Original Article

Assess the Effectiveness of Educational Program on Practice Regarding Indwelling Catheter Care among Staff Nurses at Selected Hospitals in Udaipur

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Abstract

Background: Hospital-acquired infection is considered one of the most serious and complex health problems worldwide. One of them is a urinary tract infection. There are several complications which are associated with an indwelling catheter that increases the chances of patient's morbidity and mortality. Therefore, early identification of complications and preventing their progression, especially in the high-risk clients is essential. The present study was conducted with the aim of assessment of the effectiveness of an educational program on practice regarding indwelling catheter care among staff nurses.

Materials and Methods: The effectiveness of educational program on practice regarding indwelling catheter care among staff nurses was assessed through a quasi-experimental pretest-posttest control group research design. The study consisted of 300 staff nurses, 150 in each experimental and control group and was selected by non-probability convenience sampling technique. To assess the practice of staff nurses, structured observation checklist was used. Both descriptive and inferential statistics were used for data analysis.

Results: Majority 171 (57%) of staff nurses were having GNM qualification and 58.66% were between the age group of 25 and 29 years. The mean pre-test practice score was in experimental group 12.24 ± 1.39 and control group 12.21 ± 1.44, respectively. Subjects who were exposed to the educational program had significantly better practice scores than that of the control group.

Conclusion: The conclusion of the study is that the educational program was an effective method to improve the practice regarding indwelling catheter care as computed *t*-test was significant at 0.05 level of significance.

Keywords: Educational program, effectiveness, indwelling catheter care, practice, staff nurses

Introduction

One of the most common types of hospital-acquired infection is urinary tract infection (UTI), accounting for more than 40% of all nosocomial infections.[1] Virtually, all health-care-associated UTIs (CAUTIs) are caused by instrumentation of the urinary tract. CAUTI has been associated with increased morbidity, mortality, hospital stay, and treatment cost. The daily risk of bacteriuria with catheterization is 3–10%.[2]

A study results showed that the estimate of the incidence of hospital-acquired infections in patients admitted to acute care hospitals they found that 40% of nosocomial infections occur in the urinary tract, and >80% of these infections are secondary to indwelling urethral catheters.[3]

A study conducted by Smith revealed that catheter-associated complications could be prevented by effective nursing practice.[4]

A prospective questionnaire-based survey concluded that the knowledge regarding indication and preventive measures was suboptimal which indicated that there is a great need of betterment in catheterization practices in hospital and

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education-induced intervention would be the most appropriate effort toward reducing the incidence of CAUTI.[5]

Although catheterization is a common procedure, a high level of nursing practice and practice is required to achieve effective and safe management.[6]

Materials And Methods

The effectiveness of educational program on catheter care in patients with indwelling catheter among staff nurses working in a teaching hospital was determined using quasi-experimental research design. A total of 300 staff nurses, 150 in each experimental and control group were selected with convenient sampling technique. The structured observation checklist was developed to collect the data. The structured observation checklist consisted of two parts. Part-I included information on age, qualification, professional experience, and attended any workshop/conference and, in Part-II, the structured observation checklist consisted of 26 items, namely hand washing, identification of the patient, explaining the procedure, providing privacy, positioning the patient, protecting self and perineal care, and cleaning the first two inches of the catheter.

An educational program was developed regarding the practice of indwelling catheter care for staff nurses.

Tools were sent to seven experts from the field of medicine and nursing to get the content validity. Reliability of the structured observation checklist was established by the split-half method and was found 0.92. Hence, the tool was found reliable.

Formal permission was taken from the administrative officer and nursing superintendent to collect the data. The purpose and usefulness of the study were explained to the participants and written consents were obtained. In 2 weeks, practice was assessed by the control and experimental group and on day 15–17 educational program on indwelling catheter, care was delivered for the experimental group. In 2 weeks, post-practice assessment was done for both experimental and control group. Descriptive and inferential statistics using Microsoft Excel sheet and EP-Info were used for analysis of data [Table 1].

In Table 2, data represented which reveals that the mean pre-test practice score is 12.64 with S.D ±1.394 in the experimental group and 12.21 with S.D. ±1.436 in control group. The mean post-test practice score is 19.82 with standard deviation ±1.893 and median of 20.5 in the experimental group and 12.29 with standard deviation ±1.353 and median of 12 in the control group.

The data presented in Table 3 show that mean gain in practice score of the experimental group is 7.58 and which is apparently much higher than that of the control group (0.08). The significance of the difference was calculated by inferential statistics and t (298) = 39.650 is found highly significant at 0.05 level.

Table 1: Frequency and percentage distribution according to age, professional qualification, years of experience, and attended any workshop/conference of the staff nurses in the experimental and control group

Sample characteristics	Experimental group n=150 f (%)	Control group n=150 f (%)	Total n=300 f (%)
Age (in years)			
21–25	60 (40)	64 (42.66)	124 (41.33)
25–29	90 (60)	86 (57.33)	176 (58.66)
Professional qualification			
GNM	88 (58.66)	83 (55.33)	171 (57)
B.Sc. (N)/PB B.Sc. (N)	62 (41.33)	67 (44.66)	129 (43)
Total years of experience			
1–3 years	58 (38.66)	63 (42)	121 (40.33)
3–5 years	92 (61.33)	87 (58)	179 (59.66)
Attended any workshop/conference program			
Yes	87 (58)	82 (54.66)	169 (56.33)
No	63 (42)	68 (45.33)	131 (43.66)

Table 2: Mean, standard deviation, median, and paired ***t*** value of pretest-posttest practice scores of staff nurses in experimental and control group ***n***=300

Group	Pre-test			Post-test			Paired t value
	Mean	SD	Median	Mean	SD	Median	
Experimental	12.24	1.394	13	19.82	1.893	20.5	72.76
Control	12.21	1.436	12	12.29	1.353	12.00	0.954

Table 3: Mean, mean difference, standard error of the mean, and ***t*** value of post-test practice scores of staff nurses among experimental and control group on indwelling catheter care ***n***=300

Group	Mean gain	$Mean_D$	Standard error of mean	't'	*P* value
Experimental group	7.58	7.533	0.155	39.650	0.000
Control group	0.08		0.110		

Discussion

The findings of the present study have been discussed with reference of the objectives and hypotheses stated and other related studies findings for the possible explanation. Most of the staff nurses belonged to the age group of 25–29 years and the majority of them had 3–5 years of working experience. Similar findings where 62% of nursing staff included in the study were below 26 years of age and had below 5 years of experience were observed in a study conducted by Rosenthal *et al*.[7]

Findings of the study related to effectiveness of educational program revealed that the mean post-test practice scores of staff nurses who have exposed to educational program were significantly higher than their mean pre-test practice scores t (149) = 72.76 and t at 0.01 level of significance, whereas significant difference between mean pre-test and post-test practice scores of control group t (149) = 0.954 at 0.05 level of significance was not seen. The mean gain in post-test practice scores of staff nurse was significantly higher than the control group as evident from t value of 39.650 at df (298) at 0.01 level of significance. Hence, it was found that an educational program would be an effective strategy to improve the practice of staff nurse regarding indwelling catheter care. Stein *et al*. conducted a randomized controlled trial to determine the effects of an educational program on nonsteroidal anti-inflammatory drugs use and they had also reported that the education program was effective in improving the practice of health personnel.[8] The findings of John regarding planned diet program on prevention of recurrence of renal calculi, which was found to be effective in increasing the practice.[9]

The findings related to the practice of the staff nurses regarding catheter care also consisted with the findings of Appolone *et al*., regarding the effectiveness of workshop which was found effective in improving the practice of professionals of epilepsy patients to prevent complications.[10]

The association is found significant between the level of practice of staff nurses regarding catheter care with their selected sociodemographic variables such as a year of experience and attended workshop/conference program but not with age and qualification. This study's findings were consistent with a study carried out by Arati *et al*. on practice and attitudes of nursing staff working in nursing homes and surveyors about the care of catheter which was found no significant association between the level of practice of staff nurses regarding catheter care with their selected sociodemographic variables such as age, gender, and professional qualification.[11]

Conclusion

The analysis of findings concluded that educational program is an effective method to increase the practice 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 on their selected personal variables such as a year of experience and attended CNE.

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