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Effect Of Nursing Rehabilitation Program On Self Efficacy For Patients Undergoing Ileal Conduit Urinary Diversion

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Background: An ileal conduit urinary diversion is a frequently implemented procedure, which influences physiological, social, and psychological functions. Patients' learning needs and self-care deficit assessment can help in fulfilling patients' needs and improving their lifestyle.
Aim of the study: To evaluate the effect of nursing rehabilitation program on self-efficacy for patients undergoing ileal conduit urinary diversion
Method: A quasi experimental (pre / post) research design used in this study that was conducted at Oncology Surgery Department& Out-patients clinic at South Egypt Cancer Institute on a purposive sample of 30 male and female adult patients undergoing ileal conduit urinary diversion. Two **tools** were used to collect data: (I): Patient Structured Interviewing Questionnaire contained patient's demographic data and medical data assessment, (II): Stoma Self-efficacy Scale (SSES).
Results: the ileal conduit patients' total ostomy care practice were improved after application of the nursing rehabilitation programs which had is a positive correlation between self-efficacy levels.
Conclusion: improvement of self-efficacy for in patients undergoing ileal conduit urinary diversion after application of rehabilitation program .
Recommendations: Patients in need for training programs and refreshing courses to improve their awareness which will reflect into their outcomes.

Keywords: *Ileal Conduit Urinary Diversion, Nursing Rehabilitation Program, Self-Efficacy*

Introduction:
Urinary diversion, specifically ileal conduit urinary diversion (ICUD), is a common surgical intervention for patients with conditions such as bladder cancer, neurogenic bladder , severe bladder dysfunction, or trauma. While this procedure is often life-saving, it presents significant challenges for patients in terms of physical, emotional, and psychological adaptation. Postoperatively, patients must learn to manage an external urinary stoma, which can negatively impact their body image, self-care abilities, and overall quality of life. One critical factor in helping patients adapt to this new way of life is self-efficacy, defined as a person's belief in their ability to perform tasks and manage challenges effectively **(Kubota et al., 2020).**
Ileal conduit urinary diversion (ICUD) is a standard surgical procedure for patients requiring permanent urinary diversion, particularly those with bladder cancer, neurogenic bladder, or severe bladder dysfunction. While the procedure can be life-extending, it significantly alters the patient's lifestyle, imposing new physical and psychological challenges. Postoperative management involves continuous stoma care, adaptation to changes in body image, and navigating complex psychosocial adjustments. Consequently, self-efficacy, defined as the belief in one's ability to organize and execute the actions required to manage life changes effectively, becomes crucial in the post-ICUD period **(Gabriel et al., 2022).**
Nursing rehabilitation programs are critical interventions that aim to enhance self-efficacy in patients recovering from ICUD. These programs typically include patient education on stoma care, skill-building exercises, psychological support, and personalized care plans. The rehabilitation process focuses not only on imparting practical knowledge but also on addressing emotional and psychological barriers to self-care. Research indicates that structured rehabilitation programs significantly improve patient outcomes by fostering self-confidence, reducing anxiety, and promoting a sense of control over one's condition. By empowering patients with the necessary skills and knowledge, nursing rehabilitation programs can enhance self-efficacy and ultimately improve long-term patient outcomes **(Nkurunziza et al., 2023).**
Previous studies have shown that patients who participate in comprehensive rehabilitation programs demonstrate marked improvements in their ability to manage stoma care, which leads to greater independence and a reduction in postoperative complications. Additionally, these patients report higher satisfaction with their quality of life and an enhanced sense of autonomy. However, despite the proven benefits, the impact of nursing rehabilitation programs on self-efficacy in patients undergoing ICUD remains underexplored. Most available research focuses on general

postoperative outcomes, leaving a gap in understanding the specific psychological and behavioral effects on self-efficacy **(Dieris-Hirche et al., 2021).**

Theoretical definitions of nursing rehabilitation program:

Is the patient preparation strategies before surgery, and include pre & post-operative measures to improve functional capacity and enhance post-operative recovery **(Nelson et al., 2019)**.

Operational definitions:

In this study; the patient will prepared a day before ileal conduit urinary diversion and the day of operation, then after surgery education for care of the stoma and discharge instructions.

Self-efficacy (SE): Represents "beliefs in one's capabilities to organize and execute the course of action required to produce given attainments" **. (Wu et al., 2021).** In this study, self-efficacy will enhance stoma-related self-efficacy level among patients undergoing ileal conduit urinary diversion.

Significance of the study:

Many challenges that patients face after undergoing ileal conduit urinary diversion (ICUD) and the need for better postoperative care strategies, particularly related to self-efficacy and adaptation to life with a urinary stoma.

After ICUD surgery, patients are required to manage a urinary stoma, which involves complex tasks like cleaning, maintaining the stoma, and managing the urinary output. Many patients struggle with this new responsibility, leading to complications such as infections, stoma leakage, and skin irritation. These complications can reduce the quality of life and increase the risk of hospitalization. This study is driven by the need to find effective methods, such as nursing rehabilitation programs, to help patients improve their ability to manage their stomas and prevent complications.

Aim of the study:

This study aimed to assess the effect of nursing rehabilitation program on self-efficacy for patients undergoing ileal conduit urinary diversion

Hypothesis

Null Hypothesis (H0):

There is no significant effect of a nursing rehabilitation program on the self-efficacy of patients undergoing ileal conduit urinary diversion.

Hypothesis (H1):

A nursing rehabilitation program has a significant positive effect on the self-efficacy of patients undergoing ileal conduit urinary diversion.

Research design:

Quasi experimental (pre / post) research design used in this study.

Settings :

The study was conducted at Oncology Surgery Department& Out-patients clinic at South Egypt Cancer Institute

Study Sample :

A purposive sample of 30 male and female adult patients undergoing ileal conduit urinary diversion , their age ranged from (20 to 65 years), willing to participate in the study and submit the following criteria with no history of mental illness and cognitive impairment (dementia).

Sample size:

The sample was selected by using the following equation according to **Steven, (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 50 who undergoing ileal conduit urinary diversion in South Egypt cancer Institution, Assiut University hospitals. This collected during the year 2020-2022.

z = confidence levels are 0.95 and are equal to 1.96

d= The error ratio is = 0.05

P= The property availability ratio and neutral = 0.50

N =30

Tools:
Tool (I): Patient Structured Interviewing Questionnaire:
It was developed by the it included two parts:

Part (1): Patient's demographic data assessment: as (age, gender, occupation, marital status, residence, level of education).

Part (2): Medical data assessment :
It included questions as (presence of chronic diseases, past& present health history).

Tool (II):Stoma Self-efficacy Scale (SSES) assessment: It developed by **(Sherer, & Adams, 1983).**
The stoma self-efficacy scale (SSES) adopts to test self-efficacy, which is a validated 28-item instrument.
It will use a Likert-like scale with individual item score.
This tool was consisted of five items with specific scoring as the following:
1= not at all confident
2= slightly confident
3= fairly confident
4 = highly confident
5= extremely confident
A total score of 28 to 140 (higher scores indicated higher stoma-related self-efficacy).

Scoring system:
The Stoma Self-efficacy Scale (SSES) includes 28 items that assesses stoma care SE and social SE.
The stoma care SE subscale comprises 13 items, and the social SE, which queried SE related to social functioning with an ostomy, includes 9 items.
Respondents choose 1 of the 5 possible answers, ranging from "not at all confident" to "extremely confident"; cumulative scores vary from 28 to 140.
Higher scores indicated higher levels of confidence and subjective presence of ability.
Scores less than or equal to 65 indicate low SE;
from 66 to 102, moderate SE;
greater than or equal to 103, high SE.

Validity:
The SSES showed high internal consistency (with Cronbach's alpha values above 0.80 for both the stoma care and social self-efficacy subscales), indicating that the items in each subscale were measuring the same underlying construct.

Nursing rehabilitation program:
It was designed based on urinary diversion patients' needs and level of understanding. It was written in simplified illustrations Arabic language in the form of booklet. The content included all theoretical and practical parts regarding care of patient undergoing ileal conduit urinary diversion.

Theoretical part: explanation of the surgery, purpose of stoma, risks, and complications from it.

Preoperative preparation; day before and the day of surgery.
Postoperative care and instructions related foods causing bad odor or gases, odor control, traveling preparations, discharge instructions; follow – up visits and unusual signs, or manifestation).

Practical part: patients' ability to perform skills related to urinary stoma self-care practices as stoma observation and stoma care, emptying and changing pouching system. It included 3 urinary stoma self-care practices.
Each patient had a print copy (colored copy) in Arabic language.
-permission for voluntary participation was obtained from patients and the nature and purpose of the study was explained.

Reliability of the study tool:
The reliability of the test was calculated by using correlation coefficient and it was estimated by Alpha Cronbach's test for this study.

Pilot study:
Pilot study was conducted on 10% of the study sample (3) patients with urinary diversion in order to test feasibility, clarity and applicability of the tools then necessary modifications was carried out.

Ethical consideration:
- Research proposal was approved from ethical committee of nursing faculty, Assiut University, IRB. No. **1120240495. (27/11/2022).**
- There was no risk for study subjects during application of the research.
- The study was follow ethical principles in clinical research.
- Confidentiality and anonymity was assured.
- Participants had the right to refuse to participate and /or withdraw from the study without any rational at any time.
- Participants was coded for data entry so that their names could not be identified.

Method: -
An approval from Ethical Committee in the Faculty of Nursing was obtained.
- An official permission to conduct this study was obtained from the head of Oncology Surgery Department, Out-patient clinic at South Egypt Cancer Institute.
- Reviewing of the current available literature using books, articles and scientific journals to develop tools for data collection **(Sun et al., 2018 and Wang et al.,2018).**
- Patients who met the criteria for possible inclusion were approached by the researcher.
- Patient's agreement for voluntary participation was obtained after explanation of the purpose and nature of the study.
- Data was assured confidentiality and anonymity and will be collected using the study tool mentioned.
- At the initial interview, the researcher greeted the patients, introduced herself and purpose of study was explained to patients who agreed to participate in the study prior to any data collection.
- Each patient who took part in the research was interviewed too much individually to obtain data that were established using an The patients' demographic and medical data (pre) was assessed on patient admission (tool I) and the researcher gathered the data. Every session took about 10-15 min.
The rehabilitation program session were administered in 2 session

The first session: explanation of the surgery, purpose of stoma, risks, and complications from it.

Preoperative preparation; day before and the day of surgery.
Postoperative care and instructions related foods causing bad odor or gases, odor control, traveling preparations, discharge instructions; follow – up visits and unusual signs, or manifestation).

Second session: Practical part: patients' ability to perform skills related to urinary stoma self-care practices as stoma observation and stoma care, emptying and changing pouching system. It included 3 urinary stoma self-care practices.
-The second administration of questionnaire was carried out after implementation of nursing rehabilitation program to evaluate the effect of nursing rehabilitation program on improving knowledge regarding ileal conduit urinary diversion.
- Each session take about 20 minutes it carried out in the patients' rooms
Then the researcher assess the self-efficacy using (Tool II). These all was completed after surgery.
- Post-test was performed to evaluate the effect of nursing rehabilitation program on improving patient self-efficacy using (Tool II) .This took about 30 minutes to complete the tools.
It was performed three times: the first time was immediately post implementation of nursing rehabilitation program
The second time was before the patients were discharged from the hospital.
The third time was after one month through their follow up in the hospital.

Statistically analysis
The SPSS version 23 statistical software application was used to evaluate, code, analyze, and tabulate data. Frequencies and percentages were used as descriptive data. To analyze the association between two or more qualitative variables, the Chi square (χ^2) test was utilized. Qualitative data were reported as numbers and percentages (n, %). Correlation coefficients are used to assess the strength and direction of the linear relationships between pairs of variables. *P*-value ≤ 0.05 was established as the significant level.

Results

Table 1: distribution of demographic data for patient participants (n=30)

Variables	N	%
Age		
30:<40	4	13.3
40:<50	4	13.3
50:<65	22	73.3
Sex		
Male	22	73.3
Female	8	26.7
Marital status		
Married	30	100.0
Residence		
Urban	11	36.7
Rural	19	63.3
Educational level		
High education	4	13.3
Read and write	8	26.7
Secondary school	8	26.7
Non educated	10	33.3
Occupation		
Professional work	5	16.7
Manual work	14	46.7
Not working	11	36.7

Table (1): shows that study the highest percentage of the studied ileal conduit patients were males (73.3 %) and old adult in the age group between 50 to less than 65 years (73.3%), all of them (100%) were married, (33.3%) non educated, their work varied between farming and manual work (46.7 and 36.7%), and came from rural area (63.3%).

Table2: Distribution medical data for patient participants (n=30).

Variables	N	%
Hypertension	12	40.0
Diabetes mellitus	10	33.3
Pulmonary disease	1	3.3
Cardio vascular disease	7	23.3
Kidney stone	11	36.7
Prostatic problem	9	30.0
Urinary tract infection	4	13.3
Chronic kidney disease	6	20.0
Cancer bladder	15	50.0
Prostatic cancer	9	30.0
Pelvic malignancy	6	36.7
Stoma site		
Right	17	56.7
Lift	7	23.3
Combination	6	20.0
Treatment		
Chemotherapy	7	23.3
Radiotherapy	16	53.3
Combination	8	26.7

Table (2): shows that half (50%) of Ileal conduit urinary diversion had Cancer bladder, and two fifths (40%) suffered from hypertension, more than half (56.7%) had right side stoma and had a radiotherapy (53.3%).

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Table 2: Comparison between before discharge and after one month regarding total self-efficacy scale (n=30).

Variables					X2- p
		Immediately post	Before discharge	After one month	
low self-efficacy	N	27	0	0	142.686 0.000
	%	90.0%	0.0%	0.0%	
moderate self-steam	N	3	26	0	
	%	10.0%	86.7%	0.0%	
high self - esteem	N	0	4	30	
	%	0.0%	13.3%	100.0%	

shows that there was a statistically significant difference between immediately post, before discharge and after one month regarding total patient stoma self-efficacy (P. =0.000). also revealed a great improvement of the total stoma self-efficacy score after one month

Table (4): Correlation between demographic data and self-efficacy

		Self-efficacy	Age	Sex	Residence	Educational level	Occupation
Self-efficacy	Pearson Correlation	1	-0.061	0.035	-0.012-	-0.060-	-0.027-
	Sig. (2-tailed)		0.568	0.745	0.909	0.577	0.800
**. Correlation is significant at the 0.01 level (2-tailed).							
*. Correlation is significant at the 0.05 level (2-tailed).							

Table (4): showed that there was no correlation between ileal conduit patients' age, sex, residence, educational level and occupation and their self-efficacy.

Discussion

Ileal conduit urinary diversion patients have low self-esteem, and a lack of attention and support from family/ friends. So, obtaining the required information and skills for making decisions and addressing disease-related difficulties is crucial and rewarding for patients. **(Shi et al., 2020).** Learning needs evaluation can aid in meeting those needs and have an impact on the patients' lifestyle. For this purpose, all factors should be explored, and learning content should be created based on the patients' abilities and learning needs**. (Parizad et al., 2019).**

This study aimed to evaluate the effect of nursing rehabilitation program on self-efficacy for patients undergoing ileal conduit urinary diversion.

Regarding demographic characteristics, according to the findings of this study the highest percentage of the studied ileal conduit patients were males and old adult in the age group between 50 to less than 65 years, married, non-educated, their work varied between farming and manual work. These characteristics were related to each other as it is considered predisposing factors to bladder cancer.

This point of view is supported by the **American cancer society, (2019)** that pointed to a range of demographic characteristics as risk factors that make a person more likely to develop bladder cancer. Furthermore, **Saginala et al., (2020)** confirmed that factors that increased the risk of bladder cancer include gender, age, and environmental and occupational exposure. **Fernández et al. (2019)** added that communities with a low education level, low income families and retain jobs with a higher susceptibility to carcinogens were found to have a higher risk of developing bladder cancer.

Likewise, the finding of the study conducted at Alexandria University by **Omar et al., (2019)** and the result of **Mohamed & Fashafsheh (2019)** at National Cancer Institute- Egypt revealed that most of the clients were falling in the age group 50- 60 years old, males, married, illiterate and most patients were housewives and manual workers and come from rural area. Along

the same line the study conducted by **Mansour (2017)** and **Mahdy et al., (2018)** found that the age of the study participant ranged between 40- 60 years old and the majority of them were males, illiterate or just read and write, married, work as farmers and come from rural area. Furthermore, this may be considered similar to the result of **Heyes and Bond (2020)** who found that the majority of participants were male, married, retired and their modal category for education was secondary schooling.

Regarding medical data of the studied patients:

The present study found that half of Ileal conduit urinary diversion had Cancer bladder, and two fifths suffered from hypertension, more than half had right side stoma and had a radiotherapy. The researcher opinion that Ileal conduit urinary diversion is a surgical procedure often used to redirect urine flow after the removal of the bladder due to conditions such as bladder cancer.

This result match with **(Yang et al., 2020)** who shown that long-term surveillance is necessary for patients who undergo ileal conduit urinary diversion, as they may face an increased risk of developing cancer in the remnant urothelium or urethra over time and recommended for regular follow-ups and monitoring are essential to detect any signs of cancer recurrence.

Another study by **Feng et al., (2021)** found that while there is an increased risk of developing cancer in the remnant urothelium or urethra after ileal conduit urinary diversion, the risk is relatively low and comparable to other forms of urinary diversions. **Suriyawongkul et al., (2021)** suggest that with appropriate surveillance and regular follow-ups, the risk of cancer recurrence can be effectively managed.

While**, Omar et al., (2019)** mentioned that hypertension is not typically associated directly with ileal conduit urinary diversion, some studies have reported an increased incidence of hypertension in patients with urinary diversions. However, **Khalilullah et al., (2021)** reported that the exact cause of this association is unclear, and further research is needed to establish a definitive link.

In this regard, **Chevarria et al., (2023)** have failed to establish a significant association between ileal conduit urinary diversion and hypertension. They suggest that hypertension in these patients may be attributed to other factors such as pre-existing conditions, lifestyle factors, or unrelated medical issues. It is important to consider individual patient characteristics and confounding factors when assessing the incidence of hypertension.

The placement of the stoma (an opening created on the abdominal wall to allow urine to pass out of the body) can vary depending on the surgeon's preference and the patient's anatomy **(Matsunaga et al.,2021).** While, **Volz et al., (2021)** have reported a higher prevalence of right-sided stomas, there is no consensus regarding the impact of stoma side on outcomes or complications. **Yang et al., (2020)** have reported no significant difference in outcomes or complications based on the side of stoma placement (right or left). In this side, **Galansky et al., (2021)** reported that the choice of stoma side is often determined by the surgeon's preference, patient anatomy, and other factors such as scars from previous surgeries. Also, **Ismael et al., (2023)** mentioned that both right and left side stomas have shown comparable results in terms of functionality and quality of life.

A study of **Gadelkareem et al., (2022)** reported that radiotherapy is a common treatment for bladder cancer, and it can be used both before and after ileal conduit urinary diversion. While, **Hassan et al., (2021)** revealed that radiotherapy can effectively target cancer cells, it may also cause damage to surrounding healthy tissues. Studies have shown that radiation therapy can lead to various complications, including stenosis (narrowing) of the conduit, fistula formation, and other long-term issues. However, **Andratschke et al., (2022)** concluded that the decision to use radiotherapy depends on the specific characteristics of the cancer and the individual patient's circumstances.

While radiotherapy can have complications, including those mentioned earlier, **Galansky et al., (2021)** study have shown that it can be safely combined with ileal conduit urinary diversion without significantly increasing the risk of complications. So, regarding the researcher point of view, proper planning, delivery techniques, and close monitoring can help minimize the adverse effects of radiotherapy on the conduit and surrounding tissues.

Regarding Stoma Self-efficacy:

The present study found that there was a statistically significant difference between before discharge and after one month after application of the nursing rehabilitation program regarding total stoma self-efficacy scale. And the level of low self-efficacy was higher before application of the nursing rehabilitation program and improved and all of the studied patients had a high self-efficacy immediately post discharge.

The researcher which measures an individual's confidence and belief in their ability to manage their stoma effectively and suggests that the program had a positive impact on improving stoma self-efficacy among the participants.

In this regards, **Wulff-Burchfield et al., (2021)** and **Abouelela et al., (2022)** supported the notion that rehabilitation programs can enhance stoma self-efficacy among individuals with stomas which often include education, counseling, and support aimed at empowering patients to become more confident in managing their stomas and related challenges. **Sanders, (2022)** research has demonstrated that increased self-efficacy is associated with better stoma care adherence, improved coping skills, and enhanced quality of life for individuals with stomas.

While not all research may agree on the extent of this impact, **Jensen et al., (2020)** study may suggest that the effect of nursing interventions on stoma self-efficacy is not statistically significant or may be influenced by various factors such as the duration of the program, the specific components included, or the individual characteristics of the participants.

However, the application of suitable and efficient educational nursing programs affects positively the patients' knowledge, self-efficacy, disease outcomes, and patients' satisfaction **(Jin et al., 2022).**

However, after the nursing rehabilitation program was applied, there was a marked improvement in self-efficacy, with all patients achieving high self-efficacy levels immediately after discharge. This finding demonstrates the effectiveness of the nursing rehabilitation program in enhancing patients' ability to manage their health and stoma care independently. The program likely provided not only the necessary knowledge but also practical skills, psychological support, and empowerment, leading to increased confidence and improved outcomes.

In this line, **Lin et al., (2024)** supported the notion that confidence in one's ability to perform tasks (such as stoma management) is crucial for achieving positive outcomes. Research has shown that structured interventions, such as nursing rehabilitation programs, enhance self-efficacy by providing patients with both the skills and psychological reinforcement needed to succeed and demonstrated that interventions designed to empower patients can result in significantly higher self-efficacy post-discharge.
Also, **Ren et al., (2023)** found that rehabilitation programs involving education, skill training, and psychological support significantly improved self-efficacy among patients with chronic illnesses and suggested that comprehensive rehabilitation programs, are essential to increasing patients' confidence in managing their health.
Regarding to the current study correlations, the results showed that ileal conduit patients' age, sex, residence, educational level and occupation were not correlates negatively with their self-esteem. This means that the older the patients age, the
level of knowledge and ability to self-esteem. On the other hand, the present study found a strong positive correlation was found between the ileal conduit patients' level of their knowledge, practice and their self- esteem. This implies that the higher the patient's level of practice, the higher their level of knowledge and the ability to improve their self-esteem. Also, the finding found positive correlations between urinary diversion patients' knowledge and self-care practice. This result is in harmony with the study performed by **Jin et al., (2022)** who concluded that knowledge and self-care practice was correlates positive to each other. At the same line, **Wulff-Burchfield et al., (2021)** illustrated in his study that there were positive significant correlations between patients' knowledge, and practice.
Final, nursing rehabilitation programs can play a valuable role in improving stoma self-efficacy.

Conclusion: Improvement of self-efficacy for in patients undergoing ileal conduit urinary diversion after application of rehabilitation program .

Recommendations: Patients in need for training programs and refreshing courses to improve their awareness which will reflect into their outcomes.

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