

# Assess The Effectiveness Of STP On Knowledge Regarding Indwelling Catheter Care Among Staff Nurses Working At Tertiary Care Hospital

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## Abstract:

**Background:** Urinary catheterization is a common procedure for both hospital and community patients. National Healthcare Safety Network (NHSN) reported that UTIs are the most common type of healthcare-associated infections. Among UTIs acquired in the hospital, approximately 75% are associated with a urinary catheter. Therefore early recognition of complications and arresting their progression especially in the high risks patients are essential. The aim of the study was to assess the effectiveness of structured teaching programme (STP) on knowledge regarding indwelling catheter care among staff nurses.

**Material and Methods:** A quasi-experimental pretest-posttest control group research design was used to assess the effectiveness of STP on knowledge regarding indwelling catheter care among staff nurses. The study consisted of 300 staff nurses, 150 in each experimental and control group and was selected by non-probability convenience sampling technique. Structured knowledge questionnaire was used to assess the knowledge of staff nurses. Data analysis was done by the using of both descriptive and inferential statistics.

**Findings:** Majority 179 (59.66%) of staff nurses were male and 35.66% were between the age group 25-27 years. The mean pre-test knowledge score was in experimental group  $21.64 \pm 2.745$  and control group  $21.23 \pm 2.623$  respectively. The level of knowledge regarding indwelling catheter of subjects who were exposed to STP was significantly higher than the control group.

**Conclusion:** the study concluded that STP was effective in increasing the knowledge on indwelling catheter care as computed 't' test was significant at 0.05 level of significance.

**Keywords:** Educational Programme, knowledge, Indwelling catheter care and Staff nurses

## I. INTRODUCTION

Hospital Acquired Infection (HAI) is considered one of the most serious and complex health problems worldwide for patient. The problem of HAIs becomes more serious in developing countries with limited resources and inadequate government budgetary allocation for health care. The incidence of hospital acquired infections in patients admitted to acute care hospitals found that 40% of nosocomial infections occur in the urinary tract, and greater than 80% of these infections are secondary to indwelling urethral catheters.

It has been estimated that each year, more than 13,000 deaths are associated with UTIs.

According to CDC guideline of January 2015, CAUTI can lead to complications such as prostatitis, epididymitis and orchitis in males, and cystitis, pyelonephritis, gram-negative bacteremia, endocarditis, vertebral osteomyelitis, septic arthritis, and meningitis in all patients.

Advances in catheter designs and material technology have helped to reduce complications and can improve long-term catheter management. To minimize the risk of complication staff nurses plays an important role.

Nurses insert and manage catheter, yet studies have shown that most nurses have limited scientific knowledge in the area of catheter and their care.

Centre for Disease Prevention and Control (CDC) recommended that educating health care workers regarding infection control measures is the highest priority to prevent and control HAI's like CLABSI, CAUTI, and VAP etc. Although catheterization is a common procedure, a high level of nursing knowledge and practice is required to achieve effective and safe management.

## II. METHODOLOGY

A quasi-experimental research was conducted to determine the effectiveness of structured teaching programme on catheter care in patients with indwelling catheter among staff nurses working in teaching hospital. A total of 300 staff nurses, 150 in each experimental and control group were selected with convenient sampling technique. To collect data, the structured knowledge questionnaire was developed. Structured knowledge questionnaire consisted of two parts. Part-I included information on age, gender, religion, education, and professional experience; and, in Part-II, there were 43 questions under three main categories related to indwelling catheter care. All the questions were multiple-choice questions.

A structured teaching programme was developed regarding indwelling catheter care for staff nurses. Content validity was obtained by giving it to seven experts from the field of medical and nursing. Reliability of the structured knowledge questionnaire was established by test-retest method and by using coefficient correlation, which was found 0.96. Hence, the tools were found reliable.

Data were collected after obtaining formal permission from administrative officer and nursing superintendent. A written consent was obtained from the study participants after explanation about the purpose and usefulness of the study and assurance about the confidentiality of their responses. In two weeks knowledge were pretested among control and experimental group and on day 15-17 structured teaching programme on indwelling catheter care was delivered for experimental group. In two weeks, post-test was done for both experimental and control group. The data were analyzed by descriptive and inferential statistics using Microsoft excel sheet and EP-Info.

## III. RESULTS

Sample characteristics	Experimental group n = 150		Control group n = 150		Total	
	f	%	f	%	F	%
Age (in years)						
21-23	23	15.33	26	17.33	49	16.33
23-25	37	24.66	38	25.33	75	25
25-27	58	38.66	49	32.66	107	35.66
>27	32	21.33	37	24.66	69	23
<b>Gender</b>						
Female	58	38.66	63	42	121	40.33
Male	92	61.33	87	58	179	59.66

PROFESSIONAL QUALIFICATION	88	58.66	83	55.33	171	57
N	39	26	41	27.33	80	26.66
GNM	23	15.33	26	17.33	49	16.33
PB B.Sc. (N)						
B.Sc. (N)						
TOTAL YEARS OF EXPERIENCE	24	16	27	18	51	17
<1 year	34	22.66	36	24	70	23.33
1-3 years	59	39.33	51	34	110	36.66
3-5 years	33	22	36	24	69	23
>5 years						
<b>Religion</b>	98	65.33	92	61.33	190	63.33
HINDU	33	22	36	24	69	23
Muslim	19	12.66	22	14.66	41	13.66
Christian						
<b>Attended any CNE programme</b>	87	58	82	54.66	169	56.33
Yes	63	42	68	45.33	131	43.66
No						

Table 1: demographic profile of study participants

N = 300

Group	Pre-test			Post-test			Paired 't' value
	Mean	SD	Median	Mean	SD	Median	
EXPERIMENTAL	21.64	2.745	21	33.14	5.82	34.5	28.047
CONTROL	21.23	2.623	21	21.19	2.58	21.5	1.227

Table 2: Mean, standard deviation, median, and paired 't' value of pre-test post-test knowledge scores of staff nurses in experimental and control group

The data presented in Table 2 shows that the mean pre-test knowledge score is 21.64 with S.D  $\pm 2.745$  in experimental group and 21.23 with S.D.  $\pm 2.623$  in control group. Both the groups had median score of 21. The mean post-test knowledge score is 33.14 with standard deviation  $\pm 5.82$  and median of 34.5 in experimental group and 21.19 with standard deviation  $\pm 2.58$  and median of 21.5 in control group.

N = 300

Group	mean gain	Standard deviation	Mean D	Standard Error of Mean	't'	p value
Experimental group	11.50	5.022		0.410		
Control group	0.04	0.399	11.540	0.033	28.056	0.000

Table 3: Gain knowledge mean, standard deviation, mean difference, standard error of the mean and 't' value of post-test knowledge scores of staff nurses among experimental and control group on indwelling catheter care

The data presented in Table 3 shows that modified mean gain in knowledge score of experimental group is 11.5 and which is apparently much higher than that of control group (0.04). The statistical significance of the difference was computed and the 't' (298) = 28.056, is found highly significant at 0.05 level.

#### IV. DISCUSSION

The major findings of the study have been discussed with reference of the objectives and hypotheses stated and with findings of other related studies for the possible explanation. Maximum number of staff nurses belonged to the age group of 21-25 years. Majority of staff nurses had 1-5 years of working experience. Similar findings were observed regarding the age group and total nursing experience in a study conducted by Alyson W.<sup>7</sup> in which it was seen that 62% of nursing staff included in the study were below 26 years of age and had below five years of experience.

With regards to the findings related to effectiveness of STP revealed that the mean posttest knowledge scores of staff nurses who have attended STP was significantly higher than their mean pretest knowledge and practice scores 't' (149) = 28.047 and 't' at 0.01 level of significance whereas, there was no significant difference between mean pretest and posttest knowledge scores of control group 't' (149) = 1.227 at 0.05 level of significance. The mean gain in posttest knowledge scores of staff nurse was significantly higher than the control group as evident from 't' value of 28.056 at df (298) at 0.01 level of significance. Hence, STP was found to be an effective strategy to improve the knowledge of staff nurse regarding indwelling catheter care. Stein et al. conducted randomized controlled trial to determine the effects of an educational programme on NSAID use and they had also reported that education programme was effective in improving knowledge of health personnel. The findings from another study regarding planned diet programme on prevention of recurrence of renal calculi, which was found to be effective in increasing the knowledge. Similarly studies have reported that regular educational programmes are effective in enhancing knowledge of nurses.

There is significant association between the level of knowledge of staff nurses regarding catheter care with their selected socio demographic variables like Educational qualification, and Attended CNE programme but not with age, gender, religion and experience. Findings of this study was consistent with a study<sup>11</sup> conducted by Arati V, Williamson SN, Gupta S. on Knowledge and practice of nursing staff about the infection control measures which was found no significant association between the level of knowledge of staff nurses regarding catheter care with their selected socio demographic variables like age, gender and professional experience.

#### V. CONCLUSION

The analysis of findings concluded that STP is an effective method to increase the knowledge of staff nurses on indwelling catheter care as the computed 't' test was significant at 0.01 level of significance. The pre-test practice scores of staff nurses were found to be dependent of their selected personal variables like qualification and attended CNE.

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