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Original Article

Effect of Implementing Preoperative Nursing Guidelines on Postoperative Outcomes Among Transurethral Resection of Prostate Surgery Patients

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1- ABSTRACT

Background: Transurethral resection of the prostate (TURP) is the best surgical and least problematic procedure for symptomatic treatment of benign prostatic hyperplasia (BPH). It is important for nurse to educate the patient pre-operative, to support the patient during the disease and its treatment. Therefore, **Aim**: the aim of this study is to assess the effect of implementing preoperative nursing guidelines on postoperative outcomes among transurethral resection of prostate surgery patients. **Method:** A quasi-experimental research design was used **Setting:** The study was carried out at the prostate surgery unit in the Urology Center (UC) at Mansoura University. **Study subjects:** A purposive sample of (100) patients undergoing TURP was randomly split into two groups with an equal size study group that received nursing guidelines in addition to routine nursing care, and control group who received only routine hospital nursing care. **Tools:** To gather the information and accomplish the study's goal, three tools were applied.: Tool I: Structured Interview Questionnaire, Tool II: Patient Health Assessment Sheet. Tool III: Assessment of Patients' Outcomes**. Results:** The present study showed significant improvement in the level of total knowledge, self-reported practices, and total post-operative outcomes in the study than the control group post-implementation of nursing guidelines. **Conclusion:** the pre-operative nursing guidelines have a favorable impact on the recovery after transurethral resection of the prostate in patients. **Recommendations:** Developing educational guidelines to improve postoperative outcomes of patients undergoing transurethral resection of the prostate and eliminate patient complications.

Key words: Nursing Guidelines, Postoperative Outcomes, Preoperative, Transurethral Resection of Prostate

2- Introduction:

Benign prostatic hyperplasia (BPH) is the prevalent benign disease that causes micturition disorders in middle-aged and elderly men, which is mainly characterized by clinical symptoms such as prostatic enlargement, lower urinary tract symptoms, and bladder outlet obstruction. It not only affects the physical health of patients, but also seriously affects their quality of life **(Devlin, Simms, & Maitland, 2021).**

Transurethral resection of the prostate is currently the most commonly used method for endourological treatment of benign prostatic hyperplasia, with the advantages of less trauma, significant effect, rapid recovery, and short hospital stay. It is known as the "Gold standard" to treat benign prostatic hyperplasia in recent years **(Plochocki & King, 2022).** Annually, TURPs account for 150,000- 300,000 surgeries **(Rył et al., 2023).**

Acute urinary retention, chronic urinary tract infection (UTIS), hematuria and hydronephrosis are common problems warranting surgical intervention. The goal of surgical intervention is to relieve the symptoms and improve the quality of life by allowing him to retain urinary control and normal sexual functioning (**Tamalunas, Schott, Keller, Atzler & Magistro, 2022).**

The goal of treatment is to relieve obstruction by reducing the size of prostatic compressing the urethral mucosa **(Vijayan, 2021)**.

Treatments are based on the degree of hyperplasia and severity of symptoms. Medical management involves close monitoring for the increased severity of prostatic-related symptoms not all men with BPH require surgery **(Krumins et al., 2021).**

Health education is very essential for patients undergoing (TURP) as patients have multiple concerns and expectations related to their long-term function and outcomes. Recent advances in surgery have focused on pre-operative care and interventions to improve outcomes following surgery **(Beiramijam, Anoosheh, & Mohammadi, 2022).**

Effective patient education contributes to positive patient outcomes. Patient education is critical to ensure that patients receive appropriate information to assist in the pre-admission, peri-operative treatment and rehabilitation process and help patients to understand his or her physical condition and self-care using the experience and guidance of the health team **(Allard, Meyer, Gandaglia, Chang, & Trinh, 2022)**.

The nurse has an important role in the preparation, care, and support of the patient, In addition to his/ her essential role as a health educator. So, patients undergoing (TURP) need to be educated about pre-operative preparations, recovery, and other post-surgical milestones such as range of motion, physical therapy, care of wounds, and proper nutrition. This would reduce the hospital stay and enhance successful outcomes **(Beiramijam al., 2022).**

2.1 Aim of the study:

This study aimed to assess the effect of preoperative nursing guidelines on the postoperative outcomes of patients who undergo transurethral resection of prostate surgery.

3- Method

3.1 Research Design: A quasi-experimental research design was utilized.

3.2 Setting: This study was carried out in the Urology and Nephrology Center (UNC) at Mansoura University. This center consisted of two parts, unit A (preoperative) and unit B (postoperative), unit A contains 30 beds, while unit B contains 21 beds.

3.3 Subject of the study

A purposive sample of (100) male patients undergoing transurethral resection of prostate surgery, were enrolled in the present clinical trial, and was split into two equal-sized groups at random: the study group and the control group. included criteria patients aged between 20-60 years, conscious and able to communicate, willing to participate in the study, and excluded criteria patients with other types of cancer and Patients with metastasis prostate cancer.

Tools: Three tools were used to collect the data, as follows:

Tool I: Structured Interview Questionnaire

It was developed by the researcher based on reviewing literatures **(Gilling et al., 2022),** and scientific references to collect the required baseline data It includes two parts.

Part1: Demographic and Medical Data

This part was designed to collect personal and clinical data such as age, marital status, occupation, level of education, Chief complaint, previous hospitalization, previous surgeries, family history, preoperative chemotherapy, associated comorbidities, and length of hospital stay

Part II: Patients Knowledge Questionnaire Sheet

This part was developed by the researcher based on literatures **(Eredics et al., 2020)**, to assess patient's knowledge about transurethral resection of prostate surgery. It includes (14) list questions; four questions have correct or incorrect responses as they have only one correct answer, and four questions have correct and complete responses as they have more than one correct answer.

The scoring system's total scores of the knowledge ranged from 0 to 90. One mark is awarded for each correct answer and zero for unknown or incorrect one. Questions that have correct or incorrect responses scored 0- 1 with a total score (0- 73) while questions that have correct and complete responses scored 0- 2 with a total score (0- 17). The knowledge score was categorized into three levels:

- Poor < 50% of total scores (score 0 to 45)
- Fair = 50% to 65% of total scores (score45 to 58)
- Good > 65% of total scores (scores58 to 90)

Tool II: Patient Health Assessment Sheet

It was developed and filled by the researcher, based on reviewing of literatures , and scientific references **(Robinson, Hepburn, Turner, & Zarrabi, 2022).** This part consists of preoperative and post-operative practices such as

1. Preoperative physical practices (it included seven sub items = 7 scores).
2. Immediate post-operative practices (it included six sub-items = 6 scores)
3. Day one till discharge practices (it included twelve sub items = 12 scores)
4. Diet (it included three sub-items = 3 scores)
5. Hygiene (it included two sub-items = 2 scores)
6. Medication (it included three sub-items = 3 scores)
7. Activities (it included seven sub items = 7 scores)
8. Follow up (it included two sub-items =2 scores

The scoring system

The total score ranged from 0 to 42, with one point awarded for each correct answer and zero for incorrect or no answer.

Tool III: Assessment of Patients' Outcomes

It was designed by the researcher based on reviewing of literatures **(Morozov et al., 2023)**, to assess the presence of complications including intraoperative complications (bleeding, transurethral resection syndrome), immediate postoperative complications (Urinary Catheter Obstruction, Urinary retention, Bacteremia – Urinary tract infection), long-term post-operative complications (urinary incontinence, urethral strictures and fibrotic scaring, bladder neck stenosis, sexual dysfunction, Impotence, regrowth of the prostate, respiratory complications (pleural effusion, dyspnea, pneumonia, chest infection), other complications (deep vein thrombosis DVT, lower limb LL edema, pressure ulcer, fever, peptic ulcer, and cardiac problems),), Prostate Symptom, and quality of life.

Scoring system: All questions were scored on a scale ranging from 0 to 100. Score 100 representing the highest level of functioning possible. The scores of the items were summed up and the total scores were divided by the number of items, giving a mean score. These scores were expressed in means and standard deviations.

3.4 Data collection:

Administrative preparations

- Ethical approval was obtained from the research scientific ethical committee of the Faculty of Nursing, Mansoura University.
- Before conducting the study, official letter was submitted from the faculty of Nursing of Mansoura University to the director of the Urology and Nephrology Center at Mansoura University Hospital, to obtain his approval to conduct the study.
- After obtaining permission from the director of the Urology and Nephrology Center in Mansoura University Hospital, the researcher met the head nurse of the urology and nephrology center, and coordination of the study process was conducted among nursing staff.

Validity:

The content validity of the tools was tested by six experts in the field of the study; four experts of Medical-Surgical Nursing (one Professor, two assistant Professors and lecturer), one specialist Professors of Urology, and one specialist in biostatistics. They reviewed the clarity, relevance, understanding, and applicability of the study tools for implementation. According to their opinions, modifications were done.

Reliability: The tool reliability was tested by means of the Cronbach Alpha test to calculate the inner consistency of the tool I (r= 0.80). Tool II (r = 0.89). and Tool III (r= 0.89).

3.5 **Ethical Considerations**

Oral and written consent was obtained from the patients after illustrating the aim of the study, the researcher emphasized to the patients that they have the right to withdraw from the study at any time. The patient was informed that refusal to participate in the study wouldn't influence their care. Anonymity, privacy, safety, and confidentiality were absolutely assured throughout the study.

3.6 Pilot Study

It was carried out by conducting a pilot study on 10% of the study sample (10 patients) who were randomly selected. It was done to check the feasibility & applicability of the tools to help the researcher determine the needed time for answering all the questions and excluded from the total statistical analysis score. The needed corrections and modifications were made and the patients in the pilot study were excluded from the study sample

Phase I: Preparatory phase

The researcher prepared the tools from the different scientific references and identified the patients who will undergo transurethral resection of prostate surgery and meet the inclusion criteria. This is followed by collecting baseline data to help design nursing guidelines. In this phase, the researcher assessed the control and the study group preoperatively using the tool I, part (1) and part (2) (pretest). Based on the information obtained from the pretest study, in addition to the literature, the researcher designed the instruction guidelines under the guidance of the supervisors. Its main aim was to improve knowledge, practices, and post-operative outcomes of patients undergoing total knee replacement. A simple colored booklet was developed for patients and reviewed by experts, covering the following items:

- -Brief description of the urinary tract, prostate gland, and benign prostate hyperplasia (definition, causes, symptoms, diagnosis, treatment, and prevention)
- -Health instructions needed for transurethral resection of prostate TURP operation related to

preoperative preparations, home preparation, postoperative health instructions related to (catheter, pain management, movement, practicing exercise from day one till discharge, diet, drug needed, postoperative health instructions related to allowed activities, nutritional regimen, Kegel's exercises:, sexual intercourse possible complications, rehabilitation and follow up appointments).

The instructional booklet was written in simple Arabic language with different illustrated pictures to enhance the learning process and facilitate patients understanding.

Phase II: Operational phase:

- When the necessary approval is obtained the researcher started to collect data. Data collection extended over a period of 8 months which beginning with April 2021 to the end of November 2021.
- The framework of the study was carried out according to 3 phases the following: Assessment phase, implementation phase, and evaluation phase.

A. Assessment phase:

- All patients were interviewed individually to collect the necessary data using tool I.
- The researcher assessed the patient's level of knowledge using tool I, and filled out the questionnaire by asking patients and filling the questionnaire which took about 20 minutes.

B. Implementation phase:

Based on the findings of the assessment phase, patients who matched the sampling criteria & who accept to participate in the study were divided into two equal groups, study group who received nursing guidelines in addition to routine nursing care, and control group who received only routine nursing care by the nurse of the urology unit.

The researcher instructed the study group about the importance of preoperative nursing guidelines which may help in decreasing postoperative complications and improving the postoperative outcomes, then the researcher taught nursing guidelines to those patients using the booklet.

- In the study group educational and practical training sessions were implemented for all patients.

-The instructional guidelines implementation has been carried out in the surgical unit in the Urology Center at Mansoura University.

At the beginning of the first session, an orientation to the aim of the study and the goals of the guidelines took place. In addition, patients were oriented about the phases of the study and the guidelines session (time, duration, and contents). The researcher stressed the importance of continuous attendance and active participation.

-The instructional guidelines given for each patient alone considering the timetable for their operation.

-The guidelines were conducted with three sessions; through three days (1 session /day), each session took about 20- 30 minutes for the study group. Collecting data from the control group took about 15- 20 minutes. The total allocated time for achieving the whole guidelines for every study patient was 60- 90 minutes. The total allocated time for every control patient was 45- 60 minutes.

-Patients were allowed to ask any interpretation, elaboration or explanation of any item included in the session.

C. Evaluation phase (Post-test & follow-up tests)

The effect of implementing the instructional guidelines on patients' practice and health outcomes was evaluated by the researcher in 2 items; immediately after the nursing guidelines implementation (Immediate post-test) by using tools I &II, and after 1 month of nursing guidelines implementation (follow-up) in the out-patient in Urology And Nephrology Center at Mansoura university, by using tools II& III. The results were compared to the pretest results.

Statistical Design

After data were collected, they were revised, tabulated, and statistically analyzed using Package for Social Sciences "SPSS version 20". The quantitative data were presented as numbers and percentages. To check the difference between the two groups independent t-test was used. Tests of significance were performed to the study hypotheses i.e. Paired Samples Tests (P-value) and descriptive statistical tests.

4- Results

Table (1) Shows the demographic characteristics of the study and control group. It can be noted that the age group of 51 to 60 years represents the highest percentage with mean age of 53.88 ± 9.457 years of the study group and 52.2 ± 10.079 years of the control group. Regarding to marital status, (48.0% & 52.0%) respectively of the patients in the study group and the control group

were widowed. Concerning the level of education, (54.0 % and 48.0%) respectively of the study group and the control group were able to read & write. Regarding occupation (66.0% & 64.0%) of the study group and the control group respectively did not work. The two groups were matched, and there were no significant differences between them where P>0.05

Figure (1) shows that the majority (90% & 94%) of the study and control groups respectively had no family history of previous prostate surgeries.

Figure (2) shows that about three-quarters (74.0%) of the study group have hospital stays from one to three days while slightly less than half (48.0%) of the control group respectively have hospital stay of more than three days.

Figure (3) displays that the majority of the study group (13.9&14.07) gained good knowledge scores post-implementation (immediately & one month) of guidelines compared to (5, 57&5, 63) at the control group.

Figure (4) shows that the mean scores of patient practices in the study group were significantly higher than the control group.

Table (2): Comparison between the control and study group according to the International Prostate Symptom Score (IPSS) immediately post-operative and follow-up up This table reveals that according to the International Prostate Symptom Score (IPSS) regarding prostate symptoms, there were significant differences between control and study group, regarding postoperative symptoms three quarter (72.0%) of control group respectively had severe symptoms while half (50.0%) of study group have severe symptoms

Concerning prostate symptom score during follow-up (one month postoperatively), slightly more than one quarter (30.0%) of the control group respectively had severe symptoms while only (8.0%) of the study group had severe symptoms. There is a highly statistically significant difference between the two groups where (p<0.05).

Table (3): Comparing control & study groups according to quality of life during the follow-up phase this table shows that there were significant differences between the control and study groups, quality of life for the study group was **(17.27±3.39)** compared with the control group (**13.8±2.71)** with P value < 0.05, This means that patient in the study group enjoyed with quality of life better than patient in the control group

Table (1). Percentage of Studied Patient's Distribution According to Their Socio-Demographic Characteristics (n =50)

Items	**Control group (n=50)**		**Study group (n=50)**		**χ2**	**P**
	n	**%**	**n**	**%**		
Age (in years)						
31-40	6	12.0	6	12.0	*2.929*	*0.570*
41-50	18	36.0	16	32.0		
51-60	26	52.0	28	56.0		
Mean ±SD	52.2 ± 10.079		53.88 ± 9.457			
Marital status						
Single	4	8.0	3	6.0	*3.763*	*0.288*
Married	15	30.0	16	32.0		
Divorced	5	10.0	7	14.0		
Widowed	26	52.0	24	48.0		
Educational level						
Illiterate	10	20.0	6	12.0	*11.052*	*0.011*
Read & write	24	48.0	27	54.0		
Secondary	12	24.0	10	20.0		
Universal	3	6.0	5	10.0		
Postgraduate	1	2	2	4.0		
Occupation						
Work Don't work	32 24	64.0 48.0	33 22	66.0 24.0	*1.670*	*0.196*

Notes Data is count (n) and percentage (%)

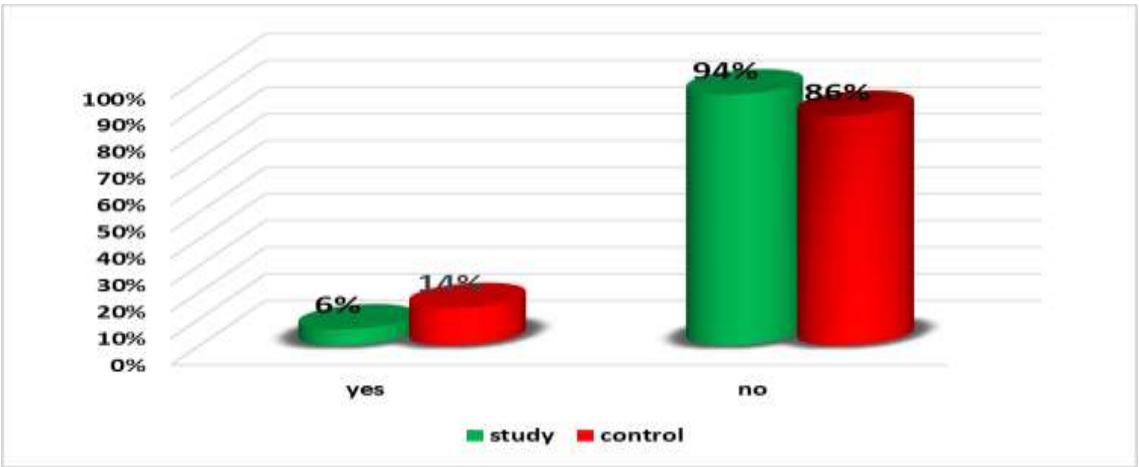

Figure (1). Distribution of the Control and Study Groups Related to Family History of Previous Prostate Surgeries

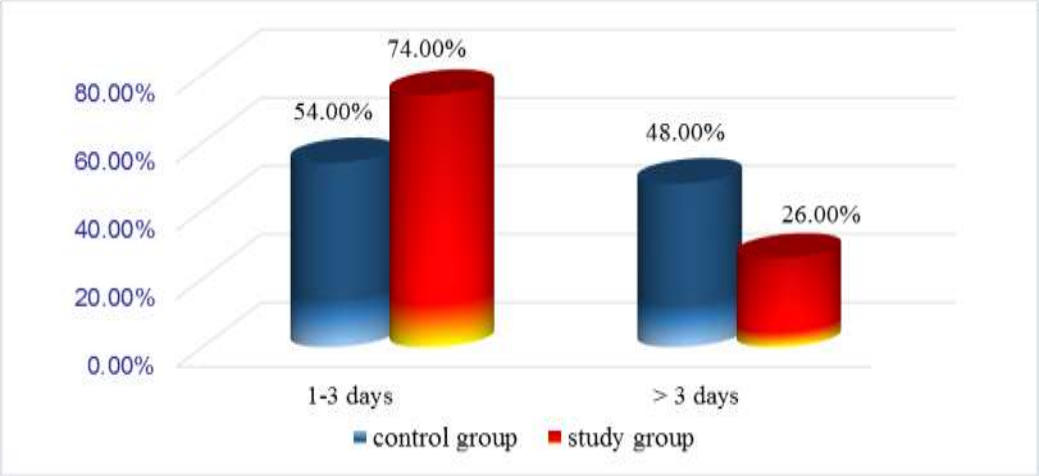

Figure (2). Distribution of the Control and Study Groups Related to Length of Hospital Stay

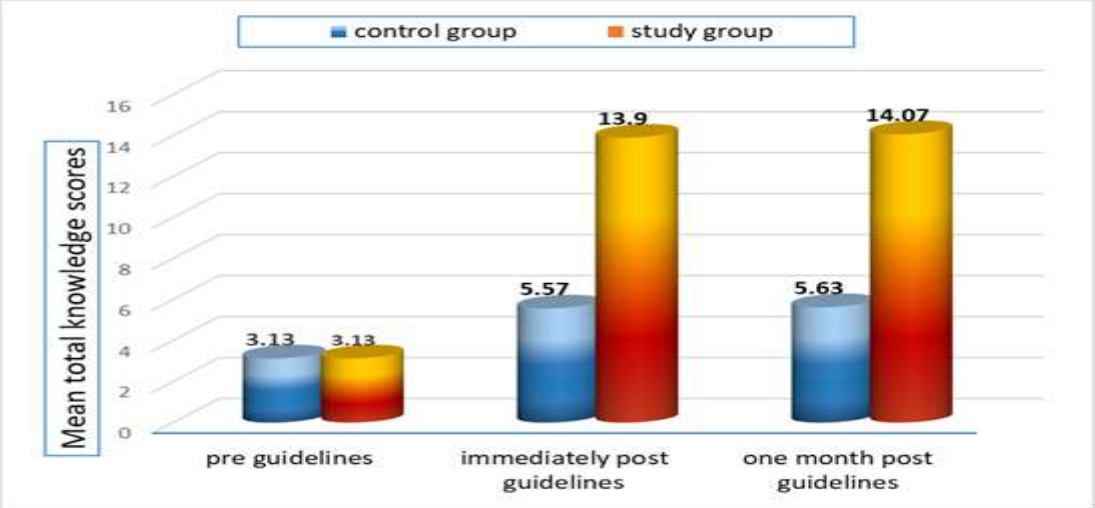

Figure (3). Mean Total Knowledge Scores of the Studied Patients Pre- and Post-Guidelines

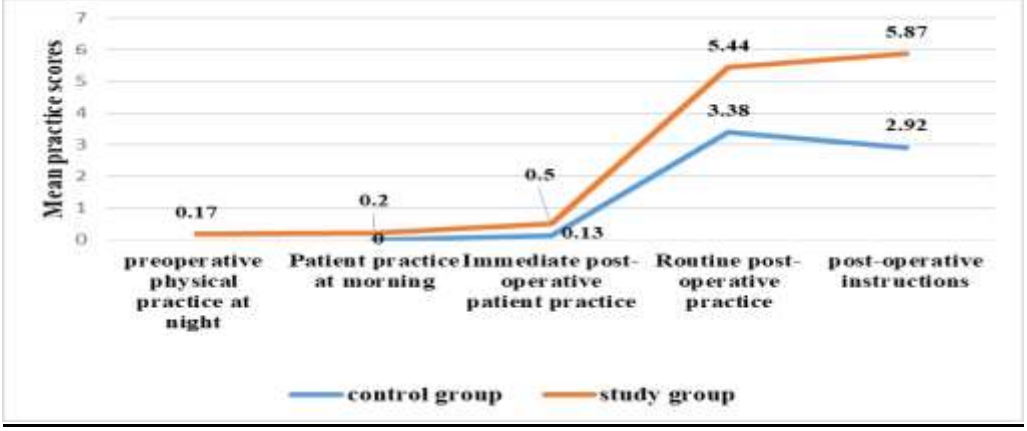

Figure (4). Mean Score of Patients Practices Sub Items Among Control and Study Group

Table (10). Comparison between control and study group according to the International Prostate Symptom Score (IPSS) regarding prostate symptoms immediately post-operative and follow up (n= 50):

	Control group		study group			
(IPSS) score	n	%	n	%	$\chi 2$	*p*
Immediately Post-operative						
Mild symptoms	8	16.0	17	34.0	0.082	0.774
Moderate	10	20.0	7	14.0		
Severe symptoms	36	72.0	25	50.0		
Follow-up (one month post-operative)						
Mild symptoms	13	26.0	26	52.0	9.774	0.001*
Moderate	22	44.0	20	40.0		
Severe symptoms	15	30.0	4	8.0		

Table (11). Comparing Control & Study Groups According to Quality of Life During Follow-Up Phase (n= 50)

	Control n=50	**Study n=50**		
	Mean ± SD	**Mean ± SD**	**$\chi 2$**	***p***
General health	3.48 ± 0.85	3.88 ± 0.93	8.34	(0.000)*
Physical function	1.16 ± 0.45	2.80 ± 0.40	10.50	(0.000)*
Psychological status	1.01 ± 0.10	1.92 ± 0.27	1.69	(0.09)
Social status	3.88 ± 0.58	4.12 ± 0.90	13.17	(0.000)*
Sexual life	3.27 ± 0.73	4.55 ± 0.89	9.92	(0.000)*
Total score	13.8±2.71	17.27±3.39	20.24	(0.000)*

P > 0.05 (insignificant) *P < 0.05 (significant)

5- Discussion

Transurethral resection of prostate (TURP) has been the gold standard choice for the past 50 years of treatment benign prostatic hyperplasia, TURP was achieved the high successful rate, minimally invasive surgical procedure, low cost and short recovery **(Canat, Gurbuz, & Bozkurt.,**

2023). However, surgery can be stressful - emotionally and physically. It is thought that patients, who receive information and educated preoperatively about their surgery and recovery, will have successful outcomes Pre- and post-operative nursing care are important factors in the success of any surgery, and nursing is seen as an important factor in improving patients 'health outcomes **(Snowten, 2022).** In relation to age, the current study represented that, the majority of the control and the study group ranged between fifty one to sixty years old. This result was in agreement with the study conducted by **Sayed, et al., (2021)** who reported that the majority of the studied patients were in the age group of fifty to less than or equal to sixty years old. These findings may be related to cumulative exposure to various risk factors and biological changes that occur with aging, such as changes in the cells of the testicles, adversely affecting quality of life due to the presence of low urinary tract symptoms (LUTS), and hormonal changes.

Concerning marital status, the study in hand represented that approximately half of the study and control groups were widowed. This finding was supported by the finding of the study by **Mishriki *et al.* (2017)** on benign prostatic hyperplasia patients in Egypt**,** who reported that more than half of the study and control groups were widowed. Moreover, these findings come in disagree with the study in the USA by **Molamba et al. (2023)**, who found that, the majority of the study was married. The finding of the current study may be due to the majority of the study and control group were in the age more than fifty years old.

Concerning educational level, the current study showed that the majority of the control group and study group were read and write. This result is inconsistent with the study conducted by **Sayed, Ahmed** and **Gadelkareem (2021)** on benign prostatic hyperplasia patients, in Egypt, and disagreed with the study in Canada by **Tokas et al. (2022)** who reported that more than one-third of the studied patients were high school graduates while **Zheng et al. (2022)** found that more than one-quarter of benign prostatic hyperplasia patients were high school graduates. This may be due to cultural or social differences in learning from one community to another.

Pointing occupation, the present study clarified that, more than half of the studied patients were working. These findings agree with **Purwanto, Erniyawati, Hariyanto, Muhalla,** and **Wijayanti (2021)** study, on patients undergoing TURP surgery, in Canada who reported that half of the patients undergoing TURP were working. The finding of the current study may be due to all of the study and control groups were in the age less than sixty years old.

Regarding family history, the result of the present study stated that the majority of the studied patients had no family history, This may be because most men are ashamed to talk about this disease. this agree study by **Wei, Cheng, & Yu, (2020)**, compared prostatic artery embolization versus transurethral resection of the prostate for benign prostatic hyperplasia between 2 groups of patients and found that the majority of the 2 groups had no family history of benign prostatic hyperplasia, only hyperplastic polyps.

These findings come in contrast with a study by **Taha, (2021),** who reported that the majority of the study subjects had benign prostatic hyperplasia family history, and about half of them that of first-degree relatives aged fifty or older.

Regarding the length of hospital stay (LOS), the present study revealed that the length of hospital stay of about three fourth of the study group was from one to three days and half control group was more than three days, this may be interpreted as study group has less complication than control group. This finding is in agreement with **Garden, et al., (2022)**who reported that Compared with the control group, the intervention group participants had shorter hospital stays. Also, this finding is consistent with a recent analysis of Canadian Institute for Health Information data, which showed an average LOS of 4.19 days for PCNL **Bhatta, et al., (2021)**, this may be due to inadequate health education.

The present study showed significant improvement in the level of total knowledge in the study than control group post-educational guidelines. This may be related to the effectiveness of the nursing guidelines, which provided the patients with the necessary information about benign prostate hyperplasia compared to pre-implementation. This is consistent with the result by **Subrata (2020)** who reported that total knowledge score revealed a statistically significant difference between pre and post-attending educational programs about TURP surgery.

Generally, the current study showed that the total level of patients' practices is significantly higher in the study than the control group after the implementation of nursing guidelines. This might be attributed to the positive effectiveness of nursing guidelines on patients practices and patients desire to decrease postoperative complications. These

results agree with a study in Italy, by **Tian, Zhang, Luo, Zhu, Yu,** and **Zhao (2023)** who mentioned that preoperative educational intervention enhances patients' self‐care skills, thereby contributing to improving their physical functions after surgery and the study group exhibited improvements in health practices compared with the control group.

Regarding prostate symptoms pre and postoperatively, results indicated that patients in control group had more frequent complaints regarding International Prostate Symptom Score (IPSS) than the study group. In the same direction, the study done by **Amu** and **Anyimba (2024)** proved that attending preoperative information sessions was associated with a significantly decreased risk of postoperative complications and improved prostate symptoms. On the opposite side, **Sagen et al. (2021)** mentioned that the effect of educational interventions remains too small and short-term to be considered clinically important at this point.

As regarding to quality of life the current study argued that patients in the study group enjoyed quality of life better than patients in the control group. These findings come in accordance with **Snowten (2022)**, who measured that QoL, and pelvic functional outcome were measured with the SF-36 health survey for prostate cancer patients and stated that the study group reported significantly better general health compared with the control group.

6- Conclusion

The results of the present study showed that pre-operative nursing guidelines had a positive effect on postoperative outcomes of patients undergoing transurethral resection of prostate surgery

7- Recommendations

Based upon the findings of the present study, preoperative nursing guidelines should be implemented for all patients scheduled for transurethral resection of prostate surgery as a part of hospital care preoperatively. The same study could be replicated on a large sample size of patients with different age groups, in a different clinical setting, and with a different diagnosis.

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