Assiut Scientific Nursing Journal
http://asnj.journals.ekb.eg
http://www.arabimpactfactor.com
http://olddrji.lbp.world/indexedJournals.aspx
DOI: 10.21608/ASNJ.2022.132612.1357

Effectiveness of Video-discharge Instructions about Colostomy Self-care on Awareness and Self-efficacy of Low-Literacy Patients

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Abstract
Background: Low literacy patients need new methods to improve their awareness and enhance self- efficacy regarding problems related to the colostomy care. **Aim:** To evaluate effectiveness of video-discharge instructions about colostomy self- care on awareness and self-efficacy of low-literacy patients. **Research design:** Quasi-experimental study design (pre–post test). **Setting:** The study was carried out in the General Surgical Department and Outpatient Clinic at Assiut University Hospital **Subjects:** Purposive thirty low-literacy patients with colostomy. **Tools: (I)** Patients' awareness questionnaire which included demographic and medical data of the patients and Pre – post stoma- related awareness and **(II):** Stoma self - Efficacy Scale. **Result:** Majority of the studied patients were males their ages more than 40 years old and not work (76.7%, 66.6% and 66.7% respectively). Half (50%) of them diagnosed with cancer colon. A significant statistically difference was found regarding total awareness, and self- efficacy scores of the studied patients between pre and post implementation of the video-discharge instructions with a positive correlation among them. **Conclusion:** That implementation of video-discharge instructions about colostomy self-care had a positive effect on awareness and self-efficacy of low literacy patient. **Recommendation:** For managing every aspects of stoma care should be a top priority, preferably before leaving the hospital. For low literacy patients who should be included in hospital programs provided by ostomy care team for improving their awareness, self-efficacy, prevention and treatment of their complications.

Keywords: Awareness, Colostomy, Low-Literacy, Self-care, Self-efficacy & Video-discharge Instructions.

Introduction:
A colostomy is a surgically produced opening between the colon and abdominal wall that allows fecal evacuation while leaving a stoma on the abdomen through which waste is transported into an appliance that must be emptied on a regular basis **(Doty, 2019).**

Colostomy can be permanent or temporary and can be performed on the ascending, transverse, descending, or sigmoid colon **(Svetanoff, et al., 2021)**. Colostomy complications impair patients' emotional and social lives in addition to their physical and physiological well-being. One of the most unpleasant events in these individuals' lives is having to deal with an ostomy after surgery **(Villa et al., 2019).**

Self-efficacy is described as a person's belief in their ability to achieve specific levels of performance that have an impact on events in their lives. Beliefs influence how people feel, think, motivate themselves, and act, resulting in a variety of impacts via cognitive, motivational, affective, and selection processes **(Sofyan, & Jayanti, 2019).**

There is a need for comprehensive and organized self-care education specially for low literacy patients to assist ostomies in overcoming educational, physical, psychological, and social challenges to enhance self-efficacy **(Nam et al., 2019)**. Ostomy nurses are in charge of caring for people who have a stoma, and this specialist nursing profession is still evolving on a global scale **(Wound, 2018) & (Sujianto et al., 2020).**

Stoma self-care entails teaching patients how to maintain their stomas on their own. Patients' self-efficacy and knowledge are increased, which leads to better patient behavior. Improved skills consider using special suitable methods for illiterate patients as videos, colored pictures predicted to result in improved disease control, which should result in improved their outcomes and lower health-care consumption, including room visits and hospitalizations, and eventually lower costs **(Wonggom et al., 2019).**

Operational definition:
Self-efficacy: is one's belief in his or her ability to be successful in specific situations or accomplish a task in order to deal with life's challenges.
Low literacy patients: People with low literacy skills may not be able to read a book or instructions on medicines or use the internet.

Significance of the study:

In Assiut University Hospitals through year 2019-2020, it was found that there were approximately (50) cases carried out colostomy at general surgery departments **(Assiut University Hospitals records, 2019).**

The Central Agency for Public Mobilization and Statistics (CAPMAS) has announced that Egypt's illiteracy rate is 24.6% in July 2019 **(CAPMAS, 2019).** A guide to understanding visual literacy and using visual communication through easily methods that don't required from the patient to read as colored pictures and videos consider suitable to provide the targeted information and skills for illiterate persons **(Kędra, 2018).**

In addition, Due to skin irritation, pouch leaking, disagreeable odour, and a reduction in pleasure activities, people with ostomas experience stress. Stoma patients experience a variety of issues, the most of which are medical, psychological, and social in nature.. Stoma discharge instruction using video tool states that patients, mainly low literacy, learn how to manage their stomas independently and enhance their awareness level. Patients with higher colostomy self-efficacy had better quality of life specially health.

Aim of the Study:

This study aimed to evaluate the effectiveness of video-discharge instructions about colostomy self-care on awareness and self-efficacy of low-literacy patients.

This aim was achieved through the following:

- Assessing patients' awareness and self-efficacy level as regards colostomy self-care.
- Developing and implementing the video-discharge instructions about colostomy self- care for the low literacy patients.
- Evaluating to evaluate the effectiveness of video-discharge instructions about colostomy self-care on awareness and self-efficacy of low-literacy patients.

Study Hypothesis:

The video-discharge instructions will effect positively on both awareness and self-efficacy among low literacy patients with colostomy post implementation of the instructions compared to pre test.

Research Design:

Quasi-experimental research (pre-posttest) design was used.

Study Setting:

This study was conducted at the general surgical departments (A, B and C) and outpatient clinic at Assiut university Hospital.

Study Subjects:

A purposive thirty low-literacy patients with colostomy.

Inclusion criteria:

Adult patients, ranged from 18 to 60 years old, having had colostomy, and capable to communicate.

The exclusion criteria: included people with end-stage diseases and those with disabilities that would prohibit them from participating in self-care.

Sample size

The sample of 30 patients were selected by using the following equation according to **(Steven, Thompson, 2012)**

$$n = \frac{N \times p(1-p)}{\left[\left[N-1 \times \left(d^2 \div z^2\right)\right] + p(1-p)\right]}$$

N=total patient population size of 50 who attended the general surgery departments at Assiut University hospitals. During year 2019-2020.

Z = confidence levels is 0.95 and is equal to 1.96

D= The error ratio is = 0.05

P= The property availability ratio and neutral = 0.50

Study tools:

Four tools were utilized to collect data

Tool (I): Patient's awareness questionnaire:

It was developed by the researchers aimed to assess patients` level of awareness about care of colostomy included two parts;

Part (1): Demographic and medical data of the patients: as age, gender, marital status, educational level, occupation and diagnosis.

Part (2): Pre – post stoma-related awareness:

this part aimed to assess the patients` level of knowledge about colostomy care included 17 closed ended questions; purpose of stoma, stoma care, measuring stoma, changing stoma pouch, stoma irrigation, stoma products, foods causing discharge odor or gases, diet change, odor control, need for sufficient daily water intake, daily life change, religious practices, peristomal skin care, stoma complications, sexual preparations, physical activities, traveling preparations, follow – up visits and unusual signs of immediate doctor advice.

Scoring System:

Responses of the studied Patients' were scored as (1) for correct answer and (zero) for incorrect answer.

The total score was 17 categorized into either satisfactory level (from 60% and more) or unsatisfactory level (less than 60%). **(Abd El-Hay et al., 2019)**.

Tool (II): Stoma self - Efficacy Scale (pre / post assessment):

It was adopted from **(Bekkers et al., 1996).**

Stoma Care Self-Efficacy which refers to the conviction by patients that they can successfully manage their stoma to minimize adverse outcomes. It focus on patients' ability to care for their stoma.

Scoring System Patients` responses were categorized as follow: , very sure I cannot do it; 2, somewhat sure I cannot do it; 3, not sure I cannot do it; 4, somewhat sure I can do it; and 5, very sure I can do it.

High scores refer to positive self-efficacy, i.e., subjective presence of ability. So the total score = 100, whereas less than 50 = low (-ve) self -efficacy and 50and more = high (+ve) self -efficacy.

Tools Validity and Reliability:

The experts check the relevancy, clarity, comprehensiveness, and applicability of the tool (I), part (2). According to their opinions, appropriate modifications were done, by five professions and experts of Medical- Surgical Nursing in the Faculty of Nursing and Medicine, at Assiut university. Reliability was done by cronbach, alpha test (.882).

The Stoma Care Self- Efficacy (Cronbach's alpha = 0.94, 13 items), assesses expected self-efficacy regarding capability to care for one's stoma.

Ethical consideration:

- The study ethical acceptance of this study was obtained from the Faculty of Nursing's ethics committee, Assiut University.
- After explaining the research nature and kept the data confidentiality.
- Informed consent firstly was obtained from the studied subjects.
- All studied patients were voluntarily participated in the study.
- Any data that obtained and used confidentially just for the objectives of the study.
- The research fellow the World Medical Association Declaration of **Helsinki, (1996).**

Pilot Study:

A pilot was carried out on (10%) 3 patents of the total study sample to test the clarity and practicability of the tools.

Pilot subjects were later included in the study as there were no radical modifications in the study tools.

Field Work:

Sampling and data collection were started and completed within one year,

The research lasted around six months, from October 2021 to March 2022.

Prior to any data collection, the study's purpose was simply described to the patients who accepted to participate.

The study was carried out through four phases:

Assessment, planning, implementation, and evaluation.

Assessment Phase:

This was the first phase, during which patients' demographic and medical data were acquired as baseline data from their current medical records utilizing tool (I) part (1).

The researchers collected data through a day /week were the colostomy operations were listed. This performed at general surgery department in Assiut university hospital at the morning shifts.

Through interviewing patients individually, the data were taken one day postoperatively and patient is full oriented and stable condition with no pain (receiving prescribed analgesic).

Each interview lasted about 15 minutes to assess their awareness level using tool (I) part (2) by asking the patients about their colostomy information and for another 15 minute to assess their self efficacy level using tool (II).

Planning Phase (video-discharge instructions development):

The video-discharge instructions about colostomy self-care were created based on a pre-assessment of the actual patients' demands utilizing pre-built instruments (tool I and II).

Video-discharge instructions was performed in simple Arabic language and clear performed steps, the researchers who perform the scenario of the video using the suitable equipment that was reliable with the linked literature to meet patients' needs and their level of understanding specially low literacy patients.

The video was captured using a high-quality camera to be a high-definition video.

It was created with the goal of attracting and guiding patients to actively participate in their own self-care, and it was written in a way that the reader could understand simply. As a result, a stoma patient may have a high demand for certain products, especially those that help them manage their disease.

This instructions were given to the patients after their condition were stable postoperatively and before discharge from the hospital.

The video-discharge instructions was presented to patients in the researcher mobile and laptop then send to each patient mobile as a reference if needed at home.

This video-discharge instructions played for 10 minutes and included 2 parts; simple theoretical &practical part.

The theoretical part covers the following topics: colostomy's purpose and care, daily life changes, elimination, sexual preparations, travelling preparations, diet regimen, religious practises, physical activities, follow-up visits, complications, and unusual signs that require immediate doctor advice.

The practical portion covered the following topics: (stoma self-care) stoma size measurement, stoma pouch emptying and changing, stoma irrigation, peristomal skin care, hygiene and exercise measures.

At the end, patients were informed to be in contact with the researcher by telephone for any guidance.

Evaluation phase (Follow up phase)
Evaluation was done after one month of discharge (evaluation was done using tools I and II) during their follow up visits at the outpatients' clinic, using the pre mentioned tools (I and II) and the evaluation took about 30 minutes to assess their awareness and self-efficacy levels.

Statistical Design:
The collected data were organized, categorized, tabulated and analyzed using the Statistical Package for Social Sciences (SPSS). Data were presented in tables and charts using numbers, percentages, means, standard deviations and t – test. Level of significance was threshold at 0.05.

Results:

Table (1): Distribution of studied patients' demographic and medical data:

Items	Study group (n=30)	
	No.	%
Gender:		
Male	23	76.7
Female	7	23.3
Age:		
≤ 20 years	2	6.7
> 20 to ≤ 40	8	26.7
> 40	20	66.6
Range	18.0 – 61.00	
Mean ± SD	45.1±12.9	
Marital Status:		
Single	3	10.0
Married	15	50.0
Widow	0	0.0
Divorced	12	40.0
Occupation:		
Working	10	33.3
Not working	20	66.7
Diagnoses:		
Cancer colon	15	50.0
Traumatic colon injury	3	10.1
Sigmoid cancer	6	20.1
Strangulated hernia	2	6.6
Injury in rectum	2	6.6
Fournier gangrave	2	6.6

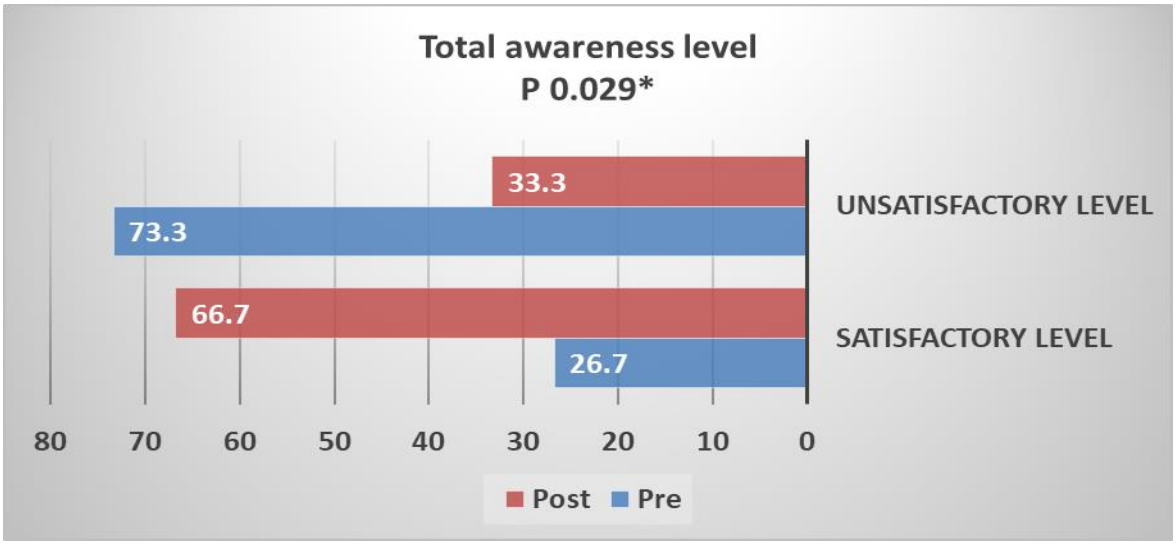

Figure (1): Relation between pre and post- test of the studied patients' total awareness level

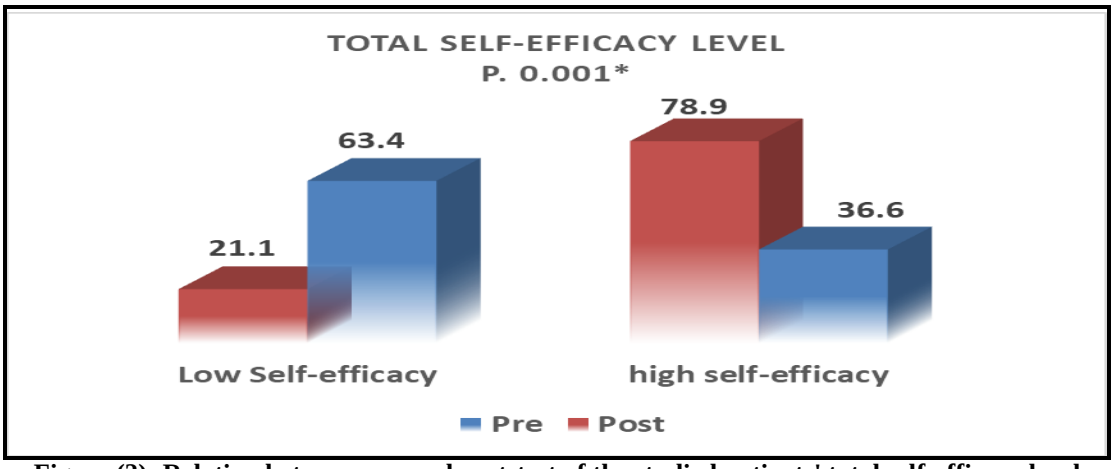

Figure (2): Relation between pre and post-test of the studied patients' total self-efficacy level

Table (2): Relationship between total patients' awareness and self-efficacy level and their demographic data:

Items	Post test total awareness (n=30)		P-value	Post test total self-efficacy (n=30)		P-value
	unsatisfactory n. (%)	Satisfactory n. (%)		Low self- care behavior n. (%)	High self-care behavior n. (%)	
Gender:						
Male	8 (26.7%)	15(50%)	0.242	7(23.3%)	16(53.3%)	**0.191**
Female	2 (6.7%)	5 (6.7%)		1(3.3%)	6(20%)	
Age:						
< 20 years	2(6.7%)	0(0.0%)	0.457	0(0.0%)	2(6.7%)	**0.947**
> 20 to ≤ 40	3(10%)	5(16.7%)		2(6.7%)	6(20%)	
> 40	4(13.3%)	16(53.3%)		7(23.3%)	13(43.3%)	
Marital Status:						
Single	3(10%)	0(0.0%)	0.006*	1(3.3%)	2(6.7%)	
Married	2(6.7%)	13(43.3%)		1(3.3%)	14	**0.024***
Widow	6(20%)	6(20%)		2(6.7%)	10 (33.3%)	
Occupation:						
Working	5(16.7%)	5(16.7%)	0.042*	1(3.3%)	9(30%)	0.229
Not working	3(10%)	17(56.7%)		7(23.3%)	13(43.3%)	

Chi-square test ** Statistical significant differences (p < 0.05)*

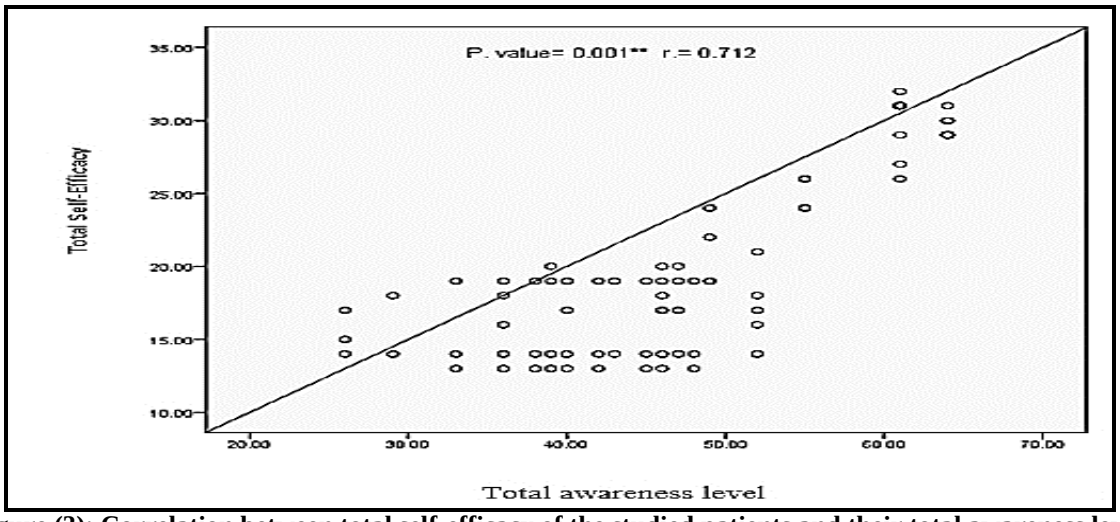

Figure (3): Correlation between total self-efficacy of the studied patients and their total awareness level after application of the video discharge instructions (N= 30).

Table (1): Showed that; majority of the studied patients were males (76.7%) and > 40 years old that ranged from18.0 to 61.00 years old, while, half of them (50%) were married and (66.7%) were not working. Regarding their diagnosis, the result illustrated that half of them (50%) suffered from cancer colon.

Figure (1): Showed that there was a statistically significant difference between pre and post- test of the studied patients' total awareness level (p. 0.029*) and there was a significant improvement of it after application of the video discharge instructions.

Figure (2): Showed that there was a statistically significant difference between pre and post- test of the studied patients' total self-efficacy level (p. 0.001*) and there was a significant improvement of it after application of the video discharge instructions.

Table (2): Showed that there were statistically significance difference between total knowledge scores and both marital status and occupation. There were statistically significance difference between total self-efficacy behavior level and marital status.

Figure (3): Showed that there was a positive correlation between total self-efficacy of the studied patients and their total awareness level after application of the video discharge instructions.

Discussion:

The present study aimed to evaluate effectiveness of video-discharge instructions about colostomy self care on awareness and self-efficacy of low-literacy patients with colostomy.

The results of the present study will be discussed in four parts: the first section will deal with the demographic and medical information of the patients. The findings relating to the influence of video-discharge instructions on the patient's awareness were discussed in the second section. The final portion looked at how self-efficacy was affected by video-discharge instructions. The fourth segment investigated the relations between awareness and self-efficacy and with patient demographic data.

First part: Regarding demographic data:

The present study showed that; majority of the studied patients were more than 40 years old ranged from18.0 to 61.00 years old. This result agrees with **Mohey El Din et al., (2018)** who discovered that two-thirds of the sample was beyond the age of 50. Furthermore, this discovery is consistent with the findings of **Nieves et al., (2017),** who found that the majority of colostomies are raised in adults over the age of 50. According to the researchers, this could be because those over the age of 40 are more likely to get colon cancer. The current study supported the findings of **Magazi's (2010)** study on: Assessment of self-care practise among patients with colostomies in the Faculty of Nursing, Zagazig University, which found that one-third of colostomy patients were between the ages of 46 and 60.

The researcher opinion that the age of greater than 40 years is considered one of the risk factors for colon cancer.

Concerning the gender, majority of them were male and married. These findings agree with **Villa et al., (2018)** who found more over three-fifths of the participants in the study were males. Furthermore, the findings of the **Sujianto et al., (2020)** study support the researcher's opinion that men have a higher percentage of colostomies than women. This could be because Egyptian males smoked often and ate fast food, both of which are risk factors for colon cancer.

In terms of job nature after surgery, the current study's findings revealed that half of the subjects were not working. According to the researcher point of view, the fatigability, which considers the main feature of physical limitation postoperatively, could also be due to the patients' older age. These findings contradicted those of **Engida et al., (2016),** who found that roughly half of their individuals continued to work in the same occupation after ostomy surgery. **Ones et al., (2018)** revealed that more than half of the respondents had resigned from their jobs due to the existence of a stoma, which is consistent with our findings.

The researcher opinion, the odor and other problems of presence of the stoma could be main cause of absence of work. Concerning the causes of colostomy surgery, the present study results revealed that half of subject had cancer colon.

In the same line **Mohamed et al., (2017)** The etiology of colostomy is disorders that necessitate the removal of the distal colon, according to the research (for example, colorectal cancer).

Part 2: Regarding patients' awareness:

The present study denoted that there were statistical significant improvement in the total awareness level pre/post video discharge instructions regarding colostomy and its care while there was a significant improvement of it after application of the video discharge instructions. So this study concerned of low literacy patients that in the researcher's experience, many patients are from rural regions; they have had little contact with the hospital after discharge, their cultures and low level of education preclude them from discussing such issues. As a result, patients should be trained about stoma care as early as possible, preferably via video, to ensure that knowledge and practice are gained quickly.

In a similar view, **Chauhan et al., (2017)** conducted an interventional study among permanent colostomy patients in China to assess knowledge of colostomy care, colostomy products, problems prevention and

treatment, colostomy bag change, and colostomy irrigation. In contrast, according to **Qalawa & Moussa's (2019)** study, patients had some but not extensive knowledge about their stoma; the lowest scores were in colostomy irrigation, stoma-related problems, and how to measure it.

Also, according to **Seo (2019),** stoma knowledge scores of patients were given in the post-test, and it was discovered that the study group's stoma knowledge scores were significantly higher than the control group's scores.

An integrated video method is effective than traditional method when educating ostomy patients in postoperative self-efficacy specially with low literacy patients. Moreover, the researcher experience was the self- care management skills were important such as the ability to perform normal stoma care, identify problems, care for peristomal skin and understand how to prevent and treat potential complications.

who mentioned that a highly statistically significant difference was found regarding total knowledge score of the studied sample pre and post application of the structured patient education.

The study of **Cuendet, et al., (2018)** indicates the types of visuals that can be used in illiterate or low education. It is suggested to close the debate over the concept of videos or pictures. Instead, based on the proposed lists of skills, a method of illiterate persons assessment can be created.

This study finding was in accordance with the study of **(Hegazy et al., 2019)** entitled as" Outcomes of Educational Guidelines on Awareness and Self Efficacy Among Patients with Permanent Colostomy" , This study revealed that patients' knowledge about colostomy care significantly improved post the education compared to pre education. **Wahida et al., (2015)** stated that the stoma knowledge scores of individuals increased upon the training.

Part 3: Concerning of stoma care self-efficacy:

The present study showed that there was a statistically significant difference between pre and post- test of the studied patients' total self-efficacy level (p. 0.001*) and there was a significant improvement of it after application of the video discharge instructions. This due to the selection of the suitable method of education which targeted the low literacy patients.

This agreed with **O'Leary, (2015)** who found the self –efficacy can be improved and affected by the health literacy which effect lately on the patient quality of their life.

Converging findings from several areas of **Xie et al., (2020)** research show that the effects of therapeutic interventions on health behavior are partly mediated by changes in perceived self-efficacy.

However, **Menting et al., (2018)** illustrated that perceived self-efficacy has been shown to play a significant role in such diverse forms of health behavior as pain experience and management, control of eating and weight, success of ostomy care and adherence to preventive health programs.

The researcher opinion that, these results point to the importance of perceived self-efficacy as a durable factor affecting health.

In the other hand, this results disagree with **Giordano et al., (2020)** who found that take care of stoma when they are sick had the lowest mean score that in their descriptive cross-sectional study.

Part 4: relation between the total self-efficacy and their awareness level:

The contemporary study showed that there was a positive correlation between total self-efficacy of the studied patients and their total awareness level after application of the video discharge instructions. The researcher opinion that, patients with better stoma care knowledge and the ability to manage all parts of care independently were more psychosocially adjusted to their stomas than those with less knowledge and more reliance on others for care.

This finding is consistent with that of **Abdulmutalib et al., (2018),** who found a relation between self-care competence and self-efficacy adjustment.Patients who are completely self care and have a high level of disease awareness showed better levels of psychological adjustment **(Ahmed et al., 2018).**

Also **Ayaz-Alkaya, (2019)** observed that ability to self-efficacy was correlated positively with level of adaptation and adjustment. This finding was in agreement with **Campos et al., (2017)** who stated that there was a positive correlation between knowledge and practices. Which mean the more increase knowledge level, the greater ability to perform the activity of daily livings. Also, this study was congruent with **(Mohamed et al., 2017)** who reported that there was a positive correlation between knowledge and self-care practices after implementing an educational program.

Likewise**,** (**Qalawa & Moussa,2019)** clarified that there is a statistically significant correlation between patient's knowledge scores and practice among the studied patients with colostomy in post educational implementation phases comparing to pre test (Ps= 0.010) .

Conclusion and Recommendations:

The video discharge instructions about colostomy self-care had effected positively on awareness and self -efficacy among patients with colostomy.

In the light of results of this study, the following recommendations were suggested:

Before hospital discharge, providing and playing video discharge instructions for low literacy patients,

raise awareness, and self-efficacy for people with colostomies.

The findings of this study showed that improving patients' ability to care stoma on their own should be a priority, preferably before they hospital discharge to improve their self efficacy.

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