Effect of structured teaching guidelines on patient's knowledge, practice, and self-efficacy regarding colostomy care

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Abstract

Background: nurses are primarily health professional who is engaged in the management of colostomized individuals who go through different physical and psychosocial transformations.
Aim: to evaluate the effect of applying structured teaching guidelines on patient's knowledge, practice, and self-efficacy regarding colostomy care.
Hypothesis: application of structured teaching guidelines will have a positive impact on patient's knowledge, practice, and self-efficacy regarding colostomy care. Design: pre-post analytic study.
Setting: the study was carried out in the surgical department, and outpatient clinic at Beni-Suef University hospital and Aswan oncology Hospital.
Sample: A total number of 50 adult patients, both sex, conscious, having a permanent colostomy
Tools: four tools were utilized in this study; Tool I: A structured interview questionnaire sheet which comprised two parts: Part I: Personal characteristics of the studied patients, Part II: Patients` knowledge about colostomy care; Tool II: Patient's Generalized Self-Efficacy Scale; Tool III: An observation checklist (pre/post /follow – up assessment) and Tool IV: The structured teaching Guidelines.
Results: There was a statistically significant distinction between both the study and control group regarding patient's knowledge, practice, and self-efficacy regarding colostomy care.
Conclusion: Application of the structured teaching guidelines had a positive impact on patient's knowledge, practice and self-efficacy regarding colostomy care with an obvious statistically significant distinction between pre and post-intervention.
Recommendations: Replication of the same study on larger probability sample at different geographical locations for data generalizability, and distribution of the booklet for patients with a colostomy to improve their outcomes.

Keywords: *Guidelines; Knowledge; Practice; Self-Efficacy; Colostomy*

1. Introduction

Colorectal cancer (CRC) is considering as a major global health problem because of its high incidence and mortality rates (Favoriti et al., 2016). In the USA, CRC is the third commonest type of malignancy and the fourth leading cause of cancer-related deaths internationally, accounting for approximately one million and forty thousand new cases and about seven hundreds deaths worldwide (Arnold, et al, 2016). In latest many years there has been enormous increase in the prevalence of CRC; specifically, the variety of newly diagnosed CRC cases has increased from seven hundred – eighty-three thousand in 1990 to one million and three hundred sixty-one thousands in 2012 (Ferlay et al., 2015 and Rafiemanesh et al., 2016) . It is envisioned that over forty thousands of the adult United Kingdom population are diagnosed with CRC every12 months. If recognized early CRC is also one of the commonest curable types of cancer with cure rates more than ninety percent. Evidence indicates that the general public of CRCs could be avoided by applying existing knowledge of cancer prevention and by increasing the use of established screening tests (Gulbake, et al, 2016).

Advances in the diagnosis and treatment of CRC have had a major impact on the management of this malignancy. Developments in screening, prevention, biomarker and genomic analysis, stem-cell research, personalized therapies, and chemotherapy have improved detection and mortality statistics. However, regardless of those advances, many patients with advanced and metastatic tumors will still complain from the disease. Further diagnosis and treatment advances are therefore needed (Cutsema, et al, 2013).

A colostomy is defined as a surgical approach that brings one end of the large gut out via the wall of the abdomen. At some point of this technique, one end of the colon is diverted via an incision inside the abdominal wall to make a stoma. A stoma is an outlet inside the pores and skin in which a pouch for accumulating feces is attached. People with temporary or long-term colostomies have pouches connected to their sides where feces collect and can be without difficulty disposed of (Canadian Cancer Society, 2018).

Professional nurses are chargeable for supplying guidance and answering any questions which can assist sufferers in the process of adaptation, and health education activities are an important part of this work in the nursing routine. The role of nurses within the lives of ostomy

patients and their own family members consists of the supply of guidelines and instruments for home care, and encouraging self-care and the consequent independence and autonomy of sufferers, reflecting directly on their quality of life (Mendonça, et al, 2015).

Nurses caring for colostomy patients have a critical role to play in relation to information provision and reassurance. This nursing role inside the management of sufferers with colostomy has come to be increasingly significant inside healthcare provision due to accelerated incidence and occurrence of this condition (Hocevar and Bambrick, 2010)

In the process of health education, the nurse can use information resources and specific material to facilitate verbal exchange and the expertise of sufferers. Nursing and health technologies represent a clear development in care and immediately improve the assistance provided to sufferers and their families. Consequently, these resources may also be useful to help sufferers apprehend certain events and promote quicker adjustments to the changes in patients' experience (Krau, 2015)

Self-efficacy is described as human being's beliefs about their talents to provide exact degrees of overall performance that have an impact on activities affecting their lives. The beliefs decide how people feel, assume, inspire themselves and behave, delivered to manufacturing diverse effects via cognitive, motivation, affective and processes of choosing (Cheng, et al, 2013).

Adaptation to a new life situation continue from a few months up to two years and is conditioned via many elements, which encompass health, possessed knowledge and skills, family support, the support of healthcare workers and self- assist organizations, the possibility to return to their professional and social capabilities (Kózka, et al, 2010).

Aim:

To evaluate the effect of applying structured teaching guidelines on patient's knowledge, practice, and self-efficacy regarding colostomy care.

Research hypothesis:

Application of structured teaching guidelines will have a positive impact on patient's knowledge, practice, and self-efficacy regarding colostomy care.

2. Patients and methods

2.1. Research design pre-post analytic study design was utilized to carry out this study

Setting: the study was executed in the surgical department and outpatient clinic at Beni-Suef University hospital and Aswan oncology Hospital.

Sample: A total number of fifty adult sufferers, both sex, conscious, having a permanent colostomy, agree to participate in the study, with no critical or comorbid conditions. Sufferers included in this study have been taken preoperatively, post-surgical treatment and four months after the surgical operation.

2.2. Tools

Tool I: A structured interview questionnaire sheet was used for data collection. It included two parts:

Part I: Personal characteristics of the studied patients as; (age, gender, marital status, educational level, Body Mass Index and causes of performing colostomy surgery.

Part II: Patients` knowledge about colostomy care; cause of performing stoma, care of stoma, measuring stoma, changing stoma pouch, stoma irrigation, stoma products, foods causing odor or gases, diet change, smell manage, need for sufficient daily water intake, lifestyles change, religious practices, peristomal skin care, stoma complications, sexual preparations, physical activities, traveling preparations, follow – up visits and unusual signs requiring immediate seeking medical advice.

Tool II: Patient's Generalized Self Efficacy Scale (GSES):

The scale was created to assess a general sense of perceived self-efficacy with the aim of predicting the coping with each day hassles in addition to coping strategies after experiencing all types of stressful life events. The scale is designed for the general adult population, including youth. Humans below the age of twelve should no longer be examined. The scale is commonly self-administered, as part of the extra comprehensive questionnaire. It requires four minutes on average.

Scoring system:

Patients` reactions were sorted Likewise follow: 1 = not constantly sure at all, 2 = somewhat confident, 3 = reasonably confident, 4 = profoundly sure Furthermore 5 = greatly certain. Secondary scores allude to certain self-efficacy, I. E., subjective vicinity from claiming capability. With the goal those downright score = 100, inasmuch as less 50 = low (-ve) self-efficacy Also more than 50 = Helter skelter (+ve) self-efficacy.

Tool III: An observation checklist (pre/post /follow – up assessment): Embraced starting with (Kieghley, 2009, Nicol, 2010, and Potter & Perry, 2011). It might have been filled by those scientists with assessing examined patients' homes on connection to colostomy care (Measuring stoma size, purging moreover evolving stoma pouch, stoma irrigation, peristomal pores and skin care, hygienic furthermore activities measures).

Scoring system:

A right act might have been scored concerning illustration (1), same time those inaccurate (zero). It might have been scored under possibly deficiently carried out (less than 70%) alternately enough finished (70% and more). Those aggregate score might have been sorted Likewise palatable = seventy percent, alternately unsuitable = less than seventy.

Tool IV: The structured teaching Guidelines: were designed based on analysis of the actual patients' needs and their level of understanding in pre-assessment by the usage of the pre-designed tools. The content material becomes written in easy Arabic language and regular with the related literature. The theoretical part might have been directed toward lectures, discussions, utilizing information, demonstrate and poster similarly as a networking. The practical part has been directed through demonstration and reshowing. It concerning care of stoma (measuring stoma, changing stoma pouch, stoma irrigation, stoma products, foods causing odor or gases, diet change, smell manage, need for sufficient daily water intake, lifestyles change, religious practices, peristomal skin care, stoma complications, sexual preparations, physical activities, traveling preparations, follow – up visits and unusual signs requiring immediate seeking medical advice).

2.3. Methodology

1) Assessment phase
   a) Administrative stage: Official permissions of data collection and implementation of the study conducted in the surgical department, and outpatient clinic at Beni-Suef University hospital and Aswan oncology Hospital was obtained to facilitate and carry out this study. Oral consent has been obtained from the participants who were involved in the application of the study.
   b) For Protection of Human Rights: The researchers gave clear and simple rationalization of the study nature and its anticipated results to the patients and knowledgeable approximately the privateness in their information, the study was voluntary and harmless. The patient had the full right to refuse to participate or withdraw at any point of the study.
   c) Designing the tools: Three tools were used for data collection. Tools were developed by the researchers after a reviewing of past and current, local and international literature using books, articles, periodicals and magazines to identify with the different aspects of the research problem.
   d) For validity assurance purpose, the tools were submitted to a panel of five experts who reviewed the tools for clarity, relevance, comprehensiveness, understanding, applicability, and the ability for application, minor modifications had been done. The content validity of this tool becomes checked by professional professors in fields of medicine and nursing and correction turned into completed accordingly.
   e) Reliability of the tools (Tool II and Tool III) was performed and calculated statistically. The Cronbach's A values were measured for tool II (Patient's Generalized Self Efficacy Scale) was (A = 0.992), As well the Spearman-Brown values were measured for tool III (Stoma care scale) was (A=0.956).
   f) A pilot study: The pilot study executed on ten percent of nurses (five nurses) to test the study tools for clarity, applicability and time consumed. Some items have been changed in keeping with sufferers' responses during the pilot study and excluded from the study subject.
   g) Every patient was pre-tested in knowledge, performance and assessing the self-efficacy by using tools of data collection before provision of any information in the form of a short session of around half an hour.
2) Implementation phase
   a) Data was collected over a period of 9 months from January to December 2016.
   b) At the initial interview, the researcher introduces herself to provoke line of verbal exchange, explain the nature and cause of the study.
   c) The tools filled through interviews with patients. The cause of the study became explained to the patients before answering the questions. The study became done in morning, and after midday shifts.
   d) Patients have individually filled out the sociodemographic data and pre/ knowledge questionnaire sheet.
   e) The researcher scheduled with them the teaching sessions for both theory and practical parts.
   f) Lectures, discussion, and demonstration, re demonstration, handouts, pictures, and real objects helped in covering theoretical and practical information.
   g) Patients were separated under little assemblies including 5 – 6 patients, also repeated sessions included constantly on patients, each one assembly got 4 sessions (2 theoretical, Furthermore 2 practices).
   h) The theoretical part might have been directed toward lectures, discussions, utilizing information, demonstrate and poster similarly as a networking. It might have been made of two sessions (each session 45 minutes).
   i) The practical part has been directed through demonstration and reshowing. It might have been taken two sessions (each session an hour) concerning care of stoma (measuring stoma, changing stoma pouch, stoma irrigation, stoma products, foods causing odor or gases, diet change, smell manage, need for sufficient daily water intake, lifestyles change, religious practices, peristomal skin care, stoma complications, sexual preparations, physical activities, traveling preparations, follow – up visits and unusual signs requiring immediate seeking medical advice).
   j) The researcher answers any questions and gave feedback. Communication channel was kept open between the researcher and the patients.
3) Evaluation phase
Evaluation has been done immediately following completing the implementation of educational sessions. Follow- up evaluation (six months later) by utilizing the same instruments assessing the effect of organized educating sessions by utilizing the same tools.

2.4. Statistical analysis

Data entry and statistical evaluation have been finished usingSPSS 20.0 statistical software packages. In order to assess the independent predictors of the scores of knowledge, practice, and self-care efficacy, multiple linear regression analysis changed into used and analysis of variance for the full regression models done. Statistical significance has been considered at p-value <0.05.
4) Results:

Table 1: Frequency Distribution of Socio-Demographic Characteristics of Patients in the Study Sample (N=50)

Variables	N (50)	%
Age:		
<30 yrs	12	24.0
+ 30 yrs	38	76.0
Gender:		
Male	30	60.0
Female	20	40.0
Marital status;		
Single	12	24.0
Married	27	54.0
Divorced	8	16.0
Widow	3	6.0
Residence:		
Urban	21	42.0
Rural	29	58.0
Education:		

Illiterate	16	32.0
Read/write	21	42.0
Basic/intermediate	9	18.0
University	4	8.0
Formal education:		
No	37	74.0
Yes	13	26.0
Job:		
Unemployed	17	34.0
Housewife	14	28.0
Employee	6	12.0
Worker	13	26.0
Job status:		
Unemployed	31	62.0
Working	19	38.0
Total	50	100%

Table (1): Illustrated that; more than three-quarters of sufferers their ages were above thirty years old, half of them were males (60%), married, and lived in rural regions. Concerning the educational levels; more than one-third of them (42%) can read and write but they are not working.

Table 2: Frequency Distribution of Study Sample Related to Characteristics of the Stoma (N=50)

Variables	N (50)	%
Indication of stoma:		
Cancer	39	78.0
Another disease	6	12.0
Trauma	5	10.0
Indication of stoma:		
Malignancy	39	78.0
Non-malignancy	11	22.0
Stoma complications:		
Skin redness	48	96.0
Dermatitis	25	50.0
Skin irritation	32	64.0
Skin dryness	18	36.0
Total No. of complications:		
Range	1-4	
Mean ± SD	2.5±1.0	
Median	2.0	
Surgery since:		
6 months	10	20.0
1 year	17	34.0
>1 year	23	46.0
Surgery since:		
<=1 year	27	54.0
>1 year	23	46.0
Stoma type:		
Temporary	2	4.0
Permanent	48	96.0
Total	50	100%

Table (2): Illustrated that; more than three-quarters of patients (seventy-eight percent) carry out colostomy because of malignancy (cancer). Majority of them (ninety-six percent) have skin redness as a common complication of colostomy. Additionally, more than 1/3 of them have executed colostomy for more than twelve months; the majority of them have been performed a permanent colostomy.

Table 3: Frequency Distribution of Study Sample Related to Characteristics of Malignant Disease (N=39)

Variables	N (39)	%
Duration of malignancy (n=39):		
<1 year	7	17.9
1-<5	21	53.8
5-10	9	23.1
>10	2	5.1
Family history (n=39):		
No	17	43.6
Yes	22	56.4
Relation (n=22):		
First degree	17	77.3
Second degree	5	22.7
Have malignancy complications (n=39)	11	28.2
Complications (n=11):		
Lungs	1	2.6
Breast	3	7.7
Liver	5	12.8
Uterus	1	2.6
Prostate	1	2.6

Table (3): Showed that; more than half of sufferers (53.8%) complaining from malignancy from one to five years, and (56.4 %) of them had a family history of malignancy. More than 3/4 of sufferers had a family relation from the first degree. Also, (12.8 %) of sufferers had occurred liver metastasis to them.

Table 4: Frequency Distribution of Study Sample Related to Obesity and Gastrointestinal Problems (N=50)

Variables	N (50)	%
Body mass index (BMI):		
Normal (<25)	35	70.0
Overweight (25-<30)	14	28.0
Obese (30+)	1	2.0
Range	20.3-32.7	
Mean ± SD	24.3±2.4	
Median	23.9	
Diarrhea:		
No	24	48.0
Sometimes	20	40.0
Yes	6	12.0
Constipation:		
No	19	38.0
Sometimes	13	26.0
Yes	18	36.0
Flatulence	39	78.0
Food increasing flatulence (n=39):		
Eggs	28	71.8
Peas	33	84.6
Onion	17	43.6
Cabbage	17	43.6
Garlic	25	64.1

Table (4): clarify that; more 2/3 of sufferers (70%) have a normal Body mass index (BMI). More than 1/3 of them sometimes had diarrhea while (26 %) of them sometimes had constipation. Also, more than three-quarters of patients had flatulence. More than half of sufferers mentioned that eggs and garlic are the most common meals which increase the flatulence.

Table (5): illustrated that there has been a statistically great distinction among the level of patient's knowledge pre and post-test concerning the definition and stoma care. While; there has been a statistically significant distinction among levels of patient's knowledge pre-test and follow up related to complications of colostomy and skin care.

Table (6): Illustrated that; there was a statistically great difference between the level of affected person's knowledge pre and post-test concerning nutrition. While; there was a statistically significant difference between patients' knowledge levels pre-test and follow up concerning fluids, everyday activity, and sexual life. There was a statistically massive distinction between levels of patient's knowledge pre-test and follow up regarding the inadequate level of practice, compliance, and Ineffective self-care.

Table (7): clarify that; there has been a statistically significant distinction among the level of patient's practice pre and post-test and pre-test and follow up concerning Pouch preparation, Old pouch removal, and Stoma irrigation. There has been a statistically significant difference among levels of patient's practice pre and post-test and pre-test and follow up concerning the inadequate level of practice.

Table (8): Illustrated that; there has been a statistically great distinction among the time of evaluation (pre, post-test and follow up) and patient's knowledge, dressing, daily activities, sexual life, and self-care.

Table (9): Illustrated that; there was a statistically great distinction among the time of evaluation (pre, post-test and follow up) and patient's practice regarding Pouch preparation, Pouch removal, Pouch emptying, and Stoma irrigation. And overall Total observed practice.

Table (10): Illustrated that; there was not a statistically significant distinction among the level of patient's knowledge and their sociodemographic characteristics or their body mass index. While there has been a statistically great distinction among the level of patient's knowledge and duration since performing colostomy surgery.

Table (11): demonstrated that; there has been a statistically massive distinction among the level of patient's knowledge and Regular follow-up.

Table 5: Knowledge about Stoma among Patients throughout Intervention

Knowledge of stoma:	Time						X^2 (p-value) Pre-post	X^2 (p-value) Pre-FU
	Pre		Post		FU			
	No.	%	No.	%	No.	%		
Definition	29	58.0	44	88.0	30	60.0	11.42 (0.001*)	0.04 (0.84)
Complications	5	10.0	41	82.0	29	58.0	52.17 (<0.001*)	25.67 (<0.001*)
Skin care	16	32.0	42	84.0	29	58.0	27.75 (<0.001*)	6.83 (0.01*)
Stoma care	32	64.0	44	88.0	38	76.0	7.89 (0.005*)	1.71 (0.19)
Satisfactory	13	26.0	42	84.0	30	60.0	33.98	11.79
Unsatisfactory	37	74.0	8	16.0	20	40.0	(<0.001*)	(0.001*)

(*) Statistically Significant At P<0.05.

Table 6: Reported Practices, Compliance, and Self-Care Related to Stoma among Patients throughout the Intervention

Adequate practice (60%+):	Time						X^2 (p-value) Pre-post	X^2 (p-value) Pre-FU
	Pre		Post		FU			
	No.	%	No.	%	No.	%		
Nutrition	31	62.0	41	82.0	34	68.0	4.96 (0.03*)	0.40 (0.53)
Fluids	40	80.0	50	100.0	48	96.0	11.11 (0.001*)	6.06 (0.01*)
Dressing	29	58.0	36	72.0	30	60.0	2.15 (0.14)	0.04 (0.84)
Daily activities	9	18.0	26	52.0	24	48.0	12.70 (<0.001*)	10.18 (0.001*)
Sexual life (n=27)	20	74.1	27	100.0	27	100.0	Fisher (0.01*)	Fisher (0.01*)

Total reported practice:								
Adequate	18	36.0	38	76.0	29	58.0	16.23	4.86
Inadequate	32	64.0	12	24.0	21	42.0	(<0.001*)	(0.03*)
Regular follow-up	29	58.0	41	82.0	30	60.0	6.86 (0.009*)	0.04 (0.84)
Compliance	3	6.0	41	82.0	30	60.0	58.60 (<0.001*)	32.97 (<0.001*)
Self-care:								
Effective	5	10.0	41	82.0	32	64.0	5.17	31.27
Ineffective	45	90.0	9	18.0	18	36.0	(<0.001*)	(<0.001*)

(*) Statistically Significant at P<0.05.

Table 7: Observed Practices Related to Stoma Care among Patients throughout Intervention

Adequate practice (60%+):	Time						X^2 (p-value) Pre-post	X^2 (p-value) Pre-FU
	Pre No.	%	Post No.	%	FU No.	%		
Pouch preparation	7	14.0	41	82.0	30	60.0	46.31 (<0.001*)	22.69 (<0.001*)
Old pouch removal	17	34.0	40	80.0	30	60.0	21.58 (<0.001*)	6.78 (<0.009*)
Emptying pouch	41	82.0	41	82.0	30	60.0	0.00 (1.00)	5.88 (0.02*)
Stoma irrigation	7	14.0	40	80.0	30	60.0	43.72 (<0.001*)	22.69 (<0.001*)
Total observed practice:								
Adequate	8	16.0	40	80.0	30	60.0	41.03	20.54
Inadequate	42	84.0	10	20.0	20	40.0	(<0.001*)	(<0.001*)

Table 8: Scores of Knowledge, Reported Practices, and Self-Care Related to Stoma among Patients throughout the Intervention

Variable	Time			Kruskal Wallis test	p-value
	Pre	Post	FU		
Knowledge:					
Range	16.7-76.7	20.0-86.7	16.7-90.0		
Mean±SD	41.1±15.3	74.7±19.6	59.9±28.6	39.40	<0.001*
Median	39.15	83.30	76.70		
Reported practice:					
Nutrition:					
Range	0.0-83.30	16.7-66.7	16.7-50.0		
Mean±SD	47.3±21.9	47.7±8.9	44.0±9.4	2.86	0.24
Median	50.00	50.00	50.00		
Fluids:					
Range	0.0-100.0	50.0-100.0	0.0-100.0		
Mean±SD	51.0±32.7	51.0±7.1	49.0±12.3	0.32	0.85
Median	50.00	50.00	50.00		
Dressing:					
Range	0.0-100.0	0.0-100.0	0.0-100.0		
Mean±SD	49.3±33.8	72.0±40.0	58.7±48.8	11.37	0.003*
Median	66.70	100.00	100.00		
Daily activities:					
Range	39.3±13.0	50.7±16.9	49.3±16.9	14.38	0.001*
Mean±SD	33.3-66.7	33.3-66.7	33.3-66.7		
Median	33.30	66.70	33.30		
Sexual life:					
Range	0.0-100.0	50.0-50.0	50.0-100.0		
Mean±SD	39.9±25.3	50.0±0.0	51.9±9.6	10.15	0.006*
Median	50.00	50.00	50.0		
Total reported practice:					
Range	20.8-75.0	29.2-83.3	25.0-66.7		
Mean±SD	45.6±12.6	55.1±12.9	50.9±14.8	12.15	0.002*
Median	44.50	58.30	56.70		
Self-care:					
Range	20.0-60.0	20.0-100.0	20.0-100.0		
Mean±SD	35.5±10.3	80.3±23.2	66.8±27.7	55.93	<0.001*
Median	33.80	90.00	84.60		

(*) Statistically Significant at P<0.05.

Table 9: Scores of Observed Practices Related to Stoma Care among Patients throughout Intervention

Variable	Time			Kruskal Wallis test	p-value
	Pre	Post	FU		
Pouch preparation:					
Range	0.0-66.7	33.3-100.0	33.3-100.0		
Mean±SD	39.1±13.5	82.0±26.3	68.7±31.2	45.90	<0.001*
Median	33.30	100.00	66.70		
Pouch removal:					
Range	33.3-66.7	33.3-100.0	33.3-100.0		
Mean±SD	45.2	10.5±26.7	68.1±30.8	24.06	<0.001*
Median	37.50	100.00	66.70		
Pouch emptying:					
Range	14.8-100.0	33.3-100.0	33.3-100.0		
Mean±SD	62.8±17.5	83.3±25.3	68.0±30.8	17.28	<0.001*
Median	66.70	100.00	66.70		
Stoma irrigation:					
Range	0.0-66.7	0.0-100.0	33.3-100.0		
Mean±SD	30.2±20.2	80.0±30.1	68.0±30.8	53.54	<0.001*

Median	33.30	100.00	66.70		
Total observed practice:					
Range	17.1-69.9	16.3-100.0	33.3-100.0		
Mean±SD	40.9±12.6	81.0±27	68.1±30.8	34.14	<0.001*
Median	41.50	100.00	66.70		

(*) Statistically Significant at P<0.05.

Table 10: Relations between Patients' Pre-Intervention Knowledge and their Sociodemographic Characteristics and Health Assessment

Variable	Knowledge				X^2test	p-value
	Satisfactory		Unsatisfactory			
	No.	%	No.	%		
Age:						
<30	2	16.7	10	83.3		
30+	11	28.9	27	71.1	Fisher	0.48
Gender:						
Male	9	30.0	21	70.0		
Female	4	20.0	16	80.0	0.62	0.43
Marital status:						
Unmarried (single/divorced/widow)	5	21.7	18	78.3		
Married	8	29.6	19	70.4	0.40	0.53
Residence:						
Urban	4	19.0	17	81.0		
Rural	9	31.0	20	69.0	0.91	0.34
Formal education:						
No	10	27.0	27	73.0		
Yes	3	23.1	10	76.9	Fisher	1.00
Job status:						
Unemployed	8	25.8	23	74.2		
Working	5	26.3	14	73.7	Fisher	1.00
Body mass index (BMI):						
Normal (<25)	11	31.4	24	68.6		
Overweight (25-<30)	2	14.3	12	85.7	--	--
Obese (30+)	0	0.0	1	100.0		
Indication of stoma:						
Malignancy	12	30.8	27	69.2		
Non-malignancy	1	9.1	10	90.9	Fisher	0.25
Surgery since:						
<=1 year	2	7.4	25	92.6		
>1 year	11	47.8	12	52.2	10.55	0.001*
Stoma type:						
Temporary	1	50.0	1	50.0		
Permanent	12	25.0	36	75.0	Fisher	0.46

(*) Statistically Significant at P<0.05 (--) Test Result Not Valid.

Table 11: Relations between Patients' Pre-Intervention Knowledge and their Self-Care and Practice

Variable	Knowledge				X^2test	p-value
	Satisfactory		Unsatisfactory			
	No.	%	No.	%		
Regular follow-up:						
No	11	52.4	10	47.6		
Yes	2	6.9	27	93.1	13.10	<0.001*
Compliance:						
No	12	25.5	35	74.5		
Yes	1	33.3	2	66.7	Fisher	1.00
Total reported practice:						
Adequate	5	27.8	13	72.2		
Inadequate	8	25.0	24	75.0	Fisher	1.00
Self-care:						
Effective	1	20.0	4	80.0		
Ineffective	12	26.7	33	73.3	Fisher	1.00
Total observed practice:						
Adequate	3	37.5	5	62.5		
Inadequate	10	23.8	32	76.2	Fisher	0.41

(*) Statistically Significant at P<0.05.

Table 12: Relations between Patients' Pre-Intervention Reported Practice and their Personal and Health Characteristics

Variable	Reported practice				X^2test	p-value
	Adequate		Inadequate			
	No.	%	No.	%		
Age:						
<30	2	16.7	10	83.3		
30+	16	42.1	22	57.9	Fisher	0.17
Gender:						
Male	15	50.0	15	50.0		
Female	3	15.0	17	85.0	6.38	0.01*
Marital status:						
Unmarried (single/divorced/widow)	7	30.4	16	69.6		
Married	11	40.7	16	59.3	0.57	0.45
Residence:						

Urban	7	33.3	14	66.7		
Rural	11	37.9	18	62.1	0.11	0.74
Formal education:						
No	15	40.5	22	59.5		
Yes	3	23.1	10	76.9	Fisher	0.33
Job status:						
Unemployed	11	35.5	20	64.5		
Working	7	36.8	12	63.2	0.01	0.92
Body mass index (BMI):						
Normal (<25)	13	37.1	22	62.9		
Overweight (25-<30)	5	35.7	9	64.3	--	--
Obese (30+)	0	0.0	1	100.0		
Indication of stoma:						
Malignancy	16	41.0	23	59.0		
Non-malignancy	2	18.2	9	81.8	Fisher	0.29
Surgery since:						
<=1 year	9	33.3	18	66.7		
>1 year	9	39.1	14	60.9	0.18	0.67
Stoma type:						
Temporary	0	0.0	2	100.0		
Permanent	18	37.5	30	62.5	Fisher	0.53

(*) Statistically significant at p<0.05 (--) Test result not valid.

Table (12): showed that; there has been a statistically great distinction among the level of patient's practice and their gender.

3. Discussion

The prevailing study results discovered that; more than three-quarters of colostomy sufferers their ages had been above thirty years old, more than half of them were males, married, and have been lived in rural regions. As the educational level; more than one-third of them have the capacity to read and write. Also, more than half of sufferers were Unemployed, and from the researcher's point of view, this is probably associated with the character of our community as there's a high percentage of unemployment amongst residents.

(Kumar, 2016) was disagreeing with the current study level as mentioned that "The majority of patients their age was above 50 years, more than half of them were females, attend primary schools, lived in rural areas, working as Coolie and all of them were married"

Also (Culha, et al, 2016) was disagreeing with the current study as reported that "Regarding the individuals of the study group, more than half of them were male, married, graduated from high school, residing in the province (urban area) and the average age was 50.87±7.19".

Regarding the reason for performing colostomy; more than three-quarters of patients performed colostomy because of malignancy (cancer). Majority of them have skin redness as a common complication of colostomy. Also, more than one-third of them performed colostomy for more than twelve months; most of them were performing a permanent colostomy.

(Younis, et al, 2012) was agreeing with the prevailing study as reported that "Peristomal skin complications are frequently experienced by sufferers with an ostomy, with mentioned incidences starting from 18 to 55%. There is a wide range of presentation, from mild skin irritation to ulceration and concomitant infection. These complications can frequently be effortlessly avoided with right stoma creation and care."

(Engida, et al, 2016) were disagreeing with the study results regarding colostomy indications as mentioned that" Most of the surgeries, 196(89.5%), has been carried out for emergency conditions. The three commonest indications were gangrenous sigmoid volvulus, 102 (46.6%), colorectal cancers, 46 (21.0%, and injuries in the abdomen, 28 (12.8%)".

Regarding the duration of malignancy, it has been discovered that; more than half of sufferers complaining of malignancy from one to five years, and had a family history of malignancy. More than three-quarters of sufferers had a family relation from the first degree.

(Mohamed, et al, 2017) were agreeing with the current study as mentioned that "Concerning the causes of colostomy surgery, the present study results revealed that more than two third of subject had cancer colon". In the same line (Erwin, 2013) Suggested that the etiology for colostomy are diseases condition need removal of the distal bowel (for example, colorectal cancer)

(American Society of Clinical Oncology, 2017) become agreeing with the previous mentioned results as said that "Colorectal cancer may additionally run in the family if first-degree relatives (dad and mom, brothers, sisters, and youngsters) or many distinct family members (grandparents, aunts, uncles, nieces, nephews, grandchildren, and cousins) have had colorectal most cancers. That is specifically proper when own family participants are recognized with colorectal most cancers before age sixteen. If someone has a family history of colorectal cancer, his or her threat of developing the disease is nearly double. The hazard further increases if other close relatives have additionally developed colorectal cancer or if a first-degree relative was identified at a younger age."

Concerning body mass index it has been discovered that; more two-thirds of sufferers (seventy percent) have normal Body mass index (BMI). More than one-third of them were complaining from diarrhea at the same time as more than one-quarter of them complaining from constipation. Additionally, more than three-quarters of sufferers complaining from flatulence. More than half of sufferers mentioned that eggs and garlic are the commonest meal, which increases the flatulence, and from the researcher's point of view these are all expected findings for colorectal cancer sufferers who usually have a disturbance in bowel nature.

(Ai-Hua et al., 2016) contradicts this study result regarding body mass index when they declared that those patients are more liable to be obese. Also, (Helentjaris, 2017) mentioned that "Colon cancer is associated with symptoms that most people have experienced at one time or another, such as diarrhea, constipation or fatigue. These commonest symptoms become worrisome once they persist or are associated with more certain signs of colon cancer, such as bloody stools and bleeding per rectum".

There was a statistically great distinction among the extent of affected patient's knowledge pre and posttest concerning the definition and stoma care. While; there was a statistically tremendous distinction among levels of patient,'s knowledge pretest and follow up regarding complications of colostomy and skin care.

(Chauhan, et al, 2017) was in the same line as reported that "Comparison of pre-test score with post-test score was analyzed and determined that there was a statistically extensive gain in the knowledge score acquired via subjects towards colostomy care of the affected person. The knowledge score gained by the respondents in the results shows that the mean value of knowledge in pre-test was 8.43 and at post-test was 17.1; the "p" value for the test is 0.05".

There has been a statistically great distinction among the level of patient's knowledge pre and posttest concerning nutrition. While; there was a statistically massive distinction among levels of patient's knowledge pretest and follow up related to fluids, everyday activity, and sexual life. There has been a statistically significant distinction among levels of patient's knowledge pretest and follow up concerning the inadequate level of practice, compliance, and Ineffective self-care.

A statistically great distinction was noted among the level of patient's practice pre and posttest and pretest and follow up regarding Pouch preparation, Old pouch removal, and Stoma irrigation. There was a statistically massive distinction between levels of patient's practice pre and posttest and pretest and follow up regarding the inadequate level of practice.

(Grant et al., 2013) was in the same line in their study that more than eighty-five percent of the treatment group sufferers could take full care of themselves, at the same time only fifty-two percent of the control group sufferers could do so, indicating that nursing interventions in the form of patient education effectively improved patients' extent of practical skills and self-care abilities.

As was corroborated by many researchers' patients with colostomy experience changes in their sexual life due to loss of libido, change in patient's body self-image and fear of leakage of stool or gases during sexual intercourse (Bechara et al., 2015). Teaching patient's alternative ways of expressing their sexuality and correcting their misconceptions about this aspect is the responsible factor for this improvement following application of this study in my opinion.

In the end the effects of the existing study, it is established that there has been a statistically extensive difference between the level of affected person's practice and their gender. This, in my opinion, was related to that the adequacy of male patients regarding their stoma practice was due to the need for maintaining their image than females who were housewives and are not especially occupied by this issue.

4. Conclusion

Application of the structured teaching guidelines had a positive impact on patient's knowledge, practice, and self-efficacy regarding colostomy care with a statistically significant great distinction among both the study and control group.

5. Recommendations

Replication of the same study on larger probability sample at different geographical locations for data generalizability. Distribution of the educational booklet for colostomy patients to enhance their outcomes.

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