

Quality of Psychological life for Patients with Prostate Cancer

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Abstract: Prostate cancer is the most common cancer in men and the second leading cause of cancer deaths in men. It affects middle-aged and older men and usually has an indolent but progressive clinical course. Purpose of the study: This study purpose is to: Assess quality of psychological life of patients with prostate cancer. Design: descriptive exploratory design was used for the present study Sample: quota sample). Setting: The study was conducted in Oncology Department Unite at two setting: Menoufia University Hospital and Shebien –Elkoom Teaching Hospital in Menoufia Gogernorate. Instruments: Prostatic cancer interviewing questionnaire contained consisted of 3 parts. Part I: Socio-demographic interviewing questionnaire Part II: Prostate cancer interviewing questionnaire (medical history). Part III Quality of psychological life interviewing questionnaire including psychological, and behavioral parts. Results: nearly half of studied sample (48%) had low quality of psychological status and more than one-third of the studied sample (33.0%) had moderate quality of psychological status, while more than one-fifth (19.0%) of the them had high quality of psychological status. Conclusion: more than half of the study participants experienced poor quality of psychological life. Recommendations In light of the study findings, the following recommendations are proposed: The need for a hospital based support group as psychologists and consultants for the men with prostate cancer to improve their psychological indexes such as quality of life.

Keywords: Quality of psychological Life, Prostate Cancer.

1. INTRODUCTION

1.1 Introduction

Prostate cancer is the most common cancer in men and the second leading cause of cancer deaths in men. It affects middle-aged and older men and usually has an indolent but progressive clinical course (WHO, 2020). Patients are often diagnosed when, because of age or other illnesses, they are less able to withstand disease-related morbidity (Schmelz,2018). Prostate cancer (PC) specifically affects an anatomical area responsible for a man's sexual functions (Jocham, Miller, 2019). Due to the location of the prostate gland and the delicate nature of treatment, the man with prostate cancer often faces a host of difficulties which can affect health-related quality of life (HRQoL). Thus, concerns about HRQoL are often paramount in the minds of men diagnosed with prostate cancer. (Grubb^{3rd}. RL,2015).

Considering that most men have their psychological, cognitive and social functions affected by the disease, these factors may negatively interfere with their quality of life (QoL) and for this reason, this has drawn attention to a need to learn about and assess their living conditions, increasing their survival rates and QoL (Reynard, Brewster et al. 2019).

Prostate cancer can cause a number of complications from local and distant spread which include: Blockage of the bladder by urethral obstruction, bleeding in the urine, blockage of the tubes draining the kidneys into the bladder (ureters), pelvic pain, bony pain, tiredness and death (Quinlan & Epstein, 2018).

Men's psychological and culturally diverse adaptation to the sexual side effects of prostate cancer treatment care of PC in eastern communities focuses on in physical aspect of prostate cancer and neglect other aspects such as psychological, sexual and social more over there is no governmental institutes to support psychological and sexual aspects of PC. (Mohei El-Din and El-Shereef, 2017). So nurse can play a vital role by providing information about prostate cancer. Knowledge and awareness about prostate cancer are important components of sex education which help promote reproductive health practice (NICE, 2015).

1.2 Significance of the study

Worldwide, prostate cancer is the most commonly diagnosed malignancy and the sixth leading cause of cancer death in men, in 2020 this amounted to 1,800,000 newly diagnosed cases and 307,000 deaths around the world from this disease (WHO, 2020). The prostate cancer (PC) is relatively high in north Africa, PC is the second most common cancer among men next to liver cancer with an incidence of more than 200 cases per 100,000 of the population per year and incidence of prostate cancer in Egypt is 25/100,000 yearly and the second cause of mortality and 5th type in Egypt also represents 11% from males' tumors (WHO, 2018). Quality of psychological life affected by prostate diseases, the burden of a cancer diagnosis and related treatments has considerable emotional and psychological consequences and may negatively impact the patient's level of sexual functioning and satisfaction (Andriole.GL, 2016). According literature reviews there are limited studies that investigate quality of psychological life for PC. On this basis the purpose of the current study is to assess the quality of psychological life for married men with prostate cancer.

1.3 Purpose of the Study

This study purpose is to: Assess quality of psychological life of patients with prostate cancer .

1.4 Research question:

What is the quality of psychological life of patients with prostate cancer?

2. MATERIAL AND METHODS

2.1 Research design:

A descriptive exploratory design was used for the present study

2.2 Setting of the study:

The study was conducted in Oncology Department Unite at two setting: Menoufia University Hospital and Shebien – Elkoom Teaching Hospital in Menoufia Gogernorate.

2.3 Sample:

2.3.1 Sample type: The sample was purposive where patients had prostate cancer (**quota sample**).

2.3.2 Sample size: The patients who participated from the oncology department in hospitals at Menoufia University and Shebien-Elkoom were 50 according to the equation of sample size calculation:

Based on past review of literature (**Global report on epidemiology update, 2020**) sample size has been calculated using the following equation:

Validity and reliability P 0.07
1-P0.93

$$n = \frac{N \times p(1 - p)}{\left[\left[N - 1 \times \left(d^2 \div z^2 \right) \right] + p(1 - p) \right]}$$

Total number N
Error rate d 0.05
Stander deviation. Z 1.96

At power 80% and CI 90%, the sample size was 50 participants.

Inclusion criteria of the sample:

- Adult patients.
- Age ranges between 45-60 years old. According American Cancer Society most occurrence prostate cancer in this period (2017).
- Patients who had prostate cancer.
- Living with wife

2.4 Instruments:-

2.4.1 Instruments of data collection:

One instruments were used and filled in by the participants.

2.4.2 Prostatic cancer interviewing questionnaire contained three parts:

Part I: Socio-demographic interviewing questionnaire included age, marital status, education, employment and living with his wife.

Part II: Prostate cancer interviewing questionnaire (medical history) such as chronic diseases, prostate problems and disorders related to prostate. It was adopted from **National Cancer Institute (2019)**. It included 7 items. (**Appendix I**)

A scoring system of patients with prostate cancer was adapted as were coded accordingly. (**Bloom, Hastings & Madaus, 2019**).

Then, the mean and standard deviation of the scientific sound response were calculated.

Part III: Quality of psychological life interviewing questionnaire including physical, psychological, behavioral and social parts. (Mbonu OO. Knowledge and perception of prostate cancer. *J West Afr Coll Surg* 2019;4(1):x–xii).

It was adopted by the researcher to collect information about quality of sexual life for prostate cancer.

- A) **Psychological status** 11 items
- C) **Behavioral status** 10 items
- D) **Social status** 7 items

Each dimension has certain response levels and scores as following:

Domains of quality of life	Questions	Score Range	Minimum Score	Maximum Score
Psychological status	11	1 – 3	11	33

Then, summing up the scores of the items of each dimension and the overall scores gave dimensions' total score. Then, total scoring system of quality of life was scored by calculating the frequency of items of each dimension. Patients' total QOL score were classified as the following:

- High QOL >75% of total scale score -
- Moderate QOL 60-75% of total scale score
- Low QOL <60% of total scale score

2.4.3: Instruments validity and reliability:

The validity of the instrument was done to test internal and content validity by five experts (three professor work in maternal and newborn health nursing, faculty of nursing one physician who working at obstetric and genecology department and other one working at oncology department faculty of medicine) who reviewed the instrument for content accuracy and internal validity. They were asked to judge the items for completeness and clarity (content validity). Suggestions were incorporated into the instrument.

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Test-retest reliability was used to estimate reliability for Instrument I. Cronbach's Alpha coefficient test was used to estimate reliability for Instruments part II and III which revealed that each of the two tools consisted of relatively homogenous items as indicated by the moderate to high reliability of each instrument.

3. ETHICAL CONSIDERATIONS

Getting approval of Ethical and Hearing Committee dating 1/11/2020. Official steps were taken to obtain a permission to conduct the research, with explanation of the aim and the importance of the study to faculty authorities. An informed oral consent was obtained from all participants before participation.

An informed written consent contained (title of topic, purpose of research, agreement of patients on participation).

4. PILOT STUDY

A pilot study of 10 % of the total sample was conducted to test clarity, applicability and understandability of the tools. They were excluded from the main sample. (n=5 cases)(Total sample = 50 patients).Some changes were done in the questionnaire based on the finding of the pilot study. Changes were included form of some questions to facilitate meaning. The result of the pilot study was used to finalize the instruments and schedule the time needed for the field work.

5. STUDY MANEUVER

The current study was carried out in four consecutive phases, namely preparatory phase and implementation phase,

5.1 The preparatory Phase:

- A review of related literature to formulate the knowledge basis related to the study area was also done.
- An extensive review of all data related to the study was done including electronic theses and dissertations, available books, articles and periodicals.
- Prepare instrument, measurement, reliability and pilot study.
- Ethical Considerations was done.
- The flow rate of patients of prostate cancer was less than 10 patient per month different from week to week according to the attendance to oncology clinic. So the researcher couldn't find suitable numbers of patients of prostate cancer per week / month, and sometimes no male patients absolutely. So the rate of the study sample varied from 1-3/week according to attendance of male patients and the criteria of the study.

5.2 The implementation Phase:

- Data collection started from January 2021 until the end of April 2021. The researcher worked 4 days/week. The researcher went to Menoufia University Hospital on Saturday and Monday, also went to the Shebien -Elkoom Teaching Hospital on Wednesday and Thursday from 9.00 am to 2.00 pm. The time taken for each tool from 25- 35 minutes, depending on the response of the patients. The number of patients was 1-2 patient in every day per week.
- Each interview was conducted individually and in total privacy to assure that information obtained was confidential and used only for the purpose of the research.
- Interview was carried out for patient of prostate attending clinic and seeking education service as health teaching. Each patient of prostate was interviewed before and after clinic examination. The researcher started to collect data from the patients of prostate, asked them about a definition of Prostate Cancer (PC) and their types, more over signs and symptoms of PC, also asked about causes, their reaction toward the symptoms, and their knowledge about the famous PC and the source of this knowledge of as well as their attitude toward PC.
- Some patients of prostate completed their questionnaires by themselves, also others completed their questionnaires by the head nurse of clinic of oncology and researcher reviewed each paper.
- Finally, the researcher provided concise handout for all participants as an ethical duty of nursing job including (definition ,causes and risk factor, treatment ,health education) of prostate cancer.

6. DATA ANALYSIS

Upon Statistical design:

The data collected were computerized, revised, categorized, tabulated, analyzed, and presented in descriptive and association form.

The necessary tables were then prepared and statistical formula were used such as percentages, chi square test (X^2) at 5% level.

Significance of the result:

For all the statistical tests done, the threshold of the significance is fixed at the 5% level (P value), as follows:

Non-significant difference if $P > 0.05$

Significant difference if $P < 0.05$

Highly Significant difference if $P < 0.001$

7. RESULT

Section I: Characteristics of the studied participants:

Table (1): Socio-demographic Characteristics among Study Sample (N = 50).

Socio-demographic characteristics	No	%
Age in (years)		
45 – 50	2	4.0
51- 55	17	34.0
56 – 60	31	62.0
Mean \pm SD = 56.08\pm 3.02		
Marital Status		
Married	50	100.0
Divorced	0	0.0
Widow	0	0.0
Level of Education		
Illiterate	13	26.0
Read & write	15	30.0
Secondary education	11	22.0
University education	11	22.0
Employment		
Full-time	34	68.0
Part-time	8	16.0
Retired	1	2.0
Disabled	4	8.0
Unemployed	3	6.0

Table (1) shown the socio-demographic characteristics data of the studied sample, the mean age of the studied sample was 56.08 \pm 3.02 years. Regarding educational level, less than one-third of them (30.0%) were read & write. In relation to marital status, all of them (100.0%) were married. In addition; regarding employment, more than two-thirds (68.0%) of them were work full-time.

Table (2): Medical History of the Studied Sample (n=50).

Variables	No	%
Do you have chronic diseases other than prostate problem?		
Yes	44	88.0
No	6	12.0
If yes, the type of chronic disease: (n= 44)*		
Hypertension	26	59.1
Diabetes mellitus	14	31.8
Hepatitis.	11	25
Heart disease.	7	15.9
Thyroid disease.	1	2.3
When was the prostate problems appeared?		
Week	3	6.0
Month	11	22.0
Year	36	72.0
When was it diagnosed after appearance?		
Week	27	54.0
Month	10	20.0
Year	13	26.0
Did you start treatment directly?		
Yes	33	66
No	17	34
If yes, What is the type of treatment?		
Hormonal	30	60.0
Surgical	5	10.0
Chemotherapy	6	12.0
Radiotherapy	2	4.0
Surgical and chemotherapy	7	14.0
Did you have disorders related to prostate?		
Yes	50	100.0
No	0	0.0
If yes, What is the type of disorder?*		
Sexual as Erectile dysfunction(ED)	43	86.0
Urinary as incontinence	28	56.5

* results are not mutually exclusive

Table (2) showed the studied sample's medical history, it was clear that the majority (88.0%) of them have chronic diseases other than prostate problem, it was found that more than half (59.1%) of them suffer from hypertension. Moreover, around three-quarters (72.0%) of them had a prostate problem a year ago but more than half (54.0%) of them were diagnosed a week ago. Furthermore, about two-thirds (66.0%) of them started treatment directly, it was found that

less than two-thirds (60.0%) of them were treated by hormones. It was indicated that all of them have disorders related to prostate, it was revealed that about the majority (86.0%) of them had sexual problem as erectile dysfunction and more than half (56.5%) of them had urinary incontinence.

Figure (1): Percentage of studied sample's total psychological status score

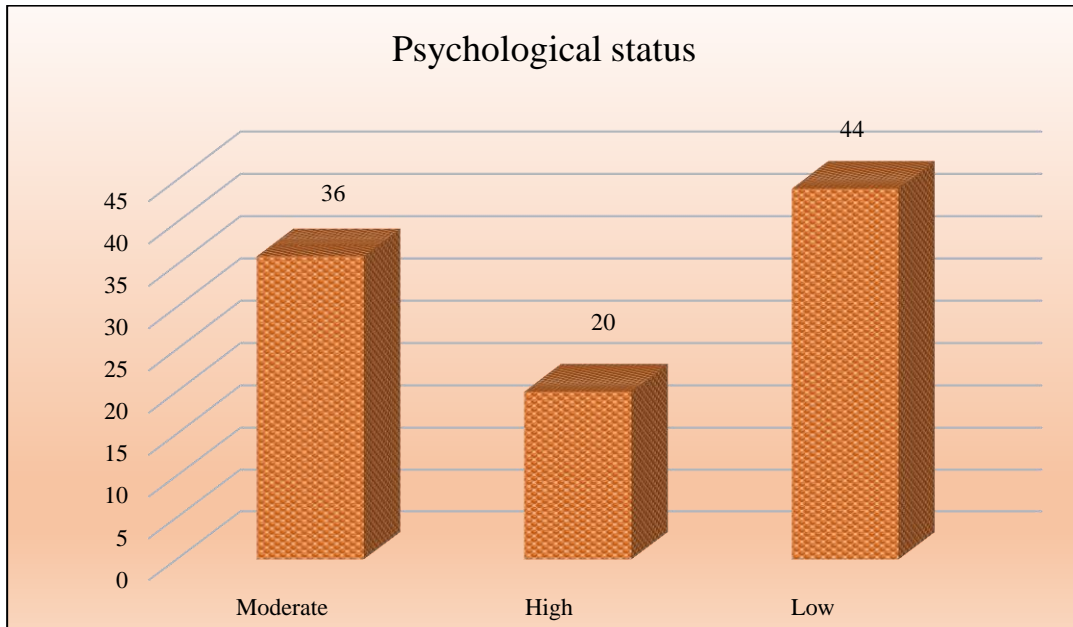


Figure (1) illustrated that, nearly half of studied sample (44%) had low quality of psychological status and more than one-third of the studied sample (36.0%) had moderate quality of psychological status, while more than one-fifth (20.0%) of the them had high quality of psychological status.

Figure (2): Percentage of studied sample's total behavioral status score (N = 50).

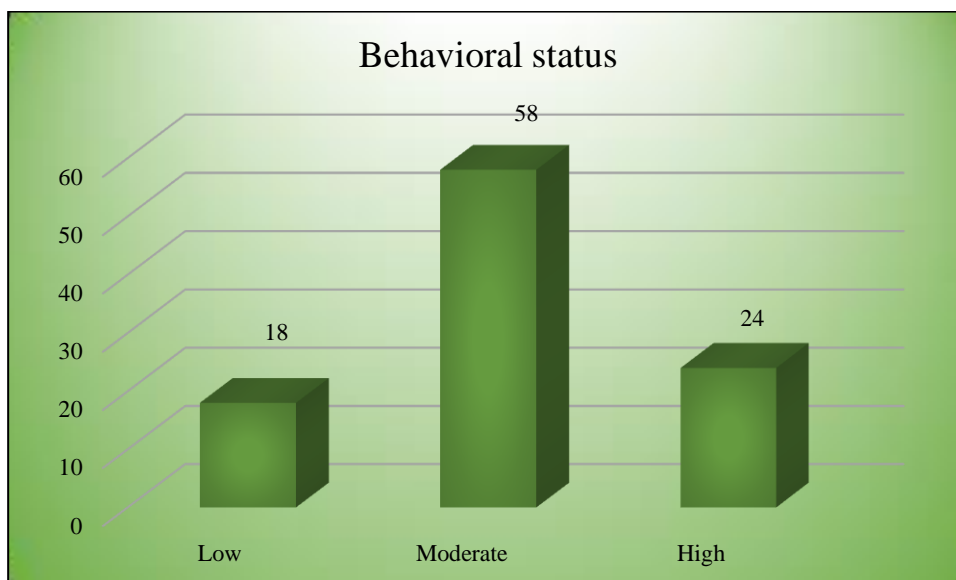


Figure (2) illustrated that, less than one-fifth of the studied sample (18.0%) had low quality of behavioral status, while more than half (58.0%) of them had moderate quality of behavioral status.

Table (3): Relation between total quality of psychological life score and socio-demographic characteristics of the studied sample (N = 50).

Socio-demographic characteristics	Total quality of psychological life							Chi square test	P-value
	Low		Moderate		High				
	No	%	No	%	No	%			
Age (years):									
45 – 50	2	7.4	0	0.0	0	0.0	4.14	> 0.05	
51- 55	11	40.7	6	28.6	0	0.0			
56 – 60	14	51.9	15	71.4	2	100.0			
Educational level:									
Illiterate	7	25.9	6	28.6	0	0.0	4.01	> 0.05	
Read & write	10	37.0	4	19.0	1	50.0			
Secondary education	5	18.5	6	28.6	0	0.0			
University education	5	18.5	5	23.8	1	50.0			
Employment:									
:									
Full-time	20	74.1	13	61.9	1	50.0	8.08	> 0.05	
Part-time	5	18.5	3	14.3	0	0.0			
Retired	0	0.0	1	4.8	0	0.0			
Disabled	1	3.7	2	9.5	1	50.0	6.90		
Unemployed	1	3.7	2	9.5	0	0.0			

*A Statistically significant $p \leq 0.05$

**A Highly Statistical significant $p \leq 0.001$.

Table (3) clarified that, there wasn't statistically significant relation between total quality of psychological life score *A Statistically significant $p \leq 0.05$

**A Highly Statistical significant $p \leq 0.001$.

Table (4): Correlation coefficient between the studied sample's total physiological part of sexual health and (total psychological status, behavioral status and social status) (N = 50).

Variables	Total physiological part of sexual health	
	r	P value
Total psychological status	.531	$\leq 0.001^{**}$
Total behavioral status	.104	> 0.05

*A Statistically significant $p \leq 0.05$

**A Highly Statistical significant $p \leq 0.001$.

Table (4) illustrated that, there was a highly statistically significant positive correlation between total physiological part of sexual health and total psychological status ($p \leq 0.001$). Moreover, there was a statistically significant positive correlation between total physiological part of sexual health and total social status ($p \leq 0.05$). While, there was a non-statistically significant positive correlation between total physiological part of sexual health and total behavioral status ($p > 0.05$).

8. DISCUSSION

The present study aimed to assess quality of sexual life of patients with prostate cancer. The findings of the current study were discussed under the following consequences: Socio-demographic characteristics of the studied sample, medical history of the studied sample, assessment of quality of sexual life of the studied sample which contained (physiological part of sexual health, psychological, behavioral and social status). Assessment of satisfaction with the sexual life and to whom the studied sample can discuss with?

Sociodemographic characteristics referred to age, marital status, level of education, employment and living with wife.

According to the present study findings, the sample is distributed according to their socio-demographic data as follows. In relation to age, near one-third of patients (their ages ranged from 50 to 55 years old) and more than two-thirds whose age ranged from 56 to 60 years old. This finding was in accordance with finding of a study conducted by **Liselotte Jakobsson (2018)**. In Kristianstad University, Sweden who studied the Patient Reported Outcome Measure (PROM) of quality of life after prostatectomy he found that nearly three quarters of the sample aged between 45-65 years. It also conforms with another study conducted by **Ruth Kirschner-Hermanns and Gerhard (2019)** in Aachen at Germany who studied quality of life after prostatectomy, and found that about three quarters of the sample aged between 45-65 years. This study however, stands in difference with the finding of a study by **Albers, MD, S.A., et al. (2016)** who investigated the Quality of Life After Prostatectomy in Nnewi-North local government area, Nnamdra State, Nigeria, and found that about half of the respondents were in the age group of 50-70 years.

Regarding the marital status of the study sample, the finding of the present study showed that nearly all members of the sample were married. This finding was in accordance with **Ruth Kirschner-Hermanns and Gerhard (2019)**. He reported that more than three-quarters of the study sample were married.

Regarding the educational level less than one-third of them were able to read and write. This finding was in accordance with **Lorena A. et al, (2017)** who conducted a study to assess suitable sexual health care according to men with prostate cancer and their partners in Leiden University Medical Center, The Netherlands who reported that more than quarters of the study sample were able to read and write. This may be interpreted as most of residents always prefer to have only secondary education and the level of education was not in inclusion or exclusion criteria, so it did not affect the study.

Regarding psychological status. The present study revealed that, less than two-thirds of studied sample agreed that "When they think about their sexual life, they feel anxious", The majority of them disagreed that "When they think about their sexual life, they feel guilty". This is similar to the study conducted by **Rhea Mundle, (2020)** who studied Patients' Perceptions of Quality of Life After Treatment for Early Prostate Cancer in the eastern United States.

Regarding percentage of studied samples total psychological status score. The study findings illustrated that, more than one-third of the studied sample had low quality of psychological status, while more than one-fifth of them had moderate quality of psychological status. This finding was in accordance with **Neeraj Agarwal, (2020)** who conducted a study on sexual satisfaction in men suffering from erectile dysfunction after robot-assisted radical prostatectomy for prostate cancer. The researcher revealed that more than half of the studied sample had low quality of psychological status, while more than one-fifth of them had moderate quality of psychological status. This may be due to change in patients' mood as psychological effects. This similarity assures that psychological aspect as one of quality of life domain has a great effect on the issues related to health mainly quality of life.

Regarding behavioral status. The present study revealed that slightly less than three-quarters of studied sample had emotional self-reliance, while more than three-quarters of them didn't have behavioral change (as Frustration). The present study finding was congruent with **Matvey Tsvian, (2017)**, who studied the effectiveness of psychological intervention for depression, anxiety, and distress in prostate cancer. He reported that less than two-thirds of the studied sample had emotional self-reliance, while more than three-fifth of them didn't have behavioral change.

Regarding percentage of studied sample's total behavioral status score. The study findings illustrated that, less than one-fifth of the studied sample had low quality of behavioral status, while more than half of them had moderate quality of behavioral status. This finding is supported by **Janice M., (2018)** in Oncology Clinic, Cwprus, Greek. who studied cancer related fatigue and quality of life in patients with advanced prostate cancer undergoing chemotherapy and reported that

less than one-tenth of the studied sample had low quality of behavioral status, while more than three-quarters of the them had moderate quality of behavioral status. This may be interpreted as there was a relation between psychological and behavioral aspect.

Regarding correlation coefficient between studied sample's total quality of psychological life and satisfaction with their sexual life.

The present study clarified that, there was a statistically significant positive correlation between the studied sample's total quality of sexual life and their satisfaction with sexual life. This is similar to the study conducted by **Jack A. Clark. (2017)** in a research about patients' perceptions of quality of Life after Treatment for early prostate cancer at Bağcılar Research and Training Hospital, Department of Urology, Istanbul. Thus it may be interpreted from our study results that prostate cancer is significantly affecting quality of life in psychological aspect.

Regarding Percentage of studied sample's total quality of psychological life score. The study findings illustrated that, more than half of the studied sample had low quality of psychological life, while one-fifth of them had moderate quality of psychological life. This finding was in accordance with **Justin I. Hersom, (2019)** who conducted a study to assess waning psychological function -the most important disease-specific distress for patients with prostate cancer, 'Department of Cancer Epidemiology, Department of Cancer Prevention, Radiumhemmet, Karoliska Institute, Stockholm, Sweden who reported that about more than two-third of the studied sample had low quality of psychological life, while one-tenth of the them had moderate quality of psychological life. This may be interpreted as cultural differences.

The current study aimed to evaluate the quality of psychological life in patients with prostate cancer. This goal was achieved via the current study findings, which documented that the study group had change in psychological life related to prostate cancer. Based on the results of the present study that assessed quality of life among patients' prostate cancer, it could be concluded that: more than half of the study participants experienced poor quality of psychological life. Therefore, the present study could answer the research question that what is the quality of psychological life among patients' prostate cancer? So, prostate cancer has a negative impact on the patients' prostate cancer quality of psychological life.

9. CONCLUSIONS

According to the results of the present study that assessed quality of psychological life among men with prostate cancer, it could be concluded that: more than half of the study participants experienced poor quality of psychological life. Therefore, the present study could answer the research question that what is the quality of psychological life among men with prostate cancer? So, prostate cancer has a negative impact on the men's quality of psychological life.

10. RECOMMENDATIONS

In light of the study findings, the following recommendations are proposed:

- The need for a hospital based support group as psychologists and consultants for the men with prostate cancer to improve their psychological indexes such as quality of life.

Suggestions for future studies:-

- Further research should be recommended to further setting using a larger sample.
- Providing educational intervention programs, workshops and training packages by the health system and specialists in this domain to increase the public knowledge on this syndrome and get a broader perspective of the men's quality of life.

REFERENCES

- [1] **Albers, MD, S.A., et al. (2016).** Quality of life and psychosocial status in stage D prostate cancer. *Qual Life Res*; 1: 323±329.
- [2] **Andersen BL, DeRubeis RJ, Berman BS, Gruman J, Champion VL, Massie MJ, et al.(2014).** Screening, assessment and care of anxiety and depressive symptoms in adults with cancer: an American Society of Clinical Oncology guideline adaptation. *J Clin Oncol.*;32:1605–19. <https://doi.org/10.1200/jco.2013.52.4611>.

- [3] **Grubb. RL. (2015).** A critical appraisal of the quality-of-life measurements. *JAMA*; 272: 619±626.
- [4] **Jack A. Clark. (2017).** Expanding the definition of quality of life for prostate cancer. *Cancer Suppl*; 71: 1078±1082.
- [5] **Janice M. (2018).** The validity and relative precision of MOS short- and long-form health status scales and Dartmouth COOP charts. Results from the Medical Outcomes Study. *Med Care*; 30 (Suppl): MS253±MS265.
- [6] **Jocham, Miller. (2019).** The measurement of psychological states by use of factors derived from a combination of items from mood and symptom checklist. *J Clin Psychol*; 34: 677±685.
- [7] **Liselotte Jakobsson (2018).** Prospects for the future: quality of life evaluation in prostatic cancer protocols. *Prog Clin Biol Res*; 243B: 501±512.
- [8] **Lorena A. et al.(2017).** Health-related quality of life in patients with advanced prostate cancer: a multinational perspective. *Qual Life Res*; 4: 207±220.
- [9] **Matvey Tsivian.(2017).** The once and future issues of validity: assessing the meaning and consequences of measurement. In: Wainer H, Braun HI (eds). *Test Validity*. Lawrence Erlbaum Associates: Hillside, NJ.
- [10] **Mohei El-Din and El-Shereef. (2017).** Prevalence of prostate cancer in Egyptian Nationals VIII International Conference on prostate cancer, Amsterdam; 7/19-24, Abstract PuC 8147.
- [11] **National Cancer Institute. (2019).** Global patterns of prostate cancer incidence, aggressiveness, and mortality in men of African descent. *Prostate Cancer*;2013:560857.
- [12] **Reynard, Brewster et al.(2019).** *Oxford Handbook of Urology*, 3rd edn, Oxford University Press, Oxford.
- [13] **Ruth Kirschner-Hermanns and Gerhard.(2019).** Assessment of quality of life after radical radiotherapy for prostate cancer. *Br J Urol*; 78: 557±563.
- [14] **Schmelz. (2018).** Auflage, Urban und Fischer Verlag GmbH, München; Jena. http://www.statistik.at/web_de/statistiken/gesundheit/krebserkrankungen/prostata/index.html
- [15] **Thuane Demarco Silva.(2020).** Quality of life end points in cancer clinical trials: review and recommendations. *J Natl Cancer Inst*; 81: 485±495.
- [16] **WHO (World Health Organization) (2019).** Sexual and reproductive health: Key facts on adult people and reproductive health. <http://www.euro.who.int/en/what-we-do/health-topics/Life-stages/sexual-and-reproductive-health/>
- [17] **WHO (World Health Organization) (2020).** Sexual and reproductive health: Key facts on adult people and reproductive health. <http://www.euro.who.int/en/what-we-do/health-topics/Life-stages/sexual-and-reproductive-health/>