

# Effectiveness of the structured teaching program on knowledge of the staff nurses regarding Health care associated infection and its prevention in Apollo hospitals Visakhapatnam

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## Abstract:

**Background:** Hospital acquired infections (HAIs) are still the main cause of morbidity and mortality in hospitalized cases and health professions. HAIs come within 48 h or else after hospital admission or within 30 days after discharge. Health care workers (HCWs) are at raising risk of acquiring (HAIs) due to occupational exposure including; exposure to blood and body fluids, direct contact with cases or contaminated environmental surfaces with in the case's surrounding. Proper infection prevention and control with education and training are essential in addressing HAI and its prevention.

**Materials and Methods:** A pre- experimental research design was adopted to find out the knowledge of staff nurses on health care associated infections and its prevention. Apollo Hospitals, Visakhapatnam. A total of 150 staff nurses were selected by using convenience sampling technique. Data were collected by using pre-tested knowledge questionnaire. Data was analyzed by using descriptive and inferential statistics.

**Results:** The structured teaching program was found to be effective in increasing the knowledge of the staff nurses regarding health care associated infections as the calculated "t" value (10.7) is more than the table value (2.3) at o.o5 level of significance. There was significant association between the knowledge of the staff nurses with the demographic variables such as age, education, area of work, experience, and previous training at o.o5 level of significance.

**Conclusion:** Hospital acquired infections are major problem in India. The health care professionals can adopt various training and strategies and impart it to the nursing to reduce the incidence of hospital acquired infections.

**Key Word:** knowledge, staff nurses, health care associated infections, prevention

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## I. Introduction

Hospital acquired infections (HAIs) are still the main cause of morbidity and mortality in hospitalized cases and health professions<sup>1</sup>. Hospital acquired infections stated as happening within 48 hours of hospital admission, 3 days of discharge or 30 days after operation<sup>2</sup>. While WHO estimates about 7-12% HAI burden in hospitalized patients globally, the figure from India are alarming, with an incidence rate varying from 11% to 83% for different kinds of Hospital Acquired Infections<sup>2</sup>. Developing countries have reported to have up to 20 times the danger of contracting a nosocomial infection compared with developed countries<sup>3</sup>. CDC also estimates that 2 million patients suffer from Hospital acquired infections every year<sup>4</sup>. Nurse's lack of knowledge may be a barrier in the prevention of infections<sup>4</sup>. Hence, this study was carried out to assess the current knowledge regarding HAIs among the nursing staff.

## II. Material and Methods

A pre- experimental study was conducted at Apollo Hospitals, Visakhapatnam to assess the knowledge of staff nurses on health care associated infections and its prevention.

**Study Design:** A pre- experimental study with one group pretest and post test design.

**Study Location:** Apollo hospitals, Visakhapatnam

**Study Duration:** 3months

**Sample size:** 150 staff nurses

**Sample size calculation:** The target population from which by using Convenience sampling selected sample was considered 150. We assumed that the confidence interval of 10% and confidence level of 95%.

**Subjects & selection method:** The study population was selected by using convenience sampling technique who was working in Apollo hospitals, Visakhapatnam.

**Inclusion criteria:**

- Both male and female nursing staff.
- Available during data collection
- Those who are willing to participate.

**Exclusion criteria:**

- Those who are not available at the time of data collection
- Those who are working in other units (OT, OPD, CHEMOTHERAPY UNIT)
- Those who are on other roles (Nurse Educator, Quality Nurse, Nurse Supervisor, infection control nurse and In Charge Nurse).

**Procedure methodology**

Formal permission was obtained from the concerned authorities of Apollo Hospitals, Visakhapatnam. The subjects were assembled in the auditorium as per fixed schedule. The purpose of the study was explained to them and consent was taken from the staff nurses.

Pre-test was conducted of 150 respondents by using knowledge questionnaire regarding health care associated infections and its prevention. After the completion of pre-test the respondents were trained regarding health care associated infections and its prevention. All the questions and queries that the subjects had were clarified. post – test was conducted after training intervention. After post-test researcher thanked and appreciated all the subjects for their goodwill.

**Statistical analysis**

The data were analyzed by using descriptive and inferential statistics based on the objectives and hypothesis of the study.

**III. Result**

After post-test data were analyzed by using descriptive and inferential statistics. The following were the results of staff nurses on knowledge of health care associated infections and its prevention.

**Table no-1 Frequency and percentage distribution according to demographic variables**

S.no	Demographic variables	Frequency (f)	Percentage (%)
1.	Age in years		
	A. 20-23 years	65	43.4%
	B. 23-25 years	52	34.6%
	C. 25-30 years	33	22%
2.	Educational level		
	A. GNM	82	54.6%
	B. B.Sc nursing	35	23.4%
	C. PBsc nursing	33	22%
3.	Working experience		
	A. 1-3 years	71	47.4%
	B. 3-5 years	28	18.6%
	C. 5-10 years	51	34%
4.	Area of work		
	A. ICU'S	68	45.4%
	B. Wards	82	54.6%
5.	Gender		
	A. Male	21	14%
	B. Female	129	86%
6.	Have you undergone any training on health care associated infections and its prevention before?		
	A. Yes	64	42.6%
	B. No	86	57.4%

**Table No-1** narrates the frequency and percentage distribution of socio demographic variables of nurses on healthcare associated infections and its prevention. Out of 150 nurses 65(43.4%) were age between 20-23 years, 52(34.6%) were age between 23-25 years and 33(22%) were age between 25-30 years. It is observed that out of 150 nurses 82(54.6%) were GNM, 35(23.4%) were B.Sc nursing and 33(22%) were PBsc nursing. In relation with working experience from 150 nurses 71(47.4%) were having 1-3 years, 28(18.6%) were having 3-5 years and 51(34%) were having 5-10 years of experience. From the above table it was evident that, area work of 150 nurses 68(45.4%) were from ICU's and 82(54.6%) were from wards. The above table reveals that out of 150 nurses 21(14%) were males and 129(86%) were females. In relation to the training on health care associated infections and its prevention before 64(42.6%) were undergone training and 86(57.4%) were not undergone any training.

**Table-2** Frequency and percentage distribution of pre-test and post-test level of knowledge scores of nurses on healthcare associated infections and its prevention

Variable	Level of knowledge	Score	Pre-test		Post- test	
			(f)	%	(f)	%
Knowledge	Poor knowledge (≤50%)	0-10	55	36.6%	0	0
	Average knowledge (51-75%)	11-15	53	35.4%	62	41.4%
	Good knowledge (≥76%)	16-20	42	28%	88	58.6%

**Table-2** shows that poor knowledge of nurses on healthcare associated infections and its prevention 55(36.6%) in pre-test, while in post-test there was no poor knowledge. Regarding average knowledge of nurses on healthcare associated infections and its prevention 53(35.4%) in pre-test, while in post-test 62(41.4%). With aspect of good knowledge of nurses on healthcare associated infections and its prevention 42(28%) in pre-test, while in the post-test 88(58.6%).

**Table-3** Mean, standard deviation and paired 't' test for knowledge scores of nurses on healthcare associated infections and its prevention

Variable	test	f	Maximum score	Mean	SD	paired 't' test	Table value
Knowledge	Pre-test	150	20	13.8	2.86	10.7*	2.3*
	Post-test			16.9	3.34		

**Table-3** The information shows in the table-3 pre-test knowledge scores mean value  $13.8 \pm 2.86$  while in the post-test knowledge scores mean value  $16.9 \pm 3.34$ . From the above table it was evident that structured teaching was effective in improving the knowledge of nurses on healthcare associated infections and its prevention as the calculated 't' value (10.7\*) is higher than the table value (2.3\*) at 0.05 level of significance. Hence  $H_1$  hypothesis was accepted and null hypothesis was rejected.

**Table-4 Association between pre-test knowledge scores of nurses on healthcare associated infections and its prevention with their selected demographic variables.**

S.no	Selected demographic variables	Level of knowledge			Chi-square value	Table value P<0.05	Significance
		Poor knowledge	Average knowledge	Good knowledge			
1	Age in years				16.4 df=4	9.49	Significant
	A.20-23years	33	12	20			
	B.23-25years	12	25	15			
	C. 25-30years	10	16	7			
2.	Educational level				10.5 df=4	9.49	Significant
	A.GNM	28	35	19			
	B. B.Sc nursing	12	14	9			
	C. PBsc nursing	15	4	14			
3.	Working experience				11.5 df=4	9.49	Significant
	A.1-3years	28	24	19			
	B.3-5years	11	4	13			
	C.5-10years	16	25	10			
4.	Area of work				9.7 df=2	5.99	Significant
	A. ICU'S	21	33	14			
	B. Wards	34	20	28			
5.	Gender				4.7 df=2	5.99	Non significant
	A. Male	10	3	8			
	B. Female	45	50	34			
6.	Have you undergone any training on health care associated infections and its prevention before?				9.7 df=2	5.99	Significant
	A. Yes	26	14	24			
	B. No	29	39	18			

**Table-4** presents the association of the pre-test knowledge of nurses on healthcare associated infections and its prevention with their selected demographic variables. The chi square test was carried out to find out the association between pre-test of nurses on healthcare associated infections and its prevention with their selected demographic variables like age, educational level, working experience, area of work, gender, any training on health care associated infections and its prevention before. The calculated values of socio demographic variables of nurses on healthcare associated infections and its prevention such as age (16.4\*), educational level (10.5\*), working experience (11.5\*), area of work (9.7\*), any training on health care associated infections and its prevention before (9.7\*) are more than the table value and thus found to be significantly associated with pre-test knowledge of nurses on healthcare associated infections and its prevention at 0.05 level of significance. Regarding gender the calculated value non significant. Hence the researcher accepted H<sub>2</sub> hypothesis and rejected the null hypothesis. Therefore, it is evident that the pre-test knowledge of nurses on healthcare associated infections and its prevention was influenced by their age, educational level, working experience, area of work, gender, any training on health care associated infections and its prevention before.

#### IV. Discussion

The aim of the study was to assess the knowledge of staff nurses on health care associated infections and its prevention. Apollo hospitals, Visakhapatnam. A pre-experimental research design with one group pre-test was used to evaluate the effectiveness of structured teaching regarding health care associated infections and its prevention.

A total of 150 staff nurses working in Apollo hospitals were selected by using convenience sampling technique. A structured knowledge questionnaire was used to collect the data from the subjects. Pre-test was conducted on the after explaining to the staff nurses purpose of the study. A structured teaching was conducted simultaneously after the completion of pre-test on the first day. Post- test was conducted .After post- test data analysis was done by using descriptive and inferential statistics.

In pre-test knowledge scores mean value 13.8±2.86 while in the post-test knowledge scores mean value 16.9±3.34 and it was evident that structured teaching was effective in improving the knowledge of nurses on healthcare associated infections and its prevention as the calculated 't' value (10.7\*) is higher than the table value (2.3\*) at 0.05 level of significance. The calculated values of socio demographic variables of nurses on healthcare associated infections and its prevention such as age (16.4\*), educational level (10.5\*), working experience (11.5\*), area of work (9.7\*), any training on health care associated infections and its prevention

before (9.7\*) are more than the table value and thus found to be significantly associated with pre-test knowledge of nurses on healthcare associated infections and its prevention at 0.05 level of significance. Regarding gender the calculated value is non significant. The finding of the present study regarding the association of knowledge of staff nurses and demographic variables like age, level of education, training, years of experience is in agreement with the findings of the study by NiniAsfaw (2021) regarding Knowledge and practice of nurses towards prevention of hospital acquired infections and its associated factors.<sup>1</sup>

## V. Conclusion

Hospital acquired infections are major problem in India. The health care professionals can adopt various training and strategies and impart it to the nursing to reduce the incidence of hospital acquired infections.

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