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KNOWLEDGE AS A CATALYST: EMPOWERING PATIENTS THROUGH EDUCATIONAL INTERVENTIONS IN URINARY DIVERSION

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Abstract: Bladder cancer is a prevalent global malignancy, ranking as the 7th most common cancer in the United States and the 9th most common in the United Kingdom. It imposes significant economic burdens on healthcare systems. Although bladder cancer affects both men and women, it is more frequently diagnosed in men and stands as the seventh and eighth leading cause of cancer-related deaths in the USA and the UK, respectively. Several risk factors have been identified, including advanced age, exposure to carcinogens, cigarette smoking, and the presence of Schistosoma haematobium infection, particularly in African regions. Treatment options for bladder cancer often necessitate surgical intervention, which, in some cases, requires the diversion of the normal urinary flow. Urinary diversion is a surgical procedure that redirects the path of urine excretion, creating an alternative route. This procedure can be temporary or permanent and involves creating a stoma, typically from the ureters. Stomas are most commonly employed in older adults with conditions such as bladder cancer, congenital bladder defects, and unreparable birth defects. Traumatic injuries to the bladder can also necessitate urinary diversion. This article discusses the various aspects and implications of urinary diversion for bladder cancer patients, particularly in older individuals.

Keywords: bladder cancer, urinary diversion, stoma, surgical treatment, older adults

1. Introduction

Bladder cancer (BC)is a common cancer worldwide. It is the 7th most common cancer in the US and the 9th most common cancer in the United Kingdom one of the most expensive malignancies to manage. Bladder cancer is more common among men than women and is placed at seventh and eighth position in cancer-related mortality, respectively in the USA.[1,] Older age, Schistosoma Haematobium (SH), especially in Africa, exposure to cancerous substance and cigarette smoking have been reported as risk factors.[3,4] Surgical options may be used to treat urinary bladder cancer which requires diversion of normal urinary flow.[5]

Urinary diversion(UD) is a surgical methods to re-route urine flow from its normal pathway, this can be accomplished by creating opening in the abdomen todiverting the flow of urine to exit the body, either temporary or permanent basis. Aurostomy is a stoma made from ureters, the consistency of output necessary for drainable

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appliance. A stoma is most commonly formed in older adult for condition such as bladder cancer; defective bladder and other indication include birth defects that cannot be repaired and trauma to the bladder. [6-8]

Urinary diversion is performed primarily when a large or invasive bladder tumor requires removal of the entire bladder which called radical cystectomy. Radical cystectomy(RC) remains the cornerstone of curative treatment for high-risk bladder cancer. This traumatic event is associated with significant change of normal voiding, sexual dysfunction, body image, psychosocial adjustment, and social state. These concerns not only affect patients' quality of life (QOL) [8] but also comprise the possibility effect of treatment and recovery on house members and caregivers.[10,11]

Urinary diversion as a therapeutic approach can be temporary or permanent, and have a significant impact on the quality of life of patients and health status. Radical cystectomy or bladder replacement associated with their impact on quality of life (QOL) of patients' lives. It effects on patients' body image, functional urinary health, physical activity, social functioning and as generally quality of life.[12]QOL is increasingly recognized as an important predictor of functional outcome measure following the treatment of urological malignancies as perceived by patients.[13] Previous studies revealed that QOL as the patients perception's towards illness and its treatment, which emphasized on individual health status and faced several changes in overall health and well-being at physiological, psychological, emotional, and social levels.[14] Singer et al.[15] investigated which domains were usually affected by bladder cancer treatment. They showed that patients reported especially worse physical and role functioning, as well as increased fatigue compared to the general population.

Patient education as a key component in improving cancer self-management. Telephone follow-up (telenursing) is a nursing intervention for providing healthcare for patients with cancer conditions.[16] Through creating an extensive contacted between the patient and specialized nurse on regular bases to support and maintenance of the wellbeing of patients. Telephone self-management is an effective medium to facilitate the care of chronic patients as well as increase person's self-care ability of the patient through offering support and information.[17] The finding of previous studies support telephone follow up program and showed that highly levels of satisfaction with the care delivered and improve their health outcome.

Cancer and its treatment make changes resulting in diminished on physical, psychological and social wellbeing and other functional limitations. Therefore, Nurse have a significant role to prepare patients in coping with the stresses of cancer and its treatment, resulting in reducing level of uncertainty, anxiety, and loss of control as well as increased levels of self-esteem.[20] The nurse can help in alleviating physical and psychosocial distress through nursing assessment and management as well using of psychosocial intervention and support for the urinary diversion patient and his family, help them to rehabilitation, and assist improve patient's quality of life.

Significance of the Study

Bladder cancer is the ninth most mutual cancer throughout the world. Almost 60% of all bladder cancer cases and half of all the 165 000 bladder cancer deaths occur in in developed than developing countries.[21]Bladder cancer is one of the most common malignancy of the urinary tract in Egyption males. The studies revealed that most cancers associated with schistosoma infection are squamous cell carcinoma (SCC).[22] Some investigators reported the disease and its subsequence treatment impact psychosocial, functional, emotional and overall QOL . Therefore, assist nurses and health care provider make planning and implementing strategies for relevant effective care and ultimately assist cancer patients undergoing urinary diversion for improving their functional capabilities as well as quality of life.

Aim of this study

The aim of the present study is to determine the effect of educational intervention and telephone follow-up program on knowledge, self-care performance and quality of life among patients undergoing urinary diversion during the following:

- Assessing patients' knowledge and practice related urostomy care.
- Assess patients' quality of life related urinary diversion
- Developing and implementing training educational program based on patients' needs assessment.

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- Evaluate the effect of educational training and telephone follow up on patients' knowledge, self-care and quality of life.

2. Methodology

2.1 Research hypotheses

- H1. Urostomy patients' who gained the educational intervention and telephone follow-up program will be knowledgeable and better self-care practice compared to control group who did not gain intervention program.
- H2. Urostomy patients' who gained educational intervention and telephone follow-up program will have a significantly improvement of quality of life than control group those who do not used.

2.2 The theoretical framework:

The conceptual framework for this study was based on Orem's self-care, nowadays it is one of the most widely applied theories in nursing practice because it is a key part of nursing knowledge.[23]Orem's model comprised of three related theories:1) the theory of self-care; 2) the theory of self-care deficit; and 3)the theory of nursing systems depicting and explaining relationships that must be launched and maintained for nursing to be produced. Self-care is the care taken by an individual in order to meet his or her self-care demands. Also, self-care can be considered as an essential for individual's healthy living to perform activities necessary to live and survive.[24] This set of needs is known as self-care demand, and eliminating these needs requires increased self-care in each person.

According to the literature, encourage patients and their families to take responsibility for performing their self-care according to their abilities.Thus, nursing refers to patients capable of dealing with the actual or potential self-care deficit and help to become independence and changing environmental factors can influence positive outcomes.[25] It appears that the patient feels more health and well-being when they do self-care.[26]

2.3 Research design

A Quasi Experimental design was utilized to conduct this study.

2.4 Setting

The study was carried out at the urological surgical departments and outpatient clinic at National Cancer Institute (NCI)

2.5 Subjects

A sample of 40 patients having urinary diversion randomly allocated to study group (n = 40) and control group (n = 40) using randomization technique. (Fig.1) Inclusion criteria: patients with urinary diversion surgery, 18 years of age or older, and willingness to participate in the study. Exclusion criteria included patients who physical or psychological disabilities and patients whom exposed to educational program about urostomy.

2.6 Tools of data collection: consists of It is three parts:

I. Demographic and medical history data

The tool developed by the researchers and consists of two parts; part one was used to assess patient's personal characteristics such as age, gender, marital status, level of educational, income, residence, occupation status, and smoking; part two was for health data such as duration of illness, type of stoma type and causes of stoma, provider of stoma care, co- morbidity disease, and complication of stoma.

II. Knowledge of Urinary Diversion Questionnaire

Developed by the researchers after reviewing literatures[27-30] about urinary diversion it includes the following: basic anatomy and physiology, definition, reason of urostomy, function, complications, diet, signs for immediate doctors visiting as well as urostomy self-care. Knowledge items consist of 25 questions. A correct patient response was scored 1 and the incorrect zero. Total scores were converted into a percent score: satisfactory was 50% or more while unsatisfactory if less than 50%.

III: Patient's Urostomy Self-Care Practice Checklist

Checklist was developed by the researchers based on the related literature [31-34] to assess self-care practices. It includes preparation and remove pouch procedure (6), skin care around urostomy (6), appliance of pouch (3), evaluate urine drainage (2) and irrigating urinary diversion (5). It consists of 21 steps, each step if correctly done, scored 1 while if did not done or incorrectly done scored zero, total score was 22grades. Three levels was identified mild ≤ 50%; average <75% and good > 75%.

IV: Quality of life (Qol) **Questionnaires**

Patients with urostomy were assessed by COH-QOL for their quality of life. It was developed by Gemmill et al. and translated into Arabic by researchers. It consists of 46 questions and categoried into four subscales: physical well-being, psychological well-being, social and spiritual well-being. Each question is answered with a linear analogue scale from 0-10, in which zero reflect worst outcome and 10 the best outcome. Total scores ranged from between 0 and 340, indicating that the lower the score the more the disability and the higher the score the less the disability.

2.7 Content validity and reliability

Content validity approved by panel of five experts from nursing and medicine. According to the expert's opinion relevance, comprehensiveness, accuracy, application of the tools and modification was done. Reliability was estimated statistically by cronbach alpha test yielded 0.88.

2.8 Ethical considerations

A written informed consent was obtained from directors of hospital, nature and aim of the study was explained to the subjects of the study, inform consent was taken from participants, they were assured about anonymity and confidentiality of patients'data and have the right to withdraw from the study at any time without giving any reason**.**

2.9 Pilot study

A pilot study was conducted on 5 patients to test the applicability and clarity of the study tools as well as time needed to fullfill these tools. Pilot trail were excluded from the study sample.

2.10 Procedure

This study was conducted between August, 2016 and September, 2017, and carried out through four phases: assessment, planning, implementing and evaluation.

Assessment Phase

- Verbal explanation of the method and the aim of the study to the patients who agreed to participate prior to data collection.
- Forty patients were randomly assigned in two groups: control group received routine care of hospital, and the intervention group received education and telephone follow up program. All patients tested pre and post the study using pre constructed tools.
- Researchers started to collect data from the studied patients at the urological department and out patients' clinics using the pre constructed tools.
- The data were collected by the researchers during morning shift in urological department and outpatients' clinic.
- Patients' questionnaires sheet filled by patient as pre / posttest for study groups within 20-30 minutes. Also the observation checklist to assess their self-care performance was filled by the researchers after implementing program for study and control groups within 20-30 minutes.

Planning phase

- The education interventional program was designed based on patient needs and accordance with Orem's selfcare approach to nursing practice. The educational training program was written in simple Arabic language to easy to be understood from patients.
- The educational program was endorsed twice a week around 3 week period.
- This program consisted of 5 sessions with one session for formative assessment to show the patient's condition before programme applied for patients

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- The program consisted of 5 sessions within theoretical and practical sessions. Different learning activities were used during individual training such as lectures, and group discussion. Also video and simulation, demonstration and re-demonstration using when training on urostomy care.
- Handouts such as booklets, pamphlets and posters were also prepared and used by researcher. For the control group, hospital routine cares were applied.

Implementation phase

- The educational programs consist of 4 sessions, each session around 40-60 minutes. Theoretical information was given to patients individual or groups included 2or 3 patients for the study group members.
- Participants during follow up (3 months) as fallow: group control using clinical visit as usual, the study group received clinical visit and telephone follow up. Telephone consultation and information were conducted one weekly for 12 weeks around 15 to 20 minutes for providing education, check problems, support and reassurance to patients. In addition, give patients chance to ask question and summary the main point to learning.

Evaluation phase

- During this phase, the evaluation of program were done immediately post implementing the program using pretest tools.
- Also the observation checklist for assess their self-care performance was filled by the searcher after implementing program for study and control groups within 20-30 minutes.
- The quality of life questionnaires for patients with urostomy were filled for both groups three times: T1 was done before program, T2 post implementing program and T3 after 3 months (follow up) post discharge.

2.11 Data analysis:

All data were collected and tested using the SPSS version 20.0. Deceptive statistics were used analyzed demographic and urostomy characteristics of sample such as numbers, mean and standards division. T- test was used assess difference between study groups. Fisher's test was performed to explore relation between intervention and outcome variables. Level of significance was defined as $p<0.05$.

3. Results

Figure 2. This figure shows that (80%) of participants were male, while 15% were female in both groups.

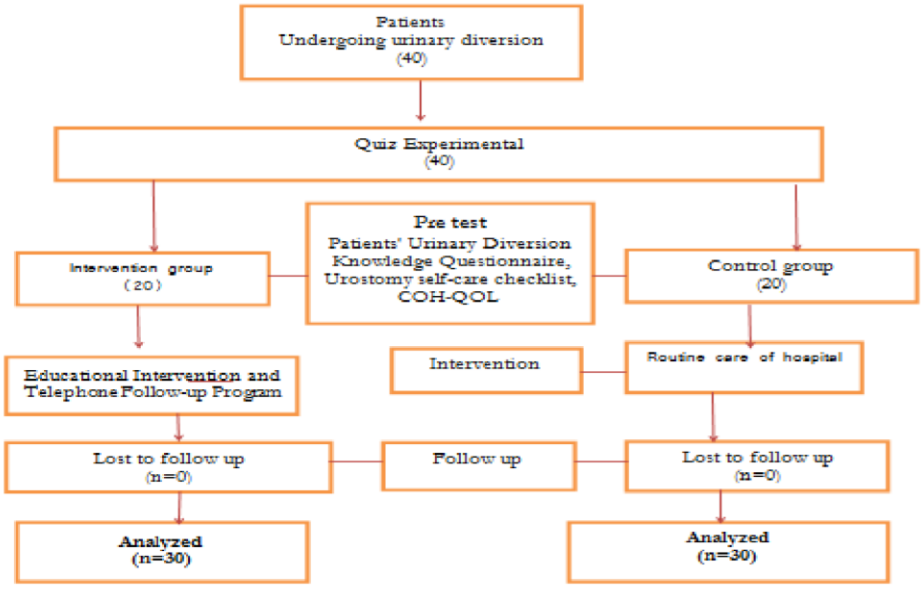

Fig. 1: Flow chart of patient's progress through the study

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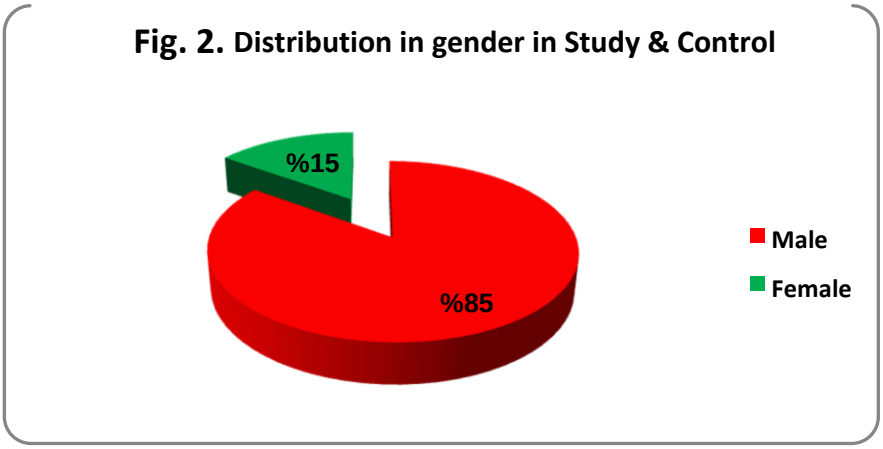

Table 1. Shows distribution of studied characteristics of patients in the study and control groups. It displays that 75% of patients at age group 50 – 60 in the study group compared with (70%) in the control group with no statistical difference between both groups (p>0.05). As regardsto marital status, this table revealed that (75% and 80%) were married in study and control group. While (25%) in the study group and (20%) in the control group were not married. There was no statistically significant difference between both groups (p>0.05).

In addition, this table shows that no statistically significant difference among the patients in the study and control groups regarding the family number (p>0.05).

Table 1: Personal demographic characteristic of the study subject

Items	Study group (20)		Control group (20)		X2	P- value & Significance
	No	%	No	%		
Age (in Years) • >50years • 50-60years • <60Years	 3 15 2	 15 75 10	 2 14 4	 10 70 20	0.187	p>0.05
Mean ± SD				49.46 ± 9.86		
Educational level: □ Illiteracy • Read and write • Primary school • Bachelor	 13 4 2 1	 65 20 10 5	 12 5 3 0	 60 25 15 0	0.91	p>0.05
Occupation: • Working • Not working	 2 18	 10 90	 1 19	 5 95	0.987	p>0.05
Marital status:						

• Married • Not married	15 5	75 25	16 4	80 20	1.01	p>0.05
Smoking: • Smoker • Not smoker	17 3	85 15	16 4	80 20	0.179	p>0.05
Income: □ Enough □ Not enough	2 18	10 90	3 17	15 85	0.289	p>0.05
Residence: • Rural • Urban	19 1	95 5	17 3	85 15	1.054	p>0.05

Regarding occupation, in the study group (90%) were not working compared to (95%) in control group with no statistically significant difference between them (p>0.05).

In relation to educational level, this table presented that (65%) of patients in study group were illiterate compared to (60%) in the control group with no statistically significant difference between both group (p>0.05). Also, this table shows that there was no statistically significant difference among the patients in the study and control groups regarding monthly income (p>0.05).

Concerning smoking, this table showed that (85% and 80%) of participants were smokersin study and control group with no statistical significant difference between both group (p>0.05). There are no statistically significant difference among the patients in the study and control groups regarding the residence (p>0.05).

Table 2. Describes the distribution of the patients according to parameters of health history (type of stoma, comorbidity of disease, causes of urostomy, complain on admission, and family history with cancer). It shows that majority (85% and 80%) of the patients in the study and control groups had permanent stoma, only (10% and 20%) were temporary stoma in the study and control group, no significant difference between them (p>0.05). Regarding complain on admission, all participants in both groups were complain of blood in urine. Also, this table shows that no statistically significant differences existed among the patients in the study and control group regarding comorbidity, causes of urostomy, and family history of cancer (p>0.05).

Table 2. Distribution of health history in study and control group

Health history	**Study group (40%)**		**Control group (40%)**		**X2**	**P- value & Significance**
	Frequency	**%**	**Frequency**	**%**		
Type of stoma: • Temporary • Permanent • Don't have stoma	2 17 1	10.0 85.0 5.0	4 16 0	20.0 80.0 0.0	2.853	p>0.0
Comorbidity disease: • Yes • No	18 2	90.0 10.0	19 1	95.0 5.0	0.0456	p>0.05
Causes of urostomy:						

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• Bladder cancer • Trauma • Kidney disease	19 1 0	95 5.0 0.	18 1 1	90 5.0 5.0	1.08	p>0.05
Complaint on admission: • Blood in urine • Urination pain • Abdominal pain • Others	20 8 7 4	100.0 40.0 35.0 20.0	20 7 9 6	100.0 35.0 45.0 30.0	3.15	p>0.0
Family history with bladder cancer: • Yes • No	9 11	45.0 55.0	8 12	40.0 60.0	0.87	p>0.05

Table 3. Revealed that the difference between pre, posttest and follow up mean scores of knowledge regarding urinary diversion indication for, type of urostomy, diet plan, complication, self-care and also in total knowledge. It shows highly statistically significant differences between mean scores of the pre, posttest and follow up of knowledge for the study groups (p< 0.001).

Table 3. Mean score difference between patients in the study and control groups regarding knowledge at pre, post, and follow up

Items	Pre program		Post program		Follow up		T-test	P- value & significance
	Study	Control	Study	Control	Study	Control		
• Urinary diversion (UD)	0.204±0.43	0.107±0.26	8.12±1.43	4.62 ±3.42	7.12±1.13	2.92 ±3.01	9.47	P<0.001
• Indication for UD	0.154±0.53	0.040 ±0.0	6.61±1.98	2.10±0.61	5.31±1.05	1.10±0.91	5.98	P<0.001
• Type of urostomy	0.10±0.45	0.12±0.31	9.15±1.09	4.02±1.66	8.05±1.89	3.02±1.06	12.48	P<0.001
• Diet plan	0.231±0.48	0.114±0.47	9.94±1.79	5.04±1.23	8.94±1.95	4.04±0.923	5.59	P<0.001
• Complications of urostomy	0.233±0.45	0.1670± 48	8.62±2.31	4.68±4.52	7.92±3.01	3.58±4.02	12.10	P<0.001
• Urostomy self-care	0.650 ±0.7	0.450±0.64	11.14±2.83	7.62 ±3.02	10.12±213	6.54 ±2.73	9.47	P<0.001
• Total knowledge	2.86± 0.65	1.068±053	36.06±9.28	26.12±5.81	28.98±7.82	18.27±5.43	12.83	P<0.001

Table4. Displays that no statistically significant differences between means regarding self-care practice in both groups before of program (p>0.05). There was highly statistical significant difference between study and control group in the post and follow up of program (p <0.001).

Table 4. Shows statistical difference between mean score related to self-care practice in study groups

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Items	Post intervention		Follow up (3 months)		T-test	P- value
	Study G.	Control G.	Study G.	Control G.		
	Mean ± S.D	*Mean ± S.D*	*Mean ± S.D*	*Mean ± S.D*		
- Physical well being	48.78 ±14.01	28.87 ±8.52	43.44±2.19	23.62±2.36	.0563	.0010
- Psychological wellbeing	44.16 ±11.52	32.41 ± 10.92	42.55+6.18	27.18+3.72	.3112	0.001
- Social relations	33.84 ±13.21	28.12 ±11.81	27.22+1.49	20.80+1.39	4.49	.0010
- Environment	45.92 ±2.30	30.12 ±10.97	36.33+5.84	25.33+4.62	6.19	.0010
- COH-QOL-Ostomy*	98.84±14.21	72.70 ±11.34	62.87+10.21	53.19+9.86	6.35	.0010

Figure 3. Indicates that there were unsatisfactory self-care practices about stoma care for both study and control group pre implementation of program, while improved among study groups postand 3months after implementation
of program at p value <0.001

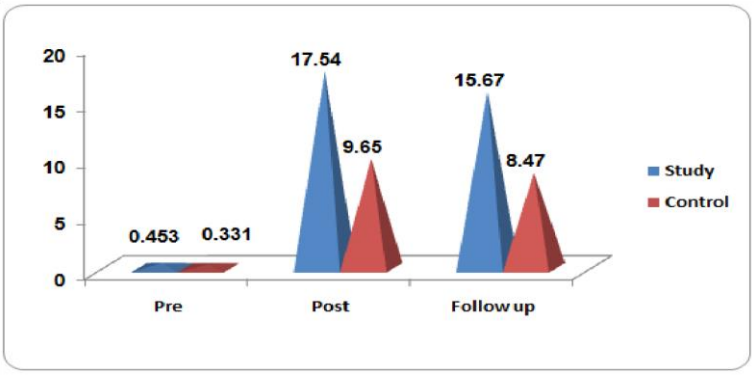

Fig. 3. Distribution of between mean score related to self-care practice in study and control group

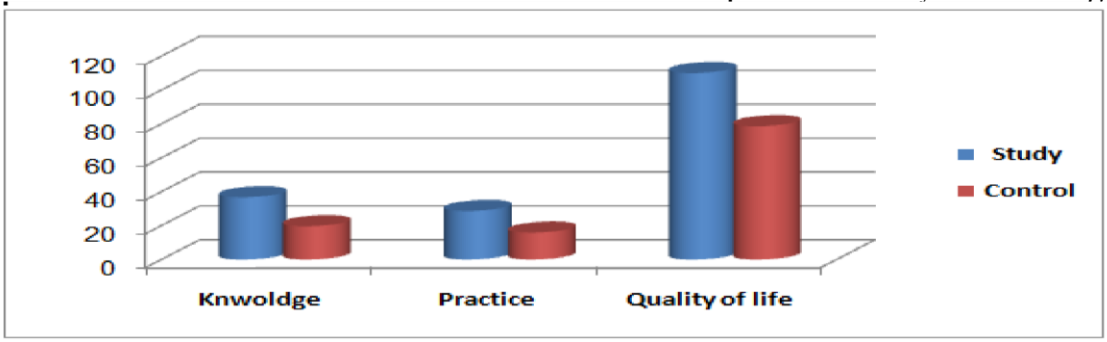

Figure 4. Represent correlation between knowledge, practice, quality of life in study and control group post implantation of program

The participants' responses showsimproved quality of life over time from post implementation of program to 3 months after program. Regarding social relations, psychological, physical well-being and environment in QOL with an average (48.78 ±14.01, 51.16 ±11.52, 63.84 ±13.21, 50.92 ±2.30 respectively, p <0.001) when compared with control group as presented in **table 5**

Table 5.Mean score of urostomy patient's quality of life in both groups after implementation of the program.

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Items	Study group	Control group	F value	P value
Pre	0.453± 0.68	0.331± 0.76	20.865	<0.56
Post	17.54± 4.23	9.65± 2.34	56.23	<0.001
Follow up (3 month)	15.67±5.13	8.47±3.01	87.32	<0.001

Table 6. Illustrates comparison between knowledge, practice, and COH-QOLin both groups under study. It pointed that there was highly statistically significant difference between patients in both groups regarding knowledge and practice (t=7.233 and 23.642 respectively, p<0.01) and also highly statistically significant difference with cancer of hope quality of life Scale(COH-QOL) between study and control group post implementing of the program (t= 6.353, p<0.01)

Table 6. Comparison between knowledge, practice, and COH-QOL in both groups post program implementation

Items	Study G. (no=40)	Control G. (no=40)	T- test	P- value
Knowledge				
▪ Mean	39.68	19.620	7.233	0.000
▪ S.D	4.52	2.337		
Practice				
▪ Mean	28.660	15.380	23.642	0.000
▪ S.D	9.244	4.435		
COH-QOL*				
▪ Mean	110.04	78.700	6.353	0.000
▪ S.D	14.215	11.342		

Discussion

Urinary diversion is a surgical technique to redirect the stream of urine, this surgery can lead to some possible long term side effects and the consequent negative impact quality of life.[36] Patients undergo urinary diversion need support care and appropriate knowledge to prevent postoperative surgical complications. So, the purpose of study determine the effect of educational intervention and telephone follow-up program on knowledge, self-care performance and quality of life among patients undergoing urinary diversion.

The finding of the present study revealed that two third of the study group age 50-60 years with mean age 54.8 in both groups. In agreement with Rosediani et al. [37] who reported that mean age were 57.3 among 180 patients undergoing urinary diversion. Also, this finding coincide with the outcomes of the study by Moeen et al. [38] in which patients with mean age 55.0 ± 7.9 represented the largest proportion of individuals after urinary diversion. This study supported with Aliramaji et al. [39] who conduct case-control study among 175 patients, study group and control group, found that an average age of 63.30±15.29 years in both groups. This may be attributed to that older age as risk factor for bladder cancer.

Regarding gender results, it revealed that majority of subjects were male in both groups of the study. This results is in consistent with study by Pichler et al.[40] to evaluate gender-related differences in survival outcome among bladder cancer undergoing radical cystectomyon 259 patients, found 81 percent were men and 18.2 percent were women. This finding supported by Bare &smeltzer[11] who mention that bladder cancer affected on male three time more than female. Regarding marital status the majority of studied sample were married. These finding is supported by Gore and Litwin[41] study on quality of care in trends in urinary diversion (UD), it revealed that the majority of patients were married.

This finding is going withthe study ofNiu et al. [42] who established that around 66.6% of bladder cancer patients with were married. On the other hand, marital status is commonly used as a marker of social support and prognostic factors in bladder cancer survival. [43]

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Regarding educational level, the current study revealed that around half of the studied group were illiterate. This finding is inconsistent with the study of Matsud and Coworkers [44] who reported that more than one third of study sample was primary school graduate or below. About residence and occupation status, the current study showed that most of studied groups were not working and living in rural area. This finding is supported with Jeong and association [45] who reported that lower educational status, more comorbid medical conditions and more impaired performance status are common associated with cancer. Similarly, previous study by Nichols and Riemer[46] who conducted survey on patient undergone stoma, found ostomates experiencing a post-surgery change in both occupation and work habits as one of the consequences of a stoma.

The present study results exposed that more than two third of patients were smoking. Burger and colleagues [47] who conduct a study to describe the incidence, prevalence, and risk factors for urothelial bladder cancer, they found bladder cancer may be higher in smoker men. Pink and association [48] who conduct study to prognostic outcomes and therapeutic strategies among elderly bladder cancer, they found smoking get bladder cancer higher in man than women. Previous study on 71 urinary bladder cancer, reported that 85% was aware of smoking as a risk factor for disease.[49] This may attributed that smoking is the most significant risk factor for BC in population. Barbosa et al. [50] found that a higher smoking well-established risk factor of bladder cancer. In relation to health history, the current study results revealed that all samples in both groups were complaint of blood in urine. This finding going with study by Kennard [51] who states that manifestation of bladder cancer are often erroneous for other diseases and may include hematuria and urinary frequency.

The study findings also showed that a significant variation between two types of groups regarding patient's urinary diversion knowledge and urostomy self-care after implementing educational intervention and follow up telephone. Our results are congruent with Zhang and colleagues [52] who found significant improvement in ostomy adjustment and complications when persons with an ostomy received nurse telephone follow-up. This result are similarly with study by Mohamed and Mohamed [53] in Egypt, describes the impact of educational sessions on patients with IC, who found that significantly improved in the intervention group immediately after the intervention program and at six months ($p < 0.001$). Similarly, previous study by Cheng et al. [54] studied the educational intervention on patients with incontinent UD in Chinese, they found significantly improved mean score of total stoma-related knowledge, and stoma care ($p = 0.00$). Culha and Association [55] also reported similar results in their study, entitled “effectiveness of self-care education on patients with stomas", they found significant statistical differences immediately and 3 months after implementation or urinary stoma guidelines. Gyomber et al. [56] observe improvement in level of knowledge before and after multimedia presentation before prostatectomy. Based on the findings of the study, there are no statistical significant difference between two groups pre implementation. While, there wre improve in self-care after the program implementation.These findings are supported by Pachman et al. [57] who stated that the teaching of self-care methods seems critical to improve the person's self-care ability. A quasi- experimental study conducted by Mohamed et al. [58] to evaluated the effectiveness of educational and training intervention among 30 adult patients diagnosis of muscle invasive bladder cancer. They suggested significant enhancement in treatment decisions, knowledge and practice post-surgical care in both patients and their care-givers. Carlsson and colleagues [59] also evaluated nurse-led interventions among fifty-six of the participants, they found almost all of the participants in the study had positive promotion of feeling secure and maintaining an empty pouch. This may be attributed to teaching patients to self-care with their stoma encourages independence and help ostomates self-care.

These findings also consistent with a study by Oueda[60] who mentioned that participants were exposure to six months training and follow up, patients were success independently remove, prepared the pouch, clearance and appliance of stoma.

On the other hand, study by Leykin et al. [61]conveys that eHealth education can be simply accessed for home ostomy patients during 24 hourse per day. The results appeares that education and practices of these patients are important to perform self-care practices.

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Quality of life is an important issue for patient with stomas, both knowledge and self-care practices can affects it significantly. In our study, mean scores of QOL improved in the study groups after implementation of educational intervention and follow up telephone (post and 3 months follow up) among urinary diversion. This finding is also consistent with the results of a study by Yüce and Yurtsever[62] showed that education has a positive impact on the QOL of cancer patients. Sun and Colleagues [63] also reported similar finding in their study " design of a telehealth-based ostomy self-management training program for cancer survivors and their caregivers, they display positive impact on functional oucomesof cancer survivors living with a permanent ostomy.

Altuntas et al. [64] conduct a study to assess the role of group education on quality of life in patients with a stoma among 72 patients with ilieostomy, colonstomy, and urostomy, they revealed a statistically significant improvement in all 8 scale profiles of SF-36 post education compared with pre education. Previous study byTreacyand Mayer [65] conducted to assess cancer patient education related to disease, treatment, complication, selfcare practice, foundan improved psychosocial adjustment and work habits and contributes to better patient outcomes.

The findings of the present study suggested that, there are statistically correlation between quality of life and (practice & knowledge). This result was in agreement with the work of Jonsen et al. [66] who reported that patient education interventions focusing on stoma care improve significantly self-efficacy in regards to independently change of stoma-appliance over twelve months postoperatively and positive impact on patient outcome. Bare and colleagues [67] also reported that limited knowledge in ostomy management and proper ostomy appliance can have an impact on patient outcomes.

Conclusion and recommendations:

The results of the current study showed that educational intervention and telephone follow-up program improved the mean scores of knowledge, self-care performance and quality of life(QOL) in patients with urinary diversion. There were positive correlation between knowledge and self-care practice regarding urostomy. In addition, positive effects on quality of life after implementation of the program. Based on these findings, it is recommended to planned education and continues supportfor stoma patients as a routine care in clinical areas.

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