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A STUDY TO ASSESS THE EFFECTIVENESS OF COMPUTER ASSISTED TEACHING ON KNOWLEDGE REGARDING INFECTION CONTROL PRACTICES AMONG NURSING STUDENTS OF SELECTED COLLEGES, ODISHA

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Abstract:

Introduction: An infection occurs to the patient during their stay in hospital is said to be Hospital Acquired Infection (HAI). It can be defined as the patient gets infection after 48 hours or more after admission in any hospital. Hospital Acquired Infections are unanticipated infections that develop during medical or surgical treatment may result in significant patient illness and death.

Objectives: To assess the level of knowledge regarding Infection Control Practices, to assess the effectiveness of Computer Assisted Teaching, to compare the level of knowledge and to Associate the level of knowledge regarding Infection Control Practices with the selected demographic variables among Nursing students

Method: A quantitative evaluatory research approach with a pre-experimental one group pre test - post test research design was used in this study. 240 Nursing students from different courses (120 from GNM and 120 from B.Sc) in selected colleges were selected as samples by Non- probability convenient sampling technique. A Structured knowledge questionnaire regarding Infection Control Practices was used to collect the data.

Results: In pretest, out off 240 nursing students, among 120 GNM students, 36 (30%) have poor knowledge, 58 (48.3%) have Average level of Knowledge and 26 (21.7%) have good level of knowledge. With 120 B. Sc(N) students, 34 (28.3%) have poor knowledge, 68 (56.7%) have Average level of Knowledge and 18 (15%) have good level of knowledge on Infection Control Practices. In Post test, among 120 GNM students, 07 (5.8%) have poor knowledge, 29 (24.2%) have Average level of Knowledge and 84 (70.0%) have good level of knowledge. With 120 B. Sc(N) students, 06 (05.0%) have poor knowledge, 43 (35.8%) have Average level of Knowledge and 71 (59.2%) have good level of knowledge on Infection Control Practices after attending Computer Assisted Teaching Programme. The effectiveness of Computer Assisted Teaching on knowledge, with respect to B.Sc (N) students paired t value is 27.6and for GNM students is 28.3. The table value is 1.65 which shows Significance. While comparing the level of Knowledge between B.Sc and GNM Nursing students was 26.8, The table value is 1.65 which shows Significance.

Conclusion: The present study concluded that predominant of student nurses have Average level of knowledge on infection control practices (i.e) 58 (48.3%) in GNM and 68 (56.7%) in B.Sc(N)in pretest. After intervention the knowledge level was increased to good level of knowledge 84 (70%) in GNM and 71 (59.2%) in B. Sc (N) which shows the computer assisted teaching has an impact to increase in knowledge

INTRODUCTION

An infection occurs to the patient during their stay in hospital is said to be Hospital Acquired Infection (HAI). In early times, the term has been referred to the infections acquired during admission in acute care, but at present it is common to various settings in the hospitals.[1] It can be defined as the patient gets infection after 48 hours or more after admission in any hospital. Most of these HAI's are due to Multi drug Resistant Organisms, which may harm the patients, their visitors and even health care professionals.[2]

It is estimated that among every 100 patients admitted in acute health care, 7 from high income countries and 15 from Low- and Middle-income countries gets infected with any one of Hospital Acquired Infection during their

stay in hospital.[2] This becomes the major health burden among health care, society and also for the patient. Controlling of such infections among the patients and in hospital settings plays a vital role to decrease mortality an appropriate use of an infection control programme is more efficient and helps to restrict the spread of Infection. It is also the vital responsibility of health care worker to authorize the principles of care in preventing these infections.[3]

Hospital Acquired Infections are unanticipated infections that develop during medical or surgical treatment may result in significant patient illness and death. These Hospital acquired Infections may be due to certain risk factors like increased age, chief disease and severity of illness, uncompromised immune system. Depending on patient's responsiveness, an infection may occur due to their own innermost organism or by cross contamination.[4] The factors like indwelling medical devices like catheters or tubes, antibiotic usage and complications due to surgical procedure and the major factor from exposure to organisms which usually transmits between patients and health care workers. It is also said that overuse of antibiotics may contribute to HAI by allowing antibiotic resistant organisms, which are difficult to treat.[5,6]

Hospital Acquired Infections are said to be unique source of complication across the continuation of care which can be transmitted between different health care facilities. Since the existing prevention practice may lead upto 70% reduction in HAI.[7,8] Studies had shown that proper education and effective training of health professionals may increase adoption of best practice for preventing HAI's.[9] The best practices for prevention of infection includes hand hygiene, handling antibiotics and safety culture attention. Other practices include careful insertion, maintenance and removal of catheters and decolonization of patients with an evidence based methods to reduce transmission.[10]

PROBLEM STATEMENT

A study to assess the effectiveness of Computer Assisted Teaching on Knowledge regarding Infection Control Practices among Nursing students of selected colleges, Odisha

Objectives

To assess the level of knowledge regarding Infection Control Practices among Nursing students

To assess the effectiveness of Computer Assisted Teaching on Knowledge regarding Infection Control Practices among Nursing students

To compare the level of knowledge regarding Infection Control Practices among Nursing students

To Associate the level of knowledge regarding Infection Control Practices with the selected demographic variables among Nursing students

Hypothesis

H_1:- There is a significant increase in the level of knowledge regarding Infection Control Practices among Nursing students after Computer Assisted Teaching

H_2:- There is a significant difference in the level of knowledge regarding Infection Control Practices among Nursing students

H_3:- There is a significant association between the level of knowledge regarding Infection Control Practices among Nursing students with their demographic variables.

METHODOLOGY

Research Approach

A quantitative evaluatory research approach.

Research Design

A Pre- Experimental one group pre test - post test research design.

Setting

The researcher managed this study in Selected Nursing Colleges in Odisha.

Variables

Dependent Variable:

In this present study, level of knowledge regarding Infection Control Practices is said to be Dependent variables

Independent variable:

Computer Assisted Teaching on knowledge regarding Infection Control Practices is said to be Independent variables

Demographic variables

In this study age, gender, year of studying, course, Locality of stay, previous knowledge

Sample

Sample of the study was nursing students from selected colleges, who fulfill the sampling criteria.

Sample size and Technique

240 Nursing students from different courses (120 from GNM and 120 from B.Sc (N)) in selected colleges were selected as samples by Non- probability convenient sampling technique.

Description of tools used in the study

The tools consist of two section the tool used for the study include.

Section –A: demographic variables

It deals with demographic data such as age, gender, year of studying, course of studying, Clinical experience, Locality of stay, previous knowledge

Section–B-

The tool used in this study was structured knowledge questionnaire regarding Infection Control Practices. Tool contains 25 multiple choice questions; each question had the option with one most appropriate answer. the maximum score is 25 for every correct response to each item "one" and for incorrect "zero".

Table No. 1 Classification of Knowledge level based on the percentage of the score.

S. No.	Knowledge Level	Score Range
1.	Poor Level	0 - 48
2.	Average Level	52 - 80
3.	Good Level	84 - 100

Results

The study results are described as follows

Section A: Analysing the Pre-Test Knowledge level regarding Infection Control Practices among Nursing students

Table 2: The Pre-Test Knowledge level regarding Infection Control Practices among Nursing students

N=240

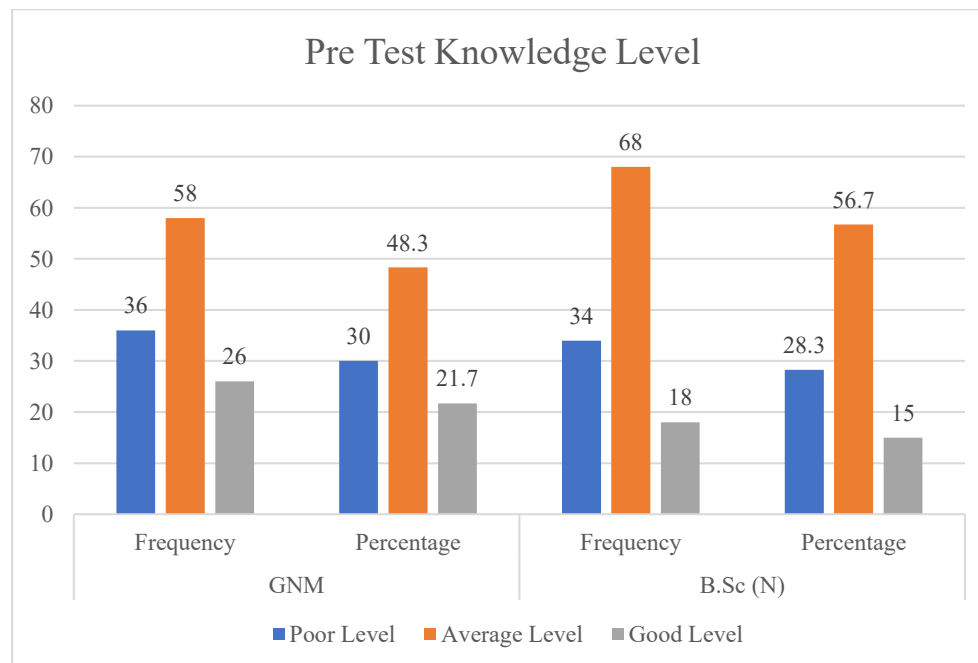| S. No.	Knowledge Level	GNM		B.Sc (N)	
		Frequency	Percentage	Frequency	Percentage
1.	Poor Level	36	30.0	34	28.3
2.	Average Level	58	48.3	68	56.7
3.	Good Level	26	21.7	18	15.0

Fig 1: **Pre-Test Knowledge level regarding Infection Control Practices among Nursing students**

(Table 2, Fig 1) Explains that out of 240 nursing students, among 120 GNM students, 36 (30%) have poor knowledge, 58 (48.3%) have Average level of Knowledge and 26 (21.7%) have good level of knowledge. With

120 B. Sc(N) students, 34 (28.3%) have poor knowledge, 68 (56.7%) have Average level of Knowledge and 18 (15%) have good level of knowledge on Infection Control Practices

Table 3: The Post Test Knowledge level regarding Infection Control Practices among Nursing students

N=240

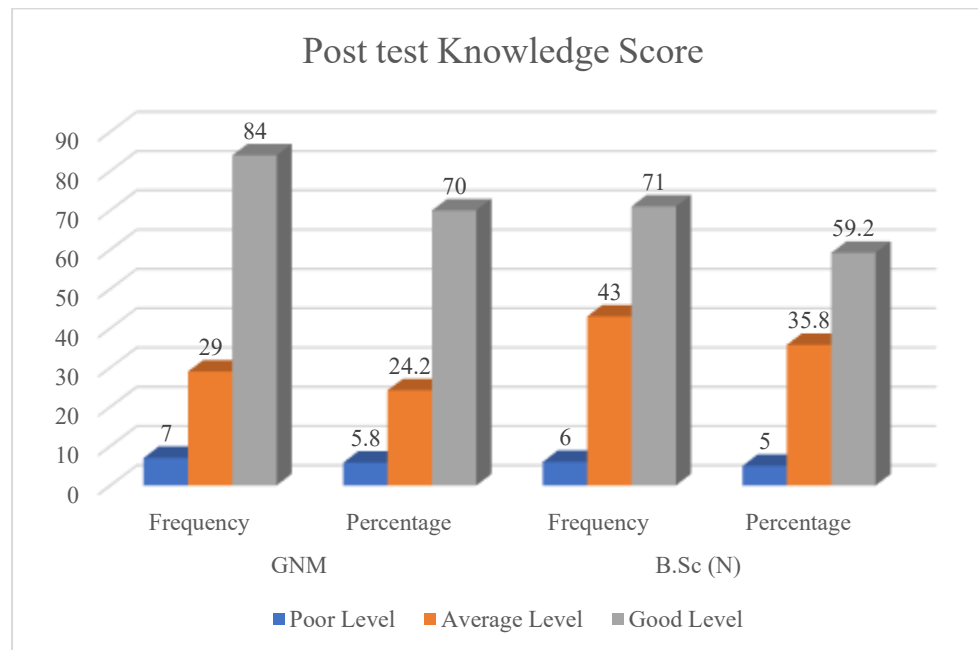| S. No.	Knowledge Level	GNM		B.Sc (N)	
		Frequency	Percentage	Frequency	Percentage
1.	Poor Level	07	5.8	06	05.0
2.	Average Level	29	24.2	43	35.8
3.	Good Level	84	70.0	71	59.2

Fig 2: **Post Test Knowledge level regarding Infection Control Practices among Nursing students**
(Table 3, Fig 2) Explains that out of 240 nursing students, among 120 GNM students, 07 (5.8%) have poor knowledge, 29 (24.2%) have Average level of Knowledge and 84 (70.0%) have good level of knowledge. With 120 B. Sc(N) students, 06 (05.0%) have poor knowledge, 43 (35.8%) have Average level of Knowledge and 71 (59.2%) have good level of knowledge on Infection Control Practices after attending Computer Assisted Teaching Programme.

Table 4: Mean and Standard Deviation for Post Test Knowledge level regarding Infection Control Practices among Nursing students

N=240

Knowledge Level	Pre test		Post Test	
	Mean	Std. Deviation	Mean	Std. Deviation
B.Sc (N)	16.2	2.81	21.4	3.48
GNM	14.3	2.48	22.1	3.61

Table 4 states the mean and standard deviation of pre-test Knowledge level regarding Infection Control Practices among Nursing students for B.Sc (N) students were 16.2 and 2.81 and for GNM were 14.3 and 2.48 respectively. In post-test Knowledge level, it was B.Sc (N) students were 21.4 and 3.48 and for GNM were 22.1 and 3.61 respectively.

Section B: The effectiveness of Computer Assisted Teaching on Knowledge regarding Infection Control Practices among Nursing students
Table 4: The effectiveness of Computer Assisted Teaching on Knowledge regarding Infection Control Practices among Nursing students

N=240

S.No	Variable	Course	t value	Table Value	Inference

01	Effectiveness of Computer Assisted Teaching on Knowledge	GNM	28.3	1.65	Significance
02		B.Sc (N)	27.6	1.65	Significance

P= 0.05 level of significance

(Table 4) shows that the effectiveness of Computer Assisted Teaching on knowledge, with respect to B.Sc (N) students paired t value is 27.6and for GNM students is 28.3. The table value is 1.65 which shows Significance.

Section C: To compare the level of knowledge regarding Infection Control Practices among Nursing students

Table 5: Compare the level of knowledge regarding Infection Control Practices among Nursing students

N=240

S.No	Variable	Course	t value	Table Value	Inference
01	Comparing the level of Knowledge regarding Infection Control Practices	GNM	26.8	1.65	Significance
02		B.Sc (N)			

P= 0.05 level of significance

(Table 5) shows that the Comparing the level of Knowledge between B.Sc and GNM Nursing students was 26.8, The table value is 1.65 which shows Significance.

Section D: Association between level of knowledge regarding Infection Control Practices

The association between knowledge level regarding infection control Practices with the selected demographic variables like Gender and previous knowledge among B.Sc (N) students.

With GNM students, the demographic variables like knowledge and clinical experience shows some significance.

DISCUSSION

In pretest, out off 240 nursing students, among 120 GNM students, 36 (30%) have poor knowledge, 58 (48.3%) have Average level of Knowledge and 26 (21.7%) have good level of knowledge. With 120 B. Sc(N) students, 34 (28.3%) have poor knowledge, 68 (56.7%) have Average level of Knowledge and 18 (15%) have good level of knowledge on Infection Control Practices. In Post test, among 120 GNM students, 07 (5.8%) have poor knowledge, 29 (24.2%) have Average level of Knowledge and 84 (70.0%) have good level of knowledge. With 120 B. Sc(N) students, 06 (05.0%) have poor knowledge, 43 (35.8%) have Average level of Knowledge and 71 (59.2%) have good level of knowledge on Infection Control Practices after attending Computer Assisted Teaching Programme.

The result was supported by World Health Organization statistics states that the major cause of death is due to infection related diseases, which also impacts increasing health care financing. Nurses those who are in front line can explain these Infection Control Practices and procedures to the patients. It is evident that nurses have the key role in preventing and controlling of infections by their knowledge and with their experience. A cross sectional, Descriptive study design was used to assess the awareness of nursing students regarding infection control strategies. 95 nursing students from different academic years were selected randomly as participants. The result of the study shows that 56.8% had moderate level of knowledge and 36.8% having low level of knowledge. With respect to attitude 56 (58.9%) of participants have low level of attitude and 34 (35.8%) had moderate level of attitude. In practice level, 54 (56.8%) had low level of practice and 35 (36.8%) having moderate level of practice. With the levels of significance there is no significant relationship between knowledge levels, level of attitude with demographic variables but the practice level shows some significance with the age of the sample and the wards they trained. The study concludes that university lectures should be focused on infection control practices. It is important to initiate workshops to improve the knowledge, attitude and practice towards infection control practices among nursing students

Nursing Implication : It's a challenge for nursing education to keep up with the new scientific and technology developments. The future of nursing profession will be changed with the help of education.

Nursing Education : The present study emphasizes that Infection control practices are very important among the nurses to provide quality health care. It is unique to impart the knowledge among nursing students regarding the importance of Infection control practices.

Nursing Administration: As a nursing staff, the significance of Infection control practices among the professionals has to be well understood. The nurses must get in service education regarding the Infection control practices and the importance of handling of patient with infectious diseases.

Nursing Research : The results of this study can be utilised by nurse researchers to furnish the profession to increase new knowledge regarding Infection control practices. Publication and dispensing of results often discourage rather than support research-based practice.

Limitations: The study is limited to 4 weeks
Sample size is 120 students with B.Sc (N) and DGNM students each.
Future Directions:
Similar Studies can be including a greater number of variables.
Similar studies can be conducted by demonstrating or practicing Infection control Practices.
Study can be replicated in different settings.

CONCLUSION

The present study concluded that predominant of student nurses have Average level of knowledge on infection control practices (i.e) 58 (48.3%) in GNM and 68 (56.7%) in B.Sc. (N)in pretest. After intervention the knowledge level was increased to good level of knowledge 84 (70%) in GNM and 71 (59.2%) in B. Sc (N) which shows the computer assisted teaching has an impact to increase in knowledge. While comparing the level of knowledge between nursing students GNM students are having more interest than of B.Sc. (N) students.
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Conflict of Interest: The authors declare that there is no conflict of interest.
Ethical Clearance: Obtained proper permission from concerned authority.

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