Effect of Self-care Guidelines on Quality of Life for Patients with Prostate Cancer

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Abstract: **Prostate cancer patients require satisfying their quality of life` dimensions as the physical, psychological, social and spiritual to overcome health problems that have a serious negative impact on QoL in prostate cancer survivors. Aim: This study was aiming to evaluate the effect of self-care guidelines on quality of life for patients with prostate cancer. Study design: A quasi experimental design was utilized. Subject: A purposive sample of 100 patients with prostate cancer and divided into two groups (study and control group). Setting: The study was conducted at outpatient`s clinic at Oncology Center that affiliated with Ain Shams University Hospitals, Cairo. Egypt. Data collection tools: 1) Structured Interview Questionnaire for patients with Prostate Cancer, 2) Patients' self-care practice observational checklists, and 3) Quality of Life Cancer Survivors Questionnaire. Results: The present study revealed that, 52% of the study group and 44% of the control group had low total QoL with no statistically significant differences between two groups pre implementation of self-care guidelines (P>0.05).While, post implementation of self-care guidelines 76% of the study group had high total QoL and 42% of the control group had low total QoL post routine care with a statistically significant differences between them (P<0.001). Conclusion: Application of self-care guidelines had significant positive effect on quality of life dimensions for patients with prostate cancer. Recommendations: Further researches are recommended related to patients' quality of life to evaluate their improvement and prognosis and also, further researches to assess factors affecting on quality of life of patients with prostate cancer.**

Keywords: **Prostate Cancer, Quality of life, Self-care guidelines.**

1. INTRODUCTION

Prostate cancer is the most common non- skin cancer in the U.S.A., and the second most common cause of deaths in American`s men after lung cancer. It is the second leading cause of death from cancer in men. Prostate cancer occurs more often in African-American men than in white men. They are more likely to die from the disease than white men with prostate cancer **(Janssen, 2017)**.

Prostate cancer often has no early symptoms. Advanced prostate cancer can cause men to urinate more often or have a weaker flow of urine, but these symptoms can also be caused by benign prostate conditions. Prostate cancer usually grows very slowly. Most men with prostate cancer are older than 65 years **(National Cancer Institute in U.S.A., 2015)**.

Men with a family history of prostate cancer are more likely to get prostate cancer. Hormones and increase fats in the diet raise the amount of testosterone in the body, which speeds the growth of prostate cancer. A few job hazards such as welders, battery manufacturers, rubber workers, & workers frequently exposed to the metal cadmium seem to be more likely to get prostate cancer, add to that, decrease activity level also makes prostate cancer more likely **(American Cancer Society, 2015)**.

Once prostate cancer begins to grow quickly or spreads outside the prostate, it is dangerous. The earlier prostate cancer usually has no clear symptoms. Sometimes, prostate cancer does cause symptoms include frequent urination, nocturia, difficulty starting and maintaining a steady stream of urine, hematuria, and dysuria can occur. Advanced prostate cancer can spread to other parts of the body, possibly causing additional symptoms. The most common symptom is bone pain, often in the vertebrae, pelvis, or ribs. Spread of cancer into other bones, such as the femur is usually to the proximal or nearby parts of the bone **(Sciarra, Panebianco & Gentile, 2014).**

There are also several diagnostic tests that can be used to gather more information about the prostate and the urinary tract. Digital rectal examination (DRE) which used to detect prostate abnormalities, cystoscopy, transrectal ultra sonography and ultrasound (US) & magnetic resonance imaging (MRI) are the methods used for prostate cancer diagnoses **(Fitzgeraid, 2015**).

The treatment options for men with prostate cancer might include; Expectant management (watchful waiting) or active surveillance, surgery, radiation therapy, cryosurgery (cryotherapy), hormone therapy, chemotherapy, vaccine treatment, one-directed treatment **(Centento, 2014).**

Self-care deficit is the inability of patients with leukemia to practice and perform on their own behalf in maintaining life, health, and well-being. Self-care practices contribute to the following achievements: the support of life processes and the promotion of normal functioning, the maintenance of normal growth, development, and maturation, the prevention, control, or cure of disease processes and injuries, the prevention of or compensation for disability, and promotion of well-being **(Orem, 2001)**.

Quality of life is defined by **(Prigerson et al., 2015)** as an individual's personal satisfaction with daily life as influenced by the evaluation of physical, psychological, social and spiritual well-being. Quality of life is a multidimensional concept based on individual needs, choices and control and influenced by individual and environmental or contextual factors. Quality of life is the multidimensional evaluation by both interpersonal and social normative criteria of the personal and environmental system.

The nurse assesses how the prostate cancer affects the patient's lifestyle. So, the nurses should assess the patient's activity level, activity tolerance changes, the all urinary problems which described by the patient's own words, such as the decreased force of urinary flow, decreased ability to initiate voiding, urgency, frequency, nocturia, dysuria, urinary retention, hematuria and other patient`s problems, such as back pain, flank pain, and lower abdominal or suprapubic discomfort. Also, the nurse assesses the possible causes of discomfort which include the infection, retention, & renal colic. Add to it, the nurse identifies the patient experiences with erectile dysfunction or changes in frequency or enjoyment of sexual activity **(Wises, Blaivas, Van Kerrebroeck & Wien, 2012**).

Significance of the study:

Prostate cancer is the most common cancer in American men. The American Cancer Society's estimates for prostate cancer in the United States for 2017 are; about 161,360 new cases of prostate cancer and about 26,730 deaths from prostate cancer. Prostate cancer occurs mainly in older men **(American Cancer Society, 2017).**

More than 1.1 million cases of prostate cancer were recorded in 2012 all over the world. The mortality rate due to prostate cancer has increased in most countries characterizing this cancer as the second leading cause of death in male and thus an important health care problem in many countries (**World Health Organization, 2015**).

More than 40 cases with prostate cancer admit monthly to the Oncology Center at Ain Shams University hospital to receive treatment. The patients whom admitted to the Oncology center at Ain Shams University (2016) were about 480 patients in this year **(According to Oncology Center).**

Prostate cancer and its treatment commonly affect two areas of major concern to men's physical, mental, and social health, namely, urinary and sexual function so, it`s important to assess and give a consideration to it. Patients with prostate cancer experience a high level of physical, social and psychological problems as urinary incontinence and stress caused by the disease and treatment processes. Dealing with prostate cancer using more beneficial practices and coping styles can effectively improve the quality of life (QOL) and reduce the side effects of cancer, and it`s treatment. In this study, the researcher's aim to investigate and evaluate these practices and its relation and effect on the Quality of life in patients with prostate cancer **(World Health Organization, 2015).**

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Aim of the Study

This study aims to evaluate the effect of self-care guidelines on quality of life for patients with prostate cancer through the following:

* Assessment of quality of life dimension for patients with prostate cancer to detect their needs.

* Developing and implementing self-care guidelines for patients with prostate cancer based on needs assessment.

* Evaluating the effect of self-care guidelines on quality of life for patients with prostate cancer.

Research Hypothesis:

The current study hypothesized that:

The implementation of self-care guidelines for patients with prostate cancer will have a positive effect on quality of life.

2. SUBJECTS AND METHODS

Subjects and methods for this study were portrayed under four main designs as the following:

1- Technical design

2- Administrative design

3- Operational design

4- Statistical design

1-Technical Design:

The technical design included research design, setting, subjects and tools of data collection.

A - Research design:

This study was conducted through using a quasi-experimental design which is an empirical interventional study used to estimate the causal impact of an intervention on target population without random assignment.

B- Setting:

The study was conducted at the out patient's clinic of the Oncology center affiliated with the Ain Shams University Hospital, Cairo, Egypt.

C-Subject:

A purposive sample of 100 patients with Prostate cancer was selected according to certain inclusion and exclusion criteria. The study subjects were divided into two groups: study group who had the self-care guidelines & routine care and control group who had only the routine care. The sample size was determined statistically by power analysis considering the total number of patients who had prostate cancer at the out patient's clinic of the Oncology center affiliated with the Ain Shams University Hospital.

* Type I error with significant level (α) = 0.5

* Type II error by power test (1-B) = 90%

Found the minimum sample (100) cases

Inclusion criteria:

The study sample was selected according to the following criteria:

* Adult patients with prostate cancer.

* Having different educational levels.

* Free from other chronic diseases.

* Able to comprehend instructions.

* Agree to participate in the study.

Exclusion criteria:

* Patients with mental or psychiatric disorders.

* Patients who were exposed previously to any educational programs or guidelines about prostate cancer.

* Patients undergoing chemotherapy.

D-Tools of data collection

The tools used in this study were:

I-Structured Interview Questionnaire for patients with Prostate Cancer (Appendix I).

It was designed by the researcher and written in simple Arabic language by the researcher based on recent literature review **(Baum, Richard & Nanni, Cristina, 2017; Bertoldo, Boccardo, Bombardieri, Laura &Valdagni, 2017; Small, 2017; Polascik, 2013; Bolla& van Poppel, 2012).** It included three parts as the following:

Part 1: It was used to assess socio demographic data of patients with prostate cancer as; patients` age, occupation, marital status, level of education, family members number, monthly income, cost of treatment & living area.

Part 2: It was used to collect clinical data about patients' history with prostate cancer, which included the present, past medical history of the disease, family health history and treatment regimen.

Part 3: It was used to assess patients` Knowledge regarding prostate cancer disease and its associated treatment and self-care needs, so this tool divided into three sections as the following:

A-**Patients' knowledge regarding prostate cancer disease**.

It was composed of 8 multiple choice questions which distributed as the following; anatomy of prostate gland (3 questions), definition (1 question), risk factor (1 question), effect (1 question), signs and symptoms (1 question), complications of prostate cancer (1 question).

B-**Patients` knowledge regarding treatment.**

It was composed of 16 multiple choice questions which distributed as the following; indications of treatment (3 questions), hormone therapy (4 questions), surgical therapy (4 questions), radiation therapy (3 questions) & chemotherapy (2 questions).

C-**Patient`s knowledge regarding self-care needs.**

It was concerned with the assessment of patient self-care needs, including physical, psychological, social and spiritual needs. It was composed of (75 questions) with the response of yes or no. The questions were distributed at the following: physical self-care needs aspect (39 questions), psychological self-care needs aspect (20 questions), social self-care needs aspect (12 questions) and spiritual self-care needs aspect (4 questions).

Scoring system

The score for correct answer for each question was one and incorrect answer was zero. The total score for patients` knowledge regarding prostate cancer disease and its associated treatment and self-care needs were 99 grades.

The total score was considered as the following:

* ≥ 60% (≥ 60 grades) was considered a satisfactory.

* < 60% (< 60 grades) was considered unsatisfactory.

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II- Self-care observational checklist for patients with prostate cancer (Appendix II).

It was developed by researcher based on recent literature review **(Baum & Nanni, 2017; Bertoldo, Boccardo, Bombardieri, Laura &Valdagni, 2017; Small, 2017; Polascik, 2013; Bolla& Van Poppel, 2012).** It was written in Arabic language & was used to assess patients` self-care practices with prostate cancer as Hand washing, perineal care, Kegel exercise, breathing exercise & relax technique. The response of each procedure was divided into (done correctly, done incorrectly and not done). The observational checklist was composed of 89 steps which distributed into six self-care skills including; Hand washing (10 steps), Perineal care (9 steps), Kegal Exercise; pelvic muscles identifying (8 steps) & pelvic lower part exercise (4 steps), Breathing exercises; lips breathing (4 steps) & diaphragm exercise (6 steps),Relaxation exercise (17 steps), and Physical exercise (31 steps).

Scoring system

The total grade of patients` self-care practice observational checklist was 89 grades, one grade was given to the step which was done correctly and Zero to the step which was not done or done incorrectly. It was distributed to six procedures; the grades were distributed at the following: hand washing 10 grades, perineal care 9 grades, Kegal exercises 12 grades, breathing exercises 10 grades, relaxing exercise 17 grades and physical exercise 31 grades.

The total score was considered as the following:

- $\geq 70\%$ (≥ 65 grades) was considered a satisfactory level of self-care practice.

- $< 70\%$ (< 65 grades) was considered unsatisfactory level of self-care practice.

III- Quality of Life Cancer Survivors Questionnaire (Appendix III): It was used to assess the quality of life for prostate cancer patients. It was adapted from **Cella, et al., (1993)** and was modified by the researcher based on related recent literature review (**Ripoll & Saunders, 2017; Blum & Scholz, 2017**; **Lardaset al., 2017; & Kouta & Charalambous, 2016).**The questionnaire included 57 items distributed as the following: physical 19 items, emotional 15 items, social & family 11 items, functional well-being 7 items and spiritual well- being 5 items.

Scoring system

Each item had 5 responses ranging from 0-4 as the following; (4) Very much, (3) Quite a bit, (2) Somewhat, (1) Little a bit and (0) Not at all. It was considered for positive statements and it was reversed for the negative statements that, when the response scored by 4 it was considered very high QoL, the response scored by 3 it was considered high QoL, the response scored by 2 it was considered moderate QoL, the response scored by 1 it was considered Low QoL and when the response scored by 0 it was considered very low QoL. So, the total grade for the scale was calculated as the following;

- 172-228 → **very high QoL**.

- 115-171 → **high QoL**.

- 58-114 → **moderate QoL**.

- 1-57   →**low QoL**.

- 0   → **very low QoL**.

Self-Care Guidelines for patients with Prostate Cancer (Appendix VI).

Self-care guidelines were designed by the researcher and written in a simple Arabic language using illustrated pictures based on related recent literatures (**Baum, Richard & Nanni, Cristina, 2017; Bertoldo, Boccardo, Bombardieri, Laura & Valdagni, 2017 and Small, 2017).** It included two parts as the following:

Part I- Theoretical part; it covered the following items;

*Anatomy and physiological function of prostate gland.

*Prostate cancer description as definition, causes, clinical manifestation.

*Prostate cancer hormone therapy as methods, indications and complications.

*Prevention & management of complications of hormone therapy for prostate cancer.

*Self-care guidelines for patients with prostate cancer; it was divided into:

- Physical self-care guidelines were included prevention of complications, medications and follow up.

- Psychological self-care guidelines.

- Social and functional self-care guidelines.

- Spiritual self-care guidelines.

Part II- **Practical part;** it concerned with self-care practices such as hand washing, perineal care, pelvic muscles exercises, physical exercises, breathing exercises and relaxation exercise.

2-Administrative Design:

A letter was issued from the Faculty of Nursing Ain Shams University to the Director of the Oncology center affiliated with the Ain Shams University Hospital.to conduct the study, explaining the purpose of the study and requesting the permission for data collection from the studied and control groups.

Ethical Considerations:

The ethical research considerations in this study included the following:

* The research approval of the protocol was obtained from the Scientific Research Ethical Committee on Faculty of Nursing at Ain Shams University before starting the study.

* The researcher clarified the objective and aim of the study to the patients included in the study.

* The researcher assured maintaining anonymity and confidentiality of the subject's data.

* The prostate cancer patients were informed that they are allowed to choose to participate or not in the study and that they had the right to withdraw from the study at any time without giving any reasons.

3-Operational Design:

The operational design included preparatory phase, pilot study and field work.

* Preparatory phase:

It included the reviewing of current and past, national and international related literature and theoretical knowledge of various aspects of the study using books, articles, periodicals, magazines and internet to develop tools for data collection and self-care guidelines**.**

* Tools validity and reliability (Appendix VII)

To achieve the criteria of trustworthiness of the tools of data collection in this study, the tools were tested and evaluated for their face and content validity by seven experts; five experts from faculty members in the Medical Surgical Nursing field from Faculty of Nursing, Ain Shams University. They were from different academic levels,(two professors, three assistant professors and two medical consultants of the Oncology Departments at Ain Shams University Hospitals). The aim was to determine relevance, clarity, completeness, simplicity and applicability of the study tools, experts` responses were either agreed or disagreed or agreed with modifications for the face validity and for content reliability. About 85% or more of the experts were in agreement with the proposed tool. Required modifications were done. The modifications were focused on some self-care statements of the prostate cancer interview questionnaire. Reliability testing of the proposed tools was done statistically by Alpha Cronbach test.

* Cronbach alpha for knowledge was 0.845.

* Cronbach alpha for self-care practices was 0.828.

* Cronbach alpha for quality of life scale was 0.712.

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* Pilot Study:

Testing of the selected tools was carried out before starting the data collection. It was done on a group of 10% of the total subjects to test the applicability of the tools. The patients included in the pilot study were included in the sample. No modifications were made to the tools.

* Field Work:

Field work included implementation phase and evaluation phase.

A- Implementation phase

Data collection from patients for this study took about 12 months, started from beginning of June 2017 to end of May 2018. Data was collected first from the control group from June to December 2017, then from January 2018 to May 2018 to the study group. Data were collected three days/week. For both groups, first, the researcher greeted the patients, introduced himself and explained the aim of the study. The researcher took the patients' telephone number at the first contact during outpatient clinic visit to determine the second and third appointments in order to complete the data collection process. Data was collected as soon as patients felt well enough to participate and respond to the questionnaire, choice answers were recorded by the researcher.

For the control group, the pre assessment was done involved assessment of socio-demographic characteristics, clinical data, knowledge & practice regarding self-care and the QoL of patients. Filling the tools took about 60-70 minutes distributed at the following: patient's demographic characteristics took about 5 minutes, patient's clinical data took about 5 minutes, prostate cancer knowledge took about 20 minutes, patients' self-care practice observational checklists took about 20 minutes and quality of life assessment took about 20 minutes.

Regarding the study group, the pre assessment was done also as a control group and took approximately the same time for all data collection tools. After that, self-care guidelines were implemented for each patient separately according to patients' learning needs. Self-care guidelines were explained to the patients by the researcher individually. Number of sessions based on patients' needs which was 8 sessions which was 4 theoretical sessions and 4 practical sessions **(Appendix VI).** Each session lasted approximately 30-40 minutes after explanation of the objectives of each session. The researcher demonstrated the practical part of self-care guidelines using the available equipment's as watch and towels.

B-Evaluation phase:

This phase included evaluation of the effect of self-care guidelines on patients' quality of life by comparing the results pre& post of the self-care guideline implementation by using the same data collection tools which were done to the control and study groups at the outpatient`s Clinic of the Oncology center affiliated to Ain Shams University Hospitals.

4-Statistical Design:

The collected data were organized, analyzed using appropriate statistical significance tests. The data were collected, coded and entered into a personal computer (PC), IBM compatible 2.6 GHZ. The data were analyzed with the program using the statistical package for social science (SPSS) under windows version 11.0.1.

The tests were used to summarize data were; range, mean, standard deviation, Chi square, P- Value, t- test and r-test were used to compare scores for numerical data. Also, Alpha Cronbach was used to test the reliability of tools and factor analysis to test its validity. Also a test of significance was used and regarding the significance of the results, the observed differences and associations were considered as follows:

Non-significant (NS) $P>0.05$

Significant(S) $P<0.05$

Highly Significant (HS) $P<0.01$

3. RESULTS

Table (1): Regarding socio demographic characteristics of the study and control groups, **table 1** show that the mean age of the study group was **64.75±3.6,** while the mean age of the control group was **64±3.2**. As regards their educational level, 42% of the study and 38% of control group were illiterate. Also, 88% of the study group and 90% of the control group resided in urban areas. In relation to marital status, it was found that 92% of patients in the study group and 94% of the control group were married. As well, 40% of the study and 36% of control group had family members about four and above.

Regarding working status, 94% of the study group and 88% of the control group didn`t work and also, 100% of the study and control didn`t have an effect from work` radiation. Regarding their monthly income, this table shows that 94% of the study group and 90% control group had insufficient income. Concerning treatment cost, 92% of the study group and 92% of the control group had a governmental treatment. Finally, there were no statistical significant differences between two groups regarding their socio demographic characteristics.

Table (2): Reveals that satisfactory level of knowledge of patients in the study group were improved post of the self-care guidelines implementation with highly statistically significant differences between two phases (P<0.001).

Table (3): illustrated that, 6% of the study group and 6% of the control group had satisfactory level of total self-care practices pre implementation of self-care guidelines with no statistical significant differences between them (X^2 - 0.000, P- 1.000). While, post implementation of self- guidelines 88% of the study group and 8% of the control group had satisfactory level with statistical significant differences between them (X^2 64.103, P< 0.001*).

Table (4): reveals that there were no statistically significant differences between the mean and standard deviation regarding patients' total quality of life and its dimensions in the study and control groups pre the implementation of self-care guidelines (P>0.05).While, there were highly statistically significant differences between them post implementation of self-care guidelines regarding total QoL and its dimensions (P<0.001).

Table (5): reveals that there were statistically significant positive correlations between patients' total knowledge and practice with their quality of life in the study group pre and post self-care guidelines implementation (P <0.05). While, there was only statistically significant positive correlation between patients' practice and QoL of the control group post self-care guidelines implementation.

Table (1): Comparison between study and control groups regarding their demographic characteristics.

Items	Groups				χ2	P-Value
	Study (n=50)		Control (n=50)			
	N	%	N	%		
Age: < 45	0	0%	0	0%	0.379	0.538
45-< 60	5	10%	7	14%		
60->60	45	90%	43	86%		
Mean ± SD	64.75±3.6		64±3.2		t=1.101	0.273
Educational Level: Illiterate	21	42%	19	38%	0.368	0.947
Reads & write	13	26%	15	30%		
Basic	7	14%	8	16%		
Highly qualified	9	18%	8	16%		
Residence: Urban	44	88%	45	90%	0.102	0.749
Rural	6	12%	5	10%		

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Marital status: Single- Widow- Divorced	4	8%	3	6%	0.154	0.695
Married	46	92%	47	94%		
Family members Number: One – Two	14	28%	17	34%	0.428	0.807
Three	16	32%	15	30%		
Four & above	20	40%	18	36%		
Profession: Work	3	6%	6	12%	1.099	0.295
Doesn`t work	47	94%	44	88%		
Effect of Work` radiation: Yes	0	0%	0	0%	0.000	1.000
No	50	100%	50	100%		
Monthly income: Sufficient	3	6%	5	10%	0.543	0.461
Insufficient	47	94%	45	90%		
Treatment cost: Free / Government	46	92%	46	92%	0.000	1.000
On the patient's expense	4	8%	4	8%		

Table (2): Comparison between study and control groups regarding satisfactory level of knowledge about the disease, hormone, surgery, radiation &chemotherapy and physical, psychological. Social and spiritual self-care, pre and post implementation of self-care guidelines. (N=50 patients).

Item	Pre				χ2	P-Value	Post				χ2	P - Value
	Study (N=50)		Control (N=50)				Study (N=50)		Control (N=50)			
	Satisfactory		Satisfactory				Satisfactory		Satisfactory			
	N	%	N	%			N	%	N	%		
Prostate cancer	17	33%	15	31%	0.184	0.668	44	87%	19	38%	26.813	<0.001*
Hormonal treatment	4	8%	3	6%	0.154	0.695	37	74%	6	12%	39.802	<0.001*
Surgical treatment	4	8%	5	10%	0.122	0.727	34	68%	5	10%	39.208	<0.001*
Radiation and chemotherapy	4	8%	5	10%	0.122	0.727	35	70%	7	14%	39.208	<0.001*
Physical self-care	16	32%	15	30%	0.047	0.829	43	86%	18	36%	26.272	<0.001*
Psychological self-care	19	39%	18	38%	0.043	0.836	27	55%	19	39%	2.576	0.108
Social, family and functional self-care	20	40%	19	38%	0.042	0.838	21	43%	18	37%	0.378	0.539
Spiritual self-care	23	46%	22	44%	0.040	0.841	30	60%	23	46%	1.967	0.161
Total	13	26%	12	24%	0.102	0.776	34	68%	14	28%	30.213	<0.001*

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Table (3): Comparison between study and control groups` regarding their satisfactory level of self-care practices pre and post of self-care guideline implementation (N= 50 patients in each group).

Items	Pre Study (N=50) No	Pre Study (N=50) %	Pre Control (N=50) No	Pre Control (N=50) %	Chi-square Pre X2	Chi-square Pre P-value	Post Study (N=50) No	Post Study (N=50) %	Post Control (N=50) No	Post Control (N=50) %	Chi-square Post X2	Chi-square Post P-value
Hand washing	2	4%	1	2%	0.344	0.558	46	92%	3	6%	73.990	<0.001*
Perineal care	3	6%	3	6%	0.000	1.000	45	90%	5	10%	64.000	<0.001*
Kegal exercises (Identify pelvic muscle)	0	0.0%	0	0.0%	0.000	1.000	41	82%	0	0.0%	69.492	<0.001*
Kegal exercises (lower pelvic muscle exercise).	0	0.0%	0	0.0%	0.000	1.000	41	82%	0	0.0%	69.492	<0.001*
Breathing exercises (lips breathing exercise).	5	10%	6	12%	0.102	0.749	47	94%	7	14%	64.412	<0.001*
Breathing exercises(diaphragm exercise).	5	10%	4	8%	0.122	0.727	41	82%	5	10%	52.174	<0.001*
Relaxation exercise.	0	0.0%	0	0.0%	0.000	1.000	43	86%	0	0.0%	75.439	<0.001*
Range of Motion exercises.	4	8%	6	12%	0.444	0.505	46	92%	8	16%	58.132	<0.001*
Total	3	6%	3	6%	0.000	1.000	44	88%	4	8%	64.103	<0.001*

Non- significant **P >0.05**   Significant ***P <0.05**.

Table (4): Difference between mean and standard deviation regarding patients' quality of life in the study and control groups pre and post implementation of self-care guidelines

Items of QoL	Pre Study (N=50) Mean	Pre Study (N=50) S.D	Pre Control (N=50) Mean	Pre Control (N=50) S.D	T test	P-value	Post Study (N=50) Mean	Post Study (N=50) S.D	Post Control (N=50) Mean	Post Control (N=50) S.D	T test	P-value
Physical	37.68	8.64	35.12	7.6	1.573	**0.118**	68.4	5.24	34.4	7.55	26.160	<0.001*
Social	24.91	5.35	25.74	5.15	0.790	**0.431**	40.27	2.62	26.78	5.09	16.663	<0.001*
Psychological	28.45	4.9	26.91	4.23	1.682	**0.095**	54.39	5.9	28.09	4.27	25.534	<0.001*
Functional	17.33	3.47	17.08	5.69	0.265	**0.791**	23.11	3.48	17.75	3.28	7.926	<0.001*
Spiritual	13.94	2.28	14.75	3.12	1.482	**0.141**	17.12	2.26	14.52	3.15	4.742	<0.001*
Total QoL	195.62	24.59	189.62	20.81	1.317	**0.190**	207.63	18.32	188.37	25.01	4.393	<0.001*

Non-significant P>0.05   * P < 0.001 significant

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Table (5): Correlation between patients` total quality of life and total knowledge and practice in the study and control groups` pre and post implementation of self-care guidelines.

Items	Total quality of life							
	Study group				Control group			
	Pre		Post		Pre		Post	
	R	P – value	r	P - value	R	P - value	r	P – value
Total knowledge	0.239	0.046*	0.519	0.003*	0.428	0.060	0.440	0.052
Total practice	0.248	0.039*	0.755	<0.001**	0.265	0.260	0.571	0.009*

Non-significant **P > 0. 05.**

4. DISCUSSION

Prostate cancer is one of the most frequent male malignancies in the world. Prostate cancer treatment options have the risk of some side effects, including loss of muscle strength, fatigue, and hot flushes with stress-related psychosocial problems. Relative to other cancers, and the potential treatment-related side effects have important implications which can affect the health-related quality of life (QOL) of this population. It is important to emphasize on the efficiency of multimodal treatment to recognize, prevent, and increase functional recovery with an interdisciplinary rehabilitation team which includes physical and occupational therapists. Patients with prostate cancer experience physical, social and psychological problems during and after treatment which can impact their QoL. So those patients are in need for self-care guidelines to improve their QoL *(Huri, Akel and Şahin, 2016).*

This study was carried out in order to determine the effect of self-care guidelines on QoL of patients with prostate cancer through: assessing the QoL dimensions for patients with prostate cancer pre intervention, developing and implementing self-care guidelines for patients based on needs assessment and evaluating the effect of the self-care guidelines on QoL dimensions for patients with prostate cancer.

The present study revealed that, the mean age of the study group 64.75±3.6, while the mean age of the control group was 64±3.2, with no statistically significant difference between them, from researcher point of view this result may be due to that the prostate cancer is more common at age of more fifty years which required periodic investigations before this age. This result is similar to *Kurian, Leader, Thong, Keith & Zeigler, 2018,* who mentioned on a research study entitled; *"Examining relationships between age at diagnosis and health-related quality of life outcomes in prostate cancer survivors",* that the age at diagnosis was the main independent variable, with three age categories: 60 years and younger, 61-70 years, and 71 years and older.

Related to the marital status, the majority of the study and control groups of patients were married, not working, from urban areas, and regarding the education, the study revealed that, more than one third of the control and the study group were illiterate with no statistically significant difference between them. This finding is on the same line with what was reported by *Soeyonggo, Warde, Timilishina, Alibha & Fleshner, 2012,* in a research study entitled*; "Information needs of men on androgen deprivation therapy'*, found that about two third of the studied patients with prostate cancer were married, less than one fifths of them with " basic education", who read and write only.

As regards treatment cost, the present study showed that the majority of both groups had health insurance as a governmental treatment and had insufficient monthly income for the costs of treatment with no statistically significant difference between them. From the researcher point of view, this result may be due to that most of them don't have job and not working and also, haven't enough money to the treatment cost. This result goes in contrast with *Khalifa, 2016,* in a research study entitled; *Effect of Self Care Guidelines on Quality of Life for Patients with Leukemia after Stem Cell Transplantation*, who found that, more than two thirds of both groups had health insurance and as regards to their family income, it was enough for the costs of treatment with no statistically significant difference between them.

Regarding satisfactory level of knowledge about the disease, hormone, surgery, radiation & chemotherapy and physical, psychological, Social and spiritual self-care, pre and post implementation of self-care guidelines, the present study showed that, most of the patients in the study group had a satisfactory level of knowledge regarding pervious item post implementation of self-care guidelines, while, the minority of control group post implementation of self-care guidelines had a satisfactory level of knowledge. The results are congruent with *Ola, Grønberg, Loge, Kaasa & Sand 2018*, who carried out the "Cancer patients' knowledge about their disease and treatment before, during and after treatment: a prospective, longitudinal study". And mentioned that after receiving information, the patients' average level of knowledge increased significantly, possibly indicating that the knowledge acquired was sufficient for the patient to decide whether to consent to treatment, their level of knowledge increased slightly. Most of the study group had a satisfactory level of knowledge post of the counseling program. This result is due to improvement of patients' awareness in the study group about previous items after implementation of self-care guidelines.

Add to that, the satisfactory level of knowledge about the hormone treatment of prostate cancer disease, post implementation of self-care guidelines the current study showed that, the majority of the study group had a satisfactory level of knowledge, but the minority of control group had a satisfactory level of total knowledge about these items post implementation of self-care guidelines. And also, regarding their knowledge about complications of hormone therapy, there were a satisfactory level of knowledge of the study group after implementation of self-care guideline, which, more than three quarters had a satisfactory level with a highly statistically significant difference between them from the researcher point of view this result may be due to increasing their level of awareness about disease and hormonal therapy at sessions of education and implementation of guidelines. These results are consistent with *Ola et al., 2018,* who said that; the increase in level of knowledge was significant, and most patients reached a high level of knowledge. There is an objective measure of how much knowledge is required to consent to treatment, and knowledge is sufficient. However, they would like more information, and future studies should investigate what information patients miss, and whether missing information might influence treatment decisions.

According to self-care practices regarding hand washing, perineal care, Kegal exercises, Breathing exercises, relaxation exercises and Range of Motion exercises and total self-care practices, the minority of the patients in both study and control groups had satisfactory level of practices pre implementation of self-care guidelines with no statistically significant difference between them, In contrast, post implementation, the majority of patients in the study group and the minority of patients in the control group had a satisfactory level of practices with a highly statistically significant difference between them. From the researcher point of view this result may be due to the participation of patients in self-care activities and practices that had been improved by demonstrating and implementing it during implementation of self-care guidelines.

The previous study` result was in agreement with the study that was carried out by *Ashorobi et al.,2017,* who reported in his study entitled; *"Prostate Cancer Education, Detection, And Follow-Up In A Community-Based Multiethnic Cohort Of Medically Underserved Men"* that, all the patients in study group had satisfactory level of practice post education

Regarding patients' quality of life in the study and control groups pre and post implementation of self-care guidelines, the present study revealed that, there were no statistically significant differences between the mean and standard deviation regarding patients' total quality of life and its dimensions in the study and control groups pre the implementation of self-care guidelines. While, there were highly statistically significant differences between them post implementation of self-care guidelines regarding total QoL and its dimensions.

Regarding the correlation between patients` total quality of life and total knowledge and practice in the study and control groups` pre and post implementation of self-care guidelines, the present study revealed that, there were statistically significant correlations between total QoL and both of total knowledge and practice among the patients in study group pre and post self-care guidelines implementation. While, there was only statistically significant positive correlation between patients' practice and QoL of the control group. This result goes inconsistent with *Kim, Park and Ryoo, 2018,* who studied *"Effects Of A Mobile Educational Program For Colorectal Cancer Patients Undergoing The Enhanced Recovery After Surgery"* and mentioned that there was a positive correlation between practice and quality of life as the program had a positive effect on the patients' quality of life.

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5. CONCLUSION

The results of this study concluded that:

Implementation of self-care guidelines has statistically significant positive effect on quality of life dimensions for the studied patients with prostate cancer, which supports the study hypothesis. It was observed from the current study that there were highly statistically significant differences between the study and control groups regarding the satisfactory level of the total self-care knowledge and practices post the implementation of self-care guidelines.

6. RECOMMENDATIONS

Based upon the findings of this study, the following recommendations were made:

* Self-care guidelines for patients with prostate cancer should be up-dated and implemented periodically to prevent decline of patients and enhance quality of care for those patients.

* A simplified, comprehensive and illustrated booklet including self-care guidelines should be introduced to the patients with prostate cancer.

* Further researches are recommended to assess factors affecting on quality of life for patients with prostate cancer.

* Replication of the current study on a larger probability sample is recommended to achieve generalization of the results and wider utilization of the self-care guidelines.

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