

Effect of an Educational Protocol on Knowledge and Self-Care Practices among Patients with the Intestinal Ostomy

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Abstract Patients with intestinal ostomy suffer from some complications and changes in their life after surgery. This is due to lack of knowledge, preoperative preparation, and postoperative management. As a result, education play a major role in enhancing, educating, and improving patient's knowledge and self-care practice with the intestinal ostomy. Therefore, this study aimed to assess the effect of an educational protocol on knowledge and self-care practices among patients with the intestinal ostomy. A quasi-experimental design was used. A purposive sample of 50 patients at King Abdulaziz University Hospital and King Fahad General Hospital in the general surgical, medical department and outpatient clinic. The data was collected through the main two tools developed by the researchers. Tool I: Patients' interviewing questionnaire, it is divided into two parts, Part I: Sociodemographic characteristics and clinical data. Part II: Knowledge assessment questionnaire to assess patients' knowledge about intestinal ostomy. Tool II: A structure observation checklist to assess self-care practices. The study results revealed that there was a highly significant difference between the pre and immediate post of implementing an educational protocol regarding all items knowledge with ($p=0.00$). Furthermore, there was a statistically significant difference between immediate post and after one month of implementing an educational protocol regarding knowledge items of emptying the pouch bag, nutrition/dietary instructions, number of measurement stoma after six weeks of surgery, and common complications with $p=0.013$, 0.019 , 0.03 , and 0.01 respectively. On the other hand, there is an improvement in all items of self-care practices, comparing the level between pre and post immediate, as well as comparing the level between the immediate post and after one month of implementing an educational protocol. This means that all patients able to self-care practices successfully after education. It was concluded that the implementation of an educational protocol has a positive effect on knowledge and self-care practices among patients with the intestinal ostomy immediately post and after one month later. These findings justified the research hypothesis. It was a recommended that self-care practices are an important part for the adaptation of patients with stomas after surgery so that planned self-care education should be given to patients before their discharge.

Keywords: *stoma, intestinal ostomy, education protocol*

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1. Introduction

Ostomy constructions are occurring frequently required by clients with colorectal cancer. Contributing factors may involve hereditary cancer, a sedentary lifestyle, the lack of a national screening protocol, dietary habits, and the practice of consanguineous marriages. In addition, many clients present with advanced stages of the disease, increasing the like hood of stoma being required [1].

Intestinal stoma defined as a surgically created bowel that is exteriorization of the ileum or colon's anterior abdominal wall. The two main types of intestinal stoma are colostomy (large intestine) and ileostomy (small intestine), which both permit waste to pass [2]. The creation of intestinal stoma is performed for a variety of reasons, but the most common reasons include cancer, inflammatory bowel diseases, acute diverticulitis, and ulcerative colitis and may be temporary or permanent [3,4].

The purpose of a stoma is to improve patients' condition or quality of life. The difficulties encountered

during the formation of stoma affect many aspects of patient's lives, including psychosocial issues, body image sexual health religious, beliefs, cultural norms, sleep patterns disturbances, and fear of leakage [5-9].

Formation of the stoma is a major surgical procedure, requiring the assessment of knowledge, self-care practices and self-efficacy for independence. This is done to minimize problems, improve confidence, and overcome the challenges that accompany stoma formation [2]. To meet each individual's needs, stoma care education needs to be carried out in a holistic manner with psychological and emotional support being provided and practical stoma care skills being developed [10].

The major issues for stoma patients and their caregivers are the management of stoma, knowledge of self-care practice, and self-concept [11]. Stoma management skills and self-care practice may be greatly promoted by pre and postoperative protocols that improve patients' knowledge and skills [12]. The education of patients plays a key role in the treatment and management of stoma problems [13]. Thus, supporting and educating patients and their relatives during pre and postoperative period are essential to living a stoma friendly life [14].

1.1. The Significance of the Study

Ostomy patients are facing many problems after the surgery; this is due to lack of knowledge, pre-operative preparation, and post-operative management. As a result, most of these patients are suffering from some complications and changes in their life [3]. On the other hand, [15] reported that ostomy leads to intensified distress and suffering for patients causes severe stress because of skin irritation (76%), pouch leakage (62%), offensive odor (59%), reduction in pleasurable activities (54%), and depression/anxiety (53%). Thus, one of the major goals of nurses is to teach stoma management skills. This teaching should be approached in a holistic and organized manner to help ostomy patients gain optimal functions (including physical, psychosocial, sexual, and emotional health). Thus, the present study was conducted to assess the effect of an educational protocol on knowledge and self-care practices among patients with the intestinal ostomy.

1.2. Aim of the Study

Assess the effect of an educational protocol on knowledge and self-care practices among patients with the intestinal ostomy.

1.3. Objectives

1. Assess the level of knowledge, among patients with the intestinal ostomy.
2. Assess the level of self-care practices among patients with the intestinal ostomy.
3. Develop and implement an educational protocol among patients with the intestinal ostomy
4. Evaluate the effect of implementing an educational protocol on knowledge and self-care practices among patients with the intestinal ostomy.

1.4. Hypothesis

The current study hypothesized that: The implementation of an educational protocol will have a positive effect on knowledge and self-care practices among patients with the intestinal ostomy.

2. Subject and Method

2.1. Design

A quasi-experimental design was used to conduct this study.

2.2. Research Setting

Two settings were used to conduct this study; King Abdulaziz University Hospital (KAUH) and King Fahad General Hospital (KFGH), in the surgical ward, medical ward, and outpatient clinic.

2.3. Subjects

A purposive sample of 50 patients, who had experienced ostomy creation either for colostomy or ileostomy, 30 from King Abdulaziz University Hospital, and 20 from King Fahad General Hospital. It was calculated according to the equation of a sample size calculation based on the number of patients admitted to the surgical ward, medical ward and outpatient clinic at KAUH and KFGH, upon admission during 12 months.

2.3.1. Inclusion Criteria

The inclusion criteria were as follows:

1. Adult patients > 18 years old either female and male.
2. Patients undergoing surgery involving the creation of a fecal ostomy during their hospital stay (either a temporary or a permanent ostomy).
3. Free from other acute or chronic diseases that influenced daily activities.
4. Able to communicate and free from any psychological problems.

2.3.2. Exclusion Criteria

1. Any patient attends an educational program about stoma care before.

2.4. Tools of the Study

Two tools were used for data collection:

Tool I: Patients' interviewing questionnaire

It was designed by the researchers, written in simple Arabic language and divided into two parts, as follows:

Part I: Socio-demographic and medical history characteristics

It was developed by the researchers to assess patient sociodemographic and medical history consisted of age, gender, marital status, educational level, working nature, having medical insurance, Body Mass Index, present medical diagnosis, having other medical problem,

smoking habits, kind of ostomy, type of ostomy, ostomy surgery type, stoma site duration, pouch types, and who performed stoma care.

Part II: Knowledge assessment questionnaire

The researchers designed a structured questionnaire, based on a literature review of previous research articles [16,17,18,19] to assess patients' knowledge about intestinal ostomy care. It consisted of 29 questions, 20 multiple choice questions, and 9 questions were true/false related to intestinal ostomy care which include: an ileostomy/colostomy output after surgery, emptying the pouch bag, appearance of a healthy stoma, normal protrusion size of stoma, normal color of stoma opening, normal color of peristomal skin, nutrition/dietary instructions, number of measurement stoma after surgery, number of measurement stoma after six weeks of surgery, appropriate way of cleaning stoma, and common complications. All the questions were closed-ended questions. Scoring system responses of the studied patients were scored as (1) for the correct answer and (zero) for the incorrect answer. The total score was 29 categorized into either satisfactory level (from 60% and more) or unsatisfactory level (less than 60%).

Tool II: Observation checklist of self-care practices:

This tool was adapted from [16,18,19] and modified by the researchers. It was used to assess patients' stoma self-care practices. The checklist was composed of 5 main categories and all categories of the tool consist of 30 items. These items included 8 items for gathering supplies, 6 items for removing old pouches, 4 items for inspecting and cleaning the skin around the stoma, 11 items for applying a new pouch, and 1 item for documenting the stoma problems. The patients' responses of 30 items were on a scale ranging from can't do (given zero scores), can do with assistance (given one score) and can do alone (given two scores). The total scores for patients' self-care practices were calculated, the higher scores ($\geq 85\%$) indicate higher self-care practices; while the lower scores ($< 85\%$) indicate lower self-care practices.

2.5. Content Validity and Reliability

Content validity was ascertained by a panel of 7 experts from the Faculty of Nursing King Abdulaziz University. Their opinions were elicited regarding the tools format layout, and scoring system. The contents of the tools were tested regarding knowledge accuracy, relevance, and competence. **Reliability** was done; the difficulty coefficient of the knowledge assessment questionnaire is from 0.26 to 0.80. The Cronbach Alpha coefficient for self-care practices items is 0.94. Hence, the study instruments are valid and reliable for conducting the research study.

2.6. Pilot Study

A pilot study was carried out on 10% of the total study sample to test the study tools for clarity, feasibility, relevance, comprehensiveness, and simplicity; minor modifications were done. Patients who participated in the pilot study were excluded from the main study sample.

2.7. Ethical Considerations

In the planning stage, official approval was obtained from the ethical committee of the faculty of Nursing, King Abdulaziz University. Additional approval was written from the unit of Biomedical Ethics at KAUH and the unit of Biomedical Ethics of Ministry of Health (MOH) in order to conduct the study at KFGH. After explaining the aim and objectives of the study, the subject's approvals were taken after informing them that their participation is voluntary and that they have the right to withdraw at any time without any consequences and without giving any reason. Confidentiality and anonymity were maintained for all participants and their decision would not harm the treatment or service they were offered in the centers.

2.8. Fieldwork

The sample and data collection were started and completed during the period from December 2017 to May 2018. The main objectives of the study were simply explained to the patients to obtain their cooperation for data collection and conduct the current study. The researchers were available in the morning shift at the clinical field for three days/week. The appointment for starting educational sessions was scheduled with the patients according to their circumstances.

The study was carried out through four phases: assessment, planning, implementation, and evaluation.

Assessment phase:

The baseline data were collected prior to educational protocol intervention to obtain information about pre-existing knowledge, and self-care practice toward intestinal ostomy using the pre-constructed tools, as previously mentioned, based on patients' needs and the related literature. In addition, knowledge assessment questionnaire took 15-25 minutes, while the self-care practice took 20-30 minutes.

Planning phase:

- a. The designed educational protocol was designed based on analysis of the actual patients' needs in the assessment by using the pre-constructed tools. The educational program was written in the simple Arabic language that was consistent with the related literature to meet patients' needs and their level of understanding.
- b. It was developed covering knowledge and self-care practices about the following topics, anatomy and physiology of stoma creation, related medication, teaching regarding stoma activity as working, driving and traveling, home management care and follow up care as (gathering supplies, removing old pouches, inspecting and cleaning the skin around the stoma, applying a new pouch, and documenting the stoma problems).

Implementation phase:

The researchers divided the participants into four groups. Each group obtained 6 sessions (3 theoretical and 3 practical), each educational session was guided by simple written instructions, and then orientation about objectives outline and expected outcomes was done. The education class conducted at the outpatient clinic in both

hospitals setting with two parts; the theoretical and practical part.

The theoretical part was conducted through lectures and group discussions; using data show, videos, and posters as a media. It was taken in three sessions (each session's duration was from 30-45 minutes). The theoretical session covered the items of a definition of the stoma, an anatomy of the intestinal stoma, indication for the stoma, a complication of the stoma, self-care practice of stoma.

The practical part was conducted through demonstration, re-demonstration, and videos. It was delivered in three sessions with a duration from 50-60 minutes. The practical session covered the items of changing a colostomy appliance and skin care for each patient using real materials. Patients were allowed to ask questions in case of misunderstanding while listening and expressing interest. The researchers after close education session distrusted the education material (booklet) in order to guide, supporting and teaching of stoma self-care management.

Evaluation phase: follow-up

- At the end of the sessions, the studied patients were evaluated immediately post after implementing the educational protocol using the same tools (pre-constructed tools)
- After one month, the researchers evaluated the patients by the same tools in order to evaluate the retained knowledge and self-care practices for intestinal ostomy patients.
- Patients were informed to be in contact with the researchers by telephone for any guidance.

2.8. Analysis Data

Data was entered into IBM® SPSS® (Statistical Package for Social Science) version 21. Data was represented as frequencies, percentages, and mean \pm standard deviation. Chi-square, p for Monte Carlo test, P; a value of McNemar test was used to detect the statistically significant difference in the groups' pre, immediately post and after one month of implementing the educational protocol. An Additional Pearson correlation coefficient was used to explain the joint association between the variables.

3. Results

Table 1: Shows the frequency and distribution of socio-demographic characteristics of the studied sample. Gender wise, 86% of the patients were males while 14% were females, 54% of the patients were between the ages of 41- 50 years and 74% married. In relation to the education level, 30% of them received intermediate education, while 24% were university education level. Concerning the working nature the majority of the sample 92% were the employee and the rest 8% were the housewife and retired. With 76% were having medical insurance and the rest 24% were not insured at all, however, 16% received full medical insurance whereas 84 % received partial medical insurance.

Table 2: Illustrate the medical history distribution of the studied sample, it revealed that more than half 58% as

body mass index were overweight and 4% were underweight. Concerning present medical diagnosis, more than half 58% of them had bowel or colon cancer and 24% had trauma. Regarding having other medical problems, it was documented that 66% had other medical diseases. Most of them had hypertension and diabetes mellitus with (75.75%, 60.60%) respectively. With regard to smoking habits 44% smoked, and 56% not. Regarding the kind of ostomy, 66% had creation colostomy and rest 34% were ileostomies, while 34% had temporary and 66% were permanent types of the stoma. More than two-thirds 86% had elective surgery whereas 14% had emergency surgery. Most of the sample was 94% one-piece pouch while 6% were two pieces pouch. As it comes to duration of stoma site nearly 48% were less than six months, 38% ranged between $6 \leq 12$ months and 14% ranged between $12 \leq 24$ months. With regard to who performed stoma care 60% of the patients were reported that nurses provided the care and 28% with by caregiver and 12% by themselves.

Table 3: Compare between pre, immediate post and after one month of implementing an educational protocol regarding knowledge of intestinal ostomy among the studied sample. There is a highly statistically significant improvement with ($p=0.00$) between pre and immediate post of implementing an educational protocol regarding all items of knowledge of stoma self-care. On the other hand, there is a statistically significant difference between immediate post and after one month of educational protocol regarding emptying the pouch bag, nutrition/dietary instructions, the number of measurement stoma after six weeks of surgery, and common complication with $p=0.013, 0.019, 0.03, \text{ and } 0.01$ respectively. However, no statistically significant difference was found between immediate post and follow-up of implementing an educational protocol regarding ileostomy /colostomy output after surgery, appearance of a healthy stoma, normal protrusion size of stoma, normal color of stoma opening, normal color of peristomal skin, number of measurement stoma after surgery, and appropriate way of cleaning stoma with $p=0.32, 0.66, 0.66, 0.29, 0.49, 0.44, \text{ and } 0.49$ respectively.

Table 4: Illustrated the total mean of the studied sample related to stoma self-care practices pre, immediate post and after one month of implementing an educational protocol. It indicated that there is an improvement in all items of self-care practices, comparing the level between pre and post immediate, as well as comparing the level between the immediate post and after one month of implanting an educational protocol. This means that all patients able to self-care practices successfully after education.

Table 5: Showed the relations between all items of self-care practices "pre & immediate post" and "immediate post & follow-up" of implementing an educational protocol among the studied sample. There was a statistically significant difference with ($p=0.00$) between pre and immediate post implementing an educational protocol of all items of self-care practices except "gather the supplies" with ($p=0.293$). In addition, there is a significant difference with ($p=0.00$) between the immediate post and after one month of implementing an educational protocol related to self-care practices except "gather the supplies" with ($p=0.225$).

Table 6: Showed the correlation between pre, immediate post and after one month of implementing stoma an educational protocol regarding knowledge, and self-care practices. It revealed that there is no significant correlation between knowledge, and self-care practices in pre implementing an educational protocol ($r=0.153$, $P=0.204$). While immediately post and after one month of implementing an educational protocol there is a highly significant correlation between the total level of knowledge and self-care practices ($r=0.834$, $P<0.001$ and $r=0.736$, $P<0.001$ respectively).

Table 1. Frequency and distribution of sociodemographic characteristics of the studied sample (n= 50)

Socio-demographic characteristics	No.	%
1. Gender		
- Male	43	86
- Female	7	14
2. Age group		
- 31- 40 years	8	16
- 41- 50 years	27	54
- > 50 years	15	30
3. Marital status		
- Single	4	8
- Married	37	74
- Divorced	3	6
- Widowed	6	12
4. Educational level		
- Illiterate	3	6
- Primary	10	20
- Intermediate	15	30
- Secondary	10	20
- University.	12	24
- other	1	2
5. Working nature		
- Employee	46	92
- Housewife	2	4
- Retried	2	4
6. Covering medical insurance		
- Yes	38	76
- No	12	24
If yes		
- Fully covered	6	16
- Partially covered	32	84

Table 2. Medical data distribution of the studied sample. (n=50)

Medical history	No.	%
1. Body Mass Index		
- < 18.5	2	4
- 18.5-25	19	38
- >25	29	58
2. Present medical diagnosis		
- Bowel or colon cancer	29	58
- Trauma	12	24
- Ulcerative colitis	4	8
- Crohn disease	3	6
- Diverticular diseases	2	4
3. Having other medical problem		
- Yes	33	66
- No	17	34
If yes check that all apply		
- Hypertension	25	75.75
- Diabetes	20	60.60
- Heart disease	10	30.30
4. Smoking habits		
- Yes	22	44
- No	28	56
5. Kind of Ostomy		
- Ileostomy	17	34
- Colostomy	33	66
6. Type of Ostomy		
- Permanent	33	66
- Temporary	17	34
7. Ostomy Surgery type		
- Elective	43	86
- Emergency	7	14
8. Stoma Site Duration		
- <6 months	24	48
- 6≤12 months	19	38
- 12≤ 24 months	7	14
9. Pouch types		
- One piece	47	94
- Two pieces	3	6
10. Who performed stoma care		
- Oneself	6	12
- Caregiver	14	28
- Nurse	30	60

Table 3. Comparison between pre, immediate post and after one month of implementing an educational protocol regarding knowledge of intestinal ostomy among the studied sample. (n=50)

Knowledge of intestinal ostomy	Mean±SD			P value	
	Pre	Follow-up		Pre & Immediate post	Immediate post & After one month
		Immediate post	After one month		
1. An ileostomy /colostomy output after surgery.	0.32 ± 0.47	0.94 ± 0.24	0.98 ± 0.14	0.00**	0.32
2. Emptying the pouch bag.	0.40 ± 0.50	0.14 ± 0.35	0.02 ± 0.14	0.00**	0.013*
3. The appearance of a healthy stoma.	0.56 ± 0.50	0.90 ± 0.30	0.92 ± 0.27	0.00**	0.66
4. The normal protrusion size of stoma.	0.20 ± 0.40	0.06 ± 0.24	0.08 ± 0.27	0.03*	0.66
5. The normal color of the stoma opening.	0.40 ± 0.50	0.82 ± 0.39	0.90 ± 0.30	0.00**	0.29
6. The normal color of peristomal skin.	0.94±0.24	0.90±0.30	0.94±0.24	0.00**	0.49
7. Nutrition/dietary instructions	0.68 ± 0.47	0.84 ± 0.37	0.96± 0.20	0.044*	0.019*
8. Number of measurement stoma after surgery	0.36±0.49	0.82± 0.39	0.88± 0.33	0.00**	0.44
9. Number of measurement stoma after six weeks of surgery	0.44±0.50	0.78 ± 0.42	0.90± 0.27	0.00**	0.03*
10. The appropriate way of cleaning stoma.	0.58±0.50	0.84± 0.37	0.88± 0.33	0.00**	0.49
11. Common complications	0.54± 0.50	0.78± 0.42	0.84 ± 0.37	0.00**	0.01**

Significant ($p<0.05^*$), Highly Significant ($p<0.001^{**}$).

Table 4. Total mean score of self-care practices among studied sample pre, immediate post and after one month of implementing an educational protocol. (n=50)

Self-care practices	Total Mean \pm SD		
	Pre	Follow-up	
		Immediate post	After one month
1. Gather supplies	0.47 \pm 1.55	0.49 \pm 2.24	0.23 \pm 2.80
2. Remove the old pouch	0.48 \pm 1.53	0.47 \pm 2.24	0.22 \pm 2.76
3. Inspect and clean skin around the stoma	0.45 \pm 0.54	0.48 \pm 2.24	1.90 \pm 0.30
4. Apply the new pouch	0.78 \pm 0.74	1.34 \pm 0.68	1.92 \pm 0.66
5. Documentation	0.45 \pm 0.54	0.48 \pm 2.24	0.23 \pm 2.66

Table 5. Relations between all items of self-care practices “pre & immediate post” and “immediate post & after one month” of implementing an educational protocol among the studied sample (n=50)

Self-care practices items	Mean \pm SD		r	t	P value
1. Gather the supplies	Pre	1.91 \pm 0.40	0.285*	1.063	0.293
	Immediate post	1.97 \pm 0.16			
	Immediate post	1.97 \pm 0.16	0.028	1.228	0.225
	Follow-up	2.00 \pm 0.02			
2. Remove the old pouch.	Pre	1.01 \pm 0.40	0.460**	8.765	0.00**
	Immediate post	1.48 \pm 0.31			
	Immediate post	1.48 \pm 0.31	0.235	9.212	0.00**
	Follow-up	1.91 \pm 0.22			
3. Inspect and clean the skin around the stoma	Pre	0.69 \pm 0.54	0.555**	11.071	0.00**
	Immediate post	1.44 \pm 0.46			
	Immediate post	1.44 \pm 0.46	0.315*	6.594	0.00**
	Follow-up	1.87 \pm 0.28			
4. Apply the new pouch	Pre	1.16 \pm 0.42	0.341*	6.977	0.00**
	Immediate post	1.60 \pm 0.36			
	Immediate post	1.60 \pm 0.36	0.555**	7.727	0.00**
	Follow-up	1.93 \pm 0.21			
5. Documentation	Pre	0.30 \pm 0.54	0.311*	10.349	0.00**
	Immediate post	1.12 \pm 0.39			
	Immediate post	1.12 \pm 0.39	0.280*	11.225	0.00**
	Follow-up	1.84 \pm 0.37			
The total practices self-care	Pre	1.22 \pm 0.33	0.510**	9.985	0.00**
	Immediate post	1.63 \pm 0.21			
	Immediate post	1.63 \pm 0.21	0.511**	11.206	0.00**
	Follow-up	1.93 \pm 0.15			

Significant ($p \leq 0.05^*$), Highly Significant ($p \leq 0.001^{**}$).

Table 6. Correlation between pre, immediate post and after one month of implementing stoma an educational protocol regarding knowledge, and self-care practices. (n=50)

Total score of patients self-care practice	Total score of patients knowledge	
	r	p-value
Pre implementing an educational protocol	0.153	0.204
Immediate post after implementing an educational protocol	0.834	<0.001**
After one month of implementing an educational protocol	0.736	<0.001**

Significant ($p \leq 0.05^*$), Highly Significant ($p \leq 0.001^{**}$).

4. Discussion

The aim of this study is to assess the effect of an educational protocol on knowledge and self-care practices among patients with the intestinal ostomy. The sociodemographic findings of the current study revealed that the majority of respondents were predominantly male; this finding was similar to study performed by [1] who reported the majority were male patients with bowel cancer resulting in ostomy, also consistent with [20] who

stated that men have a higher incidence of stoma surgery caused by colorectal cancer. The majority of studied sample age was 41-50 years, this finding supported by [20] who reported that ostomy creation tends to strike in middle age between 40-50 age with 65 % require more support in adapting to life with a stoma physically and mentally.

As regard to marital status three quarter was married, this agrees with [21], which found that an ostomy creation mostly performed within a marital relationship. As it

comes to the level of education the majority were intermediate level. This consistent with [13] who reported less than half were high education level. As regard to BMI, more than half were overweight >25 this finding supported by [22] who reported that BMI overweight > 25 were 58% which lead to developing several ostomy complications such as retraction, stoma necrosis, bleeding leakage, peristomal irritant dermatitis, pain, and mucocutaneous separation.

As regard to present medical diagnosis more than half of the studied sample caused by bowel or colon cancer, the finding of this study consistent with [23] who reported 65% had an ostomy for bowel and colon cancer reason. Moreover, in the present study showed that more than half of the patients had chronic diseases, which is supported by [17] who discussed that ostomy patients with chronic diseases have a negative impact on stoma self-care because they may affect their daily activities and lead to change in the level of self-care.

In this study, around two-thirds had a colostomy and most of the studied sample had to wear one pieces pouch. This finding agrees with the study done by [16] who stated 67% have had a colostomy and with one piece's pouch. On the other hand, approximately one-third of the studied sample who had stoma created had a permanent stoma similar to [16] stated 70% of patients had a permanent stoma that they will have an effect of their life. According to the duration of living with a stoma, less than half were living with stoma supported by [24] who stated 49% of clients with living with stoma more than 6 months of stoma creation.

In relation to stoma characteristic knowledge pre, immediate post and after one month of a completing an educational protocol, the present study revealed that there is a highly significant difference at $p < 0.01$ and immediately post except for the normal protrusion size of stoma was it shown a significant $p < 0.005$ items include knowledge of ileostomy/colostomy output, proper way of emptying a pouch bag, healthy appearance of stoma, normal size of stoma protrusion, the normal color of stoma and peristomal skin. Whereas, there is no significant difference between immediate post and after one month of receiving an educational session except the item of emptying the pouch bag showed the significant. This supported by [25] who clarify that there is a high statistical difference related to knowledge of stoma characteristic between pre and immediate post, in addition, there is no significant relationship between immediate post and after one month of implementing an educational protocol.

As regard to knowledge items regarding to stoma self-care pre, immediate post and after one month of implementing an educational protocol the current finding indicated that there is a highly statistical difference between pre and immediate post and there is no difference between immediate post and after one month of implementing an educational protocol, these items includes duration of measure stoma after surgery, after six week and the appropriate way of cleaning stoma the present study indicated that, in contrast with [26] who compare that ostomy patients who received an educational counseling between post and after one month reported that there was

a significant difference at $p < 0.005$ indicated that individuals gain positive self-care behaviors .

In relation to knowledge items regarding stoma common complications pre, immediate post and after one month of implementing an educational protocol, the present study indicated that there was a statistical difference between pre and immediate post. Moreover, there was a statistical difference between immediate post and after one month. This study's finding aligns with [27] who clarify that there was a statistically significant difference at $p < 0.01$ between pre, post immediate and after one month of providing an education protocol. Furthermore, ostomy clients who provide an education protocol help to reduce the ostomy complication and ease to engage in their lifestyle.

Also another of interest findings in the present study regarding the self-care practices items, the study revealed that there is a highly significant difference improvement between pre, immediate post and after one month of implementing an educational protocol, which is supported by [28] who stated that there was statistical difference improvement after providing education program. The ostomy patients gain proper skills regarding gather supply, remove old pouch, and inspect and clean the skin around the stoma well competent. This result is in agreement with [29] who reported that there was statistical difference improvement after providing education program regarding apply the new pouch and the patients able to document $p < 0.005$ which is

The study findings revealed that there is an improvement in all items of self-care practices, comparing the level between pre and post immediate, as well as comparing the level between the immediate post and after one month of implementing an educational protocol. This means that all patients able to self-care practices successfully after education. The current study also found that there was a $p < 0.005$ these highly significant difference between pre and immediate post implementing an educational protocol of all items of self-care practices except gather the supplies. In addition, there is a significant difference between immediate post and after one month of implementing, an educational protocol related to all items of self-care practices except gather the supplies. This study is congruent with [30] who reported that there was a significant improvement between the items of self-care practice. On the contrary, according to [29] who stated that there was no significant improvement between items of self-care practices.

Regarding the correlation between knowledge, and self-care practices the current study indicated that there was no significant correlation between knowledge, and self-care practices in pre implementing an educational protocol. While immediately post and after one month of implementing an educational protocol there was a highly significant correlation between the total level of knowledge and self-care practices. This agrees with [31] who stated that there is a positive correlation at $r=1$ that indicated an increase level of knowledge and their ability to perform the activity of daily livings. In addition, this is consistent with [30] who reported there was a positive correlation between knowledge and self-care practices after implementing an educational program.

5. Conclusion

On the light of current study results, it can be concluded that implementation of an educational protocol has a positive effect on knowledge and self-care practices among patients with the intestinal ostomy immediately post and after one month later. These findings justified the research hypothesis.

6. Recommendation

1- By the way self-care practices is an important part for the adaptation of patients with stomas after surgery so that planned self-care education should be given to patients before their discharge.

2. Providing knowledge and emphasizing/teaching self-care before hospital discharge may optimize self-care for persons with the intestinal ostomy.

3. Education protocol should be held periodically for such groups of patients, involving family and caregivers during the education session to participate in such ostomy patient's care.

4. Follow up care for patients with the intestinal ostomy through clinical visits and phone calls that would help to find out patients' problems and solve them.

5. The educational protocol for patients with the intestinal ostomy should be applied to improve patients' condition, quality of life and stoma self-care, and there is a need for a simplified illustrated and comprehensive Arabic language booklet to be distributed to those patients and used as a reference.

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