Evaluation of Quality of Life and Impact of Treatment in Men with Prostate Cancer

Avaliação da Qualidade de Vida e Impacto do Tratamento em Homens com Câncer de Próstata

Evaluación de la Calidad de Vida y el Impacto del Tratamento en Hombres con Cáncer de Próstata

RESUMO

Objetivo: Avaliar a qualidade de vida e o impacto do tratamento a pacientes diagnosticados com câncer de próstata. **Método:** Estudo transversal de abordagem quantitativa realizado em uma unidade de alta complexidade em oncologia no Estado do Pará. Os participantes foram 80 homens com câncer de próstata. A coleta de dados ocorreu por meio de roteiro de entrevista e aplicação do instrumento Qualiry of Life Questionnaire. Análise por meio da estatística descritiva com o uso do software BioEstat 5.4. **Resultado:** Houve predominância de homens procedentes do interior do estado, acima de 60 anos, pardos. As médias dos escores na escala de sintomas apontam a dificuldade financeira e fadiga como os quais proporcionam impactos na qualidade de vida. **Conclusão:** Os domínios mais afetados por pacientes diagnosticados com câncer de próstata foram relacionados à escala de sintomas e dificuldade financeira, com destaque para aqueles que estavam sob intervenção terapêutica quimioterápica.

DESCRITORES: Qualidade de vida; Neoplasia; Saúde; Neoplasias da Próstata; Saúde pública.

ABSTRACT

Objective: To evaluate the quality of life and the impact of treatment on patients diagnosed with prostate cancer. **Method:** Cross-sectional study with a quantitative approach carried out in a highly complex oncology unit in the State of Pará. Participants were 80 men with prostate cancer. Data collection occurred through an interview script and application of the Qualiry of Life Questionnaire instrument. Analysis using descriptive statistics using BioEstat 5.4 software. **Result:** There was a predominance of men from the interior of the state, over 60 years old, mixed race. The average scores on the symptom scale indicate financial difficulties and fatigue, which impact quality of life. **Conclusion:** The domains most affected by patients diagnosed with prostate cancer were related to the scale of symptoms and financial difficulties, with emphasis on those who were undergoing chemotherapy intervention.

KEYWORDS: Quality of life; Neoplasia; Health; Prostate Neoplasms; Public Health.

RESUMEN

Objetivo: Evaluar la calidad de vida y el impacto del tratamiento en pacientes diagnosticados de cáncer de próstata. **Método:** Estudio transversal, con abordaje cuantitativo, realizado en una unidad de oncología de alta complejidad del Estado de Pará. Participaron 80 hombres con cáncer de próstata. La recolección de datos ocurrió a través de un guión de entrevista y la aplicación del instrumento Qualiry of Life Questionnaire. Análisis mediante estadística descriptiva mediante el software BioEstat 5.4. **Resultado:** Hubo predominio de hombres del interior del estado, mayores de 60 años, mestizos. Las puntuaciones promedio en la escala de síntomas indican dificultades financieras y fatiga, que afectan la calidad de vida. **Conclusión:** Los dominios más afectados por los pacientes diagnosticados con cáncer de próstata estuvieron relacionados con la escala de los síntomas y las dificultades financieras, con énfasis en aquellos que estaban bajo intervención de quimioterapia.

DESCRIPTORES: Calidad de vida; Neoplasia; Salud; Neoplasias de la Próstata; Salud Pública.

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Widson Davi Vaz de Matos
Master in Nursing. Federal University of Rio de Janeiro.
ORCID: https://orcid.org/0000-0003-4913-9743

Cláudia Rafaela Brandão de Lima
Nursing Undergraduate. State University of Pará.
ORCID: https://orcid.org/0000-0003-3486-3405

Aline Maria Pereira Cruz Ramos
PhD in Genetics and Molecular Biology. Federal University of Pará.
ORCID: https://orcid.org/0000-0002-9279-7293

Mary Elisabeth de Santana
PhD in Nursing. State University of Pará.
ORCID: https://orcid.org/0000-0002-3629-8932

Márcia de Assunção Ferreira
PhD in Nursing. Federal University of Rio de Janeiro.
ORCID: https://orcid.org/0000-0002-6991-7066

Gisela Pereira Xavier Albuquerque
Master in Nursing. Federal University of Pará.
ORCID: https://orcid.org/0000-0002-9712-2236

INTRODUCTION

In Brazil, it is estimated that, for the three-year period 2023-2025, there will be 71,730 new cases of prostate cancer (PCa), occupying the second position among the most frequent types of cancer and the most incident in the regions of the country, with an estimated risk of 28.40 cases per 100 thousand men in the North Region. (1) In Pará, it is estimated that 1,050 new cases of PCa will occur, with 130 cases in the state capital. (1)

PCa is the most common type of cancer among men in all regions of Brazil, with an estimated risk of 77.89 cases per 100,000 men in the Southeast region; 73.28/100,000 in the Northeast; 57.23/100,000 in the South Region; 61.60/100,000 in the Midwest and 28.40/100,000 in the North Region, accounting for 15,841 deaths in 2020. (1)

Age is the main risk factor for PCa, as both incidence and mortality increase after the age of 50. (2) Studies show that first-degree family inheritance with a diagnosis of PCa doubles the risk of developing the disease, together with other secondary associations such as ethnicity, changes in sex hormones, alcoholism, dietary patterns and obesity. (2)

The diagnosis of PCa can be suggested based on the association of test results, such as: digital rectal examination, Prostate Specific Antigen (PSA) measurement and ultrasound, but only the histopathological examination obtained by prostate biopsy confirms the neoplastic diagnosis, through which the appropriate form of treatment can be instituted. (3)

The definition of treatment and prognosis of PCa will depend on the patient's clinical conditions and tumor staging, listed by one of the therapies defined in Ordinance No. 498/2016 (4), which addresses the therapeutic and diagnostic guidelines for PCa, such as: active surveillance, radical prostatectomy, radiotherapy, androgen suppression and chemotherapy.

Because it affects the anatomical location responsible for sexual functions, PCa triggers conflicts related to sexuality in men, with negative emotional manifestations regarding the disease, feelings of exhaustion, sleep disorders, conflicts in relationships, feelings of vulnerability and ideas of finitude, factors that have the potential to generate impacts on the patient's quality of life. (5)

The World Health Organization (WHO) defines quality of life (QOL) as an individual's perception of their physical, psychological and social well-being, dependent on organic, psychological and social factors, as well as the moment in life at which the disease appears. (6) From this perspective, the assessment of the quality of life of men with PCa results from their self-assessment of the impact of the diagnosis and treatment performed, as well as the repercussions on the emotional, physical, spiritual, social and economic dimensions of the same. (7)

Assessing the QoL of patients with PCa involves knowing the factors that impact treatment, which helps to establish care protocols for this group more efficiently, as well as minimizing the impacts caused by established therapeutic interventions, leading to an improvement in the general well-being of patients. (7) Thus, the importance of the health team, especially nursing professionals working in public health, in monitoring the symptoms of the disease and the side effects of the therapy used is evident, as important aspects that have an impact on the QoL of those affected by PCa. (8)

It is worth highlighting that national and international research has been developed with a view to analyzing the factors that alter the quality of life of patients with PCa, whether in the physical, psychological, or social domains, as well as correlating with the type of treatment instituted. (9,10,11) However, little is known about the QoL of PCa patients located in the northern region of the country, which, in addition to socioeconomic inequality, presents barriers in accessing health care. Therefore, this study aims to evaluate the quality of life and

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the impact of treatment on PCa patients.

METHODS

This is a descriptive, prospective, cross-sectional exploratory study with a quantitative approach. The methodological guidelines of the Revised Standards for Quality Improvement Reporting Excellence (SQUIRE) instrument were followed. (12) The field was the Urology outpatient clinic of the João de Barros Barreto University Hospital (HUJBB), a state reference for cancer treatment in the state of Pará.

The sample studied was calculated based on the number of patients with PCa treated at the High Complexity Oncology Unit (UNACON) in 2019; a total of 176 patients were counted. Based on this value, the n (sample) value to be used in this research was calculated. The calculation was performed assuming a 95% confidence level and a 5% sampling error, which resulted in a representative sample of 80 participants.

The study included 80 patients with PCa enrolled in the hospital and who were treated at the urology outpatient clinic. The inclusion criteria were: confirmed diagnosis of PCa, over 18 years of age, and who had already undergone any type of oncological treatment during the data collection period. Exclusion criteria were: patients with cognitive alterations or communication difficulties that prevented participation in the study. There were no exclusions.

Data collection took place from October 2020 to January 2021 through the application of two instruments, the first consisting of closed questions to obtain the sociodemographic profile and the second was the QoL instrument, the European Organization for Research and Treatment of Cancer Quality of life Questionnaire Core 30 (EORTC-QLQ-C30). (13) Both instruments were completed by the researcher based on the participants' responses, ensuring the confidentiality of their identification through the use of alphanumeric codes composed of the letter H (Man, Homem in Pt-Br) followed by the sequential number of the approach.

The instrument was originally developed in Belgium and the version used in this study is the one validated in Brazil. (14) It consists of 30 items, divided into five functional scales (physical and functional performance, cognitive, emotional and social function), three symptom scales (fatigue, pain and nausea and vomiting), a scale that assesses overall quality of life, five unique terms (dyspnea, sleep disturbance, loss of appetite, constipation and diarrhea) and an isolated item that assesses the financial impact. (10) Responses are given on a 4-point Likert-type scale, with the exception of items assessing overall quality of life (items 29 and 30), which use a 7-point Likert-type scale.

The sampling of participants was done by convenience and the approach was carried out in person, on Tuesdays and Fridays in the morning, days of outpatient urology care. During the collection period, the researcher went to the unit to identify potential participants. This identification was done by analyzing the appointment schedules available on the day of care.

This schedule includes the medical record number, name, arrival time and diagnosis of each patient. At the end of the consultation, invitations were made through a presentation of the research objective. Those who agreed were directed to a private room, and the operationalization of the study, risks and benefits, as well as mechanisms to minimize them were explained. Once the consent to participate was expressed by signing the Free and Informed Consent Form (FICF), data collection began. It is worth noting that after the interview and signing of the FICF, the clinical data of the patients were consulted via electronic medical records. Each interview lasted an average of 30 to 40 minutes.

The sample characterization information was digitized in a database previously prepared in the Microsoft® Office Excel® 2016 program. Descriptive and analytical statistics were performed in the BioEstat® 5.4 software. Analytical statistics were used to evaluate the results of the sample variables through the G and Chi-Square tests for categorical variables. Regarding the scores obtained in the QLQ-C30 questionnaire, analysis of variance was performed using the ANOVA test, described by the mean and standard deviation of each domain, used as a criterion for comparing the scores between the types of treatments. For decision-making, the significance level $\alpha = 0.05$ or 5% was adopted, with significant values marked with an asterisk (*).

This research was approved by the Research Ethics Committee (CEP) of the João de Barros Barreto University Hospital of the Federal University of Pará (UFPA), on October 6, 2020, under CAEE no.: 23598719.9.0000.001. The research was conducted in accordance with Resolution No. 466/2012 of the National Health Council.

RESULTS

The study included 80 (100%) patients with PCa. Of this sample, 46 (57.5%) were from the interior of the state; 59 (73.8%) were over 60 years old; 51 (63.8%) declared themselves to be of mixed race; 56 (70%) were married; 41 (51.3%) had completed elementary school; 40 (50%) reported a family income of 2 to 4 minimum wages and 33 (41.3%) were retired, as described in Table 1.

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Table 1: Sociodemographic profile of patients with PCa. Belém, Pará, Brazil, 2021.

Epidemiological data	Frequency	% (N = 80)	p-value
Location			0.1797
Capital	34	42.5%	
Interior	46	57.5%	
Age Group			< 0.0001*
< 60	21	26.3%	
> = 60*	59	73.8%	
Race/Color of skin			0.0018*
Brown*	51	63.8%	
White	24	30.0%	
Others	5	6.3%	
Marital Status			< 0.0001*
Married/Consensual Union	56	70.0%	
Single	14	17.5%	
Others	10	12.5%	
Education			0.0002**
Illiterate	7	8.8%	
Elementary School	41	51.3%	
High School	28	35.0%	
Higher Education	4	5.0%	
Family Income			< 0.0001**
Up to 01 minimum wage	36	45.0%	
02 - 04 minimum wages	40	50.0%	
≥ 05 minimum wages	4	5.0%	
Occupation			< 0.0001**
Retired	33	41.3%	
Self-employed	27	33.7%	
Manual Worker	20	25%	

Source: Urology Clinic (2021)
Manual Worker: Bricklayer, Farmer, Fisherman, Agriculturist.
*Chi-Square Test for Adherence; **G Test for Adherence

Table 2 presents the descriptive data (minimum, mean, standard deviation and maximum) related to the results obtained in the EORTC QLQ C30 scale. It is noteworthy that the overall health status/QoL score presented an arithmetic mean of 55.4 points, suggesting moderate QoL. Regarding the Functional Scales, the Cognitive Function domain presented the highest mean score (83.0), followed by the Physical Function (71.4), Emotional (70.1) and Social (69.2) domains, and Functional Performance (69.2), evidencing good QoL in these domains, as demonstrated in Table 2.

Table 2: Quality of Life, according to EORTC-QLQ30, of patients with PCa. Belém, Pará, Brazil, 2021.

EORTC-QLQ30	Score values			
	Minimum	Mean	± SD	Maximum
Quality of life				
Global health status	25.2	83.4	± 38.5	95.3
Functional Scales				
Cognitive Function	50.0	83.0	± 13.9	100.0
Physical Function	25.0	71.4	± 17.8	100.0
Emotional Function	31.3	70.1	± 13.4	100.0

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Social Function	25.0	69.2	± 18.2	100.0
Functional Performance	25.0	69.1	± 20.9	100.0
Symptom Scale				
Financial Difficulty	0.0	31.6	± 23.8	75.0
Fatigue	0.0	30.6	± 17.5	75.0
Pain	0.0	27.7	± 20.9	75.0
Insomnia	0.0	15.8	± 14.0	75.0
Loss of Appetite	0.0	5.3	± 13.2	75.0
Constipation	0.0	15.0	± 22.4	75.0
Nausea /Vomiting	0.0	10.6	± 15.2	50.0
Diarrhea	0.0	10.6	± 18.6	50.0
Dyspnea	0.0	9.4	± 17.5	75.0

Source: Urology Clinic (2021)

Among the symptoms assessed, the financial difficulty domain, followed by the fatigue domain, presented the highest mean scores among the others (31.6 and 30.6 respectively), suggesting that these are the items that contributed most to the reduction in patients' QoL. It is noteworthy that the other elements of the symptom scale, such as dyspnea (9.4), diarrhea and nausea/vomiting (both 10.6), constipation (15.0) and loss of appetite (15.3), were reported by 20 (25%) of the patients who were undergoing chemotherapy treatment, evidencing a low mean score when compared to the whole and, consequently, less negative impact on quality of life. As can be seen in Table 2.

QoL, according to the instrument applied, was compared in relation to the treatments performed. Regarding the general health status, from the patient's perspective, there was a statistically significant difference (*p = 0.0348) between the mean scores of treatments related to chemotherapy and hormone therapy. The lowest QOL score was achieved by the group treated with chemotherapy (45.5) and the highest scores were achieved by the hormone therapy and surgery groups, with similar values between them (58.7 and 58.5 respectively). As can be seen in Table 3.

The functional scales in the cognitive, physical function and functional performance domains also showed statistically significant differences (*p < 0.05) in the QoL scores when compared between chemotherapy and hormone therapy treatments. Cognitive function and functional performance showed higher scores in the group of patients who underwent surgery (87.5 and 74.2 respectively), evidencing better QoL for patients undergoing these treatment modalities. Physical function, on the other hand, showed a higher QoL score among patients treated with hormone therapy (76.2). Table 3. As can be seen in Table 3.

Table 3: Quality of Life according to the type of treatment performed in patients with PCa. Belém, Pará, Brazil, 2021.

EORTC-QLQ30	Type of treatment				p-value*
	Hormone therapy	Chemotherapy	Radiotherapy	Surgery	
Quality of Life					
Global health status	69.7 ± 38.1	45.5 ± 21.0	53.7 ± 12.2	58.5 ± 17.5	0.0348
Functional Scales					
Cognitive Function	84.1 ± 12.4	77.6 ± 12.8	81.6 ± 14.7	87.5 ± 14.4	0.0141
Physical Function	76.2 ± 16.2	63.1 ± 19.2	66.8 ± 19.8	74.1 ± 14.3	0.0249
Functional Performance	73.6 ± 19.7	58.8 ± 22.6	66.4 ± 20.4	74.2 ± 16.8	0.0290
Social Function	70.6 ± 16.7	60.9 ± 20.3	66.4 ± 22.8	74.2 ± 14.0	0.1134
Emotional Function	69.2 ± 14.0	70.1 ± 14.4	67.8 ± 12.9	74.2 ± 10.2	0.5277

Source: Urology Clinic (2021)

From the analysis of the symptom scale, comparing the types of treatments, a statistically significant difference (*p < 0.05) was identified in the mean QOL scores for all symptoms that make up the scale. Of the nine symptoms evaluated, eight of them presented higher mean scores, which refer to worse QOL, in patients undergoing chemotherapy, which indicates that this treatment leads to the patient having a greater number of symptoms and worsening QOL. Constipation (19.7) was the only symptom that presented a

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higher mean score only in patients undergoing radiotherapy. Table 4. As can be seen in Table 4.

Table 4: Quality of Life according to symptoms of prostate cancer. Belém, Pará, Brazil, 2021.

Symptom scale	Type of treatment				p-value*
	Hormone therapy	Chemotherapy	Radiotherapy	Surgery	
Dyspnea	5.4 ± 12.0	16.7 ± 22.9	9.2 ± 19.0	6.3 ± 14.4	0.0170
Pain	22.6 ± 18.4	36.5 ± 19.1	27.0 ± 22.9	29.7 ± 21.8	0.0032
Fatigue	25.5 ± 16.0	38.9 ± 20.7	35.5 ± 15.7	29.2 ± 11.0	0.0140
Insomnia	18.9 ± 14.6	33.3 ± 21.7	27.6 ± 29.9	17.2 ± 17.6	0.0113
Loss of appetite	8.8 ± 14.7	38.7 ± 20.3	21.1 ± 19.1	14.1 ± 18.2	0.0029
Nausea /Vômitos	4.7 ± 8.5	23.4 ± 18.5	7.9 ± 11.2	10.2 ± 15.3	< 0.0001
Constipation	17.6 ± 24.2	17.7 ± 22.7	19.7 ± 25.8	4.7 ± 10.1	0.0139
Diarrhea	4.1 ± 12.5	24.0 ± 23.9	10.5 ± 17.3	10.9 ± 18.2	0.0003
Financial Difficulty	31.8 ± 22.6	37.5 ± 26.6	35.5 ± 22.5	20.3 ± 13.6	0.0138

Source: Urology Oncology Outpatient Clinic
*One-way ANOVA test

DISCUSSION

Age represents the most specific risk factor for the development of PCa. In this study, the age range of the sample showed that 73.8% of the patients were aged >60 years. This finding corroborates the data in the literature, which indicate that PCa presents an increased incidence in one third of men over 45 years of age. (15) It is worth emphasizing that the increase in incidence in the population is also a result of increased life expectancy, early screening, prolonged exposure to predisposing factors for cancer such as lifestyle, dietary and environmental habits, placing age as a relevant risk factor. (16)

Regarding skin color, scientific evidence reinforces the findings in this study, stating that PCa is approximately 1.6 times more common in black men than in white men and attributes genetic bias by stating that Americans, Jamaicans and Caribbeans of African descent have the highest incidence rates of this cancer in the world. (17)

Regarding marital status, a study carried out in China with the aim of determining which factors interfere with the health-related quality of life of patients with PCa, demonstrated in its results that 86% of those who declared themselves married, showed better results in the domains related to health, social relationships, in addition to sexual satisfaction, concluding that marital status is an important determining factor in the QoL of patients with this pathology. (18) Furthermore, studies show that being in a relationship provides social support for emotional needs, such as acceptance, empathy, and assistance in dealing with illness. (19,10)

In this study, 51.3% of patients had only completed elementary school, which is reflected in lower-paid professional occupations in the job market, which affects the results shown in the symptom scale, financial difficulty domain, as well as patient adherence to treatment due to limitations in understanding nursing guidelines to improve their quality of life and following the therapeutic plan established by the multidisciplinary team.

In this regard, a study carried out in a cancer hospital with men with PCa states that higher education provides conscious guidance regarding health and that a higher income facilitates the adoption of healthier lifestyles, with good eating habits and physical exercise, which contributes to a better quality of life for these patients. (20)

Analysis of Table 2 shows that the score for the global health scale (83.4 ± 38.5) is in line with those evidenced by Jackson, Walker and Toulloch-Reid. (9) These authors conducted research with Jamaican men who were undergoing outpatient treatment and control for PC. They presented similar scores on the global health scale (81.0), in the domains of physical function (87.9), emotional function (88.9), role performance (96.4), insomnia (15.8) and loss of appetite (3.3). The examination of these domains presented in both studies alludes to high global health status scores and consequent good general QoL.

Still on the subject of symptoms, according to a systematic review study (21), fatigue was one of the symptoms that appeared in all forms of treatment instituted for PCa, especially in those who underwent chemotherapy, as evidenced in this study. This factor is related to hematologic toxicity, decreased muscle mass, nausea, vomiting and other effects caused by chemotherapy. (18,20) Furthermore, the loss of appetite domain also demonstrated a statistically significant association related to chemotherapy, associated with changes in taste, peripheral neuropathy and sensory changes. (19,20)

In general, patients in this study reported good quality of life when receiving hormone therapy and radiotherapy alone. Among the limitations found, we can highlight institutional issues related to the completion of electronic medical records by urologist-oncologists, which resulted in the loss of some data regarding tumor staging related to PCa, which

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were not included due to lack of data.

In view of the data evidenced in this study, oncology nurses play an important role in men's health care, not only in performing procedures, but in developing care actions that promote preventive and educational measures that assist in the early diagnosis of this pathology. Thus, this study brings important contributions to the health area, with emphasis on nursing that works in public health, as it shows the most prevalent symptoms in patients with PCa undergoing treatment with four therapeutic modalities, in addition to analyzing the relationship between symptoms and quality of life. It highlights the most frequent symptoms in this group of patients and their relationship with quality of life, in addition to allowing nurses to better plan nursing care, which can result in greater safety and better quality of care.

CONCLUSION

The results of the study highlight the importance and need for research to assess the QoL of patients with PCa. The instrument used to collect the data (EORTC-C30) proved to be useful in investigating the QoL of these patients, which made it possible to identify the main domains affected and that have an impact on QoL. Furthermore, it was possible to analyze which form of treatment is associated with the greatest impact on QoL, highlighting hormone therapy with positive impacts and chemotherapy with negative impacts.

Although the results were obtained and analyzed for the first time in the study hospital, they provide support for understanding the local reality and corroborate the findings of other studies conducted in different locations and contexts. It is recommended that new research be conducted with larger samples and designs that involve prospective evaluations of the treatments instituted, in order to facilitate the choice of therapeutic measures that are effective in diagnosing the disease.

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