A STUDY TO ASSESS THE EFFECTIVENESS OF STP ON KNOWLEDGE REGARDING PREVENTION OF NOSOCOMIAL INFECTION AND HAND HYGIENE AMONG NURSING PERSONAL IN SELECTED HOSPITAL MULLANA (AMBALA)

Payal Saini

Tutor M.M.college Of Nursing Mullana(ambala)

Jyoti Sarin*

Principal M.M.college Of Nursing Mullana ambalaa *Corresponding Author hajan4777@gmail.com

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Abstract

Nosocomial infection is an infection originating in a patient in hospital. It is a serious hospital health hazard worldwide. In spite of advance in the prevention and control programmes of Nosocomial infection, they continue to be a major side effect of hospital and contribute significantly to the rate of morbidity, mortality and cost of care. Aim: A study to assess the effectiveness of STP on knowledge regarding prevention of nosocomial infection and hand hygiene among nursing personal in selected hospital Mullana (Ambala).Objectives :To assess and compare pre test and post test knowledge scores regarding prevention of nosocomial infection and hand hygiene among nursing personnel and To determine the association between pre- test knowledge score scores regarding prevention of nosocomial infection and hand hygiene among nursing personal with selected demographic characteristics Methodology: An quantitative research approach was used to assess the effectiveness of STP. One group pre test and post test pre-experimental design was used. The study was conducted at Ambala Hospital, district Haryana. The sample selected was staff nurses and Sample size was 120 nursing personnel. Convenience sampling technique was used. Data was analysed by using SPSS 20 version software. Major Findings: The majority of participants 100(83%) belongs to age group 21-25 years. In terms of gender maximum number of participants 110(92%) were females. Majority of participants 80(67%) were general Nursing. Majority of participants 80(67%) have 10 month of experience. Majority of participant 100(83%) were work as functional nurse Maximum number of nursing personnel 90(75%) works in general ward. majority of participants110 (92%) were not attend any type of infection control workshop The calculated paired "t" value, t=18.985 is greater than tabulated "t" value, t=2.01. Hence H1 is to be accepted. This indicates that the gain in knowledge score is statistically significant at P<0.05 levels. Conclusion: Overall pre-test knowledge about prevention of Nosocomial infection and hand hygiene was average. Post test result showed significant improvement in the level of knowledge on prevention of Nosocomial infection

INTRODUCTION

Hospital acquired infections, also known as healthcare associated infections (HAIs) are among the most common adverse events in hospitals with significant morbidity and mortality rates, and financial losses associated with health care systems. According to the World Health Organization (WHO) estimates, out of every 100 hospitalized patients at any given time, seven in the developed and 10 in the developing countries, acquire at least one healthcare-associated infection.[1]

Nosocomial infections are infections which occur as a result of treatment in the hospital, but secondary to the patient's original condition. Infections are considered nosocomial if they first appear 48 hours or more after hospital admission or within 30 days after discharge.[2]

Prevention of HAI is a major challenge for health care providers. According to 2007 scenario in United States, HAIs account for approximately 2 million infection, 99,000 deaths and 30.5billion dollars cost spend on treatment of illness. Nosocomial infections affect 1 in 10 patients admitted to hospital. On average, a patient with hospital acquired infection spent 2.5times longer in hospital, incurring additional costs as an uninfected patient. Intensive care units (ICU) have the highest prevalence of hospital-acquired infections in the hospital setting.[6]

Nosocomial infection is an infection originating in a patient in hospital. It is a serious hospital health hazard worldwide. In spite of advance in the prevention and control programmes of Nosocomial infection, they continue to be a major side effect of hospital and contribute significantly to the rate of morbidity, mortality and cost of care. The Nosocomial infection is a problem, world over all the hospital. However, due to emergency of HIV Infection the need to prevent and control Nosocomial infection is being emphasized. body fluids, precautions related to injections, skin piercing and invasive procedures, effective use of sterilization, disinfection and disposal of infective waste.[2]

The knowledge of infection control is essential if health care providers understand the rational measures employed in prevention and control of the infection. Not only to himself or herself, and also to the patients who require holistic care .The continuous education of healthcare workers (HCW) is considered as one of the key components of infection control programs. Since nurses are the frontline healthcare staff; their optimal and periodic training in basic infection control practices is essential. They should know most important procedure in prevention nosocomial infections is hand washing, because many types of these infections may be caused by organisms transmitted on the hands of personnel. Personnel should wash their hands before and after significant contact with any patient. The risk of personnel acquiring transient hand carriage of organisms is usually greatest after contact[4]

Nosocomial infections includes bloodstream infections, ventilator-acquired pneumonia, urinary tract infections, meningitis, secondary skin infections, and abscesses after skin breakdown or an invasive procedure and eye, ear, nose or throat infections. Causative organism can be bacterial, Viral or fungal in origin. The most common type of nosocomial infections are surgical wound infections, respiratory infections, genitourinary infections as well as gastrointestinal infections. The organisms that cause nosocomial infections are often drug- resistant. The regular use of antimicrobials for treatment therapy or prophylaxis promotes the development of resistance. Through antimicrobial- driven selection and exchange of genetic resistance elements, multi- drug resistant strains of bacteria emerge. Antimicrobial- sensitive microorganisms that are part of

the endogenous flora are suppressed, while the resistant strains survive. Many strains of pneumococci, enterococci and tuberculosis are currently resistant to most or all antimicrobials which were once effective.[5]

A study was conducted on role of hand hygiene in health care associated infection prevention and the study reveals that factors influencing hand hygiene compliance, the impact of hand hygiene promotion on healthcare-associated pathogen cross-transmission and infection rates, and challenging issues related to the universal adoption of alcohol-based hand rub as a critical system change for successful promotion.[5]

Several studies conducted amongst doctors and nurses in Ethiopia, Nigeria, Thailand and Uganda concluded that the knowledge, understanding and interpretation of infection control measures are not adequate. 2 This as a result adversely affected the implementation of the measures Although knowledge of standard precautions of infection control may improve adherence to the measures, other influencing factors which this study was not able to investigate such as attitude are equally important6 and Clinical Researcher herself is a NICU supervisor and observes the practice of aseptic techniques among junior staff nurses day to day and finds it is not up to the mark and there is need to refresh the knowledge and practices. So the investigator has chosen this study to find out the effectiveness of STP on knowledge regarding prevention of nosocomial infection and hand hygiene among nursing personnel.

PROBLEM STATEMENT: A study to assess the effectiveness of STP on knowledge regarding prevention of nosocomial infection and hand hygiene among nursing personal in selected hospital Mullana (Ambala)

OBJECTIVES:
*   To assess and compare pre test and post test knowledge scores regarding prevention of nosocomial infection among nursing personal
*   To determine the association between pre- test knowledge score scores regarding prevention of nosocomial infection among nursing personal with selected demographic characteristics

HYPOTHESES
*   All hypotheses were tested at the 0.05 level of significance
*   H1: There will be significant difference between mean pre test and post knowledge scores regarding prevention of nosocomial infection and hand hygiene among nursing personal

H2: There will be significant association between pre- test knowledge score scores regarding prevention of nosocomial infection among nursing personal with selected

METHODOLOGY: Research methods refer to steps, procedures and strategies for gathering and analyzing data in research involved. Research methodology is a way to systematically solve the research problem. It is a science of studying how research is done scientifically3

*   Research Approach: Quantitative research approach
*   Research design: pre experimental, one group pre test and post test design.

demographic characteristics

An quantitative approach, One group pre-test and post-test, pre-experimental design to assess the effectiveness of STP on knowledge regarding prevention of nosocomial infection and hand hygiene among nursing personal in selected hospital Mullana (Ambala). The populations for the study nursing personnel. Accessible Population were nursing personnel working in of

selected hospital, Ambala. The sample size of the study is 120 nursing personnel. Pre-test and Post test method is used. Knowledge questionnaire was used to assess the knowledge of nursing personnel regarding prevention of Nosocomial infection and hand hygiene.

The steps used for data collection were as mentioned below:
*   1. Day 1(20 march 2018): Introduce themselves and the purpose of study to the participants then conducted Pre test to assess knowledge regarding prevention of nosocomial infection and hand hygiene among nursing personnel with using knowledge questionnaires
*   2. Day 2(21 march 2018):   Structured teaching programme on knowledge regarding prevention of nosocomial infection and hand hygiene among nursing personnel had been delivered
*   3. Day 7(27 march 2018):   Post test knowledge regarding prevention of nosocomial infection and hand hygiene among nursing personnel with same tool.
*   The plan for data analysis was developed under excellent direction of the experts in the field of nursing and statistics. The plan for data analysis is as follows:

a) Organizing data on master sheet
b) Computation of frequency, percentage to describe background data and computation of mean, standard deviation (SD), range to describe the data on knowledge scores

c) Classifying knowledge score using mean and standard deviation(SD) in terms of very good, good, average and poor is as follows: A total score was25 consisting of

TABLE NO:1 Level of knowledge score

Level of knowledge scores	Range
Very good	>20
Good	15-20
Average	10-15
Poor	0-10

d) Inferential statistics were used to draw the following conclusion:
1) Paired t test and computation of p value to test the effectiveness of STP
2) Chi-square was used to find the association between pre-test knowledge and selected variables

Findings:
Table No: 2Frequency and percentage distribution of demographic variables

S.no	Sample characteristics	f	%
1	Age		
1.1	21-25 yrs	100	83
1.2	26-30 yrs	10	8
1.3	31-35	8	7
1.4	>36	2	2
2	Education		
2.1	GNM	80	67
2.2	Bsc nursing	40	33
3	Gender		
3.1	Male	10	8
3.2	Female	110	92
4	Experience		
4.1	>1 year	80	67
4.2	1year	30	25
4.3	2year	10	8
5	Area of work		
5.1	General ward	90	76

5.2	ICUs	10	8
5.3	OT	10	8
5.4	Emergency	10	8
6	Designation		
6.1	Nursing officer	100	83
6.2	Senior nursing officer	20	17
7	Have you attend any workshop or programme on infection control		
7.1	Yes	10	8
7.2	No	110	92

Table No.2 Reveals that maximum 100(83%) nursing personnel lie in age group between 21-25 years. Majority of nursing personnel 80(67%)completed the GNM (N) program, maximum nursing personnel 110(92%) were females, maximum nursing personnel 80(67%)had less 1year experience, maximum nursing personnel 90 7%) had general ward experience, maximum nursing personnel 110(92) had not attend any workshop and programme related to infection control.

Table No:3 frequency and percentage distribution of pre test and post test knowledge score

Sr.No	Knowledge score level	Pre test score		Post test scorea	
		f	%	f	%
1	Very good	15	12.5	20	17
2	Good	30	25	60	50
3	Average	50	41	30	25
4	Poor	25	20	10	8

Table No.3 reveals that maximum nursing personnel 50 (41%) performed averagely in pre-test and in post-test maximum nursing personnel 60(50%) had good
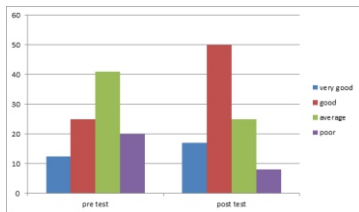
GRAPH NO:1 Bar graph showing frequency distribution of comparison between pre-test and post-test knowledge.

Table No: 4 Mean score of knowledge of staff nurses on prevention of nosocomial infection before and after intervention

Sr.No	Test	Mean +SD
1	Pre test	8.66 +3.001
2	Post test	14.90+2.375

Table No.4 shows overall mean knowledge score before STP was 8.66, standard deviation 3.001 where the after STP mean knowledge score was 14.90, standard deviation 2.375.

Table No: 5 Comparison of knowledge score before and after STP

Sr.No	Test	MEAN+SD	DF	T value	Table value	P value
1	Pre test	8.66 +3.001	49	18.758	2.01	<0.0001
2	Post test	14.90+2.375				

Table 5:-Reveals that calculated paired "t" value (18.758) is greater than tabulated "t" value (t=2.01) hence H1 is accepted. This indicates that the gain in knowledge score is statistically significant at <0.005 levels. Therefore STP on prevention of Nosocomial infection and hand hygiene is effective in improving the knowledge among nursing personnel.

Table No: 6 Association between Pre test Knowledge Score and Demographic Variables

SR.No	Sample characteristics	Mean	df	Chi test	P value
1	Age				
1.1	21-25 yrs	12	3	14.341	.002
1.2	26-30 yrs	3			
1.3	31-35	3			
1.4	>36	2			
2	Education				
2.1	GNM	10	1	10.32	.002
2.2	Bsc nursing	6			
3	Gender				
3.1	Male	17	1	.831	.362
3.2	Female	14			
4	Experience				
4.1	>1 year	10	2	1.82	.362
4.2	1year	9			
4.3	2year	15			
5	Area of work				
5.1	General ward	20	3	14.31	.002
5.2	ICUs	8			
5.3	OT	15			
5.4	Emergency	10			
6	Designation				
6.1	Nursing officer	10	2	1.082	.582
6.2	Senior nursing officer	6			
7	Have you attend any workshop or programme on infection control				
7.1	Yes	10	1	11.8	.001
7.2	No	5			

Table:6 shows that all Demographic variable like age, gender, education, years of experience, area of experience and have attend any workshop and programme on infection had significant association with pre test knowledge score regarding prevention of nosocomial infection and hand hygiene. Hence a hypothesis 2 is accepted.

Major Findings:
- Majority nursing personnel 100(83%) were lie in age group 21-25 yrs
- Majority nursing personnel 80(67%) were completed the GNM (N) program
- Majority nursing personnel 110(92%) were females
- Majority nursing personnel 80(67%) have lessthan1year experience
- Majority nursing personnel 90 (76%) had general ward experience
- Majority nursing personnel 100(83%) had designated nursing officer
- Majority nursing personnel 110 (92%) not attend any type of workshop or programme on prevention of infection.
- Maximum nursing personnel 50 (41%) performed averagely in pre-test
- Maximum nursing personnel 60(50%) had good in post test
- The calculated paired "t" value =18.985 is greater than tabulated "t'value=2.01. Hence H1 is to be accepted. This indicates that the gain in knowledge score is statistically significant at p<0.005 levels. Therefore the Structured Teaching Programme on

prevention of Nosocomial Infection and hand hygiene is effective in improving the knowledge of staff nurses.
- All Demographic variable like age, gender, education, years of experience, area of experience and have attend any workshop and programme on infection had significant association with pre test knowledge score regarding prevention of nosocomial infection and hand hygiene.

DISCUSSION

Antony Rose Aby (2015) The purpose of this research article is to assess the effectiveness of a structured teaching program on knowledge regarding nosocomial infection in newborns among staff nurses working in paediatric and labour units of selected hospitals in Tumkur district. The author conducted a literature search on neonatal nosocomial infections followed by a quasi-experimental study among 60 staff nurses and thoroughly scrutinized the effectiveness of structured teaching programme regarding knowledge on nosocomial infections in newborns. The study also assessed the level of knowledge regarding nosocomial infection in newborns among staff nurses anddetermined the association between pre - test knowledge score on nosocomial infection in newborns with selected baseline characteristics. Analysis was made using various tolls like frequency and percentage, mean, standard deviation, paired 't' test, and chi- square test. The result showed that there is a significant difference with a (paired)'t' value of 23.413 at (p<0.001) levels and it reveals a significant gain in knowledge among staff nurses following the structured teaching programme on nosocomial infection in newborns. If the structured teaching program given effectively it would improve the skills of staff nurses in preventing hospital acquired infections, especially in newborns.3 The present findings from the study were matches with findings from study conducted at Mullana i.e. The majority of participants 100(83%) belongs to age group 21-25 years. In terms of gender maximum number of participants 110(92%) were females. Majority of participants 80(67%) were general Nursing. Majority of participants 80(67%) have 10 month of experience. Majority of participant 100(83%) were work as functional nurse Maximum number of nursing personnel 90(75%) works in general ward. majority of participants110 (92%) were not attend any type of infection control workshop   The calculated paired "t" value, t=18.985 is greater than tabulated "t" value, t=2.01. Hence H1 is to be accepted. This indicates that the gain in knowledge score is statistically significant at P<0.05 levels. Overall pre-test knowledge about prevention of Nosocomial infection and hand hygiene was average. Post test result showed significant improvement in the level of knowledge on prevention of Nosocomial infection.

Nutan Potdar(2016) The majority of participants 32(64%) belongs to age group 21-25 years. In terms of gender maximum number of participants 38(76%) were females. Majority of participants 24(48%) were general Nursing. Majority of participants 19(38%) have 1 year of experience. The calculated paired "t" value, t=18.985 is greater than tabulated "t" value, t=2.01. Hence H1 is to be accepted. This indicates that the gain in knowledge score is statistically significant at P<0.05 levels.2 the present findings from the study were matches with findings from study conducted at Mullana i.e. The majority of participants 100(83%) belongs to age group 21-25 years. In terms of gender maximum number of participants 110(92%) were females. Majority of participants 80(67%) were general Nursing. Majority of participants 80(67%) have 10 month of experience. Majority of participant 100(83%) were work as functional nurse Maximum number of nursing personnel 90(75%) works in general ward. majority of participants110 (92%) were not attend any type of infection control workshop   The calculated paired "t" value, t=18.985 is greater than tabulated "t" value, t=2.01. Hence H1 is to be accepted. This indicates that the gain in knowledge score is statistically significant at P<0.05 levels.

CONCLUSION

Based on the findings of the study the following conclusion was drawn:
- Overall pre test knowledge about prevention of Nosocomial infection and hand hygiene was average.
- There was a need for STP, for nursing personnel on prevention of Nosocomial infection and hand hygiene.
- Post-test result showed significant improvement in the level of knowledge on prevention of Nosocomial infection and hand hygiene, thus it can be concluded that the STP is an effective method of teaching for staff nurses to improve their knowledge regarding prevention of Nosocomial and hand hygiene, improve the safe aseptic technique while caring patient .This study is conducted among nursing personnel to assess the knowledge regarding prevention of nosocomial infection and hand hygiene.

Recommendations: Updating knowledge and practice of nurses through continuing in-service educational programs; emphasizing the importance of following latest evidence-based practices of infection control in continuing education / training program; providing training programs for newly nurses about infection control and at regular intervals; and a replication of this study using observation checklist should be done to assess the level of practice.

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