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A COMPARATIVE STUDY ON KNOWLEDGE LEVEL OF STUDENT NURSES AND STAFF NURSES REGARDING NOSOCOMIAL INFECTION IN A SELECTED HOSPITAL IN MANGALORE

Alexie Alex*

Vice Principal, Upasana College of Nursing, Umayanalloor, Puthuchira, Kollam, Kerala, India-691 589.

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ABSTRACT

The descriptive comparative study compared the knowledge level of student nurses and staff nurses regarding nosocomial infection. 120 samples were selected using stratified random sampling technique 40 in each strata i.e., III year GNM students, IV B.Sc nursing students, GNM staff nurses and B.Sc staff nurses. A structured knowledge questionnaire was used to assess the knowledge level regarding nosocomial infection. The result showed that the mean knowledge score of B.Sc staff nurses and IV year B.Sc Nursing students were statistically higher than the GNM staff nurses and III GNM students respectively. The knowledge score of staff nurses were higher than the student nurses. Significant association between the knowledge with special education programme attended by the samples was identified.

INTRODUCTION

Health care-associated infection (HCAI), also referred to as "nosocomial" or "hospital" infection, is an infection occurring in a patient during the process of care in a hospital or other health care facility which was not present or incubating at the time of admission. It can affect patients in any type of setting where they receive care and can also appear after discharge. Furthermore, they include occupational infections among staff. Nosocomial infection represents the most frequent adverse event during care delivery and no institution or country can claim to have solved the problem yet. [1]

Nosocomial infections have existed since the time there have been hospitals, but attention was not focused on them until the middle of the 19th century. The hygienic practice of Semmelweis in obstetrics, Joseph

Lister in surgery and Florence Nightingale in nursing strengthened the foundation on infection control. They began to transform hospitals from sites of pestilence and septic death to places of potential healing. They made significant contribution to sanitation, isolation practices and better hospital design. [2]

Based on data from a number of countries, it can be estimated that each year, hundreds of millions of patients around the world are affected by nosocomial infection. The burden of it is several folds higher in low- and middle-income countries than in high-income ones. [1]

Adult inpatients in common specialties who developed hospital acquired infection remained in hospital 2.5 times longer, incurred hospital cost almost three times higher than uninfected patients. The largest cost associated with hospital acquired infection was for nursing care (42%) and hospital overheads, capital charges and management (33%). [3]

Although Nosocomial infection is the most

Corresponding Author

Alexie Alex

Email:- alexiealex@gmail.com



frequent adverse event in health care, its true global burden remains unknown because of the difficulty in gathering reliable data: most countries lack surveillance systems for nosocomial infections, and those that do have them struggle with the complexity and the lack of uniformity of criteria for diagnosing it. [1]

Hospitals in the developing world lack an awareness of infection control programmes and also proper documentation and methods of various infections, making it difficult to investigate the spread of infections. Therefore, establishment of an infection control team comprising infection control doctors and infection control nurse is essential. One of the most important responsibilities of the infection control nurse is the assessment of hospital infection rate with the help of surveillance. Assessment of knowledge of nursing personnel is also the responsibility of the infection control nurse in order to find out the areas where nurses require more information to control the infection. [4]

A study conducted in Colorado to describe the relationship between the quality of patient care with the education and the experience of the nurses providing that care. Data from 81 inpatient units were collected and the results provided consistent support for the prevailing belief that nurses with more experience provides higher quality care. [5]

One of the frustrations faced by infection control team in London is clinical staffs' poor knowledge and understanding of medical microbiology. The studies also have demonstrated nurse's inadequate knowledge of microbiology and infection control. They said that there is an urgent need to give greater prominence in pre-registration training programme for nurses. [6]

Assessment of knowledge is the basic step for further studies. By finding out the level of knowledge further steps can be taken to improve the knowledge, which will help to provide a good quality care in the health care settings.

Objectives

1. To determine the knowledge level of staff nurses (GNM staff and B.Sc staff) and student nurses (III year GNM and IV year B.Sc) regarding nosocomial infection as measured by a structured knowledge questionnaire.
2. To compare the knowledge scores among student nurses (III year GNM and IV year B.Sc) and staff nurses (GNM staff and B.Sc staff) regarding nosocomial infection.
3. To compare the knowledge score of student nurses with staff nurses.

Hypotheses

H 1: Mean knowledge score of IV year B.Sc nursing students will be significantly higher than that of III year

GNM students at 0.05 level of significance.

H 2: Mean knowledge score of B.Sc staff will be significantly higher than that of the GNM staff at 0.05 level of significance.

H 3: Mean knowledge score of the staff nurses (GNM and B.Sc) will be significantly higher than that of student nurses (III year GNM and IV year B.Sc) at 0.05 level of significance.

Materials and Methods

Research Design : A descriptive comparative design was adopted for the study.

Setting : The study was conducted in a selected Medical College Hospital and College of Nursing in Mangalore, Karnataka State, India.

Population and sampling : Population comprised of III year GNM, IV B.Sc Nursing students, GNM staff and B.Sc staff nurses of selected setting. Total 160 samples were selected by constant stratified random sampling in four different strata.

Criteria for sample selection

1. B.Sc staff nurses with less than one year of work experience in various wards.
2. GNM staff nurses with one or two years of work experience in various wards.
3. III year GNM and IV year B.Sc nursing students of the same academic year.

Variables of the study:

The research variables under the study were knowledge on nosocomial infection and sample category (staff and student nurses).

Instrument and Tool for data collection

Tool comprised of two parts:

Part – 1: Demographic Proforma

It consisted of six items which included age, professional status, designation/category, total work experience in clinical area, areas of clinical experience and about the special education programme they have attended on nosocomial infection, for obtaining baseline information.

Part – 2: Structured knowledge questionnaire.

Structured knowledge questionnaire was developed by the investigator consisted of :

Part – 2 A : 26 Multiple choice items

Part – 2 B : 23 True/False items

The questionnaire covered four major aspects on nosocomial infection.



1. Meaning and type of nosocomial infection 5 (10.20%) items
2. Risk factors, reservoirs and sources 10 (20.40%) items
3. Mode of transmission 7 (14.28%) items
4. Prevention and control of nosocomial infection 27 (55.12%) items

Scoring:

Each right answer was given a score of one each and wrong answer was given a score of zero. It is interpreted as;

Mean Percentage Score

70 and above
50 - 69
30 - 49
30 and below

Grade

Good knowledge
Average knowledge
Poor knowledge
Very poor

Data Analysis and Interpretation

The analysis of the data has been organized in relation to the objectives and hypotheses formulated for the study.

SECTION I

Sample characteristics:

- Majority of the subjects (76.25%) belonged to the age group of 21 to 23 years.
- All the subjects had posting in the medical and surgical area.
- Majority of the subjects (63.75%) attended special education programme on nosocomial infection.

SECTION II

Table 1, 2 and 3 show knowledge of student and staff nurses on nosocomial infection

SECTION III

This section deals with the comparison of knowledge scores within student nurses and staff nurses

and between student and staff nurses, and is shown in Tables 4, 5 and 6.

SECTION IV

Table 7 depicts the association between knowledge score with special education programme attended on nosocomial infection.

Major findings of the study:

❖ More than half of the B.Sc staff nurses (55%) had good knowledge and 47.5% of GNM staff nurses had average knowledge regarding nosomial infection.

❖ Majority of IV year B.Sc nursing students (67.5%) and III year GNM students (65%) had average knowledge on nosocomial infection.

❖ Area wise mean percentage knowledge scores revealed that all had average knowledge in all areas.

❖ The knowledge score of IV year B.Sc nursing students (mean score = 32.55) was statistically higher than that of the year III year GNM students (mean score = 27.6), $t_{(78)} = 5.61$, $p < 0.05$.

❖ The knowledge score of B.Sc staff nurses (mean score = 34.52) was statistically higher than GNM staff nurses (mean score = 30.07), $t_{(78)} = 4.25$, $p < 0.05$.

❖ The knowledge score of the staff nurses (mean score 32.3) was statistically higher than student nurses (30.07), $t_{(158)} = 2.89$, $p < 0.05$.

❖ There was significant association between the knowledge with special education programme attended by the subjects ($\chi^2_{(1)} = 14.51$, $p < 0.05$).

Table 1. Frequency and Percentage Distribution of Subjects Based on their level of Knowledge on Nosocomial Infection

N=160									
Knowledge level	Scores	IV year B.Sc		III year GNM		B.Sc Staff Nurses		GNM Staff Nurses	
		f	%	f	%	f	%	f	%
Good knowledge 70% & above	≥ 35	12	30	4	10	22	55	13	32.5
Average knowledge 50 – 69%	25- 34	27	67.5	26	65	18	45	19	47.5
Poor knowledge 30- 49%	15 - 24	1	2.5	10	25	-	-	7	17.5
Very poor knowledge 30% & below	0 - 14	-	-	-	-	-	-	1	2.5

Max. Score 49



Table 2. Area wise Mean Percentage Scores of IV Year B.Sc Nursing and III Year GNM Students on Nosocomial Infection

Area	Maximum Scores	IV year B.Sc		III year GNM	
		Mean	Mean Percentage Score	Mean	Mean Percentage Score
Meaning and types	5	3.12	62.4	3	60
Risk factors, Reservoir and Sources	10	6.35	63.5	5.42	54.2
Mode of transmission	7	4.67	66.71	3.32	47.42
Prevention and control	27	18.35	67.96	15.85	58.70

Max. Score = 49

Table 3. Area wise Mean Percentage Knowledge Scores of B.Sc Staff and GNM Staff on Nosocomial Infection

N=80

Areas	Maximum Scores	B.Sc Staff		GNM Staff	
		Mean	Mean Percentage Score	Mean	Mean Percentage Score
Meaning and types	5	3	60	2.72	54.4
Risk factors, Reservoir and Sources	10	7.27	72.7	6.12	61.2
Mode of transmission	7	4.25	68.57	4.35	62.14
Prevention and control	27	19.45	72.03	16.9	62.59

Max. Score = 49

Table 4. Unpaired 't' test showing the Significant Difference between Knowledge Scores of IV Year B.Sc and III year GNM Student Nurses on Nosocomial Infection

N=40+40

Category	Mean	SD	't' Value	Table Value	Inference
IV year B.Sc	32.55	3.39	5.61	1.671	Significant P<0.05
III year GNM	27.6	4.39			

Max. Score = 49

Table 5. Unpaired 't' test showing the Significant Difference Between Knowledge Scores of B.Sc and GNM Staff Nurses on Nosocomial Infection

N=40+40

Category	Mean	SD	't' Value	Table Value	Inference
B.Sc Staff Nurses	34.52	2.88	4.25	1.671	Significant P<0.05
GNM Staff Nurses	3.07	5.91			

Max. Score = 49

Table 6. Unpaired 't' test showing the Significant Difference between Knowledge Scores of Student and Staff Nurses on Nosocomial Infection

N=80+80

Category	Mean	SD	't' Value	Table Value	Inference
Student Nurses	30.07	4.64	2.89	1.645	Significant P<0.05
Staff Nurses	32.3	5.15			

Max. Score = 49

Table 7. χ^2 test showing the Association Between Knowledge Scores with Special Education Programme Attendance on Nosocomial Infection

N=160

Score	Special Education Programme		Total	X2 Value	Inference
	Attended	Not Attended			
Knowledge Score \leq 31	35	38	73	14.51	Highly Significant P<0.05
Knowledge Score > 31	67	20	87		
Total	102	58	160		

 χ^2 at 1df at 5% level = 3.84

CONCLUSION

The study was conducted to compare the staff and student nurses' knowledge regarding nosocomial infection. The study finding showed that the knowledge of the subjects regarding nosocomial infection was inadequate, whereas those who attended special education programme on nosocomial infection had good knowledge. This indicates that the nurses are more concerned with the actual care of the patients but not very keen in preventing and controlling the factors affecting the nosocomial infection.

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Declaration of Interest:

Conflict of interest – Nil

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