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# EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON PREVENTION OF NOSOCOMIAL INFECTION AMONG NURSING STUDENTS IN SELECTED NURSING COLLEGE, BANGALORE

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**ABSTRACT**

Introduction: - A hospital -acquired infection also known as a nosocomial infection, is an infection that is acquired in a hospital or other health care facility. To emphasize both hospital and non-hospital setting, it is sometimes instead called a healthcare-associated infection. Such an infection can be acquired in hospital, nursing home, rehabilitation facility, outpatient clinic, diagnostic laboratory or other clinical settings. Infection is spread to the susceptible patient in the clinical setting by various means. Health care staff also spread infection, in addition to contaminated equipment, bed linens or air droplets. The infection can originate from the outside environment, another infected patient, staff that may be infected or in some cases the sources of the infection cannot be determined. In some cases, the microorganism originates from the patient's own skin micro biota, becoming opportunistic after surgery or other procedures that compromise the protective skin barriers. Objectives: - 1. To assess the level of pre-test knowledge regarding nosocomial infection among nursing students in a selected college, Bengaluru. 2. To assess the level of post-test knowledge regarding nosocomial infection among nursing students in a selected college, Bengaluru 3. To evaluate the effectiveness of structured teaching programmes regarding the nosocomial infection among nursing students in a selected college, Bengaluru. 4. To find out the association between post-test knowledge scores regarding nosocomial infection with selected demographic variables. Design: - Evaluative research approach was used for the study. Nursing students of selected college were recruited by non-probability purposive sampling method. Necessary administrative permission was obtained from concerned authority. Written informed consent was obtained from all subjects. Then the investigator collected the data pertaining to the demographic variables by using structured interview schedule. Ethical clearance was obtained from Institutional ethical committee. Content validity of the tool was established by split of method. The obtained score was 0.94 & it was found to reliable. Pre-testing of the tools was done. Setting: - The study was conducted in RajaRajeswari college of Nursing, Bangalore, Karnataka. Result: - The findings of the study was revealed that the mean score of knowledge regarding prevention of nosocomial infection was 8.6 in pre-test and 17.7 in post-test out of maximum score of 24. The mean score percentage was 40.4 in pre-test and 62.1 in post-test, which proved that structured teaching programme was effective in increasing the knowledge level of nursing students

regarding prevention of nosocomial infection. The paired't' test found be statistically significance at 0.05 levels. Conclusion: - The present study attempted to assess the effectiveness of structured teaching programme on knowledge of nursing students regarding prevention of nosocomial infection and it was found that the structured teaching programme was effective in improving the knowledge of nursing students

## INTRODUCTION

Health care professional are constantly exposed to microorganism. Many of which can cause serious or even lethal infections. Nurses in particular are often exposed to various infections during the courses of carrying out their activities. The nurses are responsible for providing quality care that incorporate infection control principle. These principles are major components of safe environment and the nurse role in controlling the nosocomial infection. [1]

Nosocomial infection is also called hospital acquired infection that is defined as occurrences of infection within 48hours or hospital admission or 3 days of discharge or 30 days of operation affecting millions of people every year. These kinds of infection are in context to hospital setting [infection caught in hospital]. Nosocomial infection is usually transmitted from patient to patient to health care workers from health care workers to patient from medical and surgical instruments to patients from the environment. [2]

Nosocomial infection usually occurs to patient those who seek medical care. This infection occurs not only in developing countries but also in the development countries and it is reported 7% in developed countries and 10% in developing countries. This infection may be caused by bacteria, virus or fungi like Escherichia coli (11.9%), Staphylococcus aureus (6.8%), Pseudomonas aeruginosa (5.1%), and Salmonella typhimurium (1.7%) which lead to certain infection like Central Line Associated Blood Stream Infection (CLABSI), Catheter Associated Urinary Tract Infection (CAUTI), Surgical Site Infection (SSI), and Ventilator Associated Pneumonia. [3]

Nosocomial infection is the major problems that increase patient morbidity, mortality, and hospital cost. They became more important public health problem with increasing economic and human impact because of increasing numbers and crowding of people, more frequent impaired immunity due to age, illness, treatment, new microorganism, increasing bacterial resistance to antibiotics

The most frequent nosocomial infection is the urinary tract infection, surgical site infection and lower respiratory tract infection. Surgical site infection is the third most common nosocomial infection in surgical patient accounting for about 24%of total number of nosocomial infections. Most probably the infection can be transmitted from droplet transmission, contact transmission, and airborne transmission. [4]

The nurse follows certain principles and practice including standard precaution to prevent and control of infection and its spread. During daily routine care the nurse basic medical aseptic technique to break the infection chain, for example use gloves and a mask during dressing to break the pathogen. The term standard precaution applies to blood and body fluid, non-intact skin, mucous membrane from all clients. The precaution will protect the client and provide protection of health care staff as directed by occupational safety and health administration.[5] For infection control nurse is responsible for the surveillance and analysis for hospital acquired infection, educating employees about infection control and ensuring the implementation of various infection control policies in the hospital. [6]

## OBJECTIVES

1. To assess the level of pre-test knowledge regarding nosocomial infection among nursing students in a selected college, Bengaluru.
2. To assess the level of post-test knowledge regarding nosocomial infection among nursing students in a selected college, Bengaluru
3. To evaluate the effectiveness of structured teaching programmes regarding the nosocomial infection among nursing students in a selected college, Bengaluru.
4. To find out the association between post-test knowledge scores regarding the nosocomial infection with selected demographic variables.

## HYPOTHESES: -

**$H_1$** – There's a significant difference in a pre-test and post-test level of knowledge regarding prevention of nosocomial infection among nursing students in selected college, Bangalore.

**$H_2$**– There's a significant association of post-test level of knowledge regarding prevention of nosocomial infection among nursing students with their selected demographic variables.

## MATERIAL AND METHODS

Evaluative research approach was used for the study. Forty nursing students were recruited by non-probability purposive sampling method. Necessary

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administrative permission was obtained from concerned authority. Written informed consent was obtained from all subjects. Later the investigator collected the data pertaining to the demographic variables by using structured interview schedule in the following three phases.

**Phase I:** Assess the pre-test knowledge of students regarding prevention of nosocomial infection by using structured questionnaire.

**Phase II:** A STP was administered on knowledge regarding prevention of nosocomial infection.

**Phase II:** Assess the post-test knowledge after a period of week within the group followed by same procedure. Ethical clearance was obtained from Institutional ethical committee. Content validity of the tool was established by split of method. The obtained score was 0.94 & it was found to reliable. Pre-testing of the tools was done. A pilot study was conducted to see the feasibility. The obtained data were analyzed based on the objectives and hypothesis by using descriptive and inferential statistics.

The above table-1 represents the frequency and percentage distribution of demographic variables of nursing students, were majority of the nursing students age 18-19 years (45%), 19-29 years (32.5%), above 20(15%) and 17-18 years (7.5%) were found. Based on gender male (35%), female (65%). Based on religion Christian (25%) Hindu (67.5%) Muslim (5%) others (2.5). Based on source of previous knowledge books/magazine (25%), schools/college (70%) internet (5%). Based on experience on infection during hospital stay yes (5%) no (95%) were found

The above table 2 shows the distribution of nursing students according to the level of knowledge regarding prevention of nosocomial infection before and after structured teaching programme. It revealed that in pre-test, majority of the respondents 30 (75%) had inadequate knowledge, 10 (25%) had moderate knowledge and none of them had adequate knowledge regarding prevention of nosocomial infection. And in post-test most of the respondents 35 (87.5%) had adequate knowledge and 5 (12.5%) had moderate knowledge regarding prevention of nosocomial infection.

**Table-1: Frequency and percentage distribution of demographic variables of nursing students n=40**

| SI. no | Demographic variables | Frequency (f) | Percentage % |
|---|---|---|---|
| 1 | Age in years | | |
| | 17-18 years | 3 | 7.5 |
| | 18-19 years | 18 | 45 |
| | 19-20 years | 13 | 32.5 |
| | Above 20 years | 6 | 15 |
| 2 | Gender | | |
| | Male | 14 | 35 |
| | Female | 26 | 65 |
| 3 | Religion | | |
| | Christian | 10 | 25 |
| | Hindu | 27 | 67.5 |
| | Muslim | 2 | 5 |
| | Others | 1 | 2.5 |
| 4 | Sources of previous knowledge | | |
| | Books/magazine | 10 | 25 |
| | Television | 0 | 0 |
| | Schools/college | 28 | 70 |
| | Internet | 5 | 5 |
| 5 | Experience of infection during hospital stay | | |
| | Yes | 2 | 5 |
| | No | 38 | 95 |

**Table-2: Frequency and percentage distribution of nursing students according to the level of knowledge regarding prevention of nosocomial infection before and after structured teaching programme. n=40**

| Sl.No | Level of Knowledge | Respondents Knowledge | | | |
|---|---|---|---|---|---|
| | | Pre-test | | Post-test | |
| | | Frequency | Percentage | Frequency | Percentage |
| 1. | Inadequate (< 50%) | 30 | 75 | - | - |
| 2. | Moderate (50-75%) | 10 | 25 | 5 | 12.5 |

| | | | | | |
|---|---|---|---|---|---|
| 3. | Adequate (> 75%) | - | - | 35 | 87.5 |
| **OVERALL** | | **40** | **100** | **40** | **100** |

**Table 3: Mean, Standard Deviation and paired‘t’ test to determine the effectiveness of structured teaching programme regarding knowledge on prevention of nosocomial infection among nursing students. n=40.**

| Max score | Mean | SD | Mean difference | paired “t‘ test | Significance |
|---|---|---|---|---|---|
| Pre-Test | 8.6 | 3.27 | 9.17 | 12.05 | 0.05* |
| Post-Test | 17.7 | 3.78 | | | |

**The data presented in a table-3 shows that the obtained [t] value was 12.05, which was found statistically significant at 0.05 levels.**

**Table 4: Comparison of pre-test and post-test level of knowledge among students regarding prevention of nosocomial infection. n=40**

| Level of knowledge | Pre-test | | Post-test | | Chi square test |
|---|---|---|---|---|---|
| | No. of nursing students | % | No. of nursing students | % | |
| Adequate knowledge | 0 | 0 | 35 | 87.5 | $x^2 = 3.11$ Df=3 P=0.05** |
| Moderately adequate knowledge | 10 | 75 | 5 | 12.5 | |
| Inadequate knowledge | 30 | 25 | 0 | 0 | |
| **Total** | **40** | **100** | **40** | **100** | |

## IMPLICATION OF THE STUDY

The result of the study proceed that students had inadequate knowledge regarding prevention of nosocomial infection. The findings of the study have scope in the following areas,

### Nursing Practice

1. Nurses working in the community field should have enough knowledge about prevention of nosocomial infection & able to find an opportunity to teach & improve knowledge regarding prevention of nosocomial infection.
2. Nursing professionals can play a key role in the enhancement of knowledge of nursing students regarding prevention of nosocomial infection, which could improve the knowledge of students.

### Nursing Education

1. Nursing curriculum can be modified with increased emphasis on prevention of nosocomial infection.
2. Students can be also trained to work in care under proper guidance.

### Nursing Administration

1. Administrators can organize the educational programs in schools and community areas to provide knowledge regarding prevention of nosocomial infection.
2. The nurse administrator in the higher-level authority must hold discussions and meetings on prevention of nosocomial infection. Based on that, the knowledge of the students can be assessed and the program can be planned and implemented in school & community at various levels.

### Nursing Research

Management & administration authorities give encouragement, motivation & also provide financial support to do research.

## ASSUMPTIONS

- ✓ Students will have some knowledge regarding selected aspects prevention of nosocomial infection.
- ✓ Structured teaching programme may enhance the knowledge of nursing students regarding selected aspects of prevention of nosocomial infection.

## LIMITATIONS

1. The study was conducted in selected colleges.
2. Sample was selected only from one institution; hence generalization can only be made for the selected sample.
3. The study did not use control group. The investigator had no control over the events that took place between pre-test and post-test.

## RECOMMENDATIONS

Based on the study findings the following recommendations have been made for further study:

1. Similar study can be carried out on larger samples for broader generalization.

2. A similar study can be conducted among staff nurses to assess the knowledge on selected aspects of prevention of nosocomial infection.
3. A comparative study may be conducted to assess the knowledge, belief and practice on prevention of nosocomial infection among nursing students.
4. A comparative study could be conducted in different settings to find out the effectiveness of structured teaching programme.
5. An experimental study could be replicated with a control group.
6. A comparative study could be undertaken to evaluate different teaching strategies, self-instructional module (SIM), peer evaluation and education by nursing students.

## DISCUSSION

Structured teaching programme was found to be an effective educative method for improving the knowledge of nursing students in the selected college regarding prevention of nosocomial infection. The findings were similar to other studies, which shown that nursing students having good knowledge on prevention of nosocomial infection. In the present study results revealed that obtained [t] value was 12.05, which were found statistically significant at 0.05 levels.

## CONCLUSION

The study concluded that the structured teaching programme on knowledge regarding prevention of nosocomial infection of nursing students in the selected college carried out was effective in improving the knowledge of nursing students as evidenced by the significant change between pre-test and post-test knowledge score.

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