Research Article

ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAM ON LEVEL OF KNOWLEDGE REGARDING INFECTION CONTROL PRACTICES AMONG STAFF NURSE WORKING IN CRITICAL CARE UNITS

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ABSTRACT

A Quasi experimental study to assess the effectiveness of structured teaching program on level of knowledge regarding infection control practices among staff nurse working in critical care units .The conceptual framework for the study was based on King's goal attainment theory. The research approach adopted for the study was quantitative approach. Purposive sampling was done and 60 staff nurses working in ICU were selected for the study. A self administered questionnaire was developed as a tool for data collection. The questionnaire consisted to two section. Section I of the tool had demographic item, section II had knowledge about infection control practices. Analysis of data was done by using descriptive statistics. The following are some of the salient findings of the study. Mean and standard deviation were used to calculate the knowledge scores. Chi-Square values were computed to find out the relationship between knowledge with the selected variables. The overall pre test and post test mean knowledge was found to be 31.46 and 43.56% respectively indicating the enhancement knowledge as 12% paired 't' test shows statistical significance at 5% level (p 0.05) shows there is a strong association between the pre and post test level of knowledge of experimental group that establishing the impact of structured teaching programme on infection control practices among staff nurses

INTRODUCTION

The very first requirement in the hospital –"do the sick no harm" Florence Nightingale

Critical care units have revolutionized the care of critically ill patients with life threatening conditions, leading to greatly improved outcomes. In addition more than one third of the patient admitted to CCU, experience unexpected complications of medical care. Health care associated infections or hospital acquired infection is one of the most common medical complications affecting critical care units patients. ICU acquired infection means the infection not present and without evidence of incubation at the time of admission to a health care setting so, ICU acquired infection remains a major challenge in the ICU patient; rates of infection in the ICU are 3-5 times higher than rates in other hospital wards. Critically ill patients are highly susceptible to hospital acquired infections. The importance of medical devices in catheter associated UTI'S, intravascular device associated infection, VAP, SSI accounting for 25-50% of all hospital acquired infection in ICU patients. Currently HAIs affect more than 20 million patients in worldwide hospitals annually and are associated with approximately 90,000 deaths each year. The result of the European prevalence of infection in ICU highlighted the relative importance of medical devices venous catheters, pulmonary artery catheters, urinary catheters, mechanical ventilation, trauma on admission, ulcer prophylaxis.

Infection control is the discipline concerned with preventing nosocomial or healthcare-associated infection and addresses factors related to the spread of infections within the health-care setting including prevention monitoring/investigation of demonstrated or suspected spread of infection within a particular health-care setting, and management it is on this basis that the common title being adopted within health care is infection prevention & control. Infection control measures are staff compliance with recommended evidence based protocols and infection control practices include strategies to increase adherence to hand washing, standard precautions, personal protective equipment, aseptic technique, sterilization, sharps management, waste management, surveillance and reporting of HAI.

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Hospital has increasingly become unsafe place for patient during their stay infection is a health hazard of great expense and significance affecting the final outcome of treatment. The morbidity rate in critical care units is high and increasing. There are many contributing risk factors that cause ICU acquired infections. Hence it is the prime responsibility of health care providers to ensure an adequate arrangement to control the risk of infection since infection control is the quality standard of patient care, it is essential for well being of patient and safety of both patient and health care workers in a population.

Transmission of infections in health care facilities can be prevented and controlled through the application of basic infection control precautions which can be grouped into standard precautions, and transmission based precautions which must be applied to all patients at all times, regardless of diagnosis or infectious status.

Nosocomial infection, many of which are transmitted from patient to patient by poorly sanitized hands of health care workers, exert a significant toll in human and economic terms every year. So, health care personnel need to compliance with proper hand washing technique and infection control practices for prevention of hospital infection.

People receiving health and medical care, whether in a hospital or clinic are at risk of becoming infected unless precautions are taken to prevent infection Nosocomical infections are a significant problems throughout the whole and are increasing hence it must be necessary to assist health care workers understand the basic principles of infection prevention and recommended process and practice.

Hospital infection control program is dedicated to assisting the public health services, state and local health departments, hospitals and other professional organization in the prevention and control of nosocomical infection. Nosocomical infection affects approx 2 million patients annual in acute are facilities in our country and their annual patient care cost several millions of rupees.

Barrier precautions can reduce the risk of acquiring blood-borne infections, yet such precautions are frequently ignored, especially by personnel caring for pediatric patients. The greatest differences in the use of barrier precautions are related to the seniority of medical personnel and patient demographics do not influence the use of such precautions. A 30 minute educational inservice is effective in increasing the compliance with standard precautions.

With the emergence of nosocomial infections as a serious problem among all hospitals, the center for disease control undertook in 1974 a nationwide study to evaluate approaches to infection control, with three primary objectives are to determine the implementation of infection control programme, to describe the infection rates and changes in the infection rates. Every year many lives are lost because of the spread of the infections in hospitals. Health care workers can take steps to prevent the spread of infection disease. These steps are part of infection control the organization of a nosocomial infection control is not an easy task. The three main supportive elements to be considered for the infection control programme are (1) the development of an effective surveillance system, (2) the development of policies to reduce risk of hospital acquired infection and (3) the maintenance of a continuing education programme for hospital personnel surveillance of hospital acquired infection is very important and it should be continuous process consisting of elements i.e. definition of categories of infection, systematic case finding and data collection and tabulation of data, analysis and interpretation of data and reporting of relevant findings to individuals for appropriate action. The best way to carry out control programme is to establish an infection control committee.

The hand washing, preferably with a disinfectant preparation, before and after contact with a patient or their body fluids is probably the single most effective means of preventing transmission of microorganisms between hospital patients.

NABH standard recommended that there must infection control manual, which must be updated periodically. Equipment cleaning and sterilization must be included, an adherence to standard precaution at all times. And ancillary staff must be educated in the basic concept of infection control. All staff must follow good practice to minimize the risk to patients. E. g. frequent hand washing is the important measure for preventing cross-infection. Staff must be taught how to wash hands effectively. Staff suffering from infection, e.g. viral respiratory infections, septic lesions, should be excluded from contact with patients. Staff should be protected by appropriate immunization, e.g. BCG vaccine, Hepatitis B vaccine.

Statement of the Problem

"A Quasi experimental study to assess the effectiveness of structured teaching program on level of knowledge regarding infection control practice among staff nurse working in critical care units of Shir Mahant Indiresh Multispeciality Hospital Dehradun"

Objectives of the Study

To assess the pretest level of knowledge regarding infection control practices on experimental and control groups among staff nurse working in critical care units.

To assess the post test level of knowledge regarding infection control practices on experimental and control groups among staff nurse working in critical care units.

To assess the effectiveness of structured teaching programme on infection control among staff nurses working in critical care units of SMIH.

To find out the association between post test level of knowledge and selected demographic variables among staff nurse working in critical care units.

Operational Definitions

Effectiveness: The ability of STP to bring changes in the level of knowledge among nurses working in the critical cure units of SMIH.

Structured Teaching Program: It is planned teaching program on infection control practices which has been introduced as pretest and posttest.

Knowledge: knowledge related to infection control practice is scoring of nurses as per the score key as adequate knowledge, moderate knowledge and inadequate knowledge.

Infection control practices: it includes to follow the correct procedures of hand washing, sterilization, personal protective equipment, management of sharps, management of waste, standard precautions.

Critical care unit: unit where critically ill patients are admitted i.e. MICU, SICU, RICU, PICU, NICU, Neuro ICU, BURN unit, Dialysis unit.

Conceptual Framework of the Study

This study is intended to evaluate the effectiveness of structured teaching programme in terms of improving the knowledge of staff nurses of critical care units who received the teaching on infection control practices. Conceptual framework selected for this study was based on King's goal attainment theory. In this theory main focus is on the discrete parts and their interrelationships.
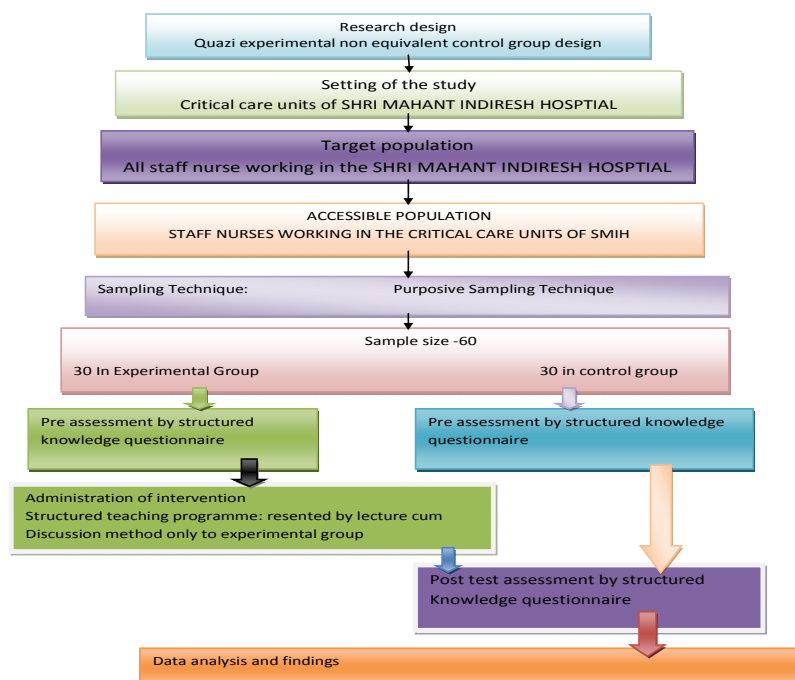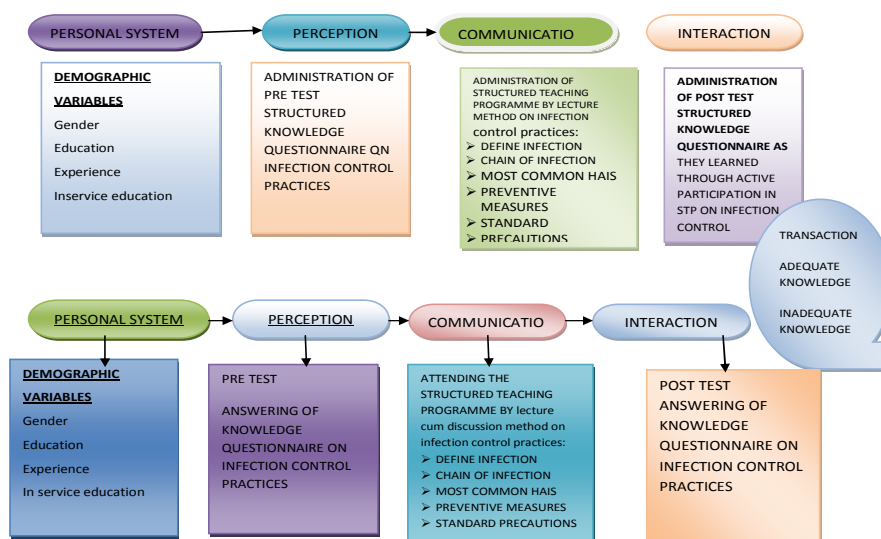
The review as literature related to the present study in groups under the following reading.

1. Review of literature related to the most common hospital acquired infection
2. Review of literature related to the prevention of hospital infection
3. Review of literature related to knowledge of staff nurse about infection control practices.

MATERIALS AND METHODS

Research approach

The research approach tells the researcher what data to be collected and how to analyze it. It also suggests possible conclusions to be drawn from the data. In view of the nature of the problem under the study and to accomplish the objectives of the study the quasi experimental, non equivalent control group design is selected.

Variables

- *Independent variable:* the independent variable of the study was structured teaching programme.
- *Dependent variable:* it was the outcome of the study that the difference expected on the level of knowledge after structured teaching programme.
- *Attributed variables (A.V.):* In this study the attributed variables were gender, experience, education, inservice education work areas, religion.
- *Extraneous variables:* method of teaching

Table 1 frequency and percentage distribution of demographic variables of staff nurses: (gender, religion, education, inservice education)

N.60

S.No	Demographic variable	(f)	(p)
	GENDER		
1.	MALE	24	40
	FEMALE	36	60
	RELIGION		
	HINDU	25	42
2.	MUSLIM	01	2
	OTHER	28	46
		06	10
	EDUCATION		
	GNM	55	92
3.	BSC. NURSING	5	08
	POST BSC. NURSING	00	00
	OTHER COURSE	00	00
	INSERVICE EDUCATION		
4.	YES	33	55
	NO	27	45

The data from table 1 shows the majority of staff nurse were female (60%), the majority were Christians (46%), majority were qualified GNM (92%) and most of them attended inservice education (55%)

The figure C, shows most of the staff nurse had experience between 1yr -3yr (45%)

Table 2 Percentage and Frequency Distribution of Pre test and Post test Scores on level of knowledge of experimental and control group.

N=60

| Level of knowledge | PRE TEST | | | | POST TEST | | | |
| | Experimental group | | Control Group | | Experimental group | | Control group | |
	f	P	f	P	f	P	f	P
Adequate	0	0%	0	0%	23	77	0	0
Moderate	25	83%	20	67%	07	23	21	70
Inadequate	05	17%	10	33%	00	00	9	30

The data from table 2 shows the percentage and frequency distribution of pre test and post test scores on level of knowledge between experimental and the control group shows, the self administered knowledge questionnaire was used (before administering STP)to assess the knowledge and 17% have inadequate knowledge those were in the experimental group and 67% staff nurses have modeate knowledge, 33% have inadequate knowledge those were in control group and out of 100 no one have adequate knowledge about infection control practices in pre test. And after administering the knowledge questionnaire was used for both groups, to assess the knowledge of staff nurses and the result was 77% staff nurses of experimental group having adequate knowledge and only 23% staff nurses of experimental group having moderate knowledge but in control group the 70% having moderate knowledge and the 30% having inadequate knowledge.

Table 3 Effectiveness of STP on infection control among nurses in experimental and control group

| GROUP | PRE TEST | | POST TEST | | |
	Mean 'M'	Standard deviation	Mean 'M'	Standard deviation	't' value
EXPERIMENTAL	31.46	4.24	43.56	4.08	11.41*
CONTROL	28.86	5.22	28.7	4.67	0.12

P 0.05

This table shows the level of significance between the pre test and post test level of knowledge of experimental group and the result was, the mean knowledge score of experimental group in pretest and the post test was 31.46 and 43.56 respectively. And the association of experimental group between the pre test and post test knowledge score was found highly significant which is established by paired t test (11.41)p 0.05 and it also shows that there is a no significant enhancement in the pre test and post test knowledge score of staff nurses who was in control group. It shows the effectiveness of structured teaching programme among experimental group.

Association between the post test level of knowledge among demographic variables.

S.No.	Characteristic	Adequate knowledge	Moderate knowledge	Inadequate knowledge	X^2
	GENDER				
1	MALE	05	03	02	1.08
	FEMALE	18	24	08	
	RELIGION				
	HINDU	80	15	02	
2.	MUSLIM	00	02	00	10.0
	CHRISTIAN	14	08	06	
	OTHER	02	02	02	
	EDUCATION				
	GNM	21	24	10	
3.	BSC. NURSING	03	02	00	12.3
	POST BSC. NURSING	00	00	00	
	OTHER	00	00	00	
	EXPERIENCE				
	1 YEAR	05	04	00	
4.	1-3 YEAR	09	09	05	55.46*
	3-5 YEAR	06	07	04	
	>5 YEAR	04	06	01	
	In service education				
5.	Yes	15	15	04	11.51*
	no	11	09	06	

p 0.05

the table 4, shows the association between the post test level of knowledge and demographic variables shows that the demographic variables such as inservice eduction experience, show statistical significant association with the demographic variable. Some of the demographic variable does not shows the significant association like gender, education, religion.

Demographic Variables of staff nurses

In the present study the majority of staff nurses were female (60%), the majority were Christians (46%), the majority were qualified GNM (92%), most of them attended inservice education (55%) and most of them had experience between 1 yr -3yrs. (45%).

Percentage and frequency distribution of level of knowledge of staff nurses in pre test and post test

In the present study the result of percentage and frequency distribution of level of knowledge of staff nurse shows that in the pre test the experimental group having 17% inadequate knowledge, 83% moderate knowledge and 0% adequate knowledge and 0% having adequate knowledge. And in the post test the experimental group having 0% inadequate knowledge, 23% moderate knowledge, 77% adequate knowledge. And the control group having 30% inadequate knowledge, 70% moderate knowledge and 0% having adequate knowledge.

Effectiveness of structured teaching programme on infection control

In the present study the effectiveness ofstructured teaching programme was measured by comparing the pre test and post test mean knowledge scour of experimental and control group. And the result shows the mean knowledge score of control group in pre test and post was 28.86 and 28.70 respectively. And the association of control group between the pre test and post test knowledge score was not found significant which is established by paired t-test and the mean knowledge scour of experimental group in pre test and post test was 31.46 and 43.56 respectively. It shows the significant enhancement in the pre test and post test knowledge scour of staff nurses who was in experimental group which is established by paired t-test. This shows the enhancement of structured teaching programme among experimental group.

Association between post test level of knowledge and demographic variables

In the present study the association between the post test level of knowledge and demographic variables shows that the demographic variables such as inservice eduction, experience, show statistical significant association with the demographic variable. Some of the demographic variable does not shows the significant association like gender, education and religion.

Major findings of the research study

- The data shows the majority of staff nurses female (60%) the majority were Christians (46%) majority were qualified GNM (92%) and most of them attended inservice education (55%) and most of them had experience between 1 yr -3 yrs (45%)
- The assessment of pre test scores of level of knowledge of staff nurses shows that in the pre test experimental group having 17% inadequate knowledge, 83% moderate knowledge and 0% adequate knowledge. And the control group having 33% inadequate knowledge, 67% moderate knowledge and 0% having adequate knowledge.
- The assessment of the post test scores of the staff nurses level of knowledge shows that after administering the structured teaching programme to only experimental group, the self administered knowledge questionnaire was used for both groups, to assess the knowledge of staff nurses and the result was 77% staff nurses of experimental group having adequate knowledge and only 23% staff nurses of experimental group having moderate knowledge but in control group the 70% having moderate knowledge and the 30% having inadequate knowledge.

- It can be inferred that knowledge score of the staff nurse regarding the infection control practices were inadequate in the pre test. The structured teaching programme was considerably effective in increasing or enhancing the knowledge in all aspects of infection control practices under study. The findings of the study showed that mean knowledge post scores (43.56) of the experimental group was higher than the mean pre test knowledge scores (31.46) of experimental group with an enhancement score found to be (12.1) percent and noticed with statistical significant established by paired t-test (0.05) it is also found that there was no enhancement of knowledge score of the control group.
- It is interesting to note that there exists significant impact / association between knowledge score of staff nurses on infection control practices with inservice education and experience as revealed by statistical chi square test (>0.05)
- Further the impact/association between knowledge scores of staff nurses on infection control practices found non significant with the studied variables gender, religion and eduction as revealed by statistical chi square test (>0.05)
- It can be inferred that the knowledge score of the staff nurses of both group (experimental and control) regarding the infection control practices were inadequate during the pretest. In the post test the knowledge found to be considerably more with remarkable enhancement in the knowledge of staff nurses who came under the experimental group and no enhancement in the knowledge score of control group staff nurses.

CONCLUSION

Health care workers are at the front line of patient care delivery. It is essential that they are appropriately trained and competent in the skills required to deliver the fundamentals of care. Staff nurses play in important role in providing basic patient care and performing disinfectant duties to keep health care setting as clean as they can. The infection control among staff nurses who worked in the critical care units of SMI hospital and the result shows that the post test level of knowledge of staff nurses get increased, thus the investigator conclude that the structured teaching programme was helpful in increasing the knowledge of staff nurses about infection control practices.

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