Effect of Designed Nursing Protocol on Self-Reported Outcomes among Patients with Bladder Cancer Undergoing Radical Cystectomy

Mohamed Gamal Ibrahim Alshaar[1], Marwa Mossad Ali[2] and Hend Mohamed Allam[3]
(1) Central Nursing Supervisor, Ministry of Health and Population, (2) Assistant Professor of Medical Surgical Nursing, Faculty of Nursing, Benha University, Egypt and (3) Lecturer of Medical Surgical Nursing, Faculty of Nursing, Benha University, Egypt.

Abstract

Background: Radical cystectomy is the standard treatment for bladder cancer patients. The application of designed nursing protocol in dealing with patients with bladder cancer undergoing radical cystectomy can provide simple and more effective measure to improve clinical outcomes and reduce risk of complications. **Aim:** The study aimed to evaluate the effect of designed nursing protocol on self-reported outcomes among patients with bladder cancer undergoing radical cystectomy. **Design:** Quasi-experimental research design was utilized to fulfill the aim of this study. **Setting:** Urology department at Benha University Hospital. **Subject:** convenient sample consisted of (43) patients of both sexes with bladder cancer who attended the urology department to undergo radical cystectomy with urinary diversion for six months. **Tools of data collection:** Two tools were used by the researcher to collect data for this study **Tool I:** Structured Interviewing questionnaire involving following three parts: Socio Demographic Characteristics, Patients' Clinical Data and Structured Patients Knowledge Assessment. **Tool II:** Self-reported outcomes including 3 parts: Numeric Pain Rating Scale, Fatigue scale and World Health Organization Quality of Life BREF Assessment Questionnaire (WHOQOL-BREF) **Results:** The study revealed that patients' knowledge level regarding radical cystectomy was significantly improved, also a lower pain & fatigue scores besides, improved QoL after implementing designed nursing protocol, As well as a significant correlation between total knowledge with pain, fatigue and quality of life scores among the studied patients post 3 months period of nursing protocol implementation (p value= <0.001**). **Conclusion:** Implementation of designed nursing protocol was effective in improving knowledge among radical cystectomy patients, in term of significantly high level after nursing protocol implementation, as well as significantly improved health outcomes with lower pain, fatigue score, and a positive impact on patients' quality of life. **Recommendations:** Continuous evaluation of patients' knowledge regarding peri operation instructions periodically to determine the effect of designed nursing protocol during follow up periods.

Introduction

Bladder Cancer (BC) is one of the most prevalent cancers globally, it is one of the main problems in urology in terms of diagnosis and treatment, due to its high incidence and its course of development, it ranks fifth as the cause of death from malignant cancer (1.2% for women and 4.0% for men). In much of the world, smoking and exposure to chemicals are the main risk factors for bladder cancer **(Richters et al., 2020).**

Most bladder cancers can be traced back to exposure to environmental and occupational chemicals, the largest of which by far is tobacco smoke. In fact, approximately 80% of cases of bladder cancer

are diagnosed in adults age 65 or older. Heritable genetic predispositions have also been implicated in approximately 7% of bladder cancer cases (**Kubrak, et al., 2022**). Treatment options include chemotherapy, radiation therapy, and radical cystectomy in cases of clinically localized disease and systemic chemotherapy for patients with metastatic disease. A better understanding of the epidemiology and risk factors underlying bladder cancer is crucial for its prevention (**Miranda, et al., 2021**).

National Comprehensive Cancer Network (NCCN) guidelines recommend radical cystectomy as the primary treatment for patients with muscle-invasive bladder cancer, whereas alternative treatments are reserved for patients with extensive comorbid conditions or poor performance status (**Jagtap et al., 2021**). It was observed that the numbers of patients with bladder cancer requiring radical cystectomy accompanied with urinary diversion are increasing. These patients require meticulous collaborative care to improve the overall physical and psychological wellbeing. Radical cystectomy involves removal of the urinary bladder and associated organs: the prostate in men, and the uterus, ovaries, and part of the vagina in women (**Rose et al., 2021**).

Urinary diversion procedures are performed to divert urine to a new exit site, usually through a surgically created opening (stoma) in the skin. These procedures are primarily performed when a bladder tumor necessitates removal of the entire bladder (cystectomy). Urinary diversion has also been used in managing pelvic malignancy, birth defects, strictures, trauma to ureters and urethra, neurogenic bladder, chronic infection causing severe ureteral and renal damage, and intractable interstitial cystitis and as a last resort in managing incontinence (**Wilson et al., 2021**).

Perioperative complications from cystectomy and urinary diversion can be short- and long-term, physiological and psychological. Postoperative morbidity and complications rates can lead to long hospital stays and high readmission rates. Surviving patients can experience emotional, physical and social challenges and changes in quality of life (QOL). The range of perioperative complications associated with cystectomy procedures requires a multidisciplinary approach to preoperative supportive care and postoperative rehabilitation. Perioperative interventions should support patients' psychological health as much as physical health (**Volz et al., 2021**).

Nursing management protocols are a way of documenting and communicating patient care and should include daily aims, such as mobilization, that increased gradually. Nurses should seek a more prominent and leading role during the implementation process (**Omar et al., 2018**). The Role of nurse for patient who undergoes radical cystectomy with urinary diversion has many nursing care needs because of alterations in the functional health patterns of elimination, health perception-health management, cognitive perceptual, self - perception, role relationships and quality of life. The nurse will be responsible for monitoring the patient's vital signs, fluid status (stoma/catheter output, drains, intravenous fluids, naso-gastric tube) need for analgesia and the administration of prescribed medication (**Joensen et al., 2021**).

Nursing plays an important part in the care of surgical patients. Preoperative guidelines for patients who are undergoing elective formation of a stoma can relieve patients' fears and help with post-operative adaptation, and can help reduce post-operative problems, any educational intervention can change patient's outcomes including knowledge, skills, attitudes,

behaviors, condition or status, resulting from their involvement in a program or service. The changes may be positive or negative, intentional or unintentional and may be short-term, intermediate term or long-term. Also, end results include prevention of complications and improve the social function and quality of life of the patients as well as pain control and health improvements of an individual patient and community **(Goonewardene et al., 2021).**

Significance of the study:

Bladder cancer is regarded as a common type of malignancy because of its high incidence as well as its elevated relapse rates, it remains the second most common cancer among Egyptian males, with 4:1 male to female ratio **(Gaber et al., 2020)**.

Based on data from World Health Organization (WHO), approximately 549400 people were diagnosed with BLCA **(Witjes et al., 2020),** according to Global Cancer Observatory in December 2020, BC incidence numbers (5-year prevalence of all ages) in Egypt was (26,986) cases, in 2020 it was one of the highest cancer incidence numbers in Egypt with (10,655) cases, and it was third common cause of mortality numbers in 2020 in Egypt with (6170) cases **(Ibrahim et al., 2022).**

Radical cystectomy with urinary diversion is undoubtedly the most difficult surgical procedure in urology. Complication rates are high in the early and late settings, with various complications which affected of QoL **(Francesco et al., 2020).**

Furthermore, this research could provide health professionals with an in depth understanding related to such patients which could be reflected positively on the quality of patient's life and improve the post-operative patient's health outcomes. It is hoped also that

this effort could support the terrific role of the cure in the patient's care through assessing and providing the required care and about adapting and living with urinary diversion reaching their maximum functional capacity. So, the current study was conducted to evaluate the effect of designed nursing protocol on self-reported outcomes among patients undergoing radical cystectomy.

Aim of the study:

The present study aimed to evaluate the effect of designed nursing protocol on self-reported outcomes among patients with bladder cancer undergoing radical cystectomy.

Study hypotheses:

1- Knowledge level among studied patients will be improved after implementation of designed nursing protocol than before implementation.

2- Pain score among studied patients will be lower after implementation of designed nursing protocol than before implementation.

3- Fatigue score among studied patients will be lower after implementation of designed nursing protocol than before implementation.

4- Quality of life score among studied patients will be significantly improved after implementation of designed nursing protocol than before implementation.

Operational definition: -

Self-reported outcomes are changes in health status as a result of interventions before and after implementing (designed nursing protocol) on participants, including pain, fatigue, and quality of life reflecting the gain of acquired knowledge.

Subject and Methods:

Study design

Quasi-experimental study design (pre-test and post-test) was utilized to achieve the study's aim. Pre-test and post-test research design is one of many forms of quasi-experimental research design. It aims to establish a cause-and-effect relationship between an independent and dependent variable and it is a useful tool in situations where true experiments cannot be used for ethical or practical reasons **(Kader et al., 2022).**

Setting:

This study was conducted in Urology department at Benha University Hospital; It is located on the fourth floor, section 1, which consists of four rooms, including three rooms for men and one for women, each room containing 4 beds. The total number of beds in the urology unit is 16 beds.

Subject

Convenient sample consisted of (43) patients after excluding pilot study patients (5) of both sexes with bladder cancer who attended the urology department to undergo radical cystectomy with urinary diversion through six months period.

Tools for data collection

Two tools were used by the researchers to collect data for this study; Self-administered questionnaire.

Tool I: Structured Interviewing questionnaire that included the following three parts:

Part (1): Socio Demographic Characteristics, including; age, gender, marital status, educational level, working status, residence area and monthly income.

Part (2): Patients' Clinical Data: This part of the tool entails information related to past & present medical history as well as family history. **A- Past medical history** included, presence of comorbid disease previous hospitalization, smoking, exposure to passive smoking, presence of family history of cancer and presence of family member who has had a urethral diversion.

B- Present medical History regarding cancer characteristics and present complaints: Onset of disease, signs and symptoms, and stage of cancer.

Part 3: Structured Patients Knowledge Assessment:

This tool was developed by **Sharaf et al, (2018)** and adapted by the researchers. It was translated into Arabic language after reviewing recent relevant literatures and scientific references. This tool was filled three times; the first time before the guideline's implementation, the second time immediate post guidelines implementation, the third time after three month of guidelines implementation.

This part is a questionnaire that assess patient's knowledge related to urinary bladder cancer disease, radical cystectomy surgery and urinary diversion, healthy behavior and lifestyle patterns related to bladder cancer as well as knowledge related to self-care of stoma, besides home care after discharge, which was detailed as:

Section I: Covered Patients' knowledge regarding radical cystectomy and self-care management: it consisted of 11 MCQ about (Parts of urinary system, definition, causes, symptoms and complications of bladder cancer, definition of bladder removal surgery, the indications of urinary bladder excision surgery, meaning of urethral diversion, types of urethral operations, and possible complications post.

Section II: Included patients' knowledge related to pre and post-surgical instructions: it consisted of 11 MCQ as (Recommended food before the operation, and fasting period, recommended period to stop smoking, allowed period to drink pure liquids before

the operation, suitable time to get out of bed after the operation, importance of getting up early from bed after the operation, the attached tubes after operation, importance of wearing a compression drink in the legs after the operation, time of first surgical dressing on the wound, time to start drinking water after the operation).

Section III: Included patients' knowledge about related to care of the artificial opening (ostomy): it consisted of 9 MCQ as (Definition of an artificial aperture, natural color of the artificial hole , materials used when cleaning the prosthetic hole, characteristics of normal skin around the urethral diversion orifice before the replacement, level of urine at which bag should be emptied, how to remove the base of the bag from the skin when changing it, the appropriate and preferred timing for changing the rule).

Section IV: Included patients' knowledge related to home care and dangerous symptoms after leaving the hospital: it consisted of 6 MCQ as (avoided food, permissible practices within two months of the operation, and dangerous signs that indicated to visit doctor)

Scoring system of patient's knowledge done as follows, each correct answer has one score, while no answer or do not know have zero score. The total knowledge score 37 judge by using a scoring system as follows: Poor knowledge < 50% = <19, fair knowledge 50 <75 % = 19 -<28 and good knowledge 75% and more = >= 28.

Tool II: Self-reported outcomes including 3 parts:

Part 1: Numeric Pain Rating Scale:

The pain scale is a simple way for patients to rate the intensity of their pain. It was adopted from (**Weatherspoon, 2018**) The numeric pain rating scale (NPRS) (an outcome measure) that is a unidimensional measure of pain intensity in adults, is a

horizontal line, include 11-point numeric scale ranges from '0' representing one pain extreme (e.g. "no pain") to '10' representing the other pain extreme (e.g. "pain as bad as you can imagine" or "worst pain imaginable").

Scoring system for pain severity done as follows,

 * The person rates pain on a scale from 0 to10.

 * Zero means "there is no pain"

 * It means from 1 to 3 mild pain.

 * It means from 4 to 6 moderate pain with discomfort.

 * It means from 7 to 10 severe pain.

 *10 means "the worst possible pain" that cannot be tolerated.

Part 2: Fatigue scale:

The fatigue scale was adopted from (**Cancer Pain Relive Committee, 2000**) and ask about any sense of fatigue patient might be experiencing and composed of (physical, affective, cognitive) factors that entails 15-items.

Scoring system of patient's fatigue was done as follows:

 For each question, patient circle only one numbers from 0 to 5 that most describe the patient current state.

(Physical subscale): Factor 1 = (items 1 + 2 + 3 + 6 + 9 + 12 + 15) – 7

(Affective subscale): Factor 2 = 20 – (items 5 + 8 + 11 + 14)

(Cognitive subscale): Factor 3 = (items 4 + 7 + 10 + 13) – 4

(Total scale score): The Calculation Method Add the number together in every factor Physical subscale, Affective subscale, Cognitive subscale, Subtractions adjust for 0 as a state of no fatigue.

Part 3: World Health Organization Quality of Life BREF Assessment Questionnaire (WHOQOL-BREF)

 This tool was developed by WHO at June 1997 (**De Vries et al., 1997**) and was updated

by **(WHO, 2012).** The WHOQOL-It was proved to be a reliable and valid instrument for assessing the quality of life (QOL) of patients with chronic diseases. BREF is a 26-item that was being developed as a short version of the WHOQOL-100 assessment. It comprises the following four domains physical, psychological, social and environmental, in addition to global items concerning individual's overall quality of life.

Scoring system of patient's quality of life was done as follows:

Physical domain= ((6-Q3) + (6-Q4) + Q10 + Q15 + Q16 + Q17 + Q18)x4.

Psychological domain= (Q5 + Q6 + Q7 + Q11 + Q19 + (6-Q26))x4.

Social Relationships domain= (Q20 + Q21 + Q22)x4.

Environment domain= (Q8 + Q9 + Q12 + Q13 + Q14 + Q23 + Q24 + Q25)x4.

Calculating Percent mean score:

COMPUTE PHYS=(PHYS-4)*(100/16).
COMPUTE PSYCH=(PSYCH-4)*(100/16).
COMPUTE SOCIAL=(SOCIAL-4)*(100/16).
COMPUTE ENVIR=(ENVIR-4)*(100/16)

Designed nursing management protocol:

It was designed by researchers based on related literature. It was given to all patients written in a simple Arabic language and supplemented by photos and illustrations to help the patient's understanding of the content, and include, basic knowledge among bladder cancer patients related to cystectomy, such as definition, preparation for surgery, post-surgical instructions, care for urinary diversion, danger signs for calling the doctor, home care after discharge including knowledge about self-care and follow up.

Methods

I. Administrative design and ethical considerations:

An official permission to conduct the study was obtained from the hospital directors and head of the urology department affiliated to Benha University hospital. A letter was issued to them from the Dean of faculty of nursing, Benha University. The researcher then met the hospital director and explained the purpose and the methods of the data collection.

Ethical consideration

The ethical research considerations in the study included the following:

- The research approval was obtained from the ethical committee of faculty of nursing Benha University before initiating the study work.
- The researcher clarified the purpose and aim of the study to patients included in the study before data collection.
- The oral consent was obtained from patients to participate in the study.
- The researcher assured maintaining, anonymity and confidentiality of subjects' data and that, it will be used for research purpose only.
-The subjects were informed that they are allowed to choose to participate or not in the study and they have the right to withdraw from the study at any time.
- Ethics, values, culture and beliefs respected.

II. Preparatory phase: -

Preparatory phase included reviewing the recent related literatures of various aspects of the study using books, periodicals and internet…etc. In order to develop the data collection tools and designing nursing protocol.

Permission to carry out the study from responsible authorities in the faculty of nursing at Benha University and hospital administration personnel after explanation of the purpose of the study obtained.

Interviewing with patients before starting data collection procedure conducted to establish a good relationship with them, explain the aim, nature and objectives of the study done for them.

Validity and Reliability
Tools validity:

The face and content validity were ascertained for relevance, comprehensiveness, simplicity, clarity and ambiguity through a jury of five experts from Medical Surgical Nursing department, Faculty of Nursing, Benha University; one professor and four assistant professors. Their opinions were elicited regarding the format, consistency, accuracy, and relevancy of the tools; necessary modification was done accordingly.

Tool's reliability:

Reliability was tested statistically to assure that the tools are reliable before data collection, was done through Alpha Cronbach test, for developed tool (Knowledge was 0.720), and for structured tools; pain scale was 0.96, fatigue scale was 0.88 and quality of life scale was 0.90. Indicating high level of reliability.

Pilot study

After the tools have been designed, they were tested through a pilot study, in order to check the clarity and feasibility of designed tools and to estimate the time needed to complete its items. it was carried out on 10% (5) of the sample to examine the clarity of questions and time needed to complete the study tools. Based on the results, patients in the pilot study were excluded from the study subjects.

Fieldwork:

• Once the researcher interviewed the patients to obtain oral consent and explain the purpose of the study, the data were collected pre- and post-surgery.

• Data collection of the current study was carried out from over nine months from beginning of November, 2021 till beginning of august 2022.

• Purpose of study was simply explained to the patients who agreed to participate in the study prior to any data collection.

• The data collection process was achieved through: (pre-testing): before implementing the guidelines to obtain a baseline assessment about the level of knowledge of designed nursing protocol. (Post-test): Immediately, and three months after applying the guidelines (knowledge implementation of the designed nursing protocol. The tools were stuffed three times; The first time the pre-instructions are executed, the second time immediately after the designed instructions are executed, and the third time after the three-month implementation of the designed nursing protocol.

The study was conducted according to four phases:
The study was conducted through four phases:
Assessment phase:

During assessment phase the researchers was prepared and translated tools for data collection. The researcher took telephone number at the first contact to determine the next appointment in order to complete data collection process. Initial assessment of all patients before operation will be carried out immediately before beginning of implementation of the designed nursing protocol using **tool I** to collect baseline patients' data, medical data, and assessing existing knowledge, in order to identify patients' needs preceded the planning for designing nursing protocol.

Data are collected in morning and afternoon shifts (long day shift) three

days/week. Patients' knowledge was assessed through a pre-questionnaire for each patient and the time required to complete the questionnaire ranged from 15 to 25 minutes.

Assessment of the patient pain and fatigue (self-reported outcomes) using **tool II,** the time required to complete this tool ranged from 10 to 20 minutes. The data obtained during this phase constituted the baseline for further comparisons to evaluate the effect of evidenced -based guidelines.

-Planning phase:

Based on assessment of patients' needs, the designed nursing protocol for radical cystectomy with urinary diversion patients was formulated based on the guidelines of the American and European urological association, relevant literatures, and on the identified patients' needs. Proposed guidelines general and specific objectives were designed based on predetermined subjects' need, relevant recent literature, and opinions of the nursing experts. This guideline was revised and modified based on the experts' comments, in order to be implemented using various methods including a booklet contained major headline which was designed by researcher, and written in a very simple Arabic language, as well as supplemented by photos. The content organized according to a feasible learning sequence (from easy to difficult) to enhance patients' understanding.

-Implementation phase:

The designed nursing protocol was implemented to the studied patients. The researcher was interview patients individually; in cooperating one family member was present for patient support at the previously mentioned setting at Benha University hospital. It was conducted in term of sessions throughout their hospitalization:

- The guidelines involved 4 scheduled sessions:

First session: It covered the Patients' knowledge regarding to urinary bladder cancer and surgical management, included the following items:

- Components of the urinary system.
- Definition bladder cancer.
- Factors that may increase the risk of developing bladder cancer.
- Stages of bladder cancer.
- Signs and symptoms of bladder cancer.
- Complications of bladder cancer.
- Treatment methods of bladder cancer.
- Types of surgery of bladder cancer.
- Indications for a radical cystectomy.
- Definition of urinary diversion.
- Types of urinary diversion.

Second session: It covered the Patients' knowledge related to pre- and post-surgical instructions, included the following items:

- Patient information when preparing for the operation.
- Patient information about post-operative nursing procedures.

Third session: It covered the Patients' knowledge about related to care of the artificial opening (ostomy), included the following items:

- Ostomy definition.
- Instructions on how to care for an artificial opening (ostomy).

Fourth session: It covered the Patients' knowledge about related to care of the artificial opening (ostomy), included the following items:

- Home care and inform the patient of dangerous symptoms after discharge from the hospital.
- Danger signs that you should watch out for, and you should go to the doctor

Each session started by a summary about what has been discussed in the previous session and the objectives of the new session, also, the session ended by a summary of its contents and feedback.

Suitable teaching media were used, included Pictures, handouts, and booklet that was distributed to all patients that able to read and write.

Before the radical cystectomy surgery and to be completed after cystectomy, where following each session, there was five minutes for discussion and giving feedback. Reinforcement of nursing protocol was performed according to patient's needs to ensure their understanding. Every studied patient was obtained a copy of the designed booklet.

At last sessions, the study subjects were informed to be evaluated by the researcher immediately post guidelines implementation.

- Evaluation phase:

The studied patients were reevaluated by the researcher using **tools I, and II** after implementation of designed nursing protocol. Throughout different evaluation periods as the follow:

▪ **Immediately** after implementation of the designed nursing protocol, each patient involved in the study was interviewed to evaluate knowledge using the **(tool I, part 3)**, pain using **(tool II, part 1).**

▪ **After 1 month** after implementation of nursing protocol for evaluation of their fatigue and QoL using **(tool II, part 2 and part 3)**.

▪ **After 3 months** after implementation of nursing protocol for evaluation of their knowledge, using **(tool I, part 3)** and for evaluation of their pain, fatigue and QoL using **(tool II, part 1,2 and part 3)**.

Data Analysis:

Data analysis was performed using the SPSS software (version 25). Qualitative data was presented as a number and percent. Furthermore, quantitative data was described as mean or standard deviation, as appropriate. Chi-square test was used to examine the difference and relation between qualitative variables during different periods, when more than 20% of the cells had an expected count less than 5, correction for chi-square was conducted using Fisher's exact test correction. For normally distributed data, the paired t-tests were used for comparing the mean scores between two different periods within the same group, and relation between two independent quantitative variables was done using independent t-test and anova test for more than two independent quantitative variables. Pearson correlation coefficients were used to measure how strong a relationship is between two variables. The results were considered statistically significant at $P \leq 0.05$ and highly significant at $P < 0.01**$.

Results:

Table 1: This table shows sociodemographic characteristics among studied patients, where 62.8% were between 40-< 60 years, with a mean age of 55.14 ± 8.42. besides, 76.7 % of them were males. As regards their qualifications, 55.8% of patients were illiterate. And 69.8 % were not working while the working patients had sedentary work among 61.5 % of them, and 72.1% were residing in urban area. As well monthly income as reported by patients was low among 83.7% of patients.

Table 2: This table displays past and family history among studied patients, where 53.5% had comorbid disease especially hypertension among 78.3%, with 67.4 % had previously hospitalized and 41.4% of them was due to urinary tract disease. As regards smoking, 51.2 % were smokers, and 81.0% were exposing to passive smoking. Concerning family history of cancer 20.9% of patients had a history of first degree kindship among 55.6% of them, moreover 44.4% had family members undergone urethral diversion.

Table 3: This table shows the current history among studied patients, where 74.4% of patients were diagnosed since 6 month - < one year period with the mean time since diagnosis with bladder cancer was (6.93 ± 0.50) months which was discovered by Presence of symptoms among 69.8% and the main complaint that led to hospital admission was the presence of blood in urine and severe pain when urinating among 86.0% of patients. Moreover preoperative T stage was stage 2 among 48.8% and 83.7% of patients ileal conduit for urinary diversion, as well as received neoadjuvant and adjuvant chemotherapy among (32.6% & 81.4%, respectively).

Figure 1: This figure illustrates total knowledge about radical cystectomy and self care management, with a significant difference between pre nursing protocol with immediate post and post three months periods with (p= 0.011*& 0.44*, respectively), indicating poor level of knowledge during pre nursing protocol among 88.4% to be good level during immediate post and post 3 months period among (41.9% & 81.4%, respectively).

Table 4: This table describes differences in patients' total knowledge level about radical cystectomy and self care management during study periods. It is obvious that there was a significant statistical difference between pre with immediate and three months post nursing protocol implementation, where 60.5% had poor level of knowledge about pre and post-surgical instructions during pre-nursing protocol, to reach a good level among 83,7% of patients, immediately post implementation especially in knowledge related to home care and dangerous symptoms after Leaving the hospital besides, care of the artificial opening (ostomy) that remained the highest knowledge at a good level among 69.8% after three months of nursing protocol implementation .

Table 5: This table describes difference in patients' pain level during study periods . It is obivous that there was a significant statistical difference between pre with immediate and three months post nursing protocol implementation (p = 0.011* & 0.050*, respectively) in term of improvement in pain level, where the total level before nursing protocol was severe among 53.5 % of studied patients to be a moderate level among 44.2% during immediate period mild level among 51.2% during three months post nursing protocol.

Table 6: This table displays difference in patients' total mean score of fatigue state during study periods. Where, there was a highly significant statistical difference between pre with immediate and three months post nursing protocol implementation (p = <0.001**), also it was shown that affective state was the highest fatigue state constituting 33.1% of total score followed by physical state which constitute 23.7% then cognitive state that constituted 18.0%.

Table7: This table reveals the difference in patients' total mean score of quality of life during study periods. Where, there was a highly significant statistical difference between quality of life domains during pre and three months period post nursing protocol implementation (p=<0.001**), also it was shown that the environment was of highest area of improvement in quality of life with a mean percent score of 555.814 ± 400.402 followed by physical health with a mean % score of 532.558 ± 215.025 then psychological health with a mean % score of 505.232 ± 154.549 and finally social relation with a mean % score of 231.395 ± 201.858, which was the lowest improved area.

Table 8: This table shows the correlation between total knowledge with pain, fatigue and quality of life scores among the studied patients post 3 months period of nursing protocol implementation, where there was

highly significant and negative correlation with pain and fatigue with (p value= <0.001**) as well as a significant and positive correlation with patient's quality of life with (p value = 0.012*).

Table (1): Distribution of the studied patients regarding to socio-demographic characteristics (n=43).

Socio demographic characteristics	(No.)	%
Age		
40 - < 60 year	27	62.8
≥ 60 year	16	37.2
$\bar{x}$ ± SD	55.14 ± 8.42	
Gender		
Female	10	23.3
Male	33	76.7
Marital status		
Married	39	90.7
Widowed	4	9.3
Educational Level		
Illiterate	24	55.8
Read and write	5	11.6
Intermediate qualification	7	16.3
High qualification	7	16.3
Working status		
Working	13	30.2
Not working	30	69.8
If yes, nature of work (n=13)		
Manual work	5	38.5
sedentary work	8	61.5
Residence		
Urban	31	72.1
Rural	12	27.9
Monthly income		
Low	36	83.7
Moderate	4	9.3
High	3	7.0

Table (2): Distribution of the studied patients according to their clinical data about past and family history

Patients' clinical data (Past & family history)	(No.)	%
Presence of comorbid disease		
Yes	23	53.5
No	20	46.5
If yes, the chronic disease (n=20) #		
Hypertension	18	78.3
Diabetes mellites	14	60.9
Cardiac disease	3	13.0
Previous hospitalization		
Yes	29	67.4
No	14	32.6
If yes, was due to urinary tract disease (n=29)		
Yes	12	41.4
No	17	58.6
Smoking		
Yes	22	51.2
No	21	48.8
Exposure to passive smoking		
Yes	39	90.7
No	4	9.3
Presence of family history of cancer		
Yes	9	20.9
No	34	79.1
If yes, the degree of kindship (n=9)		
First degree	5	55.6
Second degree	4	44.4
Presence of family member who has had a urethral diversion (n=9)		
Yes	4	44.4
No	5	55.6

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Table (3): Distribution of the studied patients according to their clinical data (current history) (n=43).

| Patients' clinical data (current history)	(No.)	%
Time since diagnosis with bladder cancer		
1 month- < 6 months	7	16.3
6 months – < one year	32	74.4
≥ one year	4	9.3
Mean ± SD (in months)	6.93 ± 0.50	
Ways of discovering the disease		
Presence of symptoms	30	69.8
By chance	13	30.2
Complaint that led to hospital admission #		
Presence of blood in urine and severe pain when urinating	37	86.0
Abdominal and lower back pain on both sides	33	76.7
Losing weight and feeling tired and stressed	29	67.4
Preoperative T-stage		
T1	8	18.6
T2	21	48.8
T3	12	27.9
T4	2	4.7
Urinary diversion type		
Ileal conduit	36	83.7
Neobladder	6	14.0
Mainz pouch	1	2.3
Neoadjuvant chemotherapy:		
Yes	14	32.6
No	29	67.4
Adjuvant radiotherapy		
Yes	35	81.4
No	8	18.6
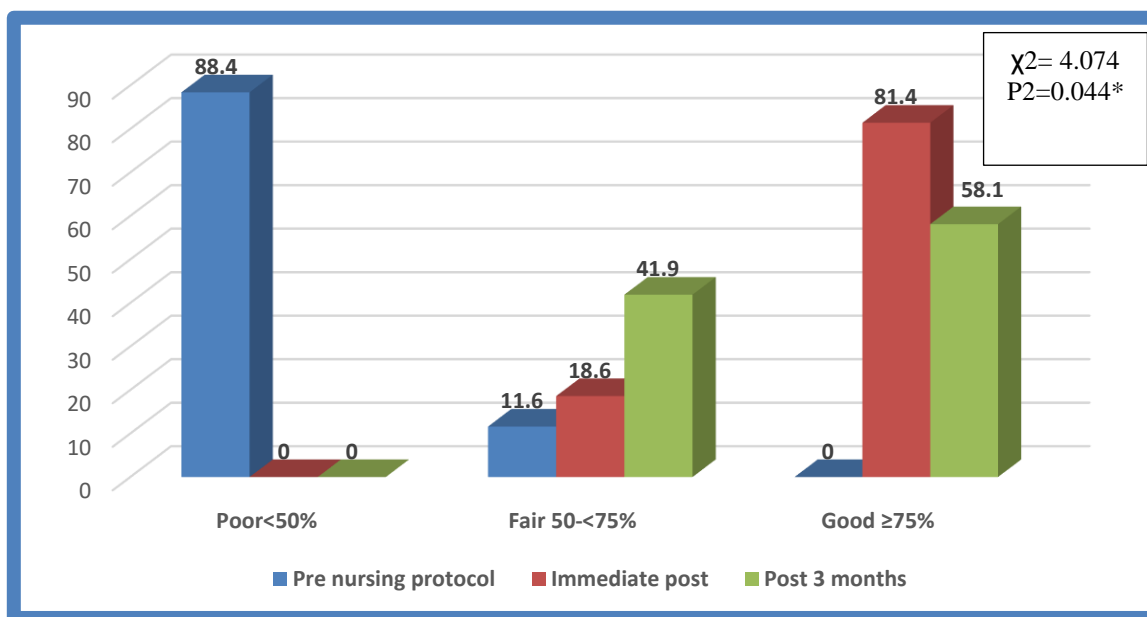
Figure (1). Difference between the studied patients regarding to their total knowledge about radical cystectomy and self care management (n=43).

Table (4): Difference between the studied patients regarding to their total knowledge levels about radical cystectomy and self care management throughout study periods (n=43).

Total knowledge levels		Pre-nursing protocol (n=43)		Immediately Post nursing protocol (n=43)		3 months Post nursing protocol (n=43)		χ^2 P value (1)	χ^2 P value (2)
		No	%	No	%	No	%		
Basic patients' knowledge regarding to urinary bladder cancer and surgical management	Good ≥75%	7	16.3	34	79.1	28	65.1	9.898 0.042*	15.049 0.005*
	Fair 50-<75%	13	30.2	6	14.0	9	20.9		
	Poor < 50%	23	53.5	3	7.0	6	14.0		
Knowledge related to pre and post surgical instructions	Good ≥75%	3	7.0	30	69.8	27	62.8	9.961 0.041*	9.824 0.044*
	Fair 50-<75%	14	32.6	6	14.0	9	20.9		
	Poor < 50%	26	60.5	7	16.3	7	16.3		
Knowledge related to care of the artificial opening (ostomy)	Good ≥75%	0	0.0	36	83.7	30	69.8	6.020 0.049*	13.416 <0.001**
	Fair 50-<75%	18	41.9	5	11.6	13	30.2		
	Poor < 50%	25	58.1	2	4.7	0	0.0		
Knowledge related to home care and dangerous symptoms after Leaving the hospital	Good ≥75%	3	7.0	36	83.7	24	55.8	6.619 0.037*	11.609 0.021*
	Fair 50-<75%	16	37.2	7	16.3	18	41.9		
	Poor < 50%	24	55.8	0	0.0	1	2.3		

* Significant at p ≤0.05.

(1) Difference between total knowledge pre nursing protocol and immediately post implementation

(2) Difference between total knowledge pre nursing protocol and three months post implementation

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Table (5): Difference between the studied patients regarding to their pain level throughout study periods

Pain level	Pre-nursing protocol (n=43)		Immediately Post nursing protocol (n=43)		3 months Post nursing protocol (n=43)		χ^2 P value (1)	χ^2 P value (2)
	No	%	No	%	No	%		
Mild pain	0	0.0	14	32.6	22	51.2	9.100 0.011*	6.002 0.050*
Moderate pain	20	46.5	19	44.2	16	37.2		
Severe pain	23	53.5	10	23.3	5	11.6		
Mean ± SD	**6.88 ± 2.04**		**4.51 ± 2.34**		**4.07 ± 2.19**		t=3.138 P=<0.001**	t=7.090 P=<0.001**

* Significant at p ≤0.05.

**Highly significant at p ‹0.001.

(1) Difference between pain level before nursing protocol and immediately post implementation

(2) Difference between pain level before nursing protocol and three months post implementation

Table (6): Difference between total mean scores of fatigue state among the studied patients throughout different study phases (n=43).

Total of fatigue state	Pre-nursing protocol (n=43)	1 month Post Nursing protocol (n=43)	3 months Post Nursing protocol (n=43)	% of mean (post 3 months)	t-test P value (1)	t- test P value (2)
	$\bar{\chi} \pm SD$	$\bar{\chi} \pm SD$	$\bar{\chi} \pm SD$			
Physical state	**19.90 ± 2.22**	**13.51 ± 1.79**	**8.30 ± 5.73**	23.7%	25.649 (<0.001**)	11.301 (<0.001**)
Affective state	**-21.00 ± 0.00**	**-18.00 ± 0.00**	**6.62 ± 4.62**	33.1%	N.A	-39.179 (<0.001**)
Cognitive state	**30.00 ± 0.00**	**30.00 ± 0.00**	**3.60± 4.26**	18.0%	N.A	40.575 (<0.001**)
Total	**28.90 ± 2.22**	**25.51 ± 1.79**	**18.53± 6.59**		13.617 (<0.001**)	9.272 (<0.001**)

**Highly significant at p ‹0.001.

(1) Difference between fatigue score Pre nursing protocol and one month post implementation

(2Difference between fatigue score Pre nursing protocol and 3 months post implementation

Table (7): Difference between total mean scores of quality of life domains among the studied patients throughout different study phases (n=43).

Total of WHO quality of life domains	Pre-nursing protocol (n=43)	1 month Post Nursing protocol (n=43)	3 months Post Nursing protocol (n=43)	t-test P value (1)	t-test P value (2)	Mean % score
	$\bar{\chi} \pm SD$	$\bar{\chi} \pm SD$	$\bar{\chi} \pm SD$			
Physical health	46.00 ± 8.10	46.92 ± 8.14	84.19 ± 10.14	-1.827 0.075	-17.606 <0.001**	532.558 ± 215.025
Psychological health	52.09 ± 8.52	53.13 ± 8.77	84.83 ± 24.72	-1.970 0.056	-8.061 <0.001**	505.232 ± 154.549
Social relation	34.04 ± 34.49	39.06 ± 41.33	41.02±32.29	-1.321 0.194	-4.560 <0.001**	231.395 ± 201.858
Environment	67.16±70.44	68.37 ± 70.36	92.93±64.06	-1.757 0.086	-11.501 <0.001**	555.814 ± 400.402
Total	182.76 ±21.30	190.50 ± 33.29	288.95±37.05	-1.851 0.071	- 16.503 <0.001**	

**Highly significant at p ‹0.001.

(1) Difference between quality-of-life score Pre nursing protocol and one month post implementation

(2) Difference between quality-of-life score Pre nursing protocol and 3 months post implementation

Table (8): Correlation between total knowledge with pain, fatigue and quality of life scores among the studied patients post 3 months period of nursing protocol implementation (n=43).

Variables	Total Knowledge score post 3 months	
	r	P value
Pain	-0.697	<0.001**
Fatigue status	-0.473	0.001**
Quality of life	0.380	0.012*

**Highly significant at p ≤0.001.   *
Significant at p ≤0.05**

Discussion:

Regarding Socio-demographic characteristics, the present study finding revealed that about two third of the studied patients were in the age group ranged from 40 to less than 60 years. Which may be due to the development of the disease inside the bladder requires many years until the symptoms appear for the patient, who then begins to seek treatment. These come in agreement with **(Sharaf, et al 2018)** who reported in his study about "Effect of Implementing a Nursing Management Protocol on the Postoperative Health Outcomes for Patients Undergoing Radical Cystectomy with Urinary Diversion "in Egypt that, the highest percentage of studied patients in the control group was between 55- < 65 years of age, and two fifth of the study group was more than 65years.

However, this results not support the findings of (**Elke, et al. 2018**) who reported in his study about "Understanding physical activity behavior in patients with bladder cancer before and after radical cystectomy: a qualitative interview study" in Belgium.

Regarding to gender, the present study finding revealed that more than three fourth 76.7% of studied patients were males. Which may be due to smoking and other tobacco products as well as occupational exposure to chemicals are among the risk factors for the affection of this disease, and men are more than females in this regard.

This supporting the finding by (**James, et al., 2021**) who demonstrated in their study about" Radical Cystectomy against Intravesical BCG for High-Risk High-Grade No Muscle Invasive Bladder Cancer" in United States of America that, more than two third of studied patients were male.

Also, this is agreed with **Stephen, et al., (2019)**, who reported in their study about" Comparison of Costs of Radical Cystectomy vs Trimodal Therapy for Patients with Localized Muscle-Invasive Bladder Cancer." in United States of America that less than half of studied patients were female, which means most of them were male. Moreover, **Shimpei, et al., 2021**,in their study about " Impact of preoperative sarcopenia and my steatosis on prognosis after radical cystectomy in patients with bladder cancer " in Japan reported that less than one quarter of their participated patients were female

Concerning occupation and residence of participating patients, the present study showed that more than two third were not working while the working patients had sedentary work. from the point of view of the researchers this result could be due to that the majority of the sample were male and they

needed to work to earn money for their family. Also, the results of this study revealed that, the highest percentage of patients were from an urban area, this is matched with **Mengyuan et al., (2021),** who founded in their study about "Psychological resilience of patients with bladder cancer after radical cystectomy and urinary diversion: A cross-sectional study ", in China and reported that the vast majority of his studied patients were unemployment and living in urban.

Also, this results in the same line with (**Marina et al ,2021**) who study about ": Bladder cancer stage and mortality: urban vs. rural residency. Cancer Causes & Control Cancer Causes Control." that most of patients with urban residency status.

Moreover, **Mengyuan et al ,2021**) reported in study about "Psychological resilience of patients with bladder cancer after radical cystectomy and urinary diversion: A cross-sectional study" in China that most of studied patients living alone, not working and living in town.

Concerning to the marital status of studied patients, the majority of studied patients were married, which may be due to that the disease is discovered at an advanced age of more than 40 years, and at this age, most people have married.

Which is agreed with a similar finding was reported by (**Elizabeth, et al. 2021**) who mentioned in study about "A qualitative evaluation of a nurse-led pre-operative stoma education program for bladder cancer patients. Supportive Care in Cancer" in Switzerland that there were increase in percentage of his study subjects among married patients and decrease in the percentage of single, divorced and widowed patients. This is due to the fact that the age of occurrence for bladder cancer is above 40

years, and it is less common to find persons in this age group unmarried, Also, (**Spyridon, et al. 2022**), in their study about "A comparative population-based analysis of peritoneal carcinomatosis in patients undergoing robotic-assisted and open radical cystectomy" mentioned that the most of his studied patients were not working.

Regarding the educational level of studied patients, the present study revealed that illiteracy was prevailing among more than half of patients in the study subjects. This may be related to the fact that the majority of the study subject with low socioeconomic status. It may be related to the association between illiteracy and unhealthy behaviors that may predispose patients to disease, especially who have low levels of education or no education. This was not in the line with (**Elke, et al., 2021**), who study about" Supportive care needs and utilization of bladder cancer patients undergoing radical cystectomy: A longitudinal study." in Belgium That, the highest proportion of studied patients have secondary school.

Also, (**Belayneh, et al. 2019**), mentioned in study about ": Quality of life and its predictors among patients with chronic kidney disease: A hospital-based cross sectional study " in Ethiopia that Education-wise, less than half quarter attended primary and higher education, respectively.

In **relation to socioeconomic status of participating patients**, the present study finding revealed that, the majority of study patients' monthly income was low. This is may be due to low level of education which may reveled to no occupation.

This is agreed with (**Fatemeh, et al. 2017**) who study about "Occupations and the Risk of Bladder Cancer in Yazd Province: A Case-Control Study" in Iran that the majority of the patients within low income.

From the point of view of the researcher, that working after a life crisis is concerned with the person's ability and capacity to perform tasks which enable them to be productive and maintain a satisfactory life. From the other hand the cost for treatment and cost of surgery leads to imbalance between daily continuing needs and restricted income or insufficient income.

However, this contraindicated with (**Abou, et al., 2022**), in his study about "The impact of socio-economic deprivation on recovery following robotic assisted radical cystectomy "reveled that most of participant patients have higher incomes, levels of education and improved living environments.

Concerning comorbid disease, the study emphasized that where more than half of studied patients had comorbid disease especially hyper tension among patients had previously hospitalized and less than half of them was due to urinary tract disease. This is may be due to most of studied patients in old age, or may be related to cancer the patients were immunocompromised and high risk for comorbidities.

This is in the same line with **Stenehjem, et al. (2018)**, who study about concluded in his "that, Hypertension, hyperlipidemia, osteoarthritis, hypothyroidism, diabetes mellitus and coronary artery disease are the most common associated comorbid conditions in the cancer survivors.

However **E.García, et al. (2021)**, in study about " Evaluation of health care-associated infections following radical cystectomy studio de las infecciones relacionadas con la asistencia sanitaria tras la realización de cistectomía radical" in Spain mentioned that found a high rate of HAIs in our radical cystectomy series, with predominant urinary tract and surgical wound infections.

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As regards smoking of studied patients, the results of the present study reported that more than half 51.2% of studied patients were smokers, and the most of them were exposing to passive smoking. From the researcher point of view, this is due to the fact that most of the studied patients were male who smoke more than females due to the nature of Egyptian society, which in turn leads to a higher risk of cancer.

This result agrees with **Joanne et al. (2018),** who reported in study "Occupation and Bladder Cancer in a Population-Based Case-control Study in Northern New England, Occupational and Environmental Medicine" that more than two third of studied patients were smokers.

Concerning family history of cancer, the finding of the present study revealed that more than half of studied patients had a history of first degree kindship and less than half of them had family members undergone urethral diversion. , this finding is supported by **Stella et al. (2021)** in study about" Bladder cancer risk associated with family history of cancer" and demonstrated that participants with a first-degree relative with bladder cancer had nearly double the risk of bladder cancer as those without a family history of bladder cancer.

Regarding to ways of discovering the disease of studied patients, the present study revealed that more than two third of studied patients were discovered the disease by presence of symptoms. From the point of view of the researcher, this may be due first to the culture of the society and secondly to the low level of education and the financial level, which does not allow individuals to perform periodic examinations to detect diseases and wait until symptoms appear and complain of illness.

Concerning Patients received neoadjuvant and adjuvant chemotherapy the results of the present study shows that more than two third 67.4% of the studied patients not receiving neoadjuvant than adjuvant chemotherapy. This is may be due to the weak culture and the lack of information regarding diseases and how to best deal with them, the necessity of periodic examination, which is due to the lack of educational level

This agreed with (**Artur et al. (2022)**, in their study about" Increased One-Year Mortality Among Elderly Patients After Radical Cystectomy for Muscle-Invasive Bladder Cancer: A Retrospective, Observational Comparative Study "who found that most of the patients not receiving neoadjuvant chemotherapy.

However, this is contradicted with **Naif et al. (2020),** in their study about **"**Neoadjuvant Chemotherapy is Not Associated with Adverse Perioperative Outcomes after Robot-Assisted Radical Cystectomy: A Case for Increased Use from the IRCC "who mentioned that the use of neoadjuvant chemotherapy increased significantly from minority in 2006 to 2007 to two fifth in 2016 to 2017. Also, **Kelly et al. (2021)**, in study about "Contemporary Rates of Gynecologic Organ Involvement in Females with Muscle Invasive Bladder Cancer: A Retrospective Review of Women Undergoing Radical Cystectomy following Neoadjuvant Chemotherapy "reported that two third of participating subjects received neoadjuvant chemotherapy prior to Radical Cystectomy.

In relation to patients' total knowledge about radical cystectomy and self-care management, the results of the current study founded that there was a significant difference between pre nursing protocol with immediate post and post three months periods

indicating poor level of knowledge during pre-nursing protocol among the majority studied patient to be good level during immediate post and post 3 months period among, which support research hypothesis (1).

This finding in agreement with **Lang, et al. (2022),** in study about" The Effect of Narrative Nursing Intervention on Shame in Elderly Patients with Bladder Cancer after Ileal Bladder Replacement: A Cohort Study" and founded that the total scores of self-concept, self-care responsibility, self-care knowledge, self-care skills, and self-care ability of the research group were higher compared to those of the control group

Also, **Wilson (2021),** in study about "Cystectomy and Urinary Diversion -- Surgical Considerations "mentioned that when the provider/nurse to be better counsel and educate patients on potential options for care relative to their individual needs for a urinary diversion, as well as what they can anticipate postoperatively, it's better for patients.

Concerning difference between the studied patients regarding to their pain score throughout study periods. The results of the present study mentioned that there was a significant statistical difference between pre with immediate and three months post nursing protocol implementation in pain score, which support research hypothesis (2).

This is matched with **Andrew, et al. (2021)**, in study about "Intensive preoperative ostomy education for the radical cystectomy patient "which reported that Short-form 36 (SF-36) scores demonstrated numerical improvements in each individual category at the 6-week mark above baseline. These improvements persisted at the 12-week mark.

Regarding difference between mean score of fatigue state among the studied patients throughout different study phases, the current study revealed there was a highly significant statistical difference between pre with immediate and three months post nursing protocol implementation (p = <0.001**), which supported research hypothesis (3). The results indicate that there was improvement of physical quality of life after application of nursing management protocol. Nursing management protocol was created to reduce the fatigue state for patients undergoing major surgical interventions.

This finding is agreed with **Susanne (2021),** in study about "enhanced recovery after surgery, radical cystectomy and urinary diversion," and stated that enhanced recovery after surgery pathways were reduce the physical and emotional stress for patients undergoing major surgical interventions. Also, **Artur et al. (2021)** in study about "Educational and Psychological Support Combined with Minimally Invasive Surgical Technique Reduces Perioperative Depression and Anxiety in Patients with Bladder Cancer Undergoing Radical Cystectomy." Which reported that Preoperative educational and supportive intervention complements laparoscopic RC in the alleviation of surgery-related fatigue, anxiety and depression.

Relation to difference between total mean scores of quality-of-life domains among the studied patients throughout different study phases, there was a highly significant statistical difference between quality-of-life domains during pre and three months period post nursing protocol implementation (p=<0.001**)

These findings come with **Hsing, et al. (2021)**, who study about" A Randomized Control Study: The Effectiveness of Applying Multimedia on Self-Care and Quality of Life

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in Patient with Enterostomy "concluded that, the multimedia education program could enhance self-care ability of home care and quality of life in patients with enterostomy.

Also, **Chernyshov. (2019)**, in study about "Quality of life measurement in hidradenitis suppurativa: position statement of the European Academy of Dermatology and Venereology task forces on Quality of Life and Patient-Oriented Outcomes and Acne, Rosacea and Hidradenitis Suppurativa" has shown significantly better improvement of Health-Related Quality of Life scores in the treatment group than in the control group.

The results of this study revealed that the correlation between total knowledge with pain, fatigue and quality of life scores among the studied patients post 3 months period of nursing protocol implementation, where there was highly significant and negative correlation with pain and fatigue with (p value= <0.001**) as well as a significant and positive correlation with patient's quality of life with (p value = 0.012*).In this line **Bente, et al. (2022)**, in their study about" Efficacy of pre and rehabilitation in radical cystectomy on health related quality of life and physical function " concluded that education in stoma care improved self-efficacy significantly.

Also, this result agreed with **Zainfeld et al. (2018),** in study about" The impact of patient-related nonmodifiable factors on perioperative outcomes following radical cystectomy with enhanced recovery protocol" resulted that compared to the pre-enhanced recovery after surgery protocol have a good effect on decreased use of narcotics which means less in fatigue and pain complains from the patients.

Moreover, **Danielsen & Rosenberg. (2019)**, in study about" Health related quality of life may increase when patients with a

stoma attend patient education" demonstrate that educational activities aimed at increase knowledge and focusing on patients' psychosocial needs which may improve Health related Quality of Life of patients with a stoma.

The results of this study show that, there was no significant statistical relation between the studied patient' total quality of life score at three months period post nursing protocol implementation and their clinical data involving presence of comorbidities. this is agreed with **Karan & Bhaskar. (2019)**, in study about "Trends in quality-of-life reporting for radical cystectomy and urinary diversion over the last four decades: A systematic review of the literature "who revealed that it seems that as long as the patient is well counselled and supported in their decision they learn to cope and adjust with their urinary diversion type which mean better reporting quality of life.

This is contraindicated with **Fernando et al. (2021),** in study about "Dramatic Impact of Centralization and a Multidisciplinary Bladder Cancer Program in Reducing Mortality "concluded that there is a statistical relation between studied patients' quality of life and presences of comorbidities.

Conclusion:

Implementation of designed nursing protocol was effective in improving self-reported outcomes among patients with radical cystectomy, in term of significantly high level of knowledge about radical cystectomy, preparation and post-surgical care after the implementation of designed nursing protocol, as well as significantly improved health outcomes with lower pain and fatigue scores, incidence of complications, and a positive effect on patient's health related quality of life.

Recommendations:

♣ Designed Nursing Protocol should be provided with the cooperation between urology nurse specialists and specialized urology team department till patients' discharge.

♣ Applying a preventive program for high-risk patient for bladder cancer.

♣ Continuous evaluation of patients' knowledge regarding post-surgical instructions periodically to determine the effect of designed nursing protocol during follow up periods.

Further studies

♣ More studies are required to evaluate effect of designed nursing protocol for long term follow up on pain, fatigue, and QOL among patients undergone radical cystectomy.

♣ Application of training program about radical cystectomy on a large sample size and different areas.

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Marina Deuker,corresponding author1,2 L. Franziska Stolzenbach,2,3 Claudia Collà Ruvolo,2,4 Luigi Nocera,2,5 Zhe Tian,2 Frederik C. Roos,1 Andreas Becker,1 Luis A. Kluth,1 Derya Tilki,3 Shahrokh F. Shariat,6,7,8 Fred Saad,2 Felix K.H. Chun,1 and Pierre I. Karakiewicz2, (2021). Bladder cancer stage and mortality: urban vs. rural residency. Cancer Causes & Control Cancer Causes Control. 2021; 32(2): 139–145 Published online 2020 Nov 23. doi: 10.1007/s10552-020-01366-1 PMCID: PMC7810614

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تأثير بروتوكول تمريضي مصمم على النتائج الذاتية التي يقررها مرضى سرطان المثانة والخاضعون لجراحة الاستئصال الجذري لها

محمد جمال ابراهيم الشعار ـ مروه مسعد علي ـ هند محمد علام

استئصال المثانة الجذري هو العلاج القياسي لمرضى سرطان المثانة. يمكن أن يوفر تطبيق بروتوكول التمريض المصمم في التعامل مع مرضى سرطان المثانة الذين يخضعون لعملية استئصال جذري للمثانة إجراءً بسيطًا وأكثر فاعلية لتحسين النتائج السريرية وتقليل مخاطر حدوث مضاعفات. لذا هدفت الدراسة إلى تقييم تأثير بروتوكول التمريض المصمم على النتائج المبلغ عنها ذاتيًا بين مرضى سرطان المثانة الذين يخضعون لعملية استئصال جذري للمثانة. التصميم: تم استخدام تصميم بحث شبه تجريبي لتحقيق هدف هذه الدراسة. وتم تنفيذ الدراسة في قسم المسالك البولية بمستشفى جامعة بنها. الموضوع: عينة ملائمة مكونة من (43) مريضاً من كلا الجنسين مصابين بسرطان المثانة ، ممن حضروا إلى قسم المسالك البولية للخضوع لاستئصال المثانة الجذري مع تحويل مجرى البول لمدة ستة أشهر. وكشفت الدراسة أن مستوى معرفة المرضى فيما يتعلق بالاستئصال الجذري للمثانة قد تحسن بشكل ملحوظ ، بالإضافة إلى انخفاض درجات الألم والإرهاق إلى جانب تحسين جودة الحياة بعد تنفيذ بروتوكول التمريض المصمم ، بالإضافة إلى وجود علاقة ارتباط معنوية بين المعرفة الكلية بالألم والتعب ونوعية الحياة بين المرضى الذين خضعوا للدراسة بعد فترة 3 أشهر من تنفيذ بروتوكول التمريض (القيمة الاحتمالية) = <0.001 **). كما كان تنفيذ بروتوكول التمريض المصمم فعالاً في تحسين المعرفة بين مرضى استئصال المثانة الجذري ، من حيث المستوى المرتفع بشكل ملحوظ بعد تنفيذ بروتوكول التمريض ، فضلاً عن تحسن النتائج الصحية بشكل ملحوظ مع انخفاض الألم ودرجة التعب والتأثير الإيجابي على جودة المرضى من الحياة. واوصت الدراسة بضرورة التقييم المستمر لمعرفة المرضى فيما يتعلق بتعليمات ما قبل العملية بشكل دوري لتحديد تأثير بروتوكول التمريض المصمم خلال فترات المتابعة.