

# Effectiveness of Structured Teaching Programme on Knowledge Regarding colostomy care among Nurses of Selected Wards in Nobel Medical College and Teaching Hospital, Biratnagar

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## Abstract

**Background:** Colostomy is a stoma which is formed after removing the large bowel or colon and is opening in the abdominal wall that's made during surgery. The care of patients with colostomy is a complex, challenging and lengthy process. Nurses who care for colostomy must have knowledge and skills to carry out the procedures with safety and precision.

**Objective:** To assess the effectiveness of Structured teaching programme on colostomy care among Nurses working in Surgical, ICU and post operative Units of Nobel medical teaching college hospital.

**Methods:** Pre experimental study design was conducted in surgical wards, intensive care and postoperative care units of NMTCH. Purposive sampling technique deployed using structured self-administered questionnaire. Data was analysed by SPSS versions 20.0. Descriptive statistics including, frequencies, proportion, mean and standard deviation was demonstrated by using tables, and texts. Inferential statistics like paired t test was used for comparing the mean score of pre-knowledge test score and post-knowledge test score considering  $p < 0.05$  to be statically significant.

**Results:** In pre-test assessment only 13.3% of the respondents had moderate (12-15) knowledge while majority (86.7%) of the respondents had low knowledge (<12) and none of the respondent had high (>15) knowledge Whereas, post-test knowledge of the respondents after educational intervention after one week, half (50.7%) of the respondents had high level of knowledge while one third (33.3%) of the respondents had moderate level of knowledge and nearly one quarter (16%) of the respondents had low level of knowledge regarding colostomy care. The knowledge score gained by respondents in results shows that the mean value of knowledge in pre-test score was  $9.67 \pm 1.30$  and at post-test score was  $13.73 \pm 2.10$ . There is highly statistically significant difference in nurses knowledge pre & post test score reading colostomy.

**Conclusion:** The study concluded that majority of nurses had adequate knowledge after structured teaching programme regarding colostomy care with an obvious statistically significant distinction between pre and post-educational programme.

**Keywords:** colostomy care, knowledge, staff nurses

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## I. Introduction

A colostomy is an opening in the abdominal wall that is made during surgery, which changes normal body function to allow stools to pass after a disease or injury. The end of the colon is brought out through this opening to form a stoma.<sup>1</sup>

Ostomy care was an isolated field until 1950s even in developed countries. International Ostomy Association (IOA) is a non-profit federation of over 60 ostomy associations committed to improving the quality of life<sup>2</sup> whereas in Nepal Ostomy Association was established eight years ago. The aims of the association are to provide counselling before and after surgery.<sup>3</sup> In colostomy and ileostomy surgeries, normal bowel function is interrupted, and waste is passed through the abdominal wall through an opening called a stoma into an appliance that must be emptied periodically.<sup>4</sup>

The purpose of ostomy is to treat and reduce patients pain and discomfort, but in many cases ostomy leads to intensified distress and suffering for patients, and causes severe psychological stress as a result of skin irritation (76%), pouch leakage (62%) and offensive odour (59%).<sup>5</sup> After surgery the emotional distress, along

with physical problems and pain, isolation from others, and fear of death, will inevitably reduce quality of life further in ostomy patients.<sup>6</sup>

The nursing role of caring for ostomy patients has evolved from the bedside nurse to an enterostomal therapist or a nurse clinical specialist with ostomy care experience.<sup>7</sup> Having colostomy does not mean having a lifelong disability. Living well with colostomy can be achieved through patient preparation, education, and planning.<sup>8</sup> Nurses and other healthcare providers can play a key role in the perception and have a significant impact on how patients and their families adjust to the colostomy. However, this role is successful only when nurses are supported by the required knowledge and skills.<sup>9</sup>

According to Coloplast group that the level of the knowledge of the staff nurses about colostomy in the public hospital is unknown. There are additional demographic factors that contribute to the situation. These associated factors include school attended, specialization, sex, age and social background.<sup>10</sup>

According to a study conducted in Egypt the findings revealed that all of nurses had knowledge about the standards regarding-colostomy is at an unsatisfactory level.<sup>11</sup> Studies in Turkey indicated that the majority of nurses, who work with patients with intestinal colostomy, do not have enough knowledge about basic colostomy care and nurses have not accepted ostomy care as one of their responsibilities. Knowledge and skills of nurses affect the quality of patient care and education. Since patient care is one of the nurses' duties, they must have sufficient knowledge to give care for the patients.<sup>12</sup>

The stoma care nurses should have special knowledge and evidenced based practice and be able to access other health professionals therefore, making caregivers and other health staff better equipped to respond to health issues as they emerge. So, this study aims to improve nurse's knowledge regarding care of colostomy.

## II. Material And Methods

Pre experimental (one group pre-test- post-test) study was conducted among staff nurses working surgical ,ICU and post operative wards of Nobel medical college and teaching hospital from September 19-27,2021 . A total of 45 nurses were included in this study who had at least 6 months of working experience.

**Study Design:** Pre experimental (one group pre-test- post-test) design was adopted for the study.

**Study Location:** This study was conducted at Nobel Medical College and Teaching hospital. This setting is chosen due to feasibility and adequacy of sample.

**Study Duration:** 19-27 September ,2021

**Sample size:** 45 staff nurses.

**Sample size calculation:** The sample size was estimated on the basis of a single proportion design. The target population from which we selected our sample was considered 45. We assumed that the confidence level of 95%. The sample size actually obtained for this study was 45 staff nurses with 10% drop out rate.

Sample size will be calculated using the formula:

$$n = 2(Z_{\alpha} + Z_{\beta})^2 \sigma^2 / d^2$$

Where,

$\alpha$  = the selected level of significance i.e., 0.05

$Z_{1-\alpha/2}$  = the value from the standard normal distribution holding  $1 - \alpha/2$  below it i.e., 1.96

$1 - \beta$  = the selected power i.e., 80%

$Z_{1-\beta}$  = value from the standard normal distribution holding  $1 - \beta$  below it i.e., 1.28

Power analysis with 5% level of significance and power 85%

Mean Difference,  $d = \text{Mean} - \text{Mean} 2 = 10.68$

$$SD \sigma = \sqrt{\sigma_1^2 + \sigma_2^2} = \sqrt{7.21^2 + 21.08^2} = 14.1$$

$$n = 2(Z_{\alpha} + Z_{\beta})^2 \sigma^2 / d^2 \\ = 2(1.96 + 1.28)^2 (14.1)^2 / (10.68)^2 = 41.35 = 41$$

Adding 10% for non- response,

$$n = 41 + 4 = 45$$

Total sample size = 45

**Subjects & selection method:** Purposive Sampling Method was adopted for the study. Wards were chosen purposively and the participants meeting the eligibility criteria will be selected using convenience sampling. Nursing staffs who were working in surgery, postoperative and general ICU units, meeting the eligibility criteria.

**Inclusion criteria:** Those who were willing to participate and provide written informed consent, those who have minimum of six months of experience, nurses working in surgical, ICU and post operative wards will be included in this study.

**Exclusion criteria:** Those with less than 6 months of working experiences were excluded from the study

**Procedure methodology:** Data will be collected by means of a self-administered questionnaire comprising of two parts. Part I of the questionnaire will consist of Socio-demographic variables formulated with the help of extensive literature review using various online and offline resources like PubMed, Google scholar, Cochrane, HINARI access and peer review. Part II of the questionnaire will consist of knowledge on colostomy care.

The questionnaire consists of Two Parts.

Part I: It consists of Sociodemographic variable

Part II: It Consists of items that elicit information on knowledge regarding colostomy care. It contains 30-questionnaire related to knowledge on colostomy care. The correct answer was awarded 1 score and incorrect answer were scored as 0 and participants scoring more than 75% will be considered to have good knowledge, 50-75% were considered to have average knowledge and participants scoring less than 50% were considered to poor knowledge. The collected data were analysed using SPSS version 20, for descriptive statistics percentage, mean, standard deviation was calculated and for inferential statistics, paired t-test were used to assess the difference between pre-test and post-test level of knowledge.

Pretesting

The researcher instrument reliability was maintained by pretesting in 10% of the estimated study sample who met the inclusion criteria in similar setting and were excluded from the main study.

Validity and reliability of tool

The content validity of the research instrument was maintained by reviewing the related literature, consulting with subject experts and linguistic professionals. For ensuring reliability, the internal consistency of instrument was established by Cronbach Alpha test with 0.6 reliability coefficient.

**Statistical analysis:** Collected data will be coded and converted into SPSS (Statistical Package for Social Science) version 20 for statistical analysis. For descriptive statistics percentage, mean, median, interquartile range and standard deviation were calculated. For inferential statistics Paired T-test were used to determine the mean difference between pre-test and post-test knowledge. The level  $P < 0.05$  was considered as the cut-off value or significance

### III. Result

**Table no 1: Frequency Distribution of the socio-demographic characteristics of the respondents (n=45)**

Variables	Frequency (N)	Percentage (%)
<b>Age (years)</b>	Mean±Sd =24.4 ±3.3	
<b>Gender</b>		
Female	45	100%
<b>Educational qualification</b>		
Proficiency level	25	55.6%
Bachelor level	20	44.4%
Experience of work (years)	Median(IQR)=2(1-3)	
<b>Working area</b>		
Critical area	22	48.9%
Non-critical area	23	51.1%
<b>Previous Experience of caring colostomy patient</b>		
Yes	10	22.2%
No	35	77.8%
<b>Training in colostomy</b>		
No	45	100%

Table no 1 shows that, more than half (55.6%) of the respondents had proficiency level of nursing education. In relation to working area more than half (51.1%) of the respondents were working non-critical area. In regards to previous experience of caring the colostomy patient majority (77.8%) of the respondents had no any experience of caring colostomy patient.

**Table no 2: Distribution of overall knowledge score (n=45)**

Knowledge score	Pre-Test		Post test	
	Frequency	Percentage	Frequency	Percentage
Low	39	86.7%	15	16%
Moderate	6	13.3%	21	33.3%
High			9	50.7%

Table no 2 shows that ,In pre-test assessment only 13.3% of the respondents had moderate (12-15) knowledge while majority (86.7% )of the respondents had low knowledge (<12) and none of the respondent had high (>15) knowledge Whereas, post-test knowledge of the respondents after educational intervention, half (50.7%) of the respondents had high level of knowledge while one third (33.3%) of the respondents had moderate level of knowledge and nearly one quarter (16%) of the respondents had low level of knowledge regarding colostomy care.

**Table no 3: Distribution of Nurses knowledge Level regarding colostomy care educational program (n = 45)**

Observation	Mean	Mean Difference	Standard Deviation	t value	P- value	Remarks
Pretest score	9.67	-4.06	2.69	-10.04	<b>0.00</b>	<b>Significant</b>
Posttest score	13.73		2.10			

Table no 3 shows that the knowledge score gained by respondents in results shows that the mean value of knowledge in pre-test was  $9.67 \pm 1.30$  and at post-test was  $13.73 \pm 2.10$ . Since the “p” value for the test is 0.05. The calculated ‘t’ value was 10.04 which shows that there was a significant difference between mean pre-test and mean post-test knowledge score. This shows that the obtained mean difference of pre-test and post-test knowledge score was a true difference and not by chance and the p value is less than 0.05. So, it can be concluded that Structured Teaching Program is effective for self-care and management of the colostomy patients.

#### IV. Discussion

Section I: socio-demographic characteristics regarding to colostomy care.

The present study showed that the majority of studied group's age ranged from 24 to 27 with the mean age  $\pm$  SD was  $(24.4 \pm 3.3)$ ; This result in our study may be due to increase the number of diploma nurses than bachelor level of nurses. Further, in line with this a study confirmation was given for in Mohamed, et al., (2017) by the study, which stated that over half of the studied sample age was between 29 and 34 years. Also, the findings of the study by Gem mill, et al. (2015) who reported that most of the sample age study ranged from 20 to 30 years. The results of the current study were contradictory to study conducted by Arun Kadam, et al., (2014) which reported that the majority of samples studied age ranged between 30 and 34 years.

Findings of the current study showed that more than two thirds of the total studied samples were females. This result may be explained by the fact that nursing is a universal feminine profession especially in our society culture. Similar to the findings a study conducted by Betty Lebona et al. (2016) confirms that the bulk of the sample analysed (93.3 %) were female.

Concerning to educational level; the present studied demonstrated that, more than half (55.6%) of the respondents were proficiency level in nursing and about a half of the respondents were Bachelor level in nursing (B.Sc. nursing). Also the result supported finding of study conducted by Hashem & Abusaad (2016) where more than half of nurses were diploma in nursing. But this result disagree with study conducted Betty Lebona, et al., (2016) Who stated that the majority of sample group studied BSc nursing. This result in our study may be due to increase the number of diploma nurses than qualified nurses due to old system of nursing teaching.

Concerning to years of experience current study found that the experience of work of respondents were from 1 to 3 years. In line with the finding a similar study conducted by Lebona etal. (2016) shows that majority (80%) of the respondents had one year of experience of working. In contrast to the finding, a study conducted by Ahmed,etal, (2016) more than half of studied sample experienced more than ten years who stated that more than one third of respondents their experienced more than ten years.

Section II: Assessment of nurse's knowledge level regarding colostomy care.

In pre-test assessment only 13.3% of the respondents had moderate (12-15) knowledge while majority (86.7% )of the respondents had low knowledge (<12) and none of the respondent had high (>15) knowledge Whereas, post-test knowledge of the respondents after educational intervention after one week, half (50.7%) of the respondents had high level of knowledge while one third (33.3%) of the respondents had moderate level of knowledge and nearly one quarter (16%) of the respondents had low level of knowledge regarding colostomy care. The knowledge score gained by respondents in results shows that the mean value of knowledge in pre-test score was  $9.67 \pm 1.30$  and at post-test score was  $13.73 \pm 2.10$ . There is highly statistically significant difference in nurses' knowledge and practice pre & post test score.

Similar to the finding a study conducted by Sharma R (2021) in Homi Bhabha Cancer Hospital, Varanasi among 100 nurses shows that pre-test assessment 68% of the participants had poor (0-5) knowledge while after educational intervention ,62% of the participants gained adequate (11-15) knowledge. ) The

knowledge score gained by respondents in results shows that the mean value of knowledge in pre-test was  $7.21 \pm 1.30$  and at post-test was  $21.08 \pm 1.65$ .

Similar to the finding a study conducted by Pandey & Dhungana (2017) that over half the samples analyzed had a correct response to the definition of colostomy, causes of colostomy, colostomy indication, etc. These observations are similar that two third of the sample responded adequately. There was found to be significant difference between pre-test and post test score about the colostomy care.

Contradictory to the finding a study conducted by Lebona ,Elizabeth and kanaka among 60 nurses in Nellore ,india shows that Level of knowledge regarding colostomy care among staff nurses, 8(53.3%) had inadequate knowledge, 6(40%) had moderately adequate knowledge and 1(6.7%) had adequate knowledge. Shows that with regards to comparison of level of knowledge regarding colostomy crre between staff nurses and student nurses. In staff nurses, the mean value is 17 with standard deviation is 4.2 and nursing students the mean value is 16.3 with standard deviation is 4.3. There was significant difference between pre-test and post test score about the colostomy care. The difference could be due to the provision of CNE and training about the colostomy.

In contrast to finding, the study conducted by Gelta T (2017) among 312 in ADDIS ABABA, ETHIOPIA nursing staff found that about half of nurses (51.3%) had adequate knowledge of colostomy care. The level of knowledge was found to be low in this study, half of respondents were knowledgeable. There was found to be significant difference between pre-test and post test score about the colostomy care.The difference in the findongs could be due to difference in the settings.

In contrast to the findings , a study conducted by Hanaa Abd El-latief shahat Ali, Jehan Sayyed Ali, Sahar Hamza Taha (2020) among 40 nurses in minia university ,the majority (85%) of the studied sample had low knowledge before educational program implementation while, after 3 months of program implementation the majority (85%) had a good knowledge about colostomy care. Also all of study sample had weak performance before educational program implementation while, in post immediately of program implementation more than half of studied sample (52.5%) had accepted performance and after 3 months the majority of them had a good performance about colostomy care. It reflected that Mean  $\pm$  SD in pre-test was  $(26.8 \pm 11.5)$  & in posttest was  $(91.3 \pm 13.7)$  and after 3 months was  $(107.7 \pm 8.09)$  and there was a highly statistical significant respectively .

## V. Conclusion

On the light of the present study results it can be concluded that planned teaching intervention was found to be effective in enhancing nurses knowledge regarding colostomy care. It is recommended for nursing managers to conduct retraining courses and other educational approaches for nurses, so that the quality of patients living with stoma can be improved.

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