- 2) Chi-square was used to find the association between pre-test knowledge and selected variables.

Findings:

Table No: 1 frequency and percentage distribution of demographic variables

Demographic variables	Freq (f)	%
Course		
General nursing	24	48%
Basic b.sc nursing	22	44%
Post b.sc nursing	4	8%
Age		
21-25 yrs	32	64%
25-30 yrs	12	24%
30-35 yrs	5	10%
Above 35 yrs	1	2%
Gender		
Male	12	24%
Female	38	76%
Year of experience		
1 yr	19	38%
2yrs	14	28%
Above 2yrs	17	34%
Area of experience		
General ward	28	56%
Emergency unit	2	4%
Critical care unit	16	32%
Operation theatre	4	8%
Patient with hospital acquired infection		
Yes	39	78%
No	11	22%
Preventive action taken		
Yes	37	74%
No	13	26%

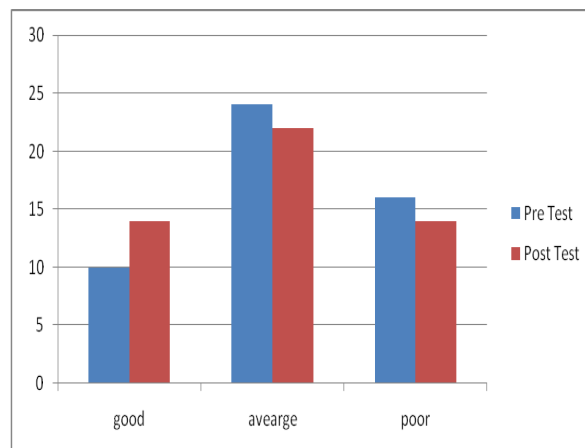
Table No.1 reveals that maximum staff nurses 22(44 %) completed the B.B.sc (N) program, 32(64%) were from 21-25 yrs age group, 38(76%) were females, 19(38%) have 1year experience, 28 (56%) had general ward experience, 39(78%) patient had hospital acquired infection, 37 (74%) preventive were action taken.

Table No.2 reveals that maximum staff nurses 24 (48%) performed averagely in pre-test and 22 (44%) performed averagely in post-test, 16(32%) performed

poor in pre-test and 14 (28%) performed poor in post-test and 10(20%) performed good in pre-test and 14 (28%) performed good in post-test.

Table No: 2 frequency and percentage distribution of preintervention and post intervention knowledge score

Sr.No	Knowledge Level	Pre intervention		Post intervention	
		Freq.	Per.%	Freq.	Per.%
1	Good	10	20%	14	28%
2	Average	24	48%	22	44%
3	Poor	16	32%	14	28%



GRAPH NO:1 Bar graph showing frequency distribution of comparison between pre-test and post-test knowledge.

Graph no.5 reveals that maximum staff nurses 24 (48%) performed averagely in pre-test and 22 (44%) performed averagely in post-test, 16(32%) performed poor in pre-test and 14 (28%) performed poor in post-test and 10(20%) performed good in pre-test and 14 (28%) performed good in post-test.

Table No: 3 mean score of knowledge of staff nurses on prevention of nosocomial infection before and after intervention

Sr No.	Test	Mean	Standard Deviation
1.	Before intervention	8.66	3.001
2.	After intervention	14.90	2.375

Table No.3 shows overall mean knowledge score before intervention was 8.66, standard deviation 3.001 where the after intervention mean knowledge score was 14.90, standard deviation 2.375.

Table No: 4 comparison of knowledge score before and after intervention

Sr no	Test	Mean	SD	d.f	Calculated t value	Table t value	P value
1.	Before intervention	8.66	3.001	49	18.758	2.01	<0.0001
2.	After intervention	14.90	2.375				

P<0.05, considered extremely significant

Table 4:-Reveals that calculated paired “t” value (18.758) is greater than tabulated “t” value (t=2.01) hence H1 is accepted. This indicates that the gain in knowledge score is statistically significant at <0.005 levels. Therefore STP on prevention of Nosocomial infection is effective in improving the knowledge among nurses.

Association between Pretest Knowledge Score and Demographic Variables

Demographic variable course and preventive action on hospital acquired infection is significantly associated with the knowledge score of pre-test. The other demographic variables like age, gender, years of experience, area of experience and patient seen with hospital acquired infection are not significantly associated on knowledge on prevention of Nosocomial infection and are independent of each other.

RESULT

- Majority nurses 22(44 %%) completed the B.B.sc (N) program
- Majority nurses 32(64%%) were from 21-25 yrs age group
- Majority nurses 38(76%) were females
- 19(38%) have 1year experience
- Majority nurses 28 (56%) had general ward experience
- Majority 39(78%)patient had hospital acquired infection
- 37 (74%) preventive were action taken.
- 10(20%) performed good in pre-test and 14 (28%) performed good in post-test.
- Majority staff nurses 24 (48%) performed averagely in pre-test and 22 (44%) performed averagely in post-test
- 16(32%) performed poor in pre-test and 14 (28%) performed poor in post-test
- The calculated paired “t” value, t=18.985 is greater than tabulated “t” value, t=2.01. Hence H1 is to be accepted. This indicates that the gain in knowledge score is statistically significant at R<0.05 levels. Therefore the Structured Teaching Programme on

prevention of Nosocomial Infection is effective in improving the knowledge of staff nurses.

DISCUSSION

The present findings from the study were matches with findings from study conducted by Tavalacci MP i.e. The overall score for infection control indicated that instruction was effective; however, knowledge levels were different by area (the best scores were results of tests of standard precautions) and curriculum (nursing students achieved the best overall score). Ward training for daily infection control practice (i.e., bedside instructions training and course work) could be improved for healthcare students. Results of multivariate analysis indicate that the probability of attaining acceptable knowledge in each area was smaller for medical students and assistant radiologist students than for nursing students. [11] while Shinde M found in their study that knowledge on hand hygiene was moderate (144 out of 200, 74%) among the total study population. The majority of students had poor attitudes with regard to hand hygiene. Nursing students had significantly (P < 0.05) better attitudes (52%) compared to nursing staff (12%). Student nurses had better five moments of hand hygiene practices than the staff nurses. [12] HALEY RW found that the establishment of intensive infection surveillance and control programs was strongly associated with reductions in rates of nosocomial urinary tract infection, surgical wound infection, pneumonia, and bacteremia. [13]

Steere AC considered the most important procedure in preventing nosocomial infections was handwashing, because many types of these infections may be caused by organisms transmitted on the hands of personnel. Personnel should wash their hands before and after significant contact with any patient. The risk of personnel acquiring transient hand carriage of organisms is usually greatest after contact

with excretions, secretions, or blood; patients at greatest risk are those undergoing surgery, those with catheters, and newborn infants. Although handwashing with an antiseptic agent between patient contacts is theoretically desirable, handwashing with soap, water, and mechanical friction are sufficient to remove most transiently acquired organisms. Antiseptic agents may produce excessively dry skin if used frequently, and any regimen of handwashing that leads to dermatitis negates the purpose of handwashing. We favor antiseptics for handwashing before surgery and other high-risk invasive procedures and in the care of newborn infants but prefer soap and water for other handwashing. [14]

CONCLUSION

Based on the findings of the study the following conclusion was drawn:

- Overall pretest knowledge about prevention of Nosocomial infection was average.
- There was a need for STP, for staff nurses on prevention of Nosocomial infection.
- Post-test result showed significant improvement in the level of knowledge on prevention of Nosocomial infection, thus it can be concluded that the STP is an effective method of teaching for staff nurses to improve their knowledge regarding prevention of Nosocomial infection.

Nursing Implications

Nosocomial Infection is an Infection originating in a patient in hospital. It is a serious hospital health hazards worldwide. in spite of advance in the prevention and control programmes of Nosocomial infection, they continue to be a major side effect of hospital and contribute significantly to the rate of morbidity, mortality and cost of care.

Nursing Practice

Adequate knowledge on awareness on prevention of nosocomial infection among the staff nurses is necessary as it help to

improve the safe aseptic technique while caring patient.

This study is conducted among staff nurses to assess the level of knowledge regarding prevention of nosocomial infection.

Nursing Administration

This study emphasizes need for health education programme on awareness on prevention of nosocomial infection to improve the knowledge of staff nurses in the day today life. The STP and tool can be used while giving the health education

Nursing Education

Nursing educator has an ample opportunity to educate regarding awareness on prevention of nosocomial infection. The nurse needs to enhance their knowledge on awareness on nosocomial infection. The findings of the study and STP can be used as the reference material for the student nurses.

There is growing need for furnishing nursing research in all area of health care. The nurse researches especially beginners need to enhance the knowledge. The nurse researcher may effectively use the result of available studies recommended on the importance of early awareness.

ACKNOWLEDGEMENT

We extend heartfelt thanks to Professor Mrs. Vaishali R Mohite, Principal, KINS Karad, Dr. A.Y. Kshirsagar, Medical Director and Smt. S.H. Tata, Director of nursing services Krishna hospital Karad and the students who helped us in research

REFERENCES

1. Shinde M, Anjum S. Educational Methods and Media for Teaching In Practice Of Nursing. Sneha Publication India (Dombivili). 2007.
2. Shinde MB, Mohite VR. A study to assess knowledge, attitude and practices of five moments of hand hygiene among nursing staff and students at a tertiary care hospital at Karad. International Journal of Science and Research (IJSR). 2014; 3(2):311-21.
3. Deshmukh M, Shinde M. Impact of structured education on knowledge and practice regarding venous access device

- care among nurses. International Journal of Science and Research (IJSR). 2014; 3(5):895-901.
4. Shinde M, Anjum S. Effectiveness of Demonstration Regarding Feeding of Hemiplegia Patient among Caregivers. International Journal of Science and Research (IJSR). 2014; 3(3):19-27.
 5. Kadam A, Shinde MB. Effectiveness of structured education on caregiver's knowledge and attitude regarding colostomy care. International Journal of Science and Research (IJSR). 2014; 3(4):586-93.
 6. Anjum S, Durgawale PM, Shinde M. Knowledge of Contraceptives Methods and Appraisal of Health Education among Married Woman. International Journal of Science and Research (IJSR). 2014;3(3):584-90
 7. Anjum S, Durgawale PM, Shinde M. Epidemiological Correlates of Use of Contraceptives Methods and Appraisal of Health Education on Status of Knowledge and Practices among Married Woman. International Journal of Science and Research (IJSR). 2014; 3(2):203-10
 8. Babu RL, Mali N, Shinde M. Effectiveness of Planned Teaching Programme on Knowledge Regarding Non-Curative Care of Terminally ILL Cancer Patients among Care Takers. International Journal of Science and Research (IJSR). 2014; 3(4):198-205.
 9. World Health Organization. Safe management of wastes from health care activit.Geneva:1999.
 10. Shinde M, Anjum S. Introduction to Research in nursing. Sneha Publication India (Dombivili). 2007.
 11. Tavolacci MP, Ladner J, Bailly L, Merle V, Pitrou I, Czernichow P. Prevention of nosocomial infection and standard precautions: knowledge and source of information among healthcare students. Prevention. 2008 Jul; 29(7): 642-7.
 12. Shinde MB, Mohite VR. A study to assess knowledge, attitude and practices of five moments of hand hygiene among nursing staff and students at a tertiary care hospital at Karad. International Journal of Science and Research (IJSR). 2014; 3(2):311-21.
 13. Haley RW, Culver DH, White JW, Morgan WM, Emori TG, Munn VP, Hooton TM. The efficacy of infection surveillance and control programs in preventing nosocomial infections in us hospitals. American journal of epidemiology. 1985 Feb 1; 121(2):182-205.
 14. Steere AC, Mallison GF. Handwashing practices for the prevention of nosocomial infections. Annals of Internal Medicine. 1975 Nov 1; 83(5): 683-90.

How to cite this article: Potdar N, Shinde M, Sadare S. Effectiveness of structured teaching programme on prevention of nosocomial infection among nurses working at tertiary hospital. Int J Health Sci Res. 2016; 6(5):194-200.
