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A STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME REGARDING KNOWLEDGE AND PRACTICE ON PREVENTION OF NOSOCOMIAL INFECTIONS AMONG THIRD YEAR BSC NURSING STUDENTS AT SELECTED COLLEGE

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Abstract-: Aim to evaluate the effectiveness of structured teaching programme on the level of knowledge and practice gained by them regarding prevention of nosocomial infections among third year B.Sc. nursing students.the sampling technique used for the study is simple random technique, Structured tool prepared for the study were validated. Pre-test was done on first day to identify the knowledge and practices on prevention of nosocomial infections for the group. Interventions for the post-test were carried out for 7 days. In this descriptive study,. 50 are as the sample, majority of the third year B.Sc. nursing students 44 (88%) were in the age group of 20 to 21 years, 50 (100%) of the participants were females, 34 (68%) were Christians, around 40 (80%) of the participants did not had any previous paramedical exposure, 28 (56%) of the students had 2 years of experience and 26 (52%) of the participants obtained information from health personnel.. Chi-square value for previous paramedical exposure and source of information was 4.76 and 4.59 respectively at $p< 0.05$, indicated that H0 is rejected and accepted research hypothesisH2.The overall mean and standard deviation of knowledge and practice on prevention of nosocomial infection among B.Sc. nursing third year students in post-test (25.04 and 4.20) was higher than the pre-test values (16.94 and 5.32). The paired t-test value was 18.39 which was greater than the t value (2.0) at ($p<0.05$) level of significance. The findings showed that there was a significant difference between the pre-test and post-test scores of knowledge and practice regarding prevention of nosocomial infections among third year B.Sc. nursing students. This revealed that the structured teaching programme was found to be effective.

Key words-*: nosocomial infection, B.scnursing students, knowledge and practice and structure teaching programme*

INTRODUCTION

A hospital acquired infection, also known as nosocomial infections, is an infection that is acquired in a hospital or health care facility. Nosocomial infections happen when these germs make person sick within 48 hours after you've entered the hospital .If these infections are not treated, they can cause more serious health issues. The term "nosocomial" refers to any disease that is acquired by a patient while under medical care during hospital stay [1]. More precisely, nosocomial infections (also known as hospital associated/acquired infections (HAI) are those infections that develop in a patient during his/her stay in a hospital . Hence, pathogens that cause such infections are termed nosocomial pathogens. A European study showed Nosocomial infections annually results in 5000 deaths with a cost to the National Health Service of a billion pounds. On average, a patient with hospital acquired infection spent 2.5-times longer duration in hospital stay, incurring additional costs of £3000 more than an uninfected patient [2]. Intensive care units have the highest prevalence of hospital-acquired infections in the hospital setting [3,4].The microbial agents that are usually involved in hospital-acquired infections include Streptococcus *spp.*Acinetobacter spp., enterococci, P seudomonas aeruginosa, *coagulase negative* staphylococci, Staphylococcus aureus, Bacillus cereus, Legionella *and* Enterobacteriaceae family members, namely, Proteus mirablis, Klebsiella pneumonia, Escherichia coli, Serratia marcescens. Escherichia coli and Staphylococcus aureus remain the most common pathogens isolated overall from nosocomial infections, coagulase-negative staphylococci (CoNS), organisms previously

considered contaminants in most cultures, are now the predominant pathogens in bloodstream infections. The increasing number of antimicrobial agent-resistant organisms is troublesome, especially vancomycin-resistant and Enterococcus spp. and Pseudomonas aeruginosa resistant to antibiotic imiprenem[7]. Nosocomial infections data given by Pune in India in different intensive care units (ICUs) shows that Overall prevalence of HAI was 3.76 per cent. Surgical Intensive Care Unit (ICU) (25%), medical ICU (20%), burns ward (20%) and paediatric ward (12.17%) were identified to have significant association with HAI. Prolonged hospital stay, mechanical ventilation, use of urinary catheter and exposure to central air-conditioning had higher odds of acquiring HAI. it is clear that the increases in nosocomial infections are due to the lack of proper infection control. and plays a vital role in spreading from one person to another. If proper infection control policy or techniques is not practiced, there are high chances for spreading the infections to more people. So this research has a great importance in protecting human life through proper awareness regarding the need for prevention of nosocomial infections.[10]

Statement of the problem

"A study to assess the effectiveness of structured teaching programme regarding knowledge and practice on prevention of nosocomial infections among third year BSc Nursing students at KIMS College of Nursing, Amalapuram.

Objectives of the study

- To assess the knowledge and practice regarding prevention of nosocomial infections.
- To evaluate the effectiveness of structured teaching programme regarding prevention of nosocomial infections.
- To find out the association between post-test scores regarding prevention of nosocomial infections and their selected demographic variables.

Operational definitions

- **STUDY-** It is the act of learning and spending time discovering information or investigation about a particular
- **ASSESS-** To determine the knowledge on need based regarding prevention of nosocomial infections among third year BSc Nursing students.
- **KNOWLEDGE- It** refers to the fact, information acquired by third year B.Sc. Nursing students regarding nosocomial infections as elicited through a self administered questionnaire.
- **PRACTICE-** The customary, habitual or expected procedure or way of doing something.
- **STRUCTURED TEACHING PROGRAMME-** It is well prepared and systematically developed knowledge on prevention of nosocomial infections among the staff nurses.
- **PREVENTION-** It refers to prophylaxis regarding nosocomial infections among the staff nurses.
- **NOSOCOMIAL INFECTIONS-** An infection which is acquired from the hospital.
- **STUDENT-** Someone who is studying in order to enter a particular profession

Review of literature

1. Biruk Bayleyegn, Mehari A, Damtie D, Negash M (2021)

Hospital-based cross-sectional study was conducted among healthcare workers towards HAIs prevention from January to June 2019. Each study participant was selected by simple random sampling. Data were collected using structured self-administered questionnaires. A total of 236 participants were included in this study with a 100% response rate; 90% and 57.2% of the participants had good knowledge and positive attitude towards HAI prevention, respectively. Meanwhile, only 36% of the study participants had good practice towards HAI prevention, suggesting less than satisfactory scores in this study. Level of education and work experience were significantly associated with safe-infection prevention attitude and practice (P value < 0.005).[11]

2. Ece Davran, Anita Karaca (2020)

The sample of this descriptive study consisted of a total of 208 nursing students in the 2nd, 3rd, and 4th year of a foundation university between February and March 2019. Study data were collected through "Student Information Form" and "Nosocomial Infection Information Form of Nursing Students" prepared in accordance with the literature. The total mean score of the students' NI knowledge was 26.62±2.73 (range, 12–33) and the median value was 27. The distribution of the responses to the Nosocomial Infection Information Form items was presented in (correct answers are indicated in bold). In the analysis of the responses to the information form, 97.1% of the student nurses provided the correct answer on the item "NIs are one of the most important indicators of the quality of care in hospitals," while 92.3% provided incorrect answer and hence the total mean score of the NI level of knowledge among student nurses was above the moderate level[12].

3. Tigist Engda (2020)

An institution-based cross-sectional study was conducted among all graduate health science students posted in the different departments at the University of Gondar in the College of Medicine and Health Sciences from February to June 2018. A total of 422 study participants were included. Data were analyzed using SPSS version 20. Out of a total of 422 respondents, only 40% have taken training for infection prevention; out of which 39% had taken the training for a year ago. Moreover, only 35.5% have good knowledge of nosocomial infections as a result of the training; and only 32.5% have good understanding of the practical training given on prevention and control. Only 36% have good attitude towards its prevention and control. The result shows

that only a few of the respondents have taken the infection prevention training. Yet, a smaller proportion of them had good knowledge, attitude, and practice on nosocomial infections[13]

METHODOLOGY

Material And Methods

. **Study Design:** Descriptive study design

Study Location: konaseema institute of medical sciences. kims college of nursing, Amalapuram

Study Duration: march 2021 to December 2021 total 09months

Sample size: 50sample size

Subjects & selection method: The study population was drawn from kims college of nursing b.sc 3 rd year students The probability, simple random sampling techniques was used for selecting the sample

Inclusion criteria

- Third year B.Sc Nursing students.
- Willingness to participate in the study.
- Availability at the time of data collection.

Exclusion criteria:

- 1st, 2nd, 4thyear BSc nursing students.
- Not willing to participate in study.
- Not available at the time of data collection

Procedure of data collection

In this study the research approach that is used was quantitative research approach. research design adopted for this study was descriptive survey design to achieve the objectives. In this study the independent variable is a structured teaching programme on knowledge and practice regarding prevention of nosocomial infections. It contains demographic variables of the third year B.sc. Nursing students such as age, gender, religion, clinical experience as student, previous paramedical exposure, and source of information. The study was conducted at KIMS College of Nursing, Amalapuram. The sample chosen for this study was third year B.Sc. nursing students at KIMS College of Nursing, Amalapuram. Sample size consisted of 50 third year BSc Nursing students. probability, simple random sampling techniques was used for selecting the sample In the present study, data was collected by using structured questionnaire on knowledge and practice. Prior to the data collection, necessary formal permission was obtained from Principal, KIMS College of Nursing, Amalapuram. The data collection is done from 50 samples that were selected according to criteria.

The investigators established rapport with people, explained about purpose of data collection and nature of the study. The tool was distributed to 50 samples and data was collected. Pre-test conducted on 1st june among b.sc nursing 3 rd year students and pre-test value was very less and given structure teaching as intervention given to same group and conducted post test after one week the post test values are higher than pre-test .The total time taken to fill the structured questionnaire on knowledge and practice was about 40 to 45 minutes. Time period allotted for data collection was from June 1st to June 8th th The researchers have not come across any difficulties during the data collection.

RESULTS

Out of 50 respondents, majority of the third year B.Sc. nursing students 44 (88%) were in the age group of 20 to 21 years, 50 (100%) of the participants were females, 34 (68%) were Christians, around 40 (80%) of the participants did not had any previous paramedical exposure, 28 (56%) of the students had 2 years of experience and 26 (52%) of the participants obtained information from health personnel

The overall mean and standard deviation of knowledge and practice on prevention of nosocomial infection among B.Sc. nursing third year students in post-test (25.04 and 4.20) was higher than the pre-test values (16.94 and 5.32). The paired t-test value was 18.39 which was greater than the t value (2.0) at ($p<0.05$) level of significance. The findings showed that there was a significant difference between the pre-test and post-test scores of knowledge and practice regarding prevention of nosocomial infections among third year B.Sc. nursing students. This revealed that the structured teaching programme was found to be effective. The association between the post-test scores and demographic variables was determined by computing the Chi-square test. Chi-square value for previous paramedical exposure was 4.76 which were greater than the table value of 3.84 at $p< 0.05$, which indicated that the null hypothesis is rejected and accepted H2. The Chi-square value for source of information was 4.59 which were greater than the table value of 3.84 at $p< 0.05$, which indicated that the null hypothesis is rejected and research hypothesis accepted H2.

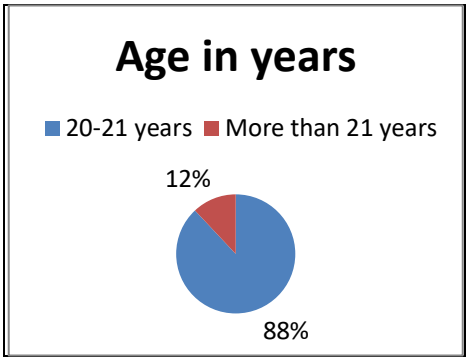
Analysis and interpretation

Frequency and Percentage Distribution of Demographic Variables Related to Prevention of Nosocomial Infections among Third year B.Sc. nursing students by Age, Gender, Religion, Previous paramedical exposure, Clinical experience as student, Source of information (n=50

Age: Among 50 students, majority of the students 44 (88%) of were in the age group of 20-21 years, and only 6 (12%) students were in the age group of more than 21 years .**Gender:** With regard to gender 50 (100%) of the participants were girls. **Religion:** In relation to religion, majority 34 (68%) of the participants belongs to Christians and 16 (34%) were Hindus. **Previous paramedical exposure:** Regarding previous paramedical exposure, majority of the students i.e. 40 (80%) were not having previous exposure and the rest 10 (20%) was having previous experience. **Clinical experience as student:** Among 50 students, 44 (88%) were having 3 years of experience and 6 (12%) were having 2 years of experience.

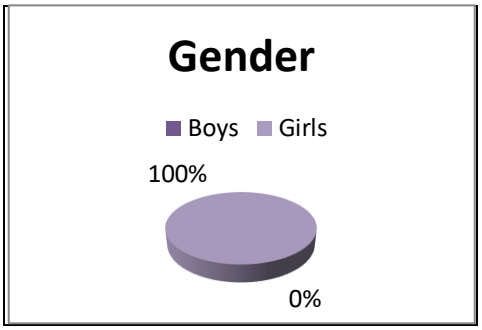
Source of information: With regard to source of information, majority 26 (52%) of the participants obtained information from health personnel followed by 24 (48%) of the participants obtained information from books and magazines

Fig:1 Percentage distribution of prevention of nosocomial infections among third year B.Sc. nursing students by Age.



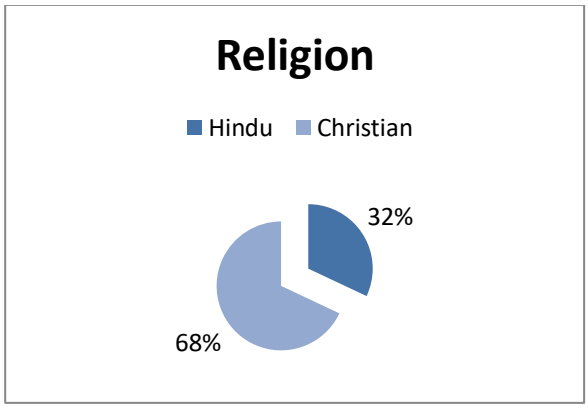
Age: Among 50 students, majority of the students 44 (88%) of were in the age group of 20-21 years, and only 6 (12%) students were in the age group of more than 21 years

Fig:2 Percentage distribution of prevention nosocomial infections among third year B.Sc. nursing students by gender



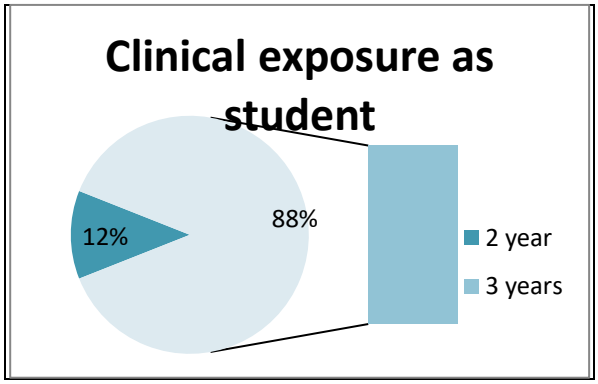
Gender: With regard to gender 50 (100%) of the participants were girls. **Religion:** In relation to religion, majority 34 (68%) of the participants belongs to Christians and 16 (34%) were Hindus

Fig: 3 Percentage distribution of prevention of nosocomial infections among third year B.Sc. nursing students by religion



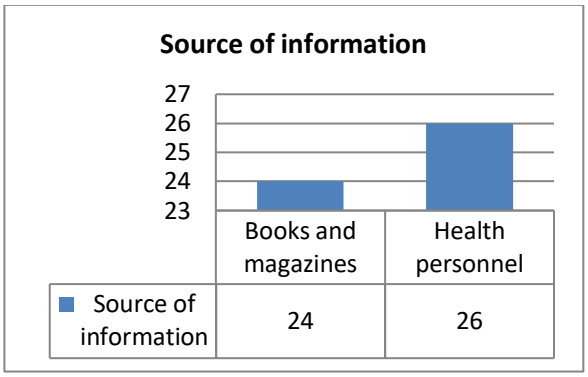
Religion: In relation to religion, majority 34 (68%) of the participants belongs to Christians and 16 (34%) were Hindus.

Fig: 4 Percentage distribution of prevention of nosocomial infections among third year B.Sc. nursing students by religion



Clinical experience as student: Among 50 students, 44 (88%) were having 3 years of experience and 6 (12%) were having 2 years of experience

Fig: 5 Percentage distribution of prevention of nosocomial infections among third year B.Sc. nursing students by source of information



: With regard to source of information, majority 26 (52%) of the participants obtained information from health personnel followed by 24 (48%) of the participants obtained information from books and magazines

Table -1

Frequency and percentage of pre-test, knowledge and practice on prevention of nosocomial infections among third year B.Sc. nursing students. n= 50

Level of Knowledge	Frequency (f)	Percentage (%)
Adequate knowledge (67-100%)	10	20%
Moderately adequate knowledge (34-66%)	40	80%
Inadequate knowledge (0-33%)	0	0%

The data presented in the above table-1 showed that pre-test knowledge and practice regarding prevention of nosocomial infections among third year B.Sc. nursing students; none of the inadequate knowledge, 10 (20%) had moderately adequate knowledge and 40 (80%) had adequate knowledge.

Mean and standard deviation of pre-test and post-test knowledge and practice score among third year B.Sc. nursing students. n=50

Mean and Standard deviation of post-test knowledge and practice regarding prevention of nosocomial infections among third year B.Sc. nursing students, was found to be 25.04 and 4.20. Pre-test Mean and Standard deviation was found to be 16.94 and 5.32 respectively, which shows a significant difference between pre-test and post-test scores on knowledge and practice regarding prevention of nosocomial infections among third year B.Sc. nursing students.

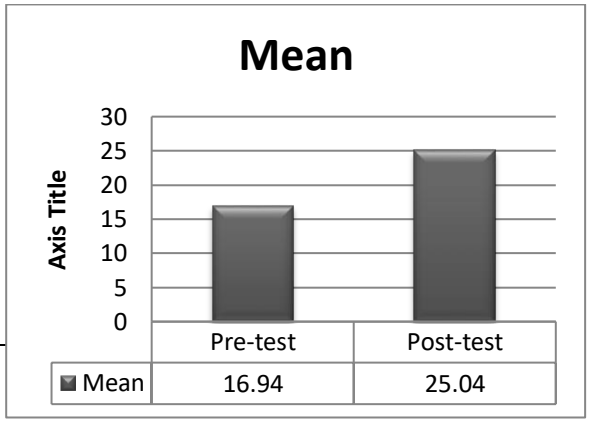


Table - 2

Mean standard deviation and paired t-value of pre-test and post-test on level of knowledge and practice on prevention of nosocomial infections

Knowledge	Mean (X)	Standard Deviation (SD)	Paired t-test value
Pre-test	16.94	5.32	18.39, P<0.05 Table value 2.0
Post-test	25.04	4.20	

Table-2 inference the different values such as mean, standard deviation and paired t-test obtained in pre-test and post-test. In post-test the mean and standard deviation values (25.04 & 4.20) was higher than the pre-test mean and standard deviation values (16.94 & 5.32). The obtained' value was 18.39 which was greater than the table value 2.0 at ($p<0.05$). The findings showed that, there was significant difference between the pre-test and post-test scores of knowledge and practice regarding prevention of nosocomial infections among third year B.Sc. nursing students. It concludes that there was significant improvement of pre-test and post-test knowledge and practice scores on prevention of nosocomial infections among third year B.Sc. nursing

students that structured teaching program me on prevention of nosocomial infections was effective in imparting knowledge and practice among third year B.Sc. nursing students. Hence the H0 i.e. the null hypothesis was rejected and H1 research hypothesis was accepted

Table-3

Association between post-test scores on knowledge and practice regarding prevention of nosocomial infections among third year B.Sc. nursing students with their demographic variables

Table : 3 showed association of post–test knowledge and practice scores on prevention of nosocomial infections among third year B.Sc. nursing students with their demographic variables

Chi-square test value was computed to find out the association between post-test knowledge and practice scores regarding prevention of nosocomial infections among third year B.Sc. nursing students with their age. The calculated Chi-square value 0.12 less than the table value 3.84 at ($p<0.005$) level of significance. Hence, we accept the null hypothesis and H2 gets rejected which infer that there is no association between the age of the participants and the post-test knowledge and practice scores

Chi-square test value was computed to find out the association between post-test knowledge and practice scores regarding prevention of nosocomial infections among third year B.Sc. nursing students with their religion. The calculated Chi-square value 0.53 less than the table value 3.84 at ($p<0.005$) level of significance. Hence, we accept the null hypothesis and H2 gets rejected which infer that there is no association between the religion of the participants and the post-test knowledge and practice score

Chi-square test value was computed to find out the association between post-test knowledge and practice

scores regarding prevention of nosocomial infections among third year B.Sc. nursing students with their previous paramedical exposure. The calculated Chi-square value 4.76 was more than the table value 3.84 at ($p<0.005$) level of significance. Hence, we reject the null hypothesis and accept H2 which infer that there is significant association between the previous paramedical exposure of the participants and the post-test knowledge scores.

Chi-square test value was computed to find out the association between post-test knowledge and practice scores regarding prevention of nosocomial infections among third year B.Sc. nursing students with their clinical experience as student. The calculated Chi-square value 2.98 was less than the table value 3.84 at ($p<0.005$) level of significance. Hence, we accept the null hypothesis and H2 gets rejected which infer that there is no association between the clinical experience as student and the post-test knowledge and practice scores.

Chi-square test value was computed to find out the association between post-test knowledge and practice scores regarding prevention of nosocomial infections among third year B.Sc. nursing students with their source of information. The calculated Chi-square value 4.59 was more than the table value 3.84 at ($p<0.005$) level of significance. Hence, we reject the null hypothesis and accept H2 which infer that there is significant association between the source of information and the post-test knowledge and practice scores.

Sl. no	Demographic Characteristics	Post-test knowledge scores							Total	Chi-square value	Chi square table value	Df
		Inadequate knowledge (0-33%)		Moderate knowledge (34-66%)		Adequate knowledge (67-100%)						
		f		%	f	%	f	%				
		20-21 years	0	0	16	32%	28	56%	44			
		>21 years	0	0	02	04%	04	08%	06			
		Hindu	0	0	07	14%	09	18%	16			
		Christian	0	0	11	22%	23	46%	34			
		MLT	0	0	02	04%	13	26%	10			
		No	0	0	16	32%	19	38%	40			
		2 years	0	0	13	26%	15	30%	28			
		3 years	0	0	05	10%	17	34%	22			
		Books and magazines	0	0	05	10%	19	38%	24			
		Health personnel	0	0	13	26%	13	26%	26			

DISCUSSION

This chapter discusses findings of the study derived from the statistical analysis and its pertinence to the objectives set for the study and related literature of the study.

The present study has been designed to assess the effectiveness of structured teaching programme regarding knowledge and practice on prevention of nosocomial infections among third year B.Sc. nursing students.

In an effort to assess the effectiveness of structured teaching programme regarding knowledge and practice on prevention of nosocomial infections among third year B.Sc. nursing students, a pre-experimental one group pre-test and post-test design was conducted.

Intervention was given after pre-test through structured teaching programme regarding prevention of nosocomial infections followed by post-test to assess the effectiveness of structured teaching programme,

The independent variables of the study were structured teaching programme regarding prevention of nosocomial infections, while the dependent variables were knowledge and practice of third year B.Sc. nursing students.

The discussion of the present study was based on the study findings obtained from the descriptive and inferential statistical analysis of collected data. It was presented in order of the objectives of the study.

SAMPLE CHARACTERISTICS:

Age: Among 50 students, majority of the students 44 (88%) of were in the age group of 20-21 years, and only 6 (12%) students were in the age group of more than 21 years.**Gender:** With regard to gender 50 (100%) of the participants were girls.**Religion:** In relation to religion, majority 34 (68%) of the participants belongs to Christians and 16 (34%) were Hindus.**Previous paramedical exposure:** Regarding previous paramedical exposure, majority of the students i.e. 40 (80%) were not having previous exposure and the rest 10 (20%) was having previous experience.**Clinical experience as student:** Among 50 students, 44 (88%) were having 3 years of experience and 6 (12%) were having 2 years of experience.

Source of information: With regard to source of information, majority 26 (52%) of the participants obtained information from health personnel followed by 24 (48%) of the participants obtained information from books and magazines.

Findings related to objectives of the study:

The first objective was to assess the knowledge and practice regarding prevention of nosocomial infections among third year B.Sc. nursing students.

The present study revealed that administration of structured teaching programme in terms of pre-test scores and post-test scores.

In pre-test, majority of the students 80% of the students had moderately adequate knowledge, while 20% of the students had adequate knowledge and none of them had inadequate knowledge regarding prevention of nosocomial infections. The overall mean and standard deviation of pre-test knowledge and practice regarding prevention of nosocomial infections among third year B.Sc. nursing students was found to be 16.94 and 5.32. These findings indicated that the students had low level of knowledge and practice regarding prevention of nosocomial infections In post-test, majority of the students 64% of the students had adequate knowledge, 36% of the students had moderately adequate knowledge and none of them had inadequate knowledge regarding prevention of nosocomial infections. The overall mean and standard deviation of the post-test knowledge and practice regarding prevention of nosocomial infections among third year B.Sc. nursing students are 25.04 and 4.20. These findings indicated that the students had higher level knowledge and practice regarding prevention of nosocomial infections.

The second objective was to evaluate the effectiveness of structured teaching programme regarding prevention of nosocomial infections.

In order to meet the above objective, structured teaching programme was carried out on prevention of nosocomial infections among third year B.Sc. nursing students to improve the knowledge and practice by using charts, flash cards, pamphlets and black board.

The overall mean and standard deviation of knowledge and practice on prevention of nosocomial infection among B.Sc. nursing third year students in post-test (25.04 and 4.20) was higher than the pre-test values (16.94 and 5.32). The paired t-test value was 18.39 which was greater than the t value (2.0) at ($p<0.05$) level of significance. The findings showed that there was a significant difference between the pre-test and post-test scores of knowledge and practice regarding prevention of nosocomial infections among third year B.Sc. nursing students. This revealed that the structured teaching programme was found to be effective.

The third objective of the study was to find out the association between post-test scores regarding prevention of nosocomial infections and their selected demographic variables.

The association between the post-test scores and demographic variables was determined by computing the Chi-square test. Chi-square value for previous paramedical exposure was 4.76 which were greater than the table value of 3.84 at $p< 0.05$, which indicated that the null hypothesis is rejected and accepted H2. The Chi-square value for source of information was 4.59 which were greater than the table value of 3.84 at $p< 0.05$, which indicated that the null hypothesis is rejected and accepted H2.

There was significant association between the post-test scores of prevention of nosocomial infections among third year B.Sc. nursing students with their previous paramedical exposure and sources of information and all other variables were not associated. Hence the hypothesis got accepted for other variables such as age, religion and clinical experience as student

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