

## Effectiveness of Peer-Led Education on Patients' knowledge and Practice Regarding Colostomy Care Related to Colorectal Cancer

Reham Abdelhamed Abdelmawla Elsaid<sup>(1)</sup>, Amina Mohamed Abdelfatah Sliman<sup>(2)</sup>, Amal Eid Abdelmonaem Shaaban<sup>(1)</sup>, Yasmin Ibrahim Abdelkader Khider<sup>\*(3,4)</sup>

<sup>(1)</sup> Assist Professor of Medical-Surgical Nursing, Faculty of Nursing, Mansoura University, Egypt

<sup>(2)</sup> Assistant Professor of Critical Care and Emergency Nursing, Faculty of Nursing, Mansoura University, Egypt.

<sup>(3)</sup> Lecturer of Medical-Surgical Nursing, Faculty of Nursing, Mansoura University, Egypt

<sup>(4)</sup> Lecturer at Faculty of Nursing, Mansoura National University, Egypt.

### Abstract

**Background:** Patients who have undergone a colostomy face a variety of challenges, including both physical and psychological aspects, which have a significant impact on their overall quality of life. Peer learning is increasingly being used as a patient education strategy. **Aim:** This study aimed to assess the effectiveness of peer-led education on patients' knowledge and practice regarding colostomy care related to colorectal cancer. **Methods:** A quasi-experimental (one-group pretest-posttest design) was conducted. **Subjects:** The study involved two distinct groups of participants: initially, five patients with colostomies who satisfied the eligibility criteria and consented to partake in the research as peer educators. Subsequently, a purposefully selected sample of 30 patients was recruited for this study. **Setting:** The research was carried out in the surgical department and outpatient surgery clinic of the Oncology Center of Mansoura University. **Tools:** Three tools were utilized in data collection: a structured interviewing questionnaire, patients' knowledge questionnaire regarding colostomy care, and a colostomy care observation checklist. **Results:** A significant difference in knowledge and practice related to colostomy care was observed before and after the implementation of peer-led education. After education, a strong positive correlation was found between overall knowledge and practice results one month later. Additionally, participants with higher levels of knowledge demonstrated better practice outcomes, indicating the effectiveness of peer-led education in improving both knowledge and practice of colostomy care. **Conclusion:** The results of the present research demonstrate that peer education has proven successful in improving patients' understanding and implementation of colostomy care. **Recommendations:** Integration of peer learning into the structured education program for patients with colostomies should be considered an essential part of standard hospital care before patient discharge.

**Key words:** Peer-led education, Patients' Knowledge and practice, Colostomy care, Colorectal Cancer

**Email:** yasmin\_khider@mans.edu.eg

### Introduction

Colorectal cancer ranks among the leading causes of cancer-related mortality on a global scale (Sung et al., 2021). Colorectal cancer stands as the leading cause behind the creation of a stoma (Helle et al., 2022). Colostomy involves the surgical creation of an artificial opening, known as a stoma, to divert waste from the large intestine. This procedure is typically indicated for conditions such as acute diverticulitis, rectal cancer, trauma, intestinal obstruction, or inflammatory bowel disease. The stoma is managed with an ostomy appliance, which allows for the drainage of waste from the

colon, providing relief for patients with these specific medical conditions (Keng et al., 2021).

Colostomy surgery can be performed on different parts of the colon, including the ascending, transverse, descending, or sigmoid colon. Additionally, this procedure can be either temporary or permanent, depending on the patient's specific medical needs (Herawati & Nasution, 2019). In some cases, a temporary colostomy may be necessary to facilitate the healing process of a specific section of the colon. The colon can then be reconnected during a subsequent surgical procedure, which can occur weeks, months, or even years later. On the other hand, a permanent colostomy may be necessary

if a significant portion of the distal colon is affected and cannot be reversed (Almarzooq et al., 2020).

Inadequate understanding contributes to the challenges associated with ostomy for patients after discharge (Kirkland-Kyhn, Martin, Zaratkiewicz, Whitmore, & Young, 2018). Individuals with colostomies face obstacles in their professional and social lives, have concerns about body image, stoma functionality, privacy when emptying the pouch, and worry about leakage, bloating, travel, and skin irritation (Abdelmohsen, 2020). The presence of a colostomy has significant physical, psychological, and social impacts and requires patients to make significant adjustments and incorporate self-care practices into their daily routines (Andrews & Sharma, 2018; Collado-Boira et al., 2021).

Health education is a critical component in providing patients and their caregivers with the knowledge necessary to change their health behaviors and improve overall health outcomes (Eskicioglu, Keng, Marlie, Tyler, & Shawn, 2021). This educational intervention is designed to promote self-care, independence, and successful adjustment in individuals with stoma disease. By providing education, healthcare professionals can facilitate positive changes in health behavior, improve understanding of the disease, and reduce the risk of complications related to ostomy care. Nurses in particular are instrumental in helping ostomy patients cope with the challenges of life after the procedure and adapt to their new circumstances (Heerschap & Duff, 2021).

Health education should focus on acquiring technical skills related to wound management and incontinence, including skin cleaning, bag/adaptor changes, dressing changes and optimal positioning. In addition, it is advisable to promote individual participation in treatment decision-making processes, facilitate the organization of educational initiatives on daily routines to improve patients' social integration, and create educational resources and support frameworks (Culha, Kosgeroglu, & Bolluk, 2016).

The peer-led education, led by nurse professionals and moderated by experienced

ostomy patients, covers a variety of topics such as introductory concepts, effective communication strategies, sharing personal experiences, different types of colostomy procedures, lifestyle adjustments, and common complications (Heydari, Manzari, & Pouresmail, 2023). The use of peer learning is becoming increasingly important as a valuable approach in patient education and shows improved educational outcomes and positive effects on clinical practice (Nakao, Nomura, Nagata, & Ishiguro, 2024).

Peer education initiatives for individuals with illnesses or those undergoing certain medical procedures are structured to increase understanding and competency in managing their respective health conditions. In addition, these initiatives aim to provide patients with comprehensive information about planned medical interventions and necessary social assistance (Heydarzadeh, Alilu, Habibzadeh, & Rasouli, 2019). Research suggests that such initiatives produce positive outcomes by reducing unnecessary use of healthcare services and increasing patient confidence in both primary and hospital-based healthcare facilities, as evidenced by a decrease in clinic visits and hospital admissions (Debussche et al., 2018). Therefore, the present investigation aims to evaluate the effectiveness of peer-led educational interventions on patients' knowledge and skills regarding colostomy care.

### Significance of the study

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Colorectal cancer is the third most common cause of cancer-related death worldwide. A significant majority, over 70%, of these deaths are concentrated in low- and middle-income countries. Since 1975, when the number of cases was 500,000, the number of new cases of colon cancer has risen rapidly. Additionally, colorectal malignancies account for 9.4% of all cancer diagnoses. The prevalence of colostomy-related complications is high in individuals who have undergone colostomy surgery (Rawla, Sunkara, & Barsouk, 2019).

Based on the researchers' collective experience working with colostomy patients, approximately half of the participants were found to have inadequate levels of knowledge

regarding stoma self-care (Kang & Coudhary, 2024). In addition to the ongoing difficulties and consequences that a colostomy poses to a person's health and daily functions, people with a colostomy may face various physical and psychological barriers. Lifestyle considerations should be taken into account when assessing the effectiveness of different treatment approaches and their long-term impact on the patient's well-being in such scenarios (Abdelkader, Mahdy, Moustafa, & Mohamed, 2023).

### **Aim of the study:**

The aim of the study was to assess the effectiveness of peer-led education on patients' knowledge and practice regarding colostomy care related to colorectal cancer.

### **Research hypotheses:**

To achieve the aim of the study, the following research hypotheses were developed:

**H1:** Patients' knowledge of colostomy care would improve following a peer-led educational intervention.

**H2:** Patients' practice regarding colostomy care would improve after receiving peer-led education intervention.

### **Operational definition:**

#### **Peer-Led Education**

This research identifies peer-led education as an instructional strategy in which patients who have had colostomy surgery (peer trainers) take on the role of educators to help their fellow patients understand and acquire knowledge about colostomy management. In this research, Tool II measured patients' knowledge, while Tool III evaluated patients' practice.

### **Subjects and methods:**

#### **Research Design**

A quasi-experimental (one group pretest – posttest design) was conducted.

### **Research Setting**

This study was conducted at surgery department and outpatient surgery clinic at oncology center at the Mansoura University.

### **Subjects**

To achieve the purpose of this study, two categories of participants were included:

- A total of five patients with colostomies who met the inclusion criteria and agreed to participate in the study as peer educators. Peer educators were required to have a diploma and higher education, have been living with stoma for at least 6 months, have a high health literacy level and have appropriate social communication skills.

- In this research, a purposive sample of 30 patients was included. The selection criteria included being adults of both genders, conscious, willing to take part in the study, free from serious or comorbid conditions, capable of understanding, without any mental or psychological issues, without stoma complications, having a colostomy for less than 2 months, and not undergoing any training or educational program.

### **Sample size calculation:**

In order to determine the appropriate sample size for the current research, the equation developed by **Steven K. Thompson in 2012** was utilized. The general surgery departments at the oncology center of Mansoura University reported a total of 30 patients with colostomies at 2022. Based on this data, it was calculated that a minimum of 27 patients would be required for the study, with 'n' representing the sample size (27), 'N' representing the population size (30), 'Z' representing the confidence level of 95% (1.96), 'd' representing the error proportion (0.05), and 'p' representing the probability (50%). Additionally, a 10% increase was factored in to account for potential data improvements and follow-up drops, resulting in a final sample size of 30 patients.

### **Tools of data collection**

Data collection involved the utilization of three distinct tools.

### **Tool I: A structured interviewing questionnaire**

The researchers created this instrument after reviewing relevant literature (Almanzalawy, 2020; Herawati, & Nasution, 2019). Divided into two sections, the tool included demographic information on the subjects examined in the first part, including age, gender, marital status, education, and occupation. Part two of the tool focused on assessing colostomy-related factors such as duration, indication, and type of colostomy.

### **Tool II: Patients' knowledge questionnaire regarding colostomy care:**

The researchers developed this tool after a comprehensive review of the relevant literature with the aim of providing comprehensive information for people with ostomies (Abd El-Rahman, Mekkawy, Ayoub, & Sayed, 2020; Debussche, 2018). The tool includes a total of 32 items, categorized into three different knowledge areas. The first section focuses on patient education regarding basic aspects of the gastrointestinal tract, stoma variations, and possible complications and consists of 10 items. The second section covers practical information such as ostomy measurement, pouch replacement, and irrigation techniques and is also 10 points. Finally, the third section contains general advice on nutritional aspects, odor management, hydration, skin care, ostomy drainage properties, physical activities, travel tips, follow-up appointments, and recognizing signs requiring medical attention, for a total of 12 points.

#### **Scoring system**

The overall percentage of patients' knowledge was determined by assigning a score of one to each known or correct answer and a score of zero to each unknown or incorrect answer. We added the scores for each area of knowledge, divided by the total number of items, and calculated the mean knowledge score. Subsequently, these scores were transformed into a percentage format. The knowledge scores were classified as:-

- Poor knowledge: below 50%
- Fair knowledge: 50 - < 75%

- Good knowledge: 75% or higher

### **Tool III: A colostomy care observation checklist (pre/post)**

This tool was developed by the researchers after reviewing the relevant literature (Abdelmohsen, 2020; Abdulmutalib, Al Nagshabandi, & Alansari, 2018). The tool comprised six distinct categories focusing on stoma and peristomal skin care practices, with the researcher assessing and quantifying activities such as new pouch preparation, stoma size measurement, old pouch removal, pouch emptying, stoma pouch change, skin care, and stoma irrigation. In total, there were 42 items across all categories.

#### **Scoring system**

The evaluation of each item on the checklist was conducted utilizing a 3-point Likert scale that spanned from 0 to 2. A score of 0 was assigned to steps that were incorrect or not performed, a score of 1 was given to steps that were partially correct, and a score of 2 was awarded to steps that were entirely correct. Patients achieving 70% or higher were categorized as having satisfactory performance, whereas patients scoring below 70% were classified as having unsatisfactory performance.

#### **Validity and reliability**

The research tools underwent finalization with the assistance of five experts specializing in medical-surgical and critical care nursing to assess the content validity of the tools. To determine the reliability of the study tools, Cronbach's alpha coefficient was employed, resulting in values of 0.80 for tool II and 0.73 for tool III.

#### **Pilot study**

A pilot study was conducted to assess the clarity, comprehensiveness, viability, and applicability of the research tools on a subset of three patients, representing 10% of the total sample. Subsequently, these patients were excluded from the final study sample.

### **Ethical considerations and Human Rights:**

Approval for the study was granted by the Research Ethical Committee of the Faculty of Nursing at Mansoura University, Egypt, with reference number **0569**, allowing for the collection of essential data following a detailed explanation of the study's objectives and methodology. Participants were made aware that their involvement was voluntary, and written consent was obtained from each individual. Throughout the study, the confidentiality and privacy of information provided by healthcare professionals were rigorously upheld to ensure data security and ethical standards were maintained.

#### **Fieldwork and Data collection:**

Fieldwork of this study was consisted of three phases;

##### **Phase I: preparatory phase**

- The initial stage commenced by seeking approval from the Research Ethical Committee at the Faculty of Nursing, Mansoura University, Egypt, to begin the preparatory phase.

- The researcher was developed and translates the study tools into the Arabic language.

- After that, the study tools were tested for validity and reliability.

- The researcher conducted a preliminary investigation that involved a pilot study to gather initial data. Following the analysis of the pilot study's findings and a comprehensive examination of existing national and international literature, the researchers proceeded to create an educational booklet.

- The instructional manual was a booklet in simple Arabic with visuals, divided into two sections. The theoretical part covered colostomy care in a 30-minute session, while the practical part was split into two 30-minute sessions with live demonstrations and videos on topics like pouch preparation and skin care.

**Phase II: Implementation phase was consisted of two stages.**

**Stage 1: Training of patients with colostomy to become peer trainers**

- The researchers attended the surgery department and outpatient surgery clinic at oncology center at the Mansoura University.

- Individuals were chosen from eligible patients who met the inclusion criteria and willingly agreed to take part in the research as peer educators.

- To commence the interview, the researchers introduced themselves to the participant to establish a channel of communication; the study's objectives and purpose were clarified; and the necessary study instruments were completed prior to training the peer educators.

- Following the selection and training of the peer group, the researchers assessed the knowledge and skills of the peer educators, with data being gathered both before (pre-test) and one month after (post-test) the intervention.

- The researchers conducted three educational sessions lasting 60 minutes each within a week to train the peer educators. The educational sessions covered topics such as the research goals, as well as the significance and advantages of peer education.

- Peer trainers were evaluated for their knowledge using Tool II and their practice using Tool III.

- Peer trainers who obtained more than 75% in the theoretical course (good knowledge) and more than 70% in the practical topic (satisfactory practice) were selected to become peer trainers.

- Reinforcement, re-demonstration, and evaluation are repeated until the peer trainers reach the requested level.

##### **Stage 2: Training of patients**

- The researchers were attended to the previously mentioned setting on Sunday, Thursday, and Tuesday each week.

- The participants who met the inclusion criteria were selected, and informed consent was obtained.

- After explaining the aim of the study, the researchers were obtained socio-demographic data on the study participants using Tool I, their knowledge using Tool II, and their practice using Tool III.

- Then, the peer trainers were start training the study participants using previously learned information and a booklet.

▪ The educational sessions for the patient were conducted over three successive meetings, with each session lasting approximately 30 minutes, followed by a 15-minute period for feedback and questions.

▪ Each patient received a printed booklet in plain Arabic, accompanied by illustrated photographs for each exercise or practice.

▪ Patients were provided with the researcher's contact number for immediate assistance in case they encountered any problems or issues during the course of their treatment.

### Phase III: Evaluation phase:

Prior to the education session, a preliminary assessment was carried out among adult patients to gauge their knowledge and practices. Following the session, a follow-up assessment was conducted using the same tools as the pretest (Tool II and Tool III) to assess the impact of the program. This post-test took place one month later during outpatient care follow-up, allowing for an evaluation of the program's effectiveness over time. The data was collected from January 2024 to June 2024.

### Statistical design:

The data collected underwent a thorough review, underwent preparation for input into a computer system, were coded, analyzed, and then tabulated. Utilizing the statistical software SPSS version 23, descriptive statistics such as frequencies, percentages, means, and standard deviations were calculated. The research employed the paired T test to examine the differences between pre- and post-program evaluations. Additionally, the independent t test was utilized to compare two variables, while the one-way ANOVA was employed for comparisons involving more than two variables. To evaluate the correlation between numerical variables within the same group, Pearson's correlation coefficient was applied. Statistical significance was determined by considering P-values less than 0.05 as indicative of significance.

## Results

**Table 1:** Demonstrates that the mean age of the studied participants was  $44.60 \pm 6.76$  years and 63.3% were men. In addition, 70.0% of the

studied participants were married, and 36.7% of them had basic education. Moreover, for occupation, 40.0% were office employees, 86.7% of them had a permanent colostomy. The duration of stoma in 56.7% of the participants ranged from one to two months. Moreover 100% of the study sample did not receive any previous training about stoma care.

**Table 2:** Shows a comparison of patient's means knowledge scores regarding stoma in all knowledge parts. There were statistically significant differences in all knowledge parts between pre- and post-peer education. The mean $\pm$ SD was ( $5.00 \pm 2.65$ ), ( $4.80 \pm 3.24$ ), and ( $7.80 \pm 1.97$ ) pre-peer education, respectively. But post-peer education, the mean $\pm$ SD was ( $7.00 \pm 1.76$ ), ( $6.66 \pm 2.56$ ) and ( $8.63 \pm 1.79$ ), respectively. With the total mean knowledge score was  $17.60 \pm 7.68$  pre-peer education and  $22.29 \pm 5.74$  post-peer education.

**Figure 1:** Illustrates that prior to the implementation of peer-led education, only 20% of the participants exhibited a good score level. In contrast, after one month of receiving peer-led education, the percentage of participants with a good knowledge score level significantly increased to 63.4%.

**Table 3:** Show significant improvements in patients' stoma care practices after peer-led education. Scores for new pouch preparation, stoma size measurement, old pouch removal, pouch emptying and changing, skin care, and stoma irrigation all increased post-intervention. Overall, total practice scores increased from  $42.51 \pm 16.19$  to  $54.04 \pm 17.92$ , post-application of the peer-led education.

**Figure 2:** Indicates that prior to the implementation of peer-led education, 43.3% of the patients included in the study exhibited a satisfactory level of practice scores. However, following the application of peer-led education for one month, the percentage of patients with a satisfactory practice score level increased to 73.3%.

**Table 4:** Reveals the relation between total knowledge and practice score and demographic characteristics post-application of the peer-led education. There was an improved in total knowledge and practice score for the

studied patients with age group 20-39 years than other age group with statistically significant relation ( $p=0.018$ ) and ( $p=0.023$ ) respectively. Moreover, the educational level affects positively on knowledge and practice score, as it was observed that, improved total knowledge and practice score for patients who had a high education level with statistically significant relation ( $p=0.001$ ) and ( $p=0.049$ ) respectively.

**Figure 3:** Shows a significant moderate positive correlation between total knowledge and

total practice score before application of peer-led education ( $r=0.465$  and  $P= 0.010$ ). As, the practice score was better among participants who had high level of knowledge.

**Figure 4:** Outlines that there was a highly significant positive correlation between total knowledge and total practice score post one month from the peer-led education ( $r=0.497$  and  $P= 0.005$ ). As, the practice score was better among participants who had high level of knowledge.

Bio-demographic characteristics		N=30	%
Gender	Men	19	63.3
	Women	11	36.7
Age group	20-39	6	20.0
	40-60	24	80.0
Mean age	44.60±6.76		
Marital status	Married	21	70.0
	Single	4	13.3
	Divorced	3	10.0
	Widow	2	6.7
Educational level	No formal education	2	6.7
	Basic Education	11	36.7
	Secondary Education	10	33.3
	High Education	7	23.3
Occupation	Unemployed	4	13.3
	Office employee	12	40.0
	Manual work	8	26.7
	House wife	6	20.0
Stoma type	Temporary	4	13.3
	Permanent	26	86.7
Duration of stoma	Less than one month	13	43.3
	From one to two months	17	56.7
Previous training about stoma care	Yes	0	0.0
	No	30	100.0

**Table 2: Comparison of participants' means knowledge scores pre- and post-application of peer-led education (N=30)**

knowledge scores	Pre Mean ± SD.	Post Mean ± SD.	T	P. value
Part 1	5.00±2.65	7.00±1.76	11.260	0.000*
Part 2	4.80±3.24	6.66±2.56	10.910	0.001*
Part 3	7.80±1.97	8.63±1.79	6.530	0.004*
<b>Total knowledge scores</b>	17.60±7.68	22.29±5.74	10.342	0.000*

\*: Statistically significant at  $p \leq 0.05$

SD: Standard deviation

t: Paired t test

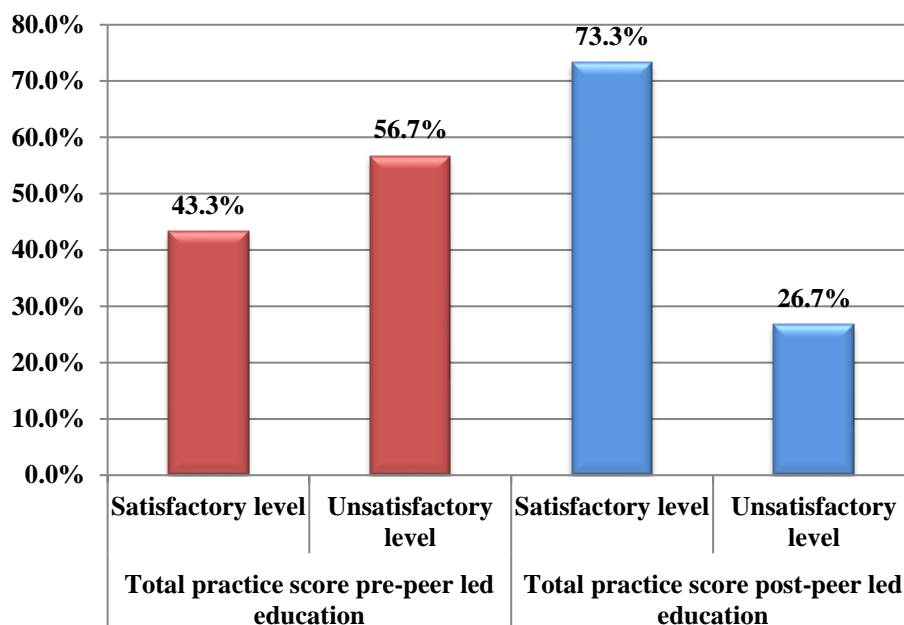


Fig. (1): Total knowledge scores levels pre and post one month from application of peer-led education (N=30)

Practice scores	Pre Mean $\pm$ SD.	Post Mean $\pm$ SD.	T	P. value
New pouch preparation	4.03 $\pm$ 1.60	5.73 $\pm$ 2.03	17.405	0.000*
Measuring stoma size	3.26 $\pm$ 1.87	4.86 $\pm$ 2.19	12.105	0.005*
Removal of the old pouch	9.86 $\pm$ 3.47	11.50 $\pm$ 4.00	13.379	0.001*
Empty and change stoma pouch	6.73 $\pm$ 2.33	8.46 $\pm$ 2.63	18.228	0.002*
Skin care	8.13 $\pm$ 3.09	9.96 $\pm$ 3.32	21.776	0.001*
Soma irrigation	10.50 $\pm$ 4.22	13.53 $\pm$ 3.98	15.583	0.000*
<b>Total practice scores</b>	<b>42.51<math>\pm</math>16.19</b>	<b>54.04<math>\pm</math>17.92</b>	<b>22.737</b>	<b>0.000*</b>

\*: Statistically significant at  $p \leq 0.05$   
SD: Standard Deviation  
t: paired t test



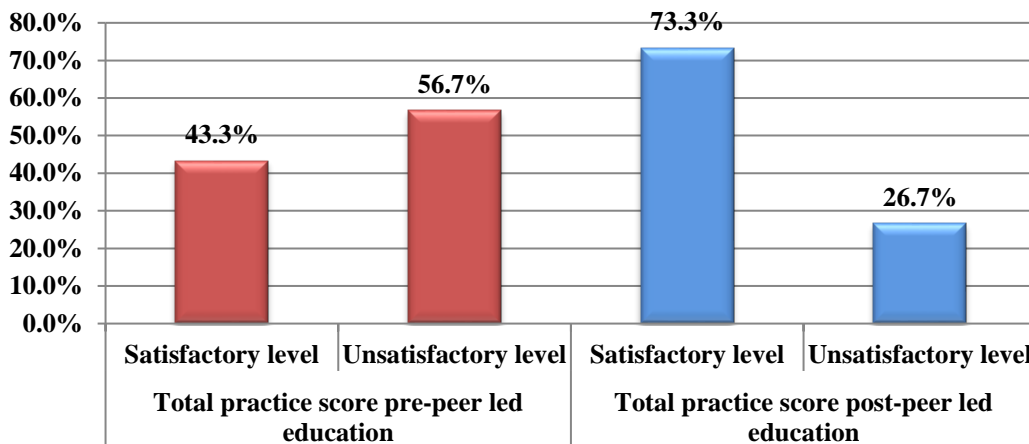


Fig. (2): Total practice scores levels pre and post one month from application of peer-led education (N=30).

Table 4: Relation between total knowledge, practices score and demographic characteristics post-application of the peer-led education.

Demographic characteristics	Total knowledge score		Total practice score	
	Mean± SD	P	Mean ±SD	P
<b>Gender</b>				
Men	23.21±5.41	0.259(0.797) <sup>a</sup>	53.21±19.15	0.325 (0.747) <sup>a</sup>
Women	22.63±6.54		55.45±16.36	
<b>Age group</b>				
20-39	27.83±0.40	2.503 (0.018*) <sup>a</sup>	68.66±11.36	2.415 (0.023*) <sup>a</sup>
40-60	21.79±5.83		50.37±17.52	
<b>Educational level</b>				
No formal education	17.00±3.21	10.619(0.001*) <sup>b</sup>	41.50±17.67	3.003(0.049*) <sup>b</sup>
Basic Education	16.00±2.23		49.00±11.18	
Secondary Education	22.50±4.22		46.00±16.67	
High Education	27.00±4.56		64.07±17.33	

Test of significant (P) a : Independent sample test

Test of significant (P) b : One way Anova

\*: Statistically significant at  $p \leq 0.05$

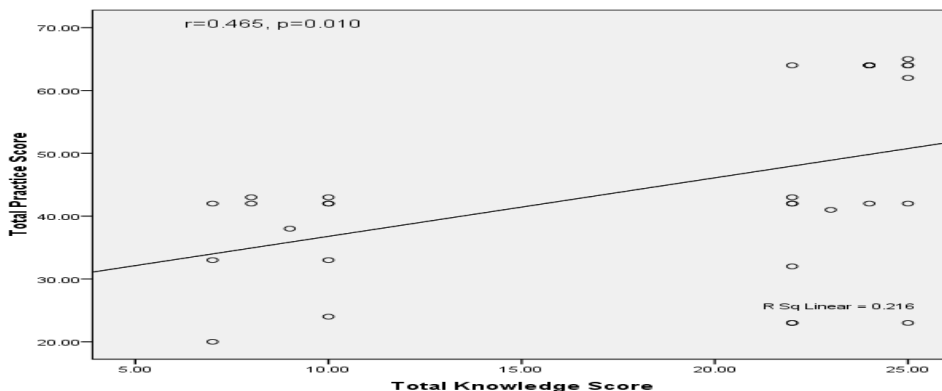


Fig. (3): Correlation between total knowledge score and total practice score before application of peer-led education.

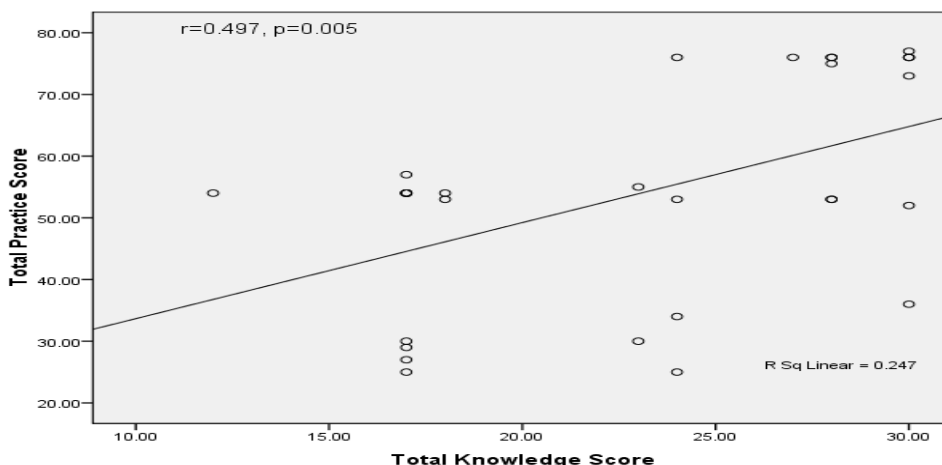


Fig. (4): Correlation between total knowledge score and total practice score post one month from application of peer-led education.

**Discussion**

Globally, colorectal cancer stands as the third most prevalent reason for cancer-related deaths (World Health Organization: WHO, 2024). Patients who have undergone colostomy surgery encounter significant challenges when it comes to obtaining the necessary information to adjust to their new circumstances. It is crucial for nurses to prioritize providing tailored health education to these patients, offering constructive feedback and assessments to enhance the learning process. Peer-led education is a behavioral intervention strategy and educational approach that emphasizes the sharing of experiences among patients to enhance their skills. This method is culturally appropriate, widely accepted, and cost-effective, making it a

significant tool for behavioral intervention within the population (Wang et al., 2024). The present research designed to assess the impact of peer-led education on the understanding and implementation of colostomy care among patients with colorectal cancer.

The demographic profile of the study population revealed a predominance of male participants. The high prevalence of smoking and fast food consumption among Egyptian men, factors known to elevate the likelihood of developing colorectal cancer, may account for this observation (Fouda et al., 2018). These results are in agreement with the study conducted at Mansoura University, Egypt, by Almanzalawy in 2020, who assessed the efficacy of a self-management initiative on

patients' understanding and implementation of stoma care and found that more than two-thirds of the studied adults were men. In the same line with the present study comes the study conducted by **Abdelmohsen in 2020** about the efficacy of a structured educational program on patients' understanding and implementation of colostomy care at Assuit University and found that the largest percentage were men. Moreover, the result of **Mohamed et al. (2017)** at Benha University showed that the overwhelming majority of colostomy patients were men. In contrast, the study conducted by **Eva, Jeanette, Anne-Marie, Charlotta, and Lindholm (2016)**, who studied the incidence of complications associated with ostomy surgery 12 months post-operation, verified that the majority of their participants were women.

Concerning age, the mean age of the participants in this study was  $44.60 \pm 6.76$ . This finding is similar to a study carried out by **Abd El-Rahman, Mekkawy, Ayoub, and sayed, 2020**, which analyzed how nursing instructions influence the ability of colostomy patients to care for themselves effectively and reported that about half of the studied patients, ages ranged from 40 to less than 50 years with  $\text{mean} \pm \text{SD}$   $47.11 \pm 11.03$  years. Conversely, research conducted by **Ngo in 2023** examined patients' comprehension of self-care routines for intestinal stomas and explored the relationship between demographic data and self-care skills. The study revealed that the average age of the participants was  $57.9 \pm 12.4$  years, with over 75% of them being above 50 years old.

In this study, more than one-third of the study participants had basic level of education. This finding is in the same line with the Egyptian study done by **Abdelmohsen in 2020**, who found that the highest percentage of the sample were basic education. In the present study, approximately two-thirds of patients in both groups were married. This result is consistent with the finding of **Mohamed (2022)**, who investigated how the educational protocol influences the understanding and implementation of colostomy care as well as the overall quality of life in both younger and older colostomy patients and stated that around two-thirds of patients in both groups were married.

Concerning the type of colostomy, the majority of the sample under study was permanent colostomy. This finding is consistent with the study performed by **Abdelmohsen, 2020**, who found that most of their studied sample had a permanent colostomy. Regarding receiving knowledge and practical training about stoma care, more than two-thirds of the study participants did not receive knowledge and practical training about stoma care. This finding agrees with a study conducted by **Mohamed Abd El-Hay, and Sharshor in 2019**, which studied the impact of self-care education and implementation on individuals with a permanent stoma as well as its influence on their quality of life and self-care efficacy, and reported that the majority did not receive any training for the stoma.

The findings of the present study revealed that more than one-fifth of the participants exhibited a satisfactory level of knowledge prior to receiving peer-led education, while around two-thirds of them demonstrated a good knowledge score after undergoing the peer-led education program, indicating a significant improvement. This outcome suggests that the peer-led education initiative could be considered effective in enhancing patients' knowledge regarding colostomy care.

The finding of the current study is supported by the finding of **Wang, Ren, Li, Xie, Lin, and Fang, 2024**, who assessed the effects of visual health education led by enterostomal therapists in conjunction with peer education on the self-care abilities post-surgery in individuals with a permanent colostomy and clarified that the collaborative effort between enterostomal therapists and peer educators in delivering visual health education has the capacity to bring about significant improvements in the well-being of patients with a permanent colostomy. By addressing various aspects such as mood, adaptability, and daily living conditions, this approach holds promise in enhancing the **Abdelmohsen, 2020** overall quality of life for individuals living with a colostomy.

Additionally, a separate study conducted by **Culha, Kosgeroglu, and Bolluk (2016)** yielded similar findings, as they concentrated on assessing the efficacy of administering self-care

instruction to individuals with stomas. The study revealed that the level of knowledge among stoma patients was inadequate prior to the procedure but showed improvement following the intervention.

Also, this study finding agrees with **Abdulmutalib, Al Nagshabandi, and Alansari (2018)**, who assessed the effectiveness of an educational protocol in enhancing the understanding and self-care practices of individuals living with an intestinal ostomy and stated that the total knowledge score pre-program was low and became in progress in the follow-up phase. Additionally, **Almanzalawy's** research in **2020** aligns with the aforementioned study's results, demonstrating a substantial enhancement in adults' understanding post-program in contrast to their initial knowledge levels.

Regarding total practice scores, the present study's finding illustrated a highly significant improvement in all practice items between pre- and post-application of the peer-led education. More than half of the studied patients in the present study had an unsatisfactory practice score level pre-application of peer-led education, while post-application of peer-led education, more than two-thirds had a satisfactory practice score level. The researcher may interpret this finding as being linked to the impact of a peer-led education program, suggesting that peer education surpasses routine care in enhancing the self-care behaviors of individuals with stomas. The findings align with the research conducted by **Abdelmohsen in 2020**, which revealed a significant statistical difference in all aspects of practice before and after the implementation of the structured educational program.

Also agreement comes from the study of **Almanzalawy, 2020**, who indicated that there was a highly significant statistical difference detected between the patients' practice level regarding stoma care at pre, post, and after one month of program implementation discharge. **Almanzalawy (2020)** further supported the findings by highlighting a significant statistical difference in the patients' proficiency in stoma care before, immediately after, and one month following the implementation of the program.

The current study outlines that there was a significant positive correlation between total knowledge and total practice score pre- and post-one month from the peer-led education. As the practice score was better among participants who had a high level of knowledge. The results align with the research carried out by **Almanzalawy in 2020**, which demonstrated a strong statistical relationship between the total knowledge scores of patients and their adherence to practices both immediately after the program implementation and one month after discharge.

Also in the same line with the work of **Stoke et al. (2017)**, who evaluated various postoperative complications, such as stomal and peristomal issues, as well as factors like hospital stay duration and readmission rates among patients who underwent a preoperative educational program, in comparison to a control group of patients who did not participate in the intervention and observed that patient education before surgery led to improved outcomes for stoma patients, reducing pain and complications. Finally, this study's findings reflected the positive effect of the peer-led education on the patients with stoma. The peer-led education improves the stoma care knowledge and practice among the adult patients.

### **Limitation of the study**

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The data collection procedure was limited to oncology center at the Mansoura University; hence, its findings cannot be generalized.

### **Conclusion**

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According to the results of the current study, it is evident that peer-led education has proven to be successful in increasing patients' knowledge and skills in managing colostomy care.

### **Recommendations**

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In light of the current study's findings, the following recommendations can be suggested:

- Peer-led education program should be implemented for stoma patients as a part of routine hospital care before patient discharge.
- The nurse, in the role of a health educator, must ensure that adult patients receive

comprehensive instruction and hands-on practice in stoma care.

- Concise and illustrated booklet should be provided for patients before performing stoma containing brief knowledge about the stoma, stoma and skin care to adapt to their life after the stoma.

- Conducting a similar studies on larger probability sample is recommended to achieve generalize ability and wider utilization of the designed education program.

- Further studies have to be carried out to assess nurse's knowledge and practices regarding the care of stoma.

### Acknowledgments

The researchers express their gratitude to all the individuals who took part in the study, contributing their time and effort to advance the research.

### Conflicts of interest

The researchers declare that there is no conflict of interest.

### Reference

**Abdelkader, H., Belal, F., Mahdy, N., & Mohammed, M. (2023).** Effectiveness of an educational program on Self-Care management of colostomy patients. *Port Said Scientific Journal of Nursing*, 10(4), 334–361.

<https://doi.org/10.21608/pssjn.2023.215532.1264>

**Abdelmohsen, S. A. (2020).** Effectiveness of structured education on patient's knowledge and practice regarding colostomy care. *Asia-Pacific Journal of Oncology Nursing*, 7(4), 370–374.

[https://doi.org/10.4103/apjon.apjon\\_24\\_20](https://doi.org/10.4103/apjon.apjon_24_20)

**Abdulmutalib, I. A. M., Nagshabandi, E. A. A., & Alansari, S. K. A. (2018).** Effect of an Educational Protocol on Knowledge and Self-Care Practices among Patients with the Intestinal Ostomy. *American Journal of Nursing Research*, 6(6), 553–561.

<https://doi.org/10.12691/ajnr-6-6-25>

**Alilu, L., Heydarzadeh, L., Habibzadeh, H., & Rasouli, J. (2020).** The effect of peer education on knowledge, comprehension, and knowledge application of patients regarding chemotherapy complications. *Iranian Journal of Nursing and Midwifery Research*, 25(1), 40.

[https://doi.org/10.4103/ijnmr.ijnmr\\_69\\_19](https://doi.org/10.4103/ijnmr.ijnmr_69_19)

**Almanzalawy, H. (2020).** Effect of Self-Management Program on the Patient's Knowledge and Practice regarding Stoma Care. *Assiut Scientific Nursing Journal /Assiut Scientific Nursing Journal*, 8(23), 55-66.

<https://doi.org/10.21608/asnj.2021.51543.1082>

**Almarzooq B. A., Alshuut A. A., Al-Amyateem A. A., Neazy S. A., Alhadlaq A. I., & Alnazawi F. F. (2020).** An Overview in the Management of Stoma and Care of Patients. *Archives of Pharmacy Practice*, 11(4), 55-59.

**Andrews, G. R., & Sharma, A. (2018).** Impact of in Effect of Instructional booklet on the knowledge, attitude, problems faced and coping strategies adopted by colostomy patients in selected hospitals of Delhi. *Current Medicine Research and Practice*, 8(3), 92–95.

<https://doi.org/10.1016/j.cmrp.2018.05.003>

**Carlsson, E., Fingren, J., Hallén, A. M., Petersén, C., & Lindholm, E. (2016).** The Prevalence of Ostomy-related Complications 1 Year After Ostomy Surgery: A Prospective, Descriptive, Clinical Study. *Ostomy/wound management*, 62(10), 34–48.

**Collado-Boira, E. J., Machancoses, F. H., Folch-Ayora, A., Salas-Medina, P., Bernat-Adell, M. D., Bernalte-Martí, V., & Temprado-Albalat, M. D. (2021).** Self-Care and Health-Related Quality of Life in Patients with Drainage Enterostomy: A Multicenter, Cross Sectional Study. *International Journal of Environmental Research and Public Health*, 18(5), 2443.

<https://doi.org/10.3390/ijerph18052443>

**Culha, I., Kosgeroglu, N., & Bolluk, O. (2016).** Effectiveness of self-care education on

- patients with stomas. *IOSR Journal of Nursing and Health Science*, 5(2), 70-76. DOI: 10.9790/1959-05217076
- Debussche, X., Besançon, S. S., Balcou-Debussche, M., Ferdynus, C., Delisle, H., Huiart, L., & Sidibé, A. T. (2018).** Structured peer-led diabetes self-management and support in a low-income country: The ST2EP randomised controlled trial in Mali. *PLoS ONE*, 13(1), e0191262. <https://doi.org/10.1371/journal.pone.0191262>
- El-Rahman, W. A., Mekkawy, M., Sayed, S., & Ayoub, M. (2020).** Effect of nursing instructions on self-care for colostomy patients. *Assiut Scientific Nursing Journal*, 8(23), 96-105. <https://doi.org/10.21608/asnj.2020.48530.1066>
- Fouda, S., Kelany, M., Moustafa, N., Abushouk, A. I., Hassane, A., Sleem, A., Mokhtar, O., Negida, A., & Bassiony, M. (2018).** Tobacco smoking in Egypt: a scoping literature review of its epidemiology and control measures. *Eastern Mediterranean Health Journal*, 24(2), 198-215. <https://doi.org/10.26719/2018.24.2.198>
- Heerschap, C., & Duff, V. (2021).** The Value of Nurses Specialized in Wound, ostomy, and Continence: A Systematic review. *Advances in Skin & Wound Care*, 34(10), 551-559. <https://doi.org/10.1097/01.asw.0000790468.10881.90>
- Herawati, L., & Nasution, S. (2019).** The Influence of Education about Stoma on Self Care Ability in Patients with Colostomy. *International Journal of Current Research*, 11(07), 5556-5559. DOI: <https://doi.org/10.24941/ijcr.36002.07.2019>
- Heydari, A., Manzari, Z. S., & Pouresmail, Z. (2023).** Nursing intervention for quality of life in patients with ostomy: A systematic review. *Iranian Journal of Nursing and Midwifery Research*, 28(4), 371. <https://doi.org/10.4103/ijnmr.ijnmr.266.22>
- Keng, C. J., Lee, J., Valencia, M., McKechnie, T., Forbes, S., & Eskicioglu, C. (2021).** Transition home following new fecal ostomy creation. *Journal of Wound Ostomy and Continence Nursing*, 48(6), 537-543. <https://doi.org/10.1097/won.0000000000000814>
- Kirkland-Kyhn, H., Martin, S., Zaratkiewicz, S., Whitmore, M., & Young, H. M. (2018).** Ostomy care at home. *AJN American Journal of Nursing*, 118(4), 63-68. <https://doi.org/10.1097/01.naj.0000532079.49501.ce>
- Kristensen, H. Ø., Thyø, A., Emmertsen, K. J., Smart, N. J., Pinkney, T., Warwick, A. M., Pang, D., Elfeki, H., Shalaby, M., Emile, S. H., Abdelkhalik, M., Zuhdy, M., Poskus, T., Dulskas, A., Horesh, N., Furnée, E. J. B., Verkuyl, S. J., Rama, N. J., Domingos, H., . . . Christensen, P. (2022).** Surviving rectal cancer at the cost of a colostomy: global survey of long-term health-related quality of life in 10 countries. *BJS Open*, 6(6), zrac085. <https://doi.org/10.1093/bjsopen/zrac085>
- Mohamed, H., El-Hay, S. A., & Sharshor, S. (2019).** Self-Care Knowledge and Practice for Patients with Permanent Stoma and their Effect on Their Quality of Life and Self Care Efficacy. *Journal of Health, Medicine and Nursing*, 60(2019), 1-8. <https://doi.org/10.7176/jhmn/60-13>
- Mohamed, M., Ahmed, G., Abdelall, H., Fahmy, H., Abd-Elfatah, S., & Abdelaziz, S. (2022).** Effect of Educational Protocol on Knowledge, Practice and Quality of life for Two Different Age Groups of Colostomy Patients: "Comparative Study". *Assiut Scientific Nursing Journal*, 10(28), 253-263. Doi: 0.21608/asnj.2022.128906.1348
- Mohamed, S. S., Salem, G. M. M., & Mohamed, H. A. (2017).** Effect of Self-care Management Program on Self-efficacy among Patients with Colostomy. *American Journal of Nursing Research*, 5(5), 191-199. <https://doi.org/10.12691/ajnr-5-5-5>
- Nakao, H., Nomura, O., Nagata, C., & Ishiguro, A. (2024).** Peer learning has double effects in clinical research Education: a Qualitative study. *International Journal of Pediatrics*, 2024, 5513079, 1-10.

<https://doi.org/10.1155/2024/5513079>

**Ngo, T. D., Hawks, M., Nguyen, T. T. T., Nguyen, T. N. H., Nguyen, H. T., & Mai, N. T. T. (2023).** Self-care knowledge in patients with intestinal stomas in a selected hospital in the south of Viet Nam: A descriptive cross-sectional study. *Belitung Nursing Journal*, 9(4), 331–338. <https://doi.org/10.33546/bnj.2711>

**Stokes, A. L., Tice, S., Follett, S., Paskey, D., Abraham, L., Bealer, C., Keister, H., Koltun, W., & Puleo, F. J. (2017).** Institution of a preoperative stoma education group class decreases rate of peristomal complications in new stoma patients. *Journal of Wound Ostomy and Continence Nursing*, 44(4), 363–367. <https://doi.org/10.1097/won.0000000000000338>

**Sung, H., Ferlay, J., Siegel, R. L., Laversanne, M., Soerjomataram, I., Jemal, A., & Bray, F. (2021).** Global Cancer Statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA a Cancer Journal for*

*Clinicians*, 71(3), 209–249. <https://doi.org/10.3322/caac.21660>

**Thompson, S. K. (2012).** *Sampling*. John Wiley & Sons.

**Wang, Y., Ren, H., Li, M., Xie, L., Lin, L., & Fang, Y. (2024).** Effect of Enterostomal Therapist-Led Visual Health Education Combined with Peer Education on the Self-Nursing Ability, Quality of Life and Peristomal Complications in Patients with a Permanent Colostomy. *Patient Preference and Adherence*, 18, 1271–1280. <https://doi.org/10.2147/ppa.s458601>

**World Health Organization: (WHO). (2024).** Colorectal cancer. [https://www.who.int/news-room/fact-sheets/detail/colorectal-cancer?gad\\_source=1&gclid=CjwKCAjw5Ky1BhAgEiwA5jGujsFl-3JdPRCegCXOkXO\\_lxF-C5yUrYu9Y3et-ADHhMO4hZUQy74IDRoCq58QAvD\\_BwE](https://www.who.int/news-room/fact-sheets/detail/colorectal-cancer?gad_source=1&gclid=CjwKCAjw5Ky1BhAgEiwA5jGujsFl-3JdPRCegCXOkXO_lxF-C5yUrYu9Y3et-ADHhMO4hZUQy74IDRoCq58QAvD_BwE)