Effect of Educational Protocol on Knowledge, Practice and Quality of life for Two Different Age Groups of Colostomy Patients: "Comparative Study"

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Abstract:

Stoma creation has a great impact on patients' health related quality of life. **Research aim:** To assess the effect of health educational protocol on knowledge, practice and quality of life for two different age groups of colostomy patients. **Research design:** Quasi-experimental design (pre/post test) was utilized. **Sample:** Consisting of two different age patient groups with colostomy, the first age group represented middle – aged adults (20 - < 60), the second represented old adults (≥60). **Setting:** the study was conducted in Oncology Surgical Department and Outpatient Clinic of Oncology Institution at Sohag Hospital, **Tools:** three tools were utilized. **Tool (I):** Structured interview questionnaire included demographic & medical history assessment. **Tool (II):** knowledge & reported practice assessment for patients toward colostomy care. **Tool (III):** Stoma-Quality of Life Scale. **Results:** More than half of the patients in first age group (60.0%) had a good level of knowledge & reported practice post one month; while (72.0%) of patient in the second age group had a fair level with statistically significant difference P < 0.05 . Total quality of life mean score of the first age group was higher than second age group post, and follow-up of educational protocol application (74.33±8.14, & 72.47±5.44) compared with the second age group (72.8±9.63, & 70.04±5.65) with statistically significance difference P > 0.05. Furthermore a statistically significant correlation between QOL level and knowledge & reported practice level of patient in both age groups only post one month from protocol intervention (r = 0.123,0.546.) **Conclusion:** The educational protocol had positive effect on quality of life and increase knowledge & reported practice and for colostomy patients in two different age groups under the study. **Recommendation:** Studying the risk factors that affect the quality of life in two different age groups under study and the health outcomes of the colostomy patients

Keywords: Colostomy Patients, Different Age Groups, Educational Protocol, Knowledge, Practice & Quality of Life

Introduction

Colostomy is a surgical procedure where the normal bowel bath is interrupted with an artificial opening called stoma or ostomy appliance, this type of stoma drains waste from the large intestine (colon), and should drain a less liquid more stool-like type of waste **(Keng et al., 2021).** The indications for this procedure include; acute diverticulitis, rectal cancer, trauma, or inflammatory bowel disease. This therapeutic intervention can be temporary or permanent. The changes caused by the stoma stand out the physical changes, not only by affecting the intestinal physiological process, and impact on self-regulation and self-actualization. Furthermore, stoma can lead to mental and emotional imbalance (**Mohamed et al., 2017**)

Due to the high incidence of postoperative complications in patients with stoma and the fact that stoma is a kind of physical disability or deformity. Also, stoma patients are under great pressure in society, and effect on their psychology, physiology and quality of life (QoL), more attention has been paid to the education and nursing intervention for colostomy patients **(Ning & Chen 2019)**.

The growing number of elderly, combined with increasing life expectancy, has led to a greater number of older patients undergoing gastrointestinal (GI) surgery. These abdominal surgeries can require intestinal resections leading to a discontinuity of the GI tract. In many instances, this necessitates the creation of an intestinal stoma. Health education protocol play a critical role in providing information to patients and their caregivers in order to change their health behavior and improve their health condition **(Davis et al., 2020) & (Eskicioglu, et al., 2021)**

Quality of life is a multidimensional construct that represents an individual's subjective perception of physical, social, and psychological well-being. Symptoms like leaking, skin irritation, and fluid and electrolyte imbalance, appliance doesn't fit properly, has to be changed more frequently, the stoma seems as if it is being "strangled" by the appliance , also changed body image, loss of control over elimination of feces and flatus or is irritating the skin can all affect colostomy patients' QoL. It is a broad notion that is influenced in a complex way by a person's physical health, psychological condition, level of independence, social interactions, personal views, and relationship to important environmental factors (**Mohamed et al., 2018**)

Nurses play a vital role in the process of caring the stoma patients to help them quickly adapt to the life after procedure (**Heerschap & Duff 2021**). Nurses are involved in both preoperative and postoperative process of providing education for stoma patients. In the preoperative phase, nurses act as an educator introduce the necessities and the change of appearance after operation as well as the lifestyle guidance (**Burch, 2017**).

The nursing role for caring colostomy patients has evolved from the bedside nurse to an enter stoma therapist or a nurse clinical specialist with stoma care experience. Nurses have the key and most important role in health teaching for supporting patients (**Qalawa & Moussa 2019**) 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 & reported practices and QoL among patients with colostomy. This is done to minimize problems, improve patient confidence, and overcome the challenges that accompany stoma formation. To meet each patient 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

Significant of the study:

From experience of the researchers while dealing with colostomy patients, they noticed that they were facing many difficulties both physical and psychological that impact on their QoL. Nursing education should not only focus on stoma care, but also take a holistic approach for satisfying all the patients' requirements.

So the study pays attention to a various domains of a stoma patient's QoL and empowered colostomy patients with the important   information and

education which would facilitate patients' daily life and perform optimal level of colostomy care.

Operational definitions:

Educational protocol: is a set of step-by-step guidelines usually in the form of a simple one- or two-page document that is used by educators to structure professional conversations or learning experiences to ensure that meeting, planning, or group-collaboration time is used efficiently, purposefully, and productively (**Joseph et al., 2015**)

Age Groups

First age group: Young& Middle- aged Adults: period of human adulthood that immediately precedes the onset of old age. Though the age period that defines middle age is somewhat arbitrary, differing greatly from person to person, it is generally defined as being between the ages of 20 and 60 years (**Zhiying et al., 2020**).

Second age group: An older patient is defined by the WHO as a person who is over 60 years of age **WHO (2018)**

Aims of the study were to:

General aim; Evaluate the effect of educational protocol on knowledge, practice and quality of life for two different age groups of colostomy patients

Specific objectives;

1. Assess colostomy patient's knowledge & reported practice toward colostomy care for   two different age groups.
2. Assess the quality of life for two different age groups of colostomy patients.
3. Develop & implement educational protocol based on patient needs.
4. Evaluate the effect of educational protocol on knowledge & reported practice and quality of life for two different age groups of colostomy patients

Research   hypotheses: The   current   study hypothesized that:

1. The post mean knowledge & reported practice scores of colostomy patient who exposed to the health educational protocol would be higher than their pre mean scores.
2. The quality of life of the two studied groups would be will be improve after application knowledge & reported practice protocol.
3. A positive relationship would be exist between knowledge & reported practice score and   level QoL of colostomy patients   after the educational protocol application.

Patients and Method:

Research design:

Quasi -experimental (Pre, Post& follow-up) research design was used in this study. In this type of quasi-experiment, the researcher administers a pre-test and post-test to investigate change over time. Furthermore

in pre& post a research study a series of observations is made over time for one group of participants as the researcher can use pretest-posttest as test the participants prior to the experimental manipulation by perform the experimental manipulation, then test the participants after the manipulation to evaluate what changes occurred (**Richardson, 2018).**

Setting:

The study was carried out in Oncology Surgical Department in 2end floor and   Outpatient Clinic in ground floor in clinics building of Oncology Hospital at Sohag Governorate, Egypt. This is due to the increase in the number of patients attending the Oncology Hospital annually, mainly from colon cancer patients, more than other types, hoping to reach the provision of the best nursing service that helps patients to coexist and adapt post colostomy procedure.

Sample:

Purposive randomized sample of 55 patients from both gender with permanent stoma. Patients were divided into two groups, first group aged 20 to less than 60 years "young & middle –aged adults" (30 patients), and second aged group represented "old adults" ($\geq$60) (25 patients).

Sample size:

Sample size was calculated by using the EP-INFO intervention with a confidence level 95% and the flow rate of patient's cases in 6 months so the sample was calculated to be 83 patients 23 patients drop out during the data collection, only 55 patients agreed to participate and completed the study period.

Inclusion Criteria

• Patients with new permanent colostomy**.**

• Able to communicate effectively.

The exclusion criteria:

• The patients aged < 20 years old.

• Patients with terminal diseases (critical ill patient) as terminal cancer patient, end stage renal failure and liver cirrhosis because the nature of these diseases affecting their quality of life among these patients

• Patients who suffered cognitive, mental and/ or psychological disabilities.

Tools of the study: three tools were used to collect data: -

Tool I: A structured interview questionnaire: It was developed by the researcher to collect the necessary data. It consisted of two parts:

Part (1): Assessment for the demographic characteristic of patients with colostomy: it included (5) items to assess the following: gender, marital status, education, residence& occupation.

Part (2): Family and medical history assessment: it included (3) items include; family history, medical history as chronic diseases such as, (heart diseases, hypertension, diabetes mellitus, arthritis, respiratory diseases, and smoking history.

Tool (2): Knowledge & reported practice assessment for patients toward colostomy care:

This tool was developed by the researchers after reviewing the relevant literature **(De Sousa, et al., 2016), (Ilkay et al., 2016)**, **(Silva, et al.,   2017), (Goldberg, et al., 2018),** & **(Brown et al., 2019)**   It was used to assess the knowledge **& self-reported practice** of the studied patient about colostomy care package included   (43) items;

Theoretical package (7) items as (purpose of stoma, foods causing bad odor or gases,   odor control, traveling preparations, follow – up visits and unusual signs, or manifestation). All of them were closed ended questions.

Practical package: to assess patient's practices related to stoma care. This package consisted of 4 main categories (preparation of colostomy device or "appliance", removal old colostomy bag, cleaning and irrigation and applying a new appliance). Each categories consisted of number of items, preparation of colostomy base and bag (5 items), removal old colostomy bag (3 items), cleaning and irrigation (16 items), and applying a new appliance (8 items). (Total items for all categories were 36). All of them were closed ended questions.

Scoring System:

Responses of the patient were measured on 3-point Likert scale where "2" for correct and complete response, "1" for correct but incomplete response, and "0" for completely incorrect response. The total score for all items was (86 degrees),   classified as the following level;

"Good knowledge & repot practice "$\geq$ 70%, "Fair knowledge & repot practice" 50% - < 70% and "poor knowledge & practice "< 50% (**Onianwa et al., 2017**).

Face validity & reliability of the tool:

Tools were tested for its content validity by a group of five expert's professors in the Medical - Surgical and Geriatric nursing departments at the Faculty of Nursing at Assiut and Sohag Universities. The required minimal modifications were done. Testing reliability of the knowledge tool was done by alpha Cronbach test and the test result was 0.8%.

Tool (II): Stoma-Quality of Life Scale (S-QOLS) was developed by **(Mohamed et al., 2010)** in Arabic version; The questionnaire included 28 questions divided into six domains or factors, were named "Physical wellbeing"   (5 items), "Nutritional aspect"   (3 items), "Emotional aspect"   (5 items), "Social aspect"   (6 items), "Concerns related to stoma and pouch"   (7 items), and "Sexual aspect" (2 items).

Scoring System:

The Stoma Quality of Life Scale (SQOLS) was a 28-item. Item statements were negatively worded with response options of (1) always, (2) sometimes, (3) rarely, and (4) not at all, validated instrument with higher scores representing a better QOL.

Validity & Reliability of the tool(S-QOLS):
The scale is highly internally consistent; subscales' Cronbach alpha ranged from 0.836 to .939 and was 0.941 for the total scale. In addition, all subscales surpassed the 0.70 criterion for test retest reliability and were positively and significantly inter-correlated.

Methods:

Administrative stage:
An official letter approval was obtained from the Dean of the Faculty of Nursing, to carry out the study.

Pilot study:
It carried out prior to beginning of data collection on (10%) of the studied subjects (6 patients) that's excluded from the study. Pilot study aimed to test the tools clarity, efficiency and the time needed for fulfilling it. Based on the results of pilot study, the necessary modifications in sheets were done.

Ethical Consideration:
Research proposal were approved from Ethical Committee in the Faculty of Nursing, Sohag University. There was no risk for studied subjects during application of the research. The study was followed common ethical principles in clinical research. Oral consent was obtained from patients or guidance that was participated in the study, after explaining the nature and purpose of the study. Confidentiality and anonymity were assured. Study subject had the right to refuse to participate and or withdraw from the study without any rational any time. Study subject privacy was considered during collection of data.

Data collection stage:
- Sampling and data collection were started in June 2020 to November 2020. Patients divided into two groups, first group aged 20 to less than 60 years middle –aged adults (30 patients) and the other group aged 60 years and more old adults (25 patients).
- The data were collected by the researchers 2 days/week. The data were collected at morning shifts by interviewing patients individually.

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

Assessment phase:
- This is the first phase in the intervention, where demographic data were collected using tool I parts (1&2) from patients and their current medical records as baseline data. Colostomy patients' knowledge &reported practice and their QoL also

assessed before application the educational protocol using tool II and tool III.
- The structured questionnaire was filled by the researcher, the length of each interview 30-45 minutes. The researchers were interviewed the patients in the Inpatient Oncology Surgical Department and explained for them the importance educational protocol on quality of life.

Planning phase:
- The   educational protocol was designed based on analysis of the actual patients' needs in assessment phase. The educational protocol was written in simple Arabic language that was consistent with the related literature to meet patients'' needs and their level of understanding.
- The educational protocol was presented to patients in the form of handouts and printed material. It included diagrams, pictures with colors which were primarily intended for attracting and guiding patients to actively participate in their management independently. The educational protocol contained purpose, objectives and health care and it was being written by way to be understood easily by the reader in self -learning. The studied patients   with stoma had an intense need for these materials to be able to manage their disease problems.

Implementation phase: the educational protocol contained four sessions. The duration of each session ranged from 30-45 min, according to the content of each session and patient needs. The researchers meet each patient individually and used some media as video and simulation in practice sessions to increase attention. Also, sometimes the researchers provided counseling to patients via telephone.
- Each session started by a summary about what discussed in the previous session.
- Each patient restated all instructions given two times and the researchers ensured that each patient was able to use the booklet as a reference if needed at home. The prepared booklet written in simplified Arabic   language   and   supported   by   photo illustrations and colored pictures to be suitable for all patients needs. After educational protocol application every patient received a copy of the booklet and another copy given to the staff nurse of the oncology department as a guide for every patient admitted to these departments It included two parts
- This educational protocol included two parts; theoretical part and practical part. The theoretical part covered the following items; purpose and care of colostomy, daily life change, elimination, traveling preparations, diet regimen, religious practices, physical activities, follow – up visits, and complications. The practical part was conducted to cover the following items; measuring stoma size,

emptying and changing stoma pouch, stoma irrigation, per stoma skin care, bathing , removal old colostomy bag, cleaning and irrigation and applying a new appliance).

Evaluation phase:

- Post-test was done after giving the educational protocol by one month in four sessions each session took about 30-45 minutes for each patient using tool II & III.
- Follow up stage was done after three months later in out patient's clinic regarding their knowledge & reported practice and QoL using tool II & III.

Statistical analysis:

The obtained data were reviewed, prepared for computer entry, coded, analyzed and tabulated. Descriptive statistics (frequencies, percentage, mean and standard deviation) were done using computer intervention SPSS version 22, Excel 2016, analysis of variance done by using chi-square test P- Value <0.05. T-test used to compare between categorical variables where compare between continuous variables, Correlation Co-efficient test to appear the association between scores; a two-tailed p < 0.05 was considered statistically significant. All analyses were performed with the IBM SPSS 20.0 softwar

Results:

Table (1): Frequency & percentage distribution of demographic characteristic for studied subject (n =55)

Demographic characteristic	First age group (20 < 60 years) (n=30)		Second age group (≥ 60 years) (n=25)		X² test	P. value
	N	%	N	%		
Gender						
Female	15	50.0	11	44.0	2.67	0.657
Male	15	50.0	14	56.0		
Marital statues						
Married	24	80.0	19	76.0	2.93	0.479
Widow	4	13.3	2	8.0		
Divorced	2	6.7	4	16.0		
Education						
Illiterate	6	20.0	10	40.0	10.21	0.080
Basic education	12	40.0	3	12.0		
Secondary	9	30.0	7	28.0		
High Education	3	10.0	5	20.0		
Residence						
Urban	7	23.3	7	28.0	2.58	0.692
Rural	23	76.7	18	72.0		
Occupation						
Farmer	9	30.0	4	16.0	13.28	0.001**
Technical Work	3	10.0	3	12.0		
Retired	1	3.3	13	52.0		
Free Work	6	20.0	3	12.0		
Housewife	11	36.7	2	8.0		

***Significant level at P value < 0.01   Insignificant level at P value > 0.05*

Table (2): Frequency & percentage distribution of the studied patient in relation to their family and medical history (n =55)

Items	First age group (20 < 60 years) (n=30)		Second age group (≥ 60 years) (n=25)		X² test	P. value
	N	%	n	%		
Family history of cancer	16	53.3	16	64.0	3.64	0.425
Medical history of chronic diseases						
Heart diseases	7	23.3	3	12.0	5.01	0.278
Hypertension	21	70.0	20	80.0	1.31	0.873
Diabetes mellitus	23	76.6	22	88.0	6.85	0.180
Arthritis	19	63.4	18	72.0	5.31	0.521
Respiratory diseases	21	46.4	22	88.0	7.01	0.129
Smoking						
Yes	7	23.3	8	32.0	2.97	0.688
No	7	23.3	4	16.0		
Stopped	16	53.3	13	52.0		

Insignificant level at P value > 0.05

Table (3): Comparison between knowledge levels & reported practice among the studied patients toward colostomy care in the three protocol phases (pre, post and follow up) (n=55)

Knowledge level	First age group (20 < 60 years) (n=30)		Second age group (≥ 60 years) (n=25)		X² test	P. value
	n	%	n	%		
Pre protocol						
Poor	29	96.7	24	96.0		
Faire	1	3.3	1	4.0	2.19	0.895
Good	0	0.0	0	0.0		
Mean±SD	8.1±3.89		7.28±4.23		2.54	0.870
Post one month						
Poor	0	0.0	1	4.0		
Faire	12	40.0	18	72.0	14.67	0.020*
Good	18	60.0	6	24.0		
Mean±SD	21.57±2.47		19.88±2.54		16.31	0.016*
Follow up (after 3 months)						
Poor	5	16.7	5	20.0		
Faire	19	63.3	16	64.0	1.23	0.903
Good	6	20.0	4	16.0		
Mean±SD	18.8±2.52		17.92±2.94		4.11	0.238

P ≤ 0.05 significant   *P > 0.05 not significant*

Table (4): Comparison between total quality of life level among the studied subject in the three protocol phases (pre,   post and follow up)   (n =55)

Quality of life	First age group (20 < 60 years) (n=30)		Second age group (≥ 60 years) (n=25)		X² test	P. value
	N	%	N	%		
Pre protocol						
Low	27	90.0	23	92.0		
Moderate	3	10.0	2	0.8	0.89	0.967
Good	0	0.0	0	0.0		
Mean±SD	24.83±9.12		21.8±6.81		5.81	0.175
Post one month						
Low	2	6.7	4	16		
Moderate	8	26.7	6	24	2.08	0.874
Good	20	66.6	15	60		
Mean±SD	74.33±8.14		72.8±9.63		2.51	0.825
Follow up						
Low	3	10.0	7	28.0		
Moderate	10	33.3	8	32.0	6.34	0.523
Good	17	56.7	10	40.0		
Mean±SD	72.47±5.44		70.04±5.65		3.61	0.704

P > 0.05 not significant

Table (5): Correlation Co-efficient between knowledge, reported practice and quality of life among the studied subject in the three protocol phases (pre, post and follow up)   (n =55)

Correlations items	Knowledge & reported practice about colostomy			
	First age group (20 < 60 years) (n=30)		Second age group (≥ 60 years) (n=25)	
	R	P	R	P
Quality of life				
Pre protocol	0.286	0.125	0.358	0.079
Post of one month	0.123*	0.039*	0.546**	0.005*
Follow up after 3 months	- 0.226	0.229	- 0.042	0.841

P ≤ 0.05 statistically significant correlation   *P > 0.05 not significant*

Table (1): Reveals that the highest percentage in the second age group of the studied subjects "old adult patients" were males (56%) while, (50%) respectively were females and males in the first age group "middle –aged adult patients" Concerning marital status; most of patients in both groups were married (80.0%, & 76.0%) respectively .Regarding education; one third (40%) in the first age group had basic education while in the second age group (40.0%) were illiterate. While, (76.7%, 72.0%) respectively of the patient in both groups were from the rural areas   . As regards to occupation, more than on third of the first age group (36.7%) were housewives, while half of the second age group (52.0%)were retired .In addition to ; there was no statistically significant differences between the patients in studied groups regarding demographic characteristic (P=0.005) expect occupation (<0.01**).

Table (2): Shows frequency distribution of the studied patients in relation to their family and medical history. Cancer was the most common family history among the patients in first and second studied groups (53.3 %, & 64.0%) respectively. Also, chronic diseases as hypertension, diabetic and arthritis were apparent by most patients in the first age group (70.0%, 76.6% & 63.4%) respectively and (80.0%, 88.0% &72.0%) respectively in the second age group. As regarding to smoking history about half of patients in both ages groups stopped smoking (53.3%, & 52.0%) respectively.

Table (3): Clears the total knowledge & reported practice (mean ± SD) score as regarding colostomy care of the first age group and second age group pre educational protocol were poor (8.1±3.89 & 7.28±4.23) respectively with insignificant difference P = >0.05 and improved post educational protocol (21.57±2.47 & 19.88±2.54) with statistically significant difference P= <0.05. In relation to total knowledge & reported practice level post one month of protocol application; the study shows that more than half of the first age group (60.0%) had good level . While (72%) of patients in the second age group had fair level with statistically significant difference P= <0.05. At follow – up phase (after 3 months), the table shows that (63.3% & 64.0%) respectively of patients in both groups had faire level with underlined statistically insignificant difference P = <0.05

Table (4): Clears low QoL levels among both studied groups pre educational protocol which significantly improved to good level post one month after teaching protocol. Overall, the table verifies the total quality of life mean scores of the first age group was higher QoL than second age group pre , post and follow-up by percent (24.83±9.12, 74.33±8.14 & 72.47±5.44) compared to the second age group with following

ratios (21.8±6.81, 72.8±9.63 & 70.04±5.65) respectively. However, this table shows that there was no statistical significant difference as regarding quality of life level in both studied groups in the three phases of the educational protocol (pre, post and follow up) P = 0.175, P = 0.825 & P = 0.704) respectively.

Table (5): Outlines that there was a statistically significant correlation between QoL level and knowledge & reported practice level of both studied groups only post one month from protocol intervention (r = 0.123* & 0.546**)

Discussion:

Stoma has a great impact on patient's life including physical, psychological and social aspects. Patients face multiple challenge, these challenges include poor quality of life, negative emotion production, excretion problems, dissatisfaction with body image, lifestyle changes and complications. Patient education had a great improvement in the physiological aspects of stoma patients, especially in reducing physical pain and reducing the incidence of complications **Lingyun et al., (2016)**

Regarding demographic characteristics; the current study represented that the highest percentage in the second group of the studied patients (old adult colostomy patients) were males, this agrees with the study conducted by **Mohamed et al., (2017)** at Faculty of Nursing, Benha University who verified that vast majority of colostomy patients were men. And in the same line with **Abdelmohsen, (2020)** at Faculty of Nursing, Assuit University where found that the largest percentage were men with mean age ±SD (years) (35.6±14.4). In addition to study conducted by **Kusman et al., (2017)** at Faculty of Nursing, Universities Padjajaran, who found that the majority of colostomy patients were male young adult and middle adult age (< 60 years). But vice versa to the study conducted in the Department of Population Sciences, City of Hope, Duarte, California by **Sun et al., (2013) & Eva et al., (2016)** Who verified that females were more likely to get colostomy procedure than males with patient median age was seventy years underwent elective colostomy surgery. With the main diagnoses were colorectal cancers. In the researcher's point of view, it could be due to varied community cancer prevalence and precipitating factor for cancer colon. Concerning marital status; approximately two third of patients in both groups were married. Regarding education; one third in the first age group had basic education while in the second age group one third were illiterate. This is in the same line with the study conducted in Faculty of Nursing, Ain Shams University, Cairo**,** and Faculty of Nursing, King Abdulaziz University, Jeddah by **Abdulmutalib**

et al., (2018) & Irshad, et al., (2021) who found that the majority of the studied samples were married. Also, this agrees with with the study conducted in India by **Arun & Shinde (2014),** who found that the majority of those who took part in their study were married. From the researcher's point of view; this indicates that colostomy procedure would increase the patients' needs and stress levels because they have a lot of responsibilities toward their spouses and children, so the disease would have an impact on their family.

Also the present study revealed that there was a statistically significant difference between occupation of the studied sample and their age groups P=0.001, this disagrees with   the study conducted in Pakistan by **Irshad, et al., (2021)**who reported that there was no statistically significant difference between age group of the studied sample and their occupation P=0.158.

As regarding to family history, more than half of patients in both studied groups had family history of cancer   and this is in the same line with the results of **Culha, et al., (2016)** in Faculty of Health Science,Eskisehir Osmangazi University, Turkey, who mentioned that vast majority of their sample had family history with   malignancy.

Regarding past medical history it was found that the most of the studied patients had hypertension, diabetes mellitus, and arthritis. This agrees with **Mohamed (2017)** who found that more than two third of them had hypertension. But this disagrees with the study conducted in Bandung, West Java, Indonesia by **Kusman et al., (2017)** who indicated that a few of the respondents reported other health problems such as hypertension, infection, genitourinary, and diabetes mellitus.

Regarding to the patient's total knowledge& reported practice; the total mean   score of the first age group and second age group   in pre educational protocol were poor, this agrees with **Culha et al., (2016)** who found that stoma patient knowledge score was poor in the pre protocol & improved after intervention and also this agrees with **Abdulmutalib et al., (2018)** who found that total knowledge score pre-program was low level and became in progresses in follow-up phase.

In relation to knowledge & reported practice level one month post protocol application the study showed that more than half of patients in the first age group had good level. While more than two third of patients in the second age group had faire level with statistically significant difference. At the follow – up phase (after 3 months), the present study denoted improvement in both studied groups with insignificant deference, this agrees with the study conducted in Department of Surgery, Herlev Hospital, University of Copenhagen,

Denmark by **Soerensen et al., (2013)** who found that total knowledge of the study group improved after educational intervention. Also this finding was in line with the study conducted in Department of Nursing, Buddhist Tzu Chi General Hospital, Hualien, Taiwan by **Lo et al., (2011) & Hegazy et al., (2014),** in Faculty of Nursing- Benha University who found that patients' understanding of colostomy care improved significantly after the education compared to before. In terms of overall patient knowledge & reported practice mean score concerning colostomies and their care, the findings of this study revealed that, compared to the pretest, the majority of patients had higher   scores one month & follow up 3 months indicating improvement of the knowledge & reported practice after applying the educational protocol

From a theoretical standpoint, this might be linked to adequate illness knowledge that was supplied as a holistic and comprehensive session of care to patient who had stoma surgery and proved to be the most essential element for them to attend educational and informational meetings and courses

As regarding to QoL among the studied subjects,the current study explained a low QoL levels among the patients in both groups pre protocol application which significantly improved to good level immediately post & one month after teaching protocol. These agree with the study conducted in University of Colombo by **Umesh & Dharmabandhu (2017)** who stated the overall QoL score was considerably low before teaching program which improved according to the program to a moderate and good level. The importance of patient education and training during follow- up to maintain a higher QoL. Also, the present study verified that total QoL mean   score of the first age group   was higher than second age group post one month and follow-up, this agrees with **Irshad, et al., (2021)** who found that the total QoL increased in follow up than before.

This current study finding agrees with the study conducted in University of British Columbia by **Olsen, (2011)** who reported that different age groups variation affects QoL negatively. In addition, this agrees with the study conducted in Department of Surgery, College of Health Sciences, Makerere University, Kampala by **Yasin et al.,   (2021)** who reported that adult intestinal stoma patients under study had sub-normal stoma-related QoL pre program stage. They suffered serious negative psychological effects and significant limitation of social functions. Also, the present study is in the same line with the study performed in Kerman University of Medical Sciences, Iran by **Mahboobeh et al., (2019)** who explained that the mean scores of QoL and its dimensions   in   the   both   age   group   increased

significantly after intervention compared with pre intervention.

From the researchers point of view this study finding may be related to elderly people do not seek health services as younger ones, aging is frequently accompanied by a larger burden of comorbid conditions and greater illness severity which has effect on their QoL this is supported by **Hsiao, & Ching, (2017)**.

The present study revealed that there was a statistically significant correlation between knowledge & reported practice about colostomy and quality of life in studied sample during post intervention P=0.005, this similar to the study conducted in Department of Digestive Surgery, Faculty of Medicine, Andalas University by **Zhang et al., (2017)** who reported statistically significant difference between knowledge of the studied group and their quality of life P= 0.001.

Conclusion:
The health educational protocol had positive effect on knowledge& reported practice and quality of life for colostomy patients. In the different age groups under study, these findings justified the research hypotheses.

Recommendation:
- Telenursing counseling   on the quality of life & Follow up care for patients with the intestinal ostomy.
- Studying the risk factors that affect the quality of life and the health outcomes of colostomy patient.
- Planned self-care practices education program should be given to patients before their discharge.
- 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.

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