International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

Effectiveness of Structured Teaching Programme on Knowledge Regarding Infection Control Measures among Housekeeping Staff

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Abstract: ***Background: Every year, lives are lost because of the spread of infection in hospitals. Healthcare workers can take steps to prevent the spread of infectious disease. These steps are the part of infection control. Infection control is the discipline which is concerned with preventing health care associated infection. It is vital and essential for safety and well-being of the patients, hospital staff and visitors of the hospital. Objective: To assess the existing level of knowledge regarding infections control measures among housekeeping staff. To evaluate the effectiveness of structured teaching programme on knowledge regarding infection control measures among housekeeping staff. To find out the association between the Pre-test knowledge scores and their selected socio-demographic variables. Methodology: A Quantitative research approach and Quasi experimental (one group pre-test post-test research design) was used. Non probability convenience sampling technique was used to select the samples of housekeeping staff working in Vivekananda Polyclinic and Institute of Medical Sciences, Lucknow. Data was analysed by using descriptive & inferential statistics. Results: In pre-test majority 95.7% samples had inadequate knowledge, 4.3% had moderate and none of them had adequate knowledge. In post-test majority 95.7% had adequate and 4.3% were moderate and none of them had inadequate knowledge. Pre intervention mean knowledge score of study population was 11.41±2.56. Post intervention score was found 26.66±1.71. A change of 15.25 mean knowledge score was observed which was found statistically highly significant. The calculated "t" value was 42.31 at 0.05 level. Conclusion: The study concluded that structured teaching programme was effective in enhancing the knowledge regarding infection control measures among housekeeping staff working in Vivekananda Polyclinic and Institute of Medical Sciences, Lucknow. Hence H_1 was accepted.***

Keywords: Infection control measures, Health care associated infection, Hand washing

1. Introduction

A hospital is the residential establishment which provides short -term and long-term medical care consisting of observational, diagnostic, therapeutic and rehabilitative services for persons suffering or suspected to be suffering from a disease or injury and for parturients.[1] Every year, lives are lost because of the spread of infections in hospitals.[2]An infection is the entry and multiplication of an infectious agent in tissue of the host. Infectious agent may be bacteria, virus, fungus, spirochetes or other micro-organisms may produce infection under favorable circumstances of the host, and the environment.[3]Infection is one of the leading causes of preventable death in hospital every year. At any time over 1.4 million people, worldwide are found to be suffering from infectious complication acquired in healthcare setting. [4]

Hospital is one of the most likely places for acquiring an infection, because it harbours a high population of micro-organisms, some of which are resistant to certain antibiotics, which may lead to hospital acquired infections.[5]Hospital acquired infection is the major global safety concern for both patients as well as the heath care professional.[1]Hospital-acquired infection, also known as Healthcare-Associated Infection (HAI), are Nosocomially acquired infection that are typically not present or might be incubating at the time of admission. These infections are usually acquired after hospitalization and manifest 48 hours after admission to the hospital.[6]

The US Centre for Disease Control and Prevention identifies that nearly 1.7 million hospitalized patients annually acquire HCAIs while being treated for other health issues and that more than 98, 000 of these patients (one in 17) die due to HCAIs.[7] A major concern for health practitioners is the danger of spreading micro-organism from person to person and from place to place.[8]

Infection control is the discipline which is concerned with preventing health care associated infection. It is vital and very essential for the safety and well-being of patients, hospital staff and visitors of the hospital[5].The World Health Organization (WHO) launched the Global Patient Safety Challenge: Clean Care is Safer Care campaign to raise awareness and provide guidance in combating HCAIs in resource limited settings.[9]A cornerstone of the program is to decrease HCAIs through improving hand hygiene among healthcare workers. While the WHO campaign has outlined a framework, hand hygiene adherence continues to be problematic even though it is a simple and highly effective measure to reduce HCAIs.[10] Universal precautions are simple standards of infection control practice to be used in the care of all patients, at all times, to reduce the risk of transmission of blood borne infections. They include careful handling and disposal of "sharps", hand washing with soap and water before and after all procedures, use of protective barriers such as gloves, gowns, masks, goggles for direct contact with blood and other body fluids, proper disinfection of instruments and other contaminated equipment's and proper handling of soiled linen.[11]

Health care is a team effort. Each health care provider is like a member of the team with special role. "Health workers" which includes the providers of health services such as doctors, nurses, pharmacists, laboratory technicians, as well as management and support workers in healthcare settings such as finance officers, administrators, cooks, driver, cleaner and security guard.[12]

Health care providers such as doctors, nurses, technicians, and patient helpers, sanitary workers involved in direct or indirect patient care are always exposed to professional hazard predominantly the biological hazards due to working environment.[13]

Housekeeping is a support service department in a hospital, which is responsible for cleanliness, maintenance & aesthetic upkeep of patient care areas, public areas and staff areas. Housekeeping services in a hospital is entrusted with maintaining a hygienic and clean hospital environment conducive to patient care. The hospital housekeeping services comprises of the activities related to cleanliness, maintenance of hospital environment and good sanitation, disposal of waste using appropriate method services for keeping premises free from pollution.[14]

Hence, healthcare workers must know the various measures regarding infection control measures to ensure an infection free and safe environment, They should improve organization of work, implement standard precautions and dispose biomedical waste properly to prevent occupational exposure. Thereby identifying existing knowledge among healthcare workers is a key step in developing policies, procedures and activities which aim to prevent or minimize the risk of transmission of infection to self as well to the patients and improvement of quality care.

Objectives of the Study

1) To assess the existing level of knowledge regarding infection control measures among housekeeping staff.
2) To evaluate the effectiveness of structured teaching programme on knowledge regarding infection control measures among housekeeping staff.
3) To find out the association between Pre-test knowledge scores and their selected socio-demographic variables.

Hypothesis of the study

The hypothesis tested at 0.05 level of significance

- H_1- There is a significant difference between mean Pre - test and mean Post-test knowledge score regarding infection control measures among housekeeping staff.
- H_2-There is a significant association between the Pre-test knowledge scores and their selected socio-demographic variables.

2. Material and Method

A Quantitative research approach and Quasi experimental (one group pre-test post-test research design) was used. 70 Housekeeping staff from Vivekananda Polyclinic and Institute of Medical Sciences, Lucknow were selected by usingNon probability convenience sampling technique.Data was collected by Structured Interview Schedule.

Analysis and interpretation

This chapter deals with the analysis and interpretation of the data collected from the housekeeping staff. Descriptive and Inferential statistics were used for this purpose. The analysis was done based on the objectives of the study:

Organization of the findings after the final study

The Finding was presented under the following section on the basis of objectives and Hypothesis.

Section I: Frequency and percentage distribution among housekeeping staff with their selected socio-demographic variables.

Section-II: Assessing the existing level of knowledge regarding infection control measures among housekeeping staff.

Section III: Evaluate the effectiveness structured teaching programme on knowledge regarding infection control measures among housekeeping staff.

Section IV: Associate the pre- test knowledge scores with their selected socio- demographic variables.

Section-I: Frequency and Percentage distribution among housekeeping staff and their selected demographic variables.

Table 3: Socio-demographic variables of housekeeping staff

S.No	Socio-Demographic Variables		Frequency	Distribution
			F	%
1	Age in years	18-27	8	11.4
		28-37	22	31.4
		38-47	15	21.4
		≥48	25	35.7
2	Gender	Male	33	47.1
		Female	37	52.9
3	Education	Illiterate	48	68.6
		Primary	19	27.1
		Secondary	3	4.3
		Others	Nil	Nil
4	Working area	Ward	47	67.1
		OPD	10	14.3
		OT	2	2.9
		Others, Specify	11	15.7
5	Experience	≤1 year	21	30.0
		2 years	8	11.4
		3 years	1	1.4
		≥ 4 years	40	57.1
6	Previous knowledge	Yes	70	100
		No	0	0.0
	Source of previous knowledge	Training	51	71.6
		Friends	1	1.5
		Clinical experiences	17	25.4
		Others, if any	1	1.5

Section-II: Assessing the existing level of knowledge regarding infection control measures among housekeeping Staff.

Table 4: Existing level of knowledge regarding infection control measures among housekeeping staff

S.no	Level of knowledge	Frequency	Percentage (%)
1	Inadequate (<50)	67	95.7
2	Moderate (51-73 %)	3	4.30
3	Adequate (74 %)	0	0.00

Section-III: Evaluate the effectiveness of structured teaching programme.

H_1- There is significant difference between mean Pre -test and mean Post-test knowledge score regarding infection control measures among housekeeping staff.

	Inadequate		Moderate		Adequate		Mean±SD	Mean Difference	't' value	'P' value
	N	%	N	%	N	%				
Pre- test	67	95.7	3	4.3	0	0	11.41±2.56	15.25	**42.31***	<0.001
Post- test	0	0	3	4.3	67	95.7	26.66±1.71			

* Significant

Table 6: Reveals that majority, 95.70 % samples had inadequate knowledge, 4.30% had moderate knowledge and none of them had adequate knowledge in pre- test, whereas in post-test knowledge level had improved from inadequate and moderate to moderate 4.30% and adequate 95.70%. A statistically significant change in mean knowledge score of housekeeping staff was observed after intervention of structured teaching programme. The pre intervention mean knowledge score of study population was 11.41±2.56 after intervention it was found to be 26.66±1.71, a change of 15.25 in knowledge score was observed which was found to be statistically significant. The calculated 't' value is 42.31 is more than the tabulated value 2 is highly significant at p <0.05 level, Hence it concluded that structured teaching programme on knowledge regarding infection control measures was effective. **Hence, H_1 Hypothesis was accepted.**

Section-IV: Association between the pre-test knowledge scores and their selected socio-demographic variables

In order to determine the association between the pre-test knowledge scores and their selected socio-demographic variables, the following hypothesis was formulated.

H_2-There is a significant association between the Pre-test knowledge scores and their selected socio demographic variables.

The data was analysed by using Chi-square test. The findings are represented in following table

Socio demographic variables		Pre test				$\chi 2$ test value	df	p-value
		Inadequate		Moderate				
		N	%	N	%			
Age in years	18-27 years	8	11.42	0	0.00	1.874	3	0.599
	28-37 years	21	30.00	1	1.42			
	38-47 years	15	21.40	0	0.00			
	≥48 years	23	32.80	2	2.85			
Gender	Male	33	49.30	0	0.00	NA	1	0.242#
	Female	34	47.14	3	4.28			
Education	Illiterate	46	65.71	2	2.85	0.18	2	0.914
	Primary	18	25.71	1	1.42			
	Secondary	3	4.28	0	0.00			
	Other, specify	0	0.00	0	0.00			
Working area	Ward	44	62.85	3	4.28	1.534	3	0.674
	OPD	10	14.28	0	0.00			
	OT	2	2.85	0	0.00			
	Other , specify	11	16.40	0	0.00			
Experience	≤1 year	19	27.14	2	2.85	2.119	3	0.548
	2 years	8	11.42	0	0.00			
	3 years	1	1.42	0	0.00			
	≥4 years	39	55.71	1	1.42			
Previous knowledge	Yes	67	100	3	4.28	NA		NA
	No	0	0.00	0	0.00			
Source of previous knowledge	Training	48	71.60	3	4.28	0.168	3	0.761
	Friends	1	1.50	0	0.00			
	Clinical experience	17	25.40	0	0.00			
	Any other specify	1	1.50	0	0.00			

The findings of the Chi square test shows that there was no association between Pre-test knowledge score with their selected demographic variables. **Hence H_2 Hypothesis was Rejected.**

3. Discussion

The major findings of the study are discussed as following according to the objectives of the study and hypothesis

Section I: Frequency and percentage distribution among housekeeping staff with their selected socio-demographic variables.

Section-II: Assessing the existing level of Knowledge regarding infection control measures among housekeeping staff.

Section III: Evaluate the structure teaching Programme on knowledge regarding infection control measures among housekeeping staff.

Section IV: Associate the pre- test knowledge Scores with their selected socio- demographic variables.

Section I: Frequency and percentage distribution among housekeeping Staff with their selected socio-demographic variables.

Out of 70 housekeeping staff (35.7%) were in the age group of ≥48 years, (31.4%) were in the age group of 28-37 years, (21.4%) were in the age group of 38-47, (11.4%) were in the group of 18-27 years. The majority of (52.9 %) were females and (47.1%) of housekeeping staff were males. The majority of the housekeeping staff (68.6%) were illiterate, (27.1%) had completed primary education and (4.3%) had completed secondary education. The majority of the housekeeping staff (67.1%) were working in ward, (15.7%)were others, (14.3%) were in OPD and (2.9%) were in OT. Majority of housekeeping staff were (57.1%) had ≥ 4 years of experience, (30%) ≤1 year experience, were (11.4%) had 2 years' experience and (1.4 %) had 3 years' experience. (100%) housekeeping staff had previous knowledge regarding infection Control measures. The majority of (71.60%) housekeeping staff had source of information from training, (25.40 %) had from clinical experience, (1.50%) had from friend and (1.5 %) had from others.

The above study findings were consistent with Attar S, Bahirat K, Bhosale S, Desai R, Deshmukh S. Fulzele E, et al., (2017) who had conducted a descriptive study to assess the knowledge regarding universal safety precaution among class IV workers of Smt. Kashibai Navale Medical College and General Hospital Narhe, Pune. Non-experimental exploratory descriptive research design was adopted. The samples were selected by Non probability purposive sampling technique, consisted of 100 class IV workers. The study findings revealed that majority of (53%) were in the age group of 25 to 35 years, (67 %) were males (6 %) had more than 10 years' experience, (66%)were working in ward.

Section-II: Assessing the existing level of Knowledge regarding infection control measures among housekeeping Staff.

In this present study the researcher observed that in pre- test majority (95.70%) sample had inadequate knowledge, (4.30 %) had moderate knowledge and none of them had adequate knowledge

The above study findings were consistent with, **Lopchan M, Gurung G, Rajbanshi L, Osti C, Baniya A**., **(2016)** had conducted a Quantitative research approach on knowledge and attitude towards infection control among supporting staffs of Chitwan Medical College, Bharatpur, Chitwan. The data were collected by Structured administered interview questionnaire. The findings of the study revealed that, majority of (85%) samples had lack of knowledge and only (15%) answered correctly, (57%) demonstrated poor and (43%) respondents demonstrated good knowledge regarding final disposal of the sharp instruments and needles and only (73%) reported that all containers refuse should be carried out separately for the final disposal. Hence the infection control measures necessary to improve the knowledge of supportive staff.

Section III: Evaluate the structured teaching Programme on knowledge regarding infection control measures among housekeeping staff.

After giving structured teaching programme the knowledge level had been improved from inadequate to moderate (4.30 %) and adequate (95.70%). The pre intervention mean knowledge score of study population was 11.41±2.56 after intervention it was found 26.66±1.71, a change of 15.25 in knowledge score was observed which was found statistically significant. The calculated 't' value is 42.31 is more than the tabulated value 2 is highly significant at p value 0.05 level. This indicate there was a significant difference between pre-test and post- test knowledge score. Hence it was concluded that the structured teaching programme was effective in enhancing the knowledge among housekeeping staff regarding infection control measures. so the H_1 was accepted.

The above study findings was consistent with **Rashmi Vijaya, Ankita Sharma, et al, . (2020) who had conducted** a Quantitative research to assess the effectiveness of structured training programme on infection control measures among housekeeping workers in selected Intensive Care Units at Tertiary Hospital. The sample consists of 31 housekeeping staff, the Data was collected by using a subject data sheet, knowledge assessment questionnaire, and practice assessment checklist. The study finding revealed Majority (67.7%) of the subjects had poor knowledge, while (32.3%) of them had good knowledge. After intervention, majority (51.6%) had good knowledge scores, while (32.3%) of them had excellent knowledge scores. The study concluded that the structured training programme was effective in improving the knowledge and practice of housekeeping workers regarding infection control measures.

Section-IV: Association between the pre-test knowledge Scores with their selected demographic variables

Chi square test was used to find out the association between pre- test knowledge scores with their selected socio demographic variables. The finding of the chi square test shows that there was no association between the pre-test knowledge scores with their specific socio demographic variables such as, Age (X^2 =1.874), Gender (X^2 =NA), Education (X^2 = 0.18), Working area (X^2 =11.53), Experience (X^2 =2.11), Previous knowledge (X^2 =NA), Source of previous knowledge (0.16) . In all variables calculated value of chi square were less than tabulated values at 0.05 level of significance. Hence the H_2 was Rejected.

The above study findings was consistent **with Abuduxike G, Vaizoglu SA, Asut O, Cali S., (2019)** who had conducted a cross sectional study on knowledge, attitude, practice towards standard precaution among health care workers from a hospital in Northern Cypru. The samples were selected by purposive sampling technique consist of 233 heath care workers including doctors, pharmacist, nurse laboratory technician, pharmacist, physiotherapist, administrator, driver and cleaning staff. The study finding revealed most of the health care workers socio demographic variables such as gender, work experience had no significant relationship with their knowledge , attitude, practice.

4. Limitation of the study

The study was limited to;

- Sample size 70 only
- Reinforcement could not be carried out due to time resistance
- Samples were only from Vivekananda Polyclinic & Institute of Medical Sciences, Lucknow.

Nursing implication

Any research work has its worth when it is applied for the benefits of public. The findings of the study have implication in the field of Nursing education, Nursing practice, Nursing administration and Nursing research.

Nursing administration

- Nursing administration should take initiative in guiding nursing personal to teach Universal precautions and its benefits.
- Continuous quality assessment can be done by the hospital authority on the quality of health education provided to the housekeeping staff.
- Plan In- service education to all employees including housekeeping staff and displaying pamphlet, Hand-out and booklets regarding infection control measures.

Nursing education

- The nursing curriculum should be strengthened by adding new and updated information about infection control measures
- The nurse can work as a health educator and arrange structured teaching programme, Information booklet.

Nursing practice

- The nurse should educate and demonstrate the methods of barrier technique and make them do demonstrations.

Nursing research

- There is need of nursing research to be conducted on various aspects of infection control measures among health care workers.
- There should be adequate funds to encourage nurse researchers towards infection control measures.
- The finding of the study can be practiced in their professional life, as to be part of preventing complication from improper infection control practice.

5. Recommendations

On the basis of findings the following recommendations have been made for further study;

- The following study can be replicated on large samples, there by the findings can be generalized for large group
- Similar studies can be conducted as comparative study for large groups regarding infection control measures
- Similar studies can be conducted as video teaching programmes on knowledge regarding infection control measures.

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