

# Health-related quality of life and psychosocial factors after radical prostatectomy

Qualidade de vida relacionada à saúde e fatores psicossociais após prostatectomia radical  
Calidad de vida relacionada a la salud y factores psicossociales después de prostatectomía radical

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## Keywords

Quality of life; Prostatectomy; Prostatic neoplasms; Psychosocial impact

## Descritores

Qualidade de vida; Prostatectomia; Neoplasias da próstata; Impacto psicossocial

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Calidad de vida; Prostatectomía; Neoplasias de la próstata; Impacto psicossocial

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## Abstract

**Objective:** To investigate quality of life and its correlations with psychosocial factors (anxiety, depression and low self-esteem) in men who underwent prostatectomy.

**Methods:** A descriptive, correlational study with 85 men who underwent radical prostatectomy at least three months and at most five years prior to the survey. The instruments used were the European Organization for Research and Treatment of Cancer - QLQ C30, the European Organization for Research and Treatment of Cancer "Prostate Cancer" 25 items - EORTC QLQ-PR25; the Rosenberg Self-Esteem Scale and the Hospital Anxiety and Depression Scale.

**Results:** Participants showed impairment of quality of life associated with impairment of sexual function and presence of urinary symptoms. There was a correlation between the psychosocial aspects and some quality of life assessment scales, mainly the functional and symptom scales.

**Conclusion:** It was shown that radical prostatectomy causes impairment in the quality of life of men, requiring care from health professionals to minimize the effects of the most common complications. Educational interventions and multi-professional support based on a better understanding of the physical and psychosocial implications are recommended to help improve the quality of life of men after radical prostatectomy.

## Resumo

**Objetivo:** Investigar a qualidade de vida relacionada à saúde e correlações com fatores psicossociais (ansiedade, depressão e autoestima) em homens prostatectomizados.

**Métodos:** Estudo descritivo correlacional realizado com 85 homens submetidos a prostatectomia radical há no mínimo três meses e no máximo cinco anos. Foram utilizados o *European Organization for Research and Treatment of Cancer - QLQ C30* e *European Organization for Research and Treatment of Cancer "Prostate Cancer" 25 items* - EORTC QLQ-PR25; Escala de Autoestima de Rosenberg e *Hospital Anxiety and Depression Scale*.

**Resultados:** Os participantes mostraram comprometimento da qualidade de vida no que se refere a prejuízos da função sexual e presença de sintomas urinários. Houve correlação entre os aspectos psicossociais e algumas escalas de avaliação da qualidade de vida, principalmente as escalas funcionais e de sintomas.

**Conclusão:** Evidenciou-se que a prostatectomia radical causa prejuízo na qualidade de vida dos homens, demandando assistência dos profissionais de saúde para minimizar os efeitos das complicações mais comuns. Recomenda-se a implementação de intervenções educativas e apoio multiprofissional pautados em melhor compreensão das implicações físicas e psicossociais para ajudar a melhorar a qualidade de vida dos homens após a prostatectomia radical.

## Resumen

**Objetivo:** Investigar la calidad de vida relacionada a la salud y correlación con factores psicossociales (ansiedad, depresión y autoestima) en hombres prostatectomizados.

**Métodos:** Estudio descriptivo correlacional realizado con 85 hombres sometidos a prostatectomía radical hace al menos tres meses y máximo cinco años. Se utilizó el *European Organization for Research and Treatment of Cancer - QLQ C30* y *European Organization for Research and Treatment of Cancer "Prostate Cancer" 25 items* - EORTC QLQ-PR25; Escala de Autoestima de Rosenberg y *Hospital Anxiety and Depression Scale*.

**Resultados:** Los participantes mostraron su calidad de vida comprometida con relación al detrimento de la función sexual y presencia de síntomas urinarios. Hubo correlación entre los aspectos psicossociales y algunas escalas de evaluación de calidad de vida, principalmente las escalas funcionales y de síntomas.

**Conclusión:** Quedó en evidencia que la prostatectomía radical perjudica la calidad de vida de los hombres y demanda asistencia de los profesionales de la salud para minimizar los efectos de las complicaciones más comunes. Se recomienda la implementación de intervenciones educativas y de apoyo multiprofesional para una mejor comprensión de las consecuencias físicas y psicossociales para ayudar a mejorar la calidad de vida de los hombres después de la prostatectomía radical.

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## Introduction

The most comprehensive statistical survey of cancer in the world (GLOBOCAN), published by the International Agency for Research on Cancer (IARC) of the World Health Organization (WHO), indicates that prostate cancer (PC) is the most common cancer among men from 105 countries, followed by lung and liver cancer.<sup>(1)</sup> Developed countries such as Australia/New Zealand, Western Europe and North America have higher incidence rates<sup>(1)</sup>, which can be justified by their diagnostic methods and early detection policies. In Brazil, excluding non-melanoma skin tumors, PC leads the ranking of the most prevalent types of cancer among men in all regions, representing about 10% of all cancers.<sup>(2)</sup>

Despite the data showing high rates of the condition, PC is associated with a good life expectancy when it is early diagnosed. Therapeutic options are comprehensive and vary depending on aspects such as cancer stage, general health status, life expectancy, and patient preferences.<sup>(3)</sup> Currently, the therapeutic options include active surveillance, radiotherapy, brachytherapy, cryotherapy, and surgery to remove the prostate (radical or partial).<sup>(4,5)</sup> The surgery, known as Radical Prostatectomy (RP), is indicated as the gold standard procedure for the treatment of PC,<sup>(6)</sup> and consists of removal of the prostate gland and seminal vesicles.<sup>(7)</sup>

As any surgical procedure, RP carries a risk of complications that, even if temporary, may negatively affect the Quality of Life (QoL) of these patients. These complications may be immediate or long term, such as Urinary Incontinence (UI) and Erectile Dysfunction (ED).<sup>(7)</sup> Both these complications can have negative effects on the life of patients after RP, causing psychosocial changes such as anxiety, depression<sup>(8)</sup> and low self-esteem,<sup>(9)</sup> factors that affect the QoL of these men.<sup>(10)</sup> These changes are considered as the result of a feeling of uncertainty on how to deal with physical and social changes arising from the consequences of treatment.

Thus, it is believed that measuring QoL and identifying frequently associated psychosocial factors, such as anxiety, depression and low self-esteem, are important measures in the recovery and

rehabilitation of men who undergo prostatectomy, since they represent a quantitative evaluation of the perception of well-being of these individuals and include aspects related to the undesirable effects of the surgery, which have been previously overlooked by health professionals. It is also believed that this evaluation provides information that allow for a better health planning for this population, even after curative treatment. In this context and given the scarce number of national publications that address these aspects, the objective of this study was to investigate quality of life and its correlations with psychosocial factors (anxiety, depression and low self-esteem) in men who underwent prostatectomy.

It is important to highlight that this study will use the definition of Health-Related Quality of Life (HRQOL) proposed by the European Organization for Research and Treatment of Cancer Quality of Life (EORTC), which defines it as a multi-dimensional construct covering several aspects in the life of the individual, such as disease and treatment-related symptoms and physical, psychological, and social functioning after diagnosis and/or treatment.<sup>(11)</sup>

## Methods

This is a cross-sectional, descriptive, correlational study. The study population consisted of men aged 50 years or older who underwent RP and who had oncology outpatient follow-up records at different postoperative stages in two reference health institutions, a public and a private, that serve the population of the city and region in approximately 24 medical specialties.

The sample size was based on Spearman's correlation coefficients obtained in the instrument scores in the pilot study ( $n = 25$ ). Thus, to obtain correlation coefficients around 0.30, using  $\alpha = 0.05$  and  $\beta = 0.20$ , the minimum number of 85 participants was determined. The sample was non-probabilistic and of convenience, according to the records of the two health services included in the study.

The inclusion criteria were: being 18 years old or over; having had an open radical retropubic prostatectomy at least three months and at most five

years prior to the survey; having a follow-up record in one of the two health services included in the study; and having a working telephone number for contact. Men with changes in level of consciousness, medical diagnosis of cognitive alterations or dementia reported by health professionals, family members or identified in medical records were excluded from the study.

Data was collected during a period of 14 months. First, the participants were selected through data obtained on the medical charts (name, surgery performed and telephone contact). Then, all the men who could be contacted by telephone were invited to participate and were offered information about the study, its objectives and form of participation. Those who accepted were given options of date, time and location for the interview, which could be held at their residence or in one of the services included in the study.

Data was collected through structured interviews with a maximum duration of 40 minutes, conducted by a team of two researchers including the researcher responsible for the study and a previously trained collaborator who assisted by reading the questionnaire items when there was a risk of reduced visual acuity or low level of education.

Before starting the interview, the participants were informed about the study's ethical principles, classified nature, and the possibility of withdrawing their consent at any time and without any harm. Then, the Informed Consent Term was read and signed. After that, the instruments were applied in a pre-established order: 1) Socio-demographic characterization instrument; 2) Rosenberg Self-Esteem Scale (EAER); 3) Hospital Anxiety and Depression Scale (HADS); 4) European Organization for Research and Treatment of Cancer Quality of Life Questionnaire "Core" 30 items (EORTC QLQ-C30) and 5) European Organization for Research and Treatment of Cancer Quality of Life Questionnaire "Prostate Cancer" 25 items (EORTC QLQ-PR25).

The EAER is a unique one-dimensional scale, translated and validated for Portuguese,<sup>(12)</sup> with Likert-type scale responses (4 options). It contains 10 items referring to feelings of acceptance and

respect for oneself. Its value ranges from 0 to 30, and higher scores represent better self-esteem. The Cronbach's alpha obtained by the EAER in the sample studied was 0.77, which was considered adequate.

The validated and published version of HADS was used to evaluate symptoms of anxiety and depression.<sup>(13)</sup> The scale consists of 14 items divided into two subscales, with 7 items assessing anxiety and 7 depression. The items have four response options (0 to 3) and an interval of 0 to 21 points in the two subscales. Values equal to or greater than eight indicate anxiety and/or depression.<sup>(14)</sup> The HADS Anxiety subscale obtained Cronbach's alpha of 0.75 and the depression subscale 0.71; both were considered adequate for the study sample.

In order to evaluate the HRQoL variable, two translated and validated questionnaires were used, the EORTC QLQ-C30,<sup>(15)</sup> along with the specific module for PC, and the EORTC QLQ-PR25.<sup>(16)</sup> These questionnaires are commonly used in the world and demonstrate widely tested and adequate psychometric properties.

In general principles, both questionnaires are composed of scales with multiple items, most of which are Likert-type, with response options varying from 1 to 4, which are then calculated with a linear transformation from 0 to 100. Higher scores indicate a better HRQoL (for functional scales, role functioning and others) and a greater presence of symptoms indicates worse HRQoL (for symptom scales).

The EORTC QLQ-C30 has five functional scales, three symptom scales, a global scale of health status/QoL, five items that assess symptoms commonly reported by cancer patients, and a single item related to financial difficulty.<sup>(17)</sup> EORTC QLQ-PR25 consists of two functional scales and five symptom scales. The Cronbach's alpha of the EORTC QLQ-C30 questionnaire was 0.81 and of the EORTC QLQ-PR25 it was 0.83, values considered adequate for the proposed measurements.

For the statistical analysis, a spreadsheet database was built in Microsoft Office Excel® with re-typing and subsequent checking. These data were then transferred to the "R" Software, where the statistical tests were performed.<sup>(18)</sup>

Descriptive statistical methods were adopted for the analysis and characterization of the variables. The Cronbach's alpha coefficient was used to test the reliability of the questionnaires in the study sample. The Kolmogorov-Smirnov test was used to verify the normal distribution of the data. The test found that the data did not present this distribution, therefore, non-parametric tests were adopted. The non-parametric Mann-Whitney test and the Kruskal-Wallis test were used to verify the existence of differences between the groups. The non-parametric Spearman correlation coefficient was used to investigate the correlations between the data and their magnitude. For the interpretation of the magnitude of the correlations the following classification was adopted: correlation coefficients  $<0.3$  - weak correlation; from 0.3 to 0.49 - moderate correlation; and  $\geq 0.5$  strong correlations.<sup>(19)</sup> The level of statistical significance adopted for the tests was 5% ( $p \leq 0.05$ ). The results are presented in cross tables.

This study was submitted and approved by the Research Ethics Committee of the Federal University of São Carlos, under no. 177.728 and 398.781. The research respected all recommendations of good practices in research involving human beings in force at the time (Resolution CNS no. 466/2012)).

## Results

The mean age of the 85 participants was 66.08 ( $\pm 6.92$ ) years, ranging from the minimum age of 50 years to the maximum of 79 years. The majority (63.52%) identified themselves as white and had incomplete elementary education (57.65%). The mean postoperative time was 19.32 ( $\pm 14.33$ ) months, with a minimum of 3 months and a maximum of 54 months. Three (3.53%) participants reported having another type of cancer, all of them being skin cancer. Twenty-six (30.59%) participants reported history of PC in first-degree relatives. The majority (64.71%) of the participants underwent surgery through the SUS.

The surgery affected the work performance of 19 (22.35%) men and the main reason was urinary

incontinence of effort. Impairment of social activities (bars, parties, community activities and others) was also mentioned by most participants.

In the analysis of psychosocial aspects, the self-esteem variable presented a mean score of 23.29 ( $\pm 4.41$ ), with a minimum of 13 and maximum of 30. In addition, anxiety symptoms were identified in 16 (18.82%) men, and depressive symptoms were observed in 14 (16.47%).

In the evaluation of the perception of HRQoL, the scores obtained on the functional scales of the EORTC QLQ-C30 questionnaire were above 80, showing little functional impairment to the general HRQoL. On the other hand, in the EORTC QLQ-PR25 specific questionnaire, the mean scores were below 60, suggesting impairment of sexual function (Table 1).

It was also observed that the most frequently mentioned symptoms were incontinence and urinary symptoms, insomnia, pain, fatigue and symptoms related to hormonal changes, evidenced by higher scores (Tabela 1).

**Table 1.** Distribution of the scales of the HRQoL questionnaires, according to minimum, maximum, mean and standard deviation (n=85)

Scales	Median	Minimum	Maximum	Mean	SD
<b>EORTC QLQ-C30</b>					
Global Health Status					
Health Status and QoL	83.33	0	100	82.35	18.07
Functional Scales					
Physical functioning	86.67	40	100	84.00	16.82
Role functioning	100.00	0	100	86.47	22.49
Emotional functioning	91.67	1	100	80.00	25.11
Cognitive functioning	83.33	0	100	81.37	24.86
Social functioning	100.00	0	100	90.39	24.58
Symptom Scales/Items					
Fatigue	0	0	100	15.55	19.83
Nausea and vomiting	0	0	83	3.33	12.55
Pain	0	0	100	17.84	27.07
Dyspnoea	0	0	100	6.27	18.18
Insomnia	0	0	100	22.75	34.96
Appetite loss	0	0	100	6.67	21.70
Constipation	0	0	100	8.24	21.15
Diarrhoea	0	0	66	2.35	10.01
Financial difficulties	0	0	100	9.41	27.99
<b>EORTC QLQ-PR25</b>					
Functional scales					
Sexual Activity	50.00	0	100.00	50.00	25.38
Sexual Functioning	41.67	8.33	100.00	41.67	24.60
Symptom scales/Items					
Urinary	16.67	0	83.33	16.67	18.02
Bowel	0	0	50.00	2.55	7.93
Hormonal treatment	11.11	0	61.11	12.68	12.93
Urinary incontinence	0	0	100.00	37.04	42.70

In the Global Health Status and Quality of Life scale, the scores obtained were high, with a mean of 82.35 ( $\pm$  18.07), which characterizes a positive self-perceived health status and QoL. In addition, the financial aspect was not a problem for most participants, with a score of 9.41 ( $\pm$  27.99) (Table 1).

Tables 2 and 3 present the mean values of HRQoL according to the categories established for each psychosocial variable.

Table 2 indicates a statistically significant difference ( $p < 0.01$ ) between the presence of anxiety and depression symptoms and the QoL scores, mainly in the functional scales, showing that men with symptoms of anxiety and/or depression had a more impaired quality of life in terms of functional aspects.

Recent experience of symptoms such as nausea, pain and dyspnea was also higher ( $p < 0.01$ ) among men with symptoms of anxiety and depression.

However, in the scales specific for PC, the results were opposite: men with depressive symptoms had better QoL, evidenced by higher scores on the functional scales and lower scores on the symptom scales (Table 3).

It is possible to observe that men with lower self-esteem present impairment in sexual function. In addition, men who experience urinary symptoms also show lower self-esteem (Table 3).

There was correlation ( $r=0.253$ ) ( $p < 0.05$ ) between the participants' ages and the emotional functioning scale, suggesting that, with advancing

**Table 2.** Mean scores of the domains of the questionnaire EORTC QLQ-C30 according to psychosocial variables in men who underwent prostatectomy (n= 85)

	EORTC QLQ-C30														
	QL2	PF2	RF2	EF	CF	SF	FA	NV	PA	DY	SL	AP	CO	DI	FI
HADS - Anxiety <sup>a</sup>															
HADS_A $\leq$ 8	83.46	87.59	90.97	86.34	83.33	96.30	8.95	1.85	13.51	2.78	15.74	4.17	6.48	2.78	3.70
HADS_A > 8	59.62	64.10	61.54	44.87	70.51	57.69	32.48	11.54	46.97	25.64	61.54	20.51	17.95	0.00	41.03
<i>p-value</i>	<0.001**	<0.001**	<0.001**	<0.001**	0.102	<0.001**	0.002*	0.009*	<0.001**	<0.001**	<0.001**	0.086	0.116	0.337	<0.001**
HADS - Depression <sup>a</sup>															
HADS_D $\leq$ 8	85.92	69.09	90.54	84.35	85.59	94.82	9.91	2.48	13.51	5.41	16.22	4.95	6.31	2.25	5.41
HADS_D > 8	58.33	86.22	59.09	50.76	53.03	60.61	30.30	9.09	46.97	12.12	66.67	18.18	21.21	3.03	36.36
<i>p-value</i>	<0.001**	0.024*	<0.001**	0.007*	0.001**	0.001**	0.082	0.357	0.010*	0.625	<0.001**	0.314	0.227	0.653	0.004*
Rosenberg Self-Esteem Scale <sup>a</sup>															
EAER $\leq$ 24	80.00	81.04	84.07	75.74	79.63	87.41	16.30	4.44	21.11	8.15	26.67	10.37	11.85	2.96	11.11
EAER >24	85.00	87.33	89.17	84.79	83.33	93.75	8.33	2.08	14.17	4.17	18.33	2.50	4.17	1.67	7.50
<i>p-value</i>	0.279	0.174	0.555	0.257	0.981	0.123	0.106	0.125	0.460	0.640	0.372	0.111	0.121	0.234	0.287

QL2 - Global health status and quality of life; PF2 - Physical functioning; RF2 - Role functioning; EF - Emotional functioning; CF - Cognitive functioning; SF - Social functioning; FA - Fatigue; NV - Nausea and vomiting; PA - pain; DY - dyspnoea; SL - Insomnia; AP - Appetite loss; CO - Constipation; DI - Diarrhoea; FI - Financial difficulties./ HADS\_A  $\leq$  8/ HADS\_D  $\leq$  8: absence of anxiety or/depression. HADS\_A > 8/ HADS\_D > 8: presence of symptoms of anxiety or depression./ aKruskal-Wallis Test/Significant results: (\*\*) *p-value*<0.001 e (\*) *p-value*<0.05

**Table 3.** Mean scores of the scales of the questionnaire EORTC QLQ-PR25 according to psychosocial variables in men who underwent prostatectomy (n= 85)

	EORTC QLQ-PR25					
	PRSAC	PRSFU	PRURI	PRBOW	PRHTR	PRAID
HADS - Anxiety <sup>a</sup>						
HADS_A $\leq$ 8	59.03	44.54	18.23	1.39	10.96	29.82
HADS_A > 8	62.82	41.67	44.87	8.97	22.22	54.17
<i>p-value</i>	0.587	0.977	<0.001**	0.002*	0.043*	0.165
HADS - Depression <sup>a</sup>						
HADS_D $\leq$ 8	5.41	44.64	19.65	1.35	11.41	34.84
HADS_D > 8	36.36	41.67	40.15	10.61	21.21	46.67
<i>p-value</i>	0.004*	0.939	0.010*	0.007*	0.014*	0.540
EAER <sup>a</sup>						
EAER $\leq$ 24	65.56	35.42	28.06	4.07	14.32	43.86
EAER >24	52.92	49.21	15.83	0.83	10.83	20.83
<i>p-value</i>	0.012*	0.147	0.003*	0.133	0.321	0.236

\*Kruskal-Wallis Test. Significant results: (\*\*) *p-value*<0.001 e (\*) *p-value*<0.05. PRSAC - Sexual activity; PRSFU - Sexual functioning; PRURI - Urinary symptoms; PRBOW - Bowel symptoms; PRHTR - Symptoms related to hormonal treatment; PRAID - Urinary incontinence. HADS\_A  $\leq$  8/ HADS\_D  $\leq$  8: absence of anxiety or depression. HADS\_A > 8/ HADS\_D > 8: presence of symptoms of anxiety or depression

age, men who undergo prostatectomy get less nervous, worried, irritated and/or depressed in relation to the disease or treatment.

There was also a correlation between anxiety ( $r>0.6$ ) and the social function scale ( $r=0.614$ ), demonstrating that anxiety symptoms negatively affect the individual's social activities. Other correlations of smaller magnitude were detected and can be observed in table 4.

There were also correlations between depression and the scales of global health status and quality of life ( $r=-0.453$ ), physical functioning ( $r=-0.382$ ), cognitive functioning ( $r=-0.365$ ), social functioning ( $r=-0.367$ ), dyspnea ( $r=0.390$ ) and financial difficulties ( $r=0.309$ ) (Table 4).

**Table 4.** Correlation between psychosocial variables and HRQoL scores of men who underwent prostatectomy (n= 85)

	Anxiety	Depression	Self-esteem
<b>EORTC QLQ-C30</b>			
Global Health Status			
Health Status and QoL	-0.455**	-0.453**	0.119
Functional Scales			
Physical functioning	-0.406**	-0.246	0.148
Role functioning	-0.425**	-0.382**	0.064
Emotional functioning	-0.496**	-0.291*	0.124
Cognitive functioning	-0.178	-0.365	0.003
Social functioning	-0.614**	-0.367**	0.168
Symptom Scales/Items			
Fatigue	0.334**	0.190	-0.176
Nausea and vomiting	0.285*	0.101	-0.168
Pain	0.462**	0.281*	-0.081
Dyspnoea	0.403	0.054	-0.051
Insomnia	0.387**	0.390**	-0.097
Appetite loss	0.188	0.111	-0.174
Constipation	0.172	0.132	-0.169
Diarrhoea	-0.106	0.050	-0.130
Financial difficulties	0.462**	0.309*	-0.116
<b>EORTC QLQ-PR25</b>			
<b>Functional scales</b>			
Functional scales			
Sexual Activity	0.059	0.048	-0.273*
Sexual Functioning	-0.009	-0.017	0.259
Symptom scales/Items			
Urinary	0.436**	0.278*	-0.314*
Bowel	0.329*	0.291*	-0.164
Hormonal treatment	0.220*	0.266*	-0.108
Urinary incontinence	0.277	0.126	-0.238

\* $p<0.05$ ; \*\*  $p<0.001$ .

Despite the smaller values, it was still possible to identify statistically significant correlations between self-esteem and HRQoL scales, such as the inverse correlation of moderate magnitude with the urinary symptoms scale ( $r=-0.314$ ), suggesting

that men with lower self-esteem have more urinary symptoms, and the inverse correlation with the sexual activity scale ( $r=-0.273$ ), suggesting that men with lower self-esteem tend to be more interested in sexual life (Table 4).

## Discussion

The evaluation of the QoL of men with PC who have undergone radical and curative treatment provides detailed information that should be the basis for relevant therapeutic decisions, abandoning the ineffective and often adopted "risk-benefit ratio" methods in health. In addition, it is a valuable tool for obtaining information about the individual's perception of their physical, emotional and social function. It is also a complementary way of spotting problems associated with the disease or treatment, which require attention and a rapid and effective intervention of a multi-professional team in order to achieve better results for the life of this man.

This article presented a general and specific evaluation of the HRQoL of men who underwent prostatectomy and obtained important results, with evidence of QoL impairment associated with the presence of urinary symptoms and problems with sexual function and performance.

Similar results have been found in other studies,<sup>(20,21)</sup> suggesting that men with urinary symptoms and sexual dysfunctions may have a more impaired quality of life. The studies also emphasize the importance of an early implementation of interventions aimed at these aspects.

It is understood that men are prepared to undergo RP believing it is the definitive solution for PC. However, as evidenced in this study, the physical complications resulting from surgery, such as urinary symptoms and erectile dysfunction, can cause problems that had not yet been experienced, directly affecting the QoL of these men after treatment. These problems can co-occur with fear, anguish, low self-esteem, anxiety and depression, a result that was also found in another recently published study,<sup>(22)</sup> whose objective was to evaluate the presence of psychological morbidity in this population.

A recent follow-up study with approximately one year performed with men who underwent prostatectomy evidenced the relationship of prediction between anxiety/depression and quality of life and well-being. The authors describe the predictive relationship between anxiety and subjective well-being and quality of life and depression as a predictor only of quality of life, that is, estimates of increased anxiety and depression are associated with estimates of impairment in quality of life. The authors emphasize that, in the studied population, there was a relative reduction of 0.6% in the quality of life score for each point increase in the depression scale score.<sup>(23)</sup>

Feelings such as anxiety and depression are usually expected after a traumatic event, especially when it is an event involving an imminent fear of death. A study conducted in Sweden evaluated anxiety in men with PC before and three months after the surgery and found that more than 70% of patients reported intrusive thoughts before surgery and nearly 60% of them reported these thoughts three months later.<sup>(24)</sup> Similar results were found for depression, indicating that 13% to 27% of the patients were diagnosed with clinically significant levels of depression.<sup>(25)</sup> These feelings may be associated with impaired self-evaluation of QoL after diagnosis of PC and after the surgery, as evidenced in the results presented.

In this study, the results point to a correlation between specific HRQoL scales. For example, the presence of urinary symptoms and problems in sexual performance was associated with anxiety, depression and low self-esteem. In another study,<sup>(26)</sup> authors conclude that the presence of urinary symptoms causes severe suffering in patients and that impaired sexual ability affects relations with partners and leads to feelings of shame and guilt and a decreased sense of self-esteem.

An Australian study<sup>(27)</sup> found that, in general, patients and their female partners report feelings of anguish, anxiety and low self-esteem. Other authors point out that the symptom most identified among female partners was anxiety, while, for males, self-esteem was most strongly related to mental health status and urinary problems most influenced physical quality of life.<sup>(28)</sup>

In addition to physical complications, age also appears to be an important factor in the subjective perception of QoL among men undergoing RP, since it is expected that men with more advanced age will have higher rates of urinary and sexual impairment. However, the results showed that older men get less nervous, worried, irritated and/or depressed in relation to the disease or treatment. This result corroborates results found by other authors,<sup>(29)</sup> who found that HRQoL did not change in older men. In these men, age was considered as a mechanism of adaptation to the disease and adjustment of HRQoL. Thus, it can be assumed that older men tend to present more positive reactions to treatment and better coping skills in relation to the symptoms and complications following radical prostatectomy.

Considering the complex rehabilitation of men who undergo prostatectomy, it is understood that the evaluation of aspects associated with the quality of life of these men should be part of a care protocol. The nursing professional, included in a multi-professional team, should have an active role in this scenario, defining nursing interventions aimed at achieving the best possible recovery, considering individual aspects and trying to reduce symptoms of anxiety and depression and improve feelings of self-esteem, consequently improving QoL after treatment.<sup>(30)</sup>

The limitation of this study is related to the impossibility of generalization of results, since the objective was to evaluate these aspects in a specific group. Thus, new studies with different populations should be conducted to analyze and evaluate the quality of life of men who undergo prostatectomy and its association with psychosocial and physical factors, aiming to contribute to nursing care provided to these men in the pre and postoperative periods. In addition to investments in experimental studies, it is also necessary to investigate the efficacy of behavioral therapies in the rehabilitation of these men, with a view to reducing the negative impact on their quality of life, especially in relation to urinary incontinence and erectile dysfunction.

## Conclusion

It is concluded that the impairment in the quality of life of men who undergo prostatectomy is directly correlated with prostate cancer, more specifically with impairment of sexual function and urinary symptoms resulting from the surgical treatment. It was also possible to conclude that these aspects were associated with low self-esteem, suggesting that self-esteem is directly influenced by the presence of problems in sexual and urinary functions. The literature does describe several nursing interventions for the care of patients who undergo prostatectomy; however, little has been said about behavioral therapies that can be applied by the nurse after surgery, which directly influence psychosocial and physical aspects that affect the quality of life of these men. This way, we emphasize the importance of the nurses, since they are trained and qualified professionals and usually are the most accessible during the entire surgical and postoperative rehabilitation process.

## Collaborations

Izidoro LCR, Soares GB, Vieira TC, Orlandi FS, Polido Júnior A, Oliveira LMAC and Napoleão AA declare that they have contributed to the design of the study, analysis and interpretation of the data, article writing, critical review of the intellectual content and approval of the final version to be published.

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