

# A Pre-experimental Study to Assess the Effectiveness of Structured Teaching Plan about Knowledge Regarding Nosocomial Infection among Nurses in Selected Hospital

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## Abstract

**Aim:** The aim of the study was to assess the effectiveness of the structured teaching plan about knowledge regarding nosocomial infection among nurses in selected hospitals.

**Materials and Methods:** A pre-experimental research study with one group pre-test post-test research design was conducted at K.J.Somaiya College of Nursing, Mumbai. The total population of the study was 30 nurses of K.J.Somaiya Hospital and Research Centre that were selected by non-probability sampling technique. Data were analyzed using descriptive and inferential statistics.

**Results:** The result shows that demographic data of nurses, out of 30 samples maximum samples of 13 (43.2%) had area of experience to different specific area followed by 7 (23.4%) samples had area of experience of surgical ward whereas, 5 samples (16.7%) had area of experience of medical ward and ICU. The result related to demographic data showed that out of total subjects maximum sample about 26 (66.6%) were found to be registered staff nurses, followed by 2 (6.7%) samples worked as senior staff nurses and 02 (6.9%) were at other post. Major findings showed that pre-test knowledge score was 40% and mean was 14 whereas, post-test knowledge score was 60% and mean was 15. The comparison of pre-test knowledge score was found 40% and mean was 14 while the post-test score was 60% and mean was 15.

**Conclusion:** The study observed that the nurses did not have adequate knowledge about nosocomial infection and the knowledge and practices need to be improved so as to prevent nosocomial infection.

**Keywords:** Assess, effectiveness, structured teaching program, knowledge, nosocomial infection

## INTRODUCTION

Nosocomial infection is also termed as hospital-acquired infections these are infections which the hospital or are produced by microorganism acquired during hospitalization.<sup>[1]</sup> These may afflict not only the patients but also staff members, volunteers, visitors, and attendants. Having contact with the hospital some of the affected individuals may manifest

symptoms after discharge from the hospital e.g. Hepatitis-B and other infection of the hospital.<sup>[2]</sup>

Nosocomial infection or hospital-acquired infection are those acquired during a patients hospitalization and not present or incubating at admission. All infections diagnosed 48 hours after discharge following inpatient care.<sup>[3]</sup> They are unrelated to the original illness that brings patients to the hospital and neither present nor incubating as at the time of admission.<sup>[4]</sup> They are several reasons why nosocomial infections are even more alarming in the 21<sup>st</sup> century. Common nosocomial infections are lower respiratory tract infection, gastroenteritis, intravenous cannula-associated infections, surgical wound infection, diagnostic and therapeutic procedures, etc.<sup>[5]</sup>

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In a recent survey conducted by WHO on 28,861 patients in 47 hospitals of 14 countries located in 4 continents, the prevalence rate of nosocomial infection of different hospitals, varied from 3% to 21% with mean of 8.4%.<sup>[6]</sup> The result of the survey repeated in 2011 indicated that the nosocomial infection is a considerable problem, even in hospital with means and interest in control of nosocomial infection. Further, it is possible to reduce the incidence of nosocomial infection.<sup>[7]</sup> The authors concluded that there is a need and opportunity for international cooperation in finding and applying effective means of prevention and control. Infections occur within 48 hours after admission are considered as nosocomial infection.<sup>[8]</sup>

## OBJECTIVES OF THE STUDY

1. To assess the existing knowledge of nurses regarding preventing nosocomial infection before the structured teaching plan
2. To assess the knowledge of nurses regarding the prevention of nosocomial infection after the structured teaching plan
3. To compare the pre-test knowledge and post-test knowledge of nurses regarding the prevention of nosocomial infection
4. To determine the association between pre-test knowledge score with selected variables.

## Hypothesis

- $H_0$ - There is no significant changes in the level of knowledge of nurses after the implementation of structured teaching plan on the prevention of nosocomial infection
- $H_1$ -There is a significant change in the level of knowledge of nurses after the implementation of structured teaching plan on the prevention of nosocomial infection.

## MATERIALS AND METHODS

### Research design

Pre-experimental one group for pre-test and post- test research design.

### Setting of the study

The study was conducted in a private hospital at K.J.Somaiya Hospital and Research Centre, Mumbai (MS), India.

### Description of tool

The tool or the study instrument is divided into two parts.

- Part A:-Socio-demographic variables
- Part B:-Structured knowledge questionnaire regarding nosocomial infection

### Population of the study

The accessible population of the study was nurses working at K.J.Somaiya Hospital and Research Centre, Mumbai (MS), India.

## Sample size

The sample size for study selected was 30 nurses who met with the inclusion criteria.

## Sample technique

The sampling technique use in this study is non-probability purposive sampling technique.

## Procedure for data collection

The study was carried out on 30 nurses selected by non-probability sampling technique.

## Reliability of tool

The tool was prepared and given to nine nursing tutors for scrutinizing the content for its adequacy, appropriateness and relevance.

## Statistics

Frequency and percentage distribution were used to analyze the demographic data and assessment of the knowledge of nurses regarding nosocomial infection.

## RESULTS

The data were entered into master sheet for tabulation and statistical processing the obtained data were analyzed, organized, and presented under the following headings:

- **Section 1:** It deals with the description of samples according to the demographic personal/characteristics.
- **Section 2:** Analysis of data related to the knowledge among staff nurses before and after planned teaching.
- **Section 3:** Analysis of data related to the effect of planned teaching on the knowledge score based on correct answers in the study group.
- **Section 4:** Analysis of the data to find association between knowledge with selected demographic variables.

### Section 1: Classification of demographic characteristics

Table 1 shows, the distribution of sample according to their demographic data such as age. In a demographic data of nurses, out of 30 samples, maximum sample 12 (40%) belonged to the age group of 20–25 years, followed by sample 8 (26.6%) in the age group of 25–30 years, 7 (23.4%) belongs to the age group of 30–45 years. Minimum of 3 (10%) samples belongs to the age group above 45 years.

Table 2, shows the distribution of sample according to their demographic data such as educational qualification. In a demographic data of nurses, out of 30 samples, maximum sample 29 (96.6%) belonged to the GNM course, followed

**Table 1: Distribution of respondent by age.  $n=30$**

Characteristics	Category	Respondents	
		Number	Percent
Age groups (years)	20–25	12	40
	25–30	8	26.6
	30–45	7	23.4
	>45	3	10
	Total	30	100

by sample 1 (3.4%) belongs to the other courses. There were no samples of BSc Nsg and ANM Nsg courses.

Table 3, shows the distribution of sample according to their demographic data such as professional experience. In a demographic data of nurses, out of 30 samples, maximum sample 17 (56.6%) has clinical experience of 0–5 years, followed by sample 9 (30%) has working experience of more than 15 years, 3 (10%) has working experience of 5–10 years. Minimum of 1 (3.4%) samples has working experience of 10–15 years.

Table 4, shows the distribution of sample according to their demographic data such as per area of experience. In a demographic data of nurses, out of 30 samples, maximum samples of 13 (43.2%) has an area of experience to different specific areas, followed by samples 7 (23.4%) has area of experience of surgical ward, samples 5 (16.7%) has area of experience of medical ward and ICU.

Table 5, shows distribution of sample according to their demographic data such as per designation. In a demographic data of nurses, out of 30 samples, maximum sample 26 (86.6%) were registered staff nurses, followed by samples 2 (6.7%) were senior staff nurses, 2 (6.7%) were at other posts. No any sister in charge was found.

### Association between the knowledge score with the selected variables

Table 6 and Figure 1 show the association of pre-test knowledge with age in which about 21 samples (70%) out of

30 samples have given correct answers which belongs to the age group of 20–25 years of age.

Table 7 and Figure 2 shows the association of pre-test knowledge with the professional qualification in which about 27 samples (96%) out of 30 samples have given the correct answers which belong to the GNM course.

Table 8 and Figure 3 shows the association of pre test knowledge with the professional experience in which about 18 samples (60%) out of 30 samples has given correct answers which have professional experience more of 0–5 years.

Table 9 and Figure 4 shows the association of pre test knowledge with the area of experience in which about

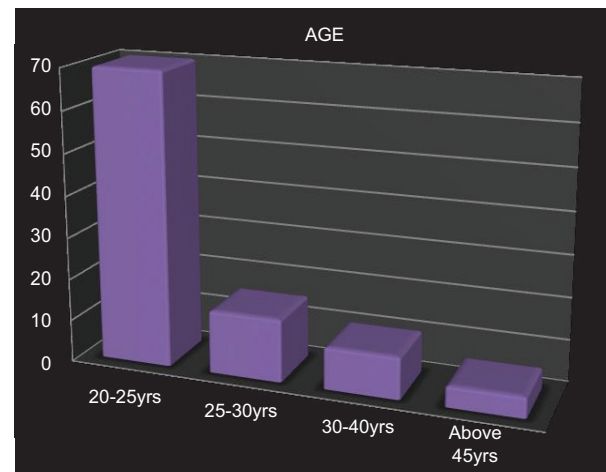


Figure 1: Association of knowledge score with age

**Table 2: Description of sample in relation to their demographic data of nurses as per educational qualification.  $n=30$**

Sr. No.	Item	Frequency	Percentage
1	ANM Nursing	0	0
2	GNM Nursing	29	96.6
3	BSc Nursing	0	0
4	Others	1	3.4

**Table 3: Distribution of sample in relation to their demographic data of nurses professional experience.  $n=30$**

Sr. No.	Item	Frequency	Percentage
1	0–5 years	17	56.6
2	5.1–10. years	3	10
3	10.1–15 years	1	3.4
4	More than 15.1 years	9	30

**Table 4: Description of sample in relation to their demographic data of nurses as per area of experience.  $n=30$**

Sr. No.	Item	Frequency	Percentage
1	Medical ward	5	16.7
2	Surgical ward	7	23.4
3	ICU	5	16.7
4	Other Specify	13	43.2

**Table 5: Distribution of sample in relation to their demographic data of nurses designation.  $n=30$**

Sr. No.	Item	Frequency	Percentage
1	Staff Nurse	26	86.6
2	Senior Nurse	2	6.7
3	Sister In charge	0	0
4	Others	2	6.7

**Table 6: Association of knowledge score with the age of the staff nurses.  $n = 30$**

Sr. No.	Age in years	Frequency	Percentage
1	20–25	21	70
2	25–30	5	15
3	30–45	3	10
4	Above 45	1	5

**Table 7: Association of knowledge score with the professional qualification of staff nurses**

Sr. No.	Professional qualification	Frequency	Percentage
1	ANM	0	0
2	GNM	27	96
3	Basic. BSC. Nsg	0	0
4	Others	3	4

18 samples (60%) out of 30 samples has given correct answers which have area of experience in some specific areas.

Table 10 and Figure 5 shows the association of pre test knowledge with the designation of the staff nurses in which about 26 samples (86.6%) out of 30 samples has given correct answers which have designation of the staff nurse.

## DISCUSSION

### Objectives of study

1. To assess the existing knowledge of nurses regarding the prevention of nosocomial infection before the structured teaching plan
2. To assess the knowledge of nurses regarding the prevention of nosocomial infection after the structured teaching plan
3. To compare the pre-test knowledge and post-test knowledge of nurses regarding the prevention of nosocomial infection
4. To determine the association between pre-test knowledge score with selected variables.

The findings of the study were supported by Robert A Weinstein (Cook County Hospital and Rush Medical College, Chicago, Illinois, USA) in his research paper a comparison of the cases of nosocomial infections now and in the past. Even though he agrees that there has been a reduction in number of cases, he goes ahead to state that the numbers of death are still high. According to him, a study carried out in the United States estimated that in 1995, nosocomial infections cost \$4.5 billion and contributed to more than 88,000 deaths (one death in every 6 min). Poor hygiene standards in most health centers have contributed to these high figures. There have been cases

of medical practitioners who overlook basic hygienic measures such as a proper handwashing when attending to patients. There are cases where some medical services like injections are not administered in a proper manner. This is due to unqualified medical expertise, especially in small health care centers think the research's large numbers of deaths from nosocomial infections is due to such factors.<sup>[9]</sup>

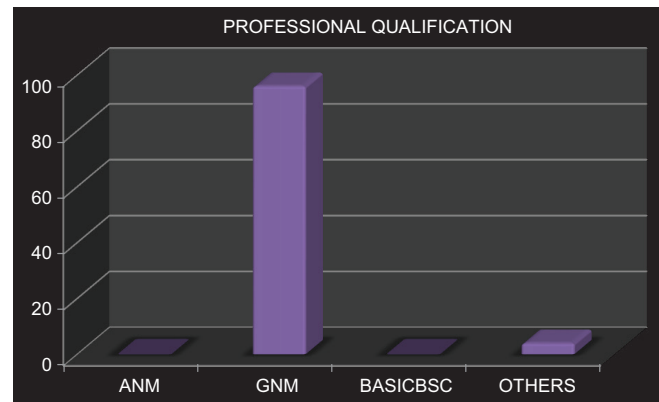


Figure 2: Association of knowledge score with educational qualification



Figure 3: Association of knowledge score with professional experience

Table 8: Association of knowledge score with the professional experience of staff nurses

Sr. No.	Professional experience	Frequency	Percentage
1	0-5 years	18	60
2	5-10 years	3	10
3	10-15 years	3	10
4	More than 15 years	6	20

Table 9: Association of knowledge score with the area of experience of staff nurses

Sr. No.	Area of experience	Frequency	Percentage
1	Medical	3	10
2	Surgical	6	20
3	ICU	3	10
4	Other	18	60

Table 10: Association of knowledge score with the designation of the staff nurses

Sr. No.	Designation	Frequency	Percentage
1	Staff Nurse	26	86.6
2	Senior Nurse	2	6.7
3	Sister In charge	0	0
4	Other	2	6.7

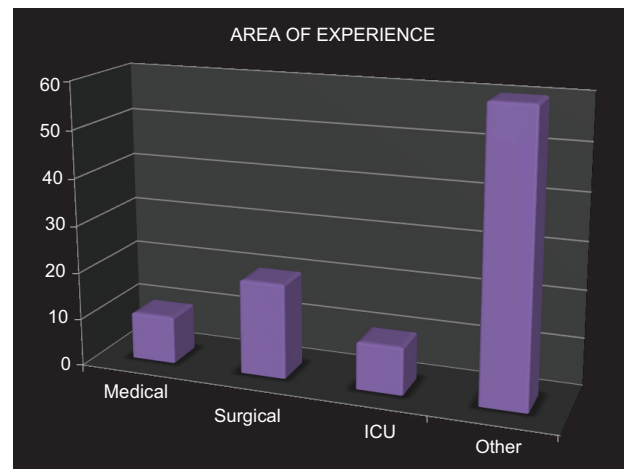
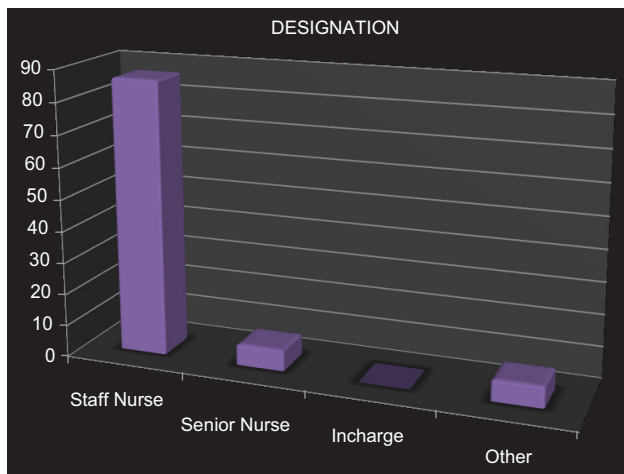


Figure 4: Association of knowledge score with area of experience



**Figure 5:** Association of knowledge score with designation

The findings of the study were supported by Keshni Naidu: A descriptive study of nosocomial infections conducted in an adult intensive care unit. Six hundred and sixty-three patients admitted to the ICU during the two-year study period were enrolled in the study. This represented 2891 total patient days of admission during which patients were ventilated for 2175 days. Of the 663 admissions, 114 (17%) developed culture-confirmed nosocomial sepsis. The majority of the patients had prior admission to other wards before admission to ICU. Males were more commonly represented than females and almost all patients had been mechanically ventilated with a median period of 8 days of ventilation. Outcome was known in 84% (96/114) patients and 40% (38/96) with known outcome died in ICU. Of 63 patients with a bacterial isolate from the blood and a known outcome, 21 (33%) died, compared to 50% (16/32) among those with a known outcome but without a bacterial isolate from the blood. Of those that died, 55% (21/38) had a bloodstream infection.<sup>[10]</sup>

The findings of the study were supported by Nutan Potdar, Mahadeo Shinde, Sharvari Sadarey: Effectiveness of structured teaching program on prevention of nosocomial infection among nurses working at tertiary hospital. The study was conducted at Krishna Hospital, Karad. An evaluatory approach and experimental design were used. Sample selected was 50 staff nurses.

Pre-test about knowledge regarding the prevention of nosocomial infection was taken using questionnaire. The teaching program was conducted for 45 min about the same. After 7 days, Post-test was conducted using same questionnaire. Overall pre-test knowledge about prevention of nosocomial infection was average. Post-test results showed a positive impact on the knowledge of staff nurses about the prevention of nosocomial infection. Therefore the study concluded that teaching plan was effective in improving knowledge of staff nurses about the prevention of nosocomial infection.<sup>[11]</sup>

## CONCLUSION

The study observed that the nurses did not have adequate knowledge about nosocomial infection and the knowledge and practices need to be improved so as to prevent nosocomial infection.

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