

Psychological Impacts and in Quality of Life of Patients with Penile Cancer: Systematic Literature Review

<https://doi.org/10.32635/2176-9745.RBC.2025v71n3.4823EN>

Impactos Psicológicos e na Qualidade de Vida de Pacientes com Câncer de Pênis: Revisão Sistemática da Literatura
Impactos Psicológicos y en la Calidad de Vida en Pacientes con Cáncer de Pene: Revisión Sistemática de la Literatura

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ABSTRACT

Introduction: Penile cancer (PC) has a multifactorial origin, with the main risk factors being poor hygiene of the organ, chronic inflammation, infections, and smoking. After diagnosis, treatment is based on surgical removal of the tumor, which causes significant changes, mainly in the sexual and urinary spheres, with severe psycho-emotional repercussions. Thus, an efficient therapeutic approach to this pathology is essential for individuals' psychological preservation and quality of life (QoL). **Objective:** To verify the psychological and QoL impacts on individuals with PC. **Method:** Systematic literature review, following the recommendations of the PRISMA protocol. Data was collected from PubMed, BVS, Scopus, Embase, Web of Science, and SciELO online databases, including articles published between 2013 and 2023. The Joanna Briggs Institute critical scale was applied to assess methodological quality. **Results:** Fifteen articles were included for qualitative analysis, in which sexual and urinary functions are considered important aspects in the experience of patients with PC and their deterioration, common after surgical interventions, leads to higher rates of stress and depression. However, family support has been shown to alleviate psychological disorders. Penis-sparing procedures also promote greater satisfaction, as well as less damage to the organ's functions, preserving mental health. **Conclusion:** PC causes negative impacts on the QoL and mental and emotional well-being of patients, which are mitigated by performing less invasive procedures. Regardless, individuals with PC should receive extensive psychological monitoring during and after their treatment.

Key words: Psychological Well-Being; Psychological Stress; Quality of Life; Penile Neoplasms.

RESUMO

Introdução: O câncer de pênis (CdP) possui origem multifatorial, sendo os principais fatores de risco: má higiene do órgão, inflamações crônicas, infecções e tabagismo. Após o diagnóstico, o tratamento se baseia na remoção cirúrgica do tumor, que provoca mudanças significativas, principalmente nas esferas sexual e urinária, com severas repercussões psicoemocionais. Assim, a abordagem terapêutica eficiente é essencial para a preservação psicológica e da qualidade de vida (QV) dos indivíduos. **Objetivo:** Verificar os impactos psicológicos e na QV de indivíduos com CdP. **Método:** Revisão sistemática da literatura, com o seguimento das recomendações do protocolo PRISMA. Foram coletados dados nas bases de dados on-line PubMed, BVS, Scopus, Embase, *Web of Science* e SciELO, com a inclusão de artigos publicados entre 2013 e 2023. Para avaliação da qualidade metodológica, foi aplicada a escala crítica da *Joanna Briggs Institute*. **Resultados:** Foram incluídos 15 artigos para análise qualitativa, nos quais as funções sexual e urinária configuram-se como aspectos importantes na vivência de pacientes com CdP e sua deterioração, comum após intervenções cirúrgicas, leva a maiores índices de estresse e depressão. Contudo, o suporte familiar demonstra amenizar os distúrbios psicológicos. Procedimentos poupadores de pênis também promovem maior satisfação, assim como menores prejuízos às funções do órgão, preservando a saúde psíquica. **Conclusão:** Portanto, conclui-se que o CdP causa impactos negativos na QV e no bem-estar mental e emocional dos pacientes, os quais são amenizados com a realização de procedimentos menos invasivos. Independentemente, indivíduos com CdP devem ter acompanhamento psicológico extensivo durante e após o seu tratamento.

Palavras-chave: Bem-Estar Psicológico; Estresse Psicológico; Qualidade de Vida; Neoplasias Penianas.

RESUMEN

Introducción: El cáncer de pene (CP) es una enfermedad multifactorial, con principales factores de riesgo la mala higiene del órgano, inflamaciones crónicas, infecciones y tabaquismo. Después del diagnóstico, el tratamiento se basa en la extirpación quirúrgica del tumor, lo que provoca alteraciones significativas en la esfera sexual y urinaria y graves repercusiones psicoemocionales. Por ello, un abordaje terapéutico eficaz es esencial para preservar la salud psicológica y la calidad de vida (CV) de los individuos. **Objetivo:** Verificar los impactos psicológicos y en la CV de las personas con CP, analizando los efectos de la cirugía y el bienestar emocional. **Método:** Se realizó una revisión sistemática de la literatura según el protocolo PRISMA. Se recopilaron datos de las bases PubMed, BVS, Scopus, Embase, *Web of Science* y SciELO, incluyendo artículos publicados entre 2013 y 2023. Se aplicó la escala crítica del *Joanna Briggs Institute* para evaluar la calidad metodológica. **Resultados:** Se incluyeron quince artículos para el análisis cualitativo. Dichos estudios indican que las funciones sexual y urinaria son aspectos importantes en la experiencia de los pacientes con CP, y su deterioro, común tras la cirugía conduce a mayores tasas de estrés y depresión. Sin embargo, el apoyo familiar alivia los trastornos psicológicos. Los procedimientos que preservan el pene favorecen una mayor satisfacción al reducir el daño en las funciones del órgano y conservar la salud mental. **Conclusión:** Se concluye que el CP impacta negativamente en la CV y el bienestar mental y emocional de los pacientes, siendo estos efectos mitigables mediante procedimientos menos invasivos. Además, individuos con CP deben tener apoyo psicológico continuo durante y después del tratamiento. **Palabras clave:** Bienestar Psicológico; Estrés Psicológico; Calidad de Vida; Neoplasias del Pene.

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INTRODUCTION

Penile cancer (PC) is strongly related to socioeconomic aspects that influence its diagnosis, prognosis, and treatment¹. Its clinical manifestation is recurrent epithelial lesions, usually on the glans region, that later spread to the surrounding regions². PC is multifactorial, and its main etiology is insufficient hygiene in the genital region. Other risk factors include smoking, chronic inflammation, and infections, like Human papillomavirus (HPV), which is present in over 70% of the intraepithelial lesions in this context³.

In 2022 alone, 37,700 cases and 13,738 deaths by PC were recorded worldwide, according to data from the Global Cancer Observatory (GLOBOCAN⁴). The greatest concentration of episodes occurred in Asia (57.1% of the total), with Latin America and the Caribbean ranking third in the number of diagnoses (13.8%) and deaths (12.2%). In Brazil, from 1996-2020, there were 7,848 deaths by PC, with a national mortality rate of 2.57 deaths/million inhabitants a year, demonstrating how difficult it has been to tackle this health issue⁵.

The PC cancer prevention methods include, basically, proper hygiene of the organ and treatment of genital infections, which highlights the current incidence as a concerning parameter, given that it reflects the precarious living circumstances of the most affected communities¹.

When PC is diagnosed and treated early, tumor removal is superficial, and the affected location is reconstructed. However, in more invasive cases, a partial or total penectomy is recommended, which causes aesthetic and behavioral changes in the patients, with most patients reporting negative experiences after surgery, mainly related to sexual activity⁶. In this context, ejaculatory difficulties, troubles urinating, feelings of embarrassment, and psychopathologies are frequent issues in this group⁷.

In this sense, delayed and invasive treatment, even when surgically successful, may compromise patients' well-being in the long term since, despite preserving the individual's physical integrity, it interferes directly and negatively with their psychological condition after the treatment⁸. Therefore, this study aims to verify the impacts on the psychology and quality of life (QoL) of individuals with PC.

METHOD

Systematic literature review based on an organized bibliographical survey of representative studies on a health phenomenon⁹. The theme was elaborated following the PICO strategy (P: Population; I: Interest; C: Comparison; O: Outcome, with the following research question: "What are the psychological impacts on individuals suffering

from penile neoplasms and the consequences on these patients' quality of life?" The present systematic review was based on the Cochrane Collaboration methodology, submitted to the PROSPERO (International Prospective Register of Systematic Reviews) register under number CRD42024565222¹⁰. Moreover, the study followed the PRISMA¹¹ (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol to reduce biases. There was no need for approval by a Research Ethics Committee since this research used only secondary data.

The data was collected in February 2024, from the online databases US National Library of Medicine National Institutes of Health (PubMed), Brazil's *Biblioteca Virtual em Saúde* (BVS), Scopus, Excerpta Medica Database (Embase), Web of Science, and Scientific Electronic Library Online (SciELO). Descriptors were obtained from the DeCS/MeSH (*Descritores em Ciências da Saúde*/Medical Subject Headings) platform, considering translation to other languages. To combine the terms, Boolean operators AND and OR were applied. The search strategy was as follows: ("Trauma Psicológico" OR "Bem-Estar Psicológico" OR "Estresse Psicológico" OR "Angústia Psicológica") AND ("Neoplasias Urológicas" OR "Neoplasias Penianas" OR "Falooplastia" OR "Prótese de Pênis" OR "Implante Peniano" OR "Transplante de Pênis").

The present research was conducted in six steps: 1) Elaboration of the theme and selection of the review research question; 2) definition of study inclusion and exclusion criteria, with stratified selection by title, abstract, and full text; 3) definition of data to be extracted from selected articles for further categorization; 4) content assessment of the studies included in the review; 5) interpretation of the obtained results; and 6) representation of the collected knowledge synthesis^{12,13}. Throughout this process, five authors conducted the steps above, and four acted as reviewers. The manager software "Rayyan QCRI¹⁴" was used to store and organize references and other materials used in the research.

There were no disagreements among researchers during the process, making it unnecessary to broaden the tiebreaker criteria in the selection of publications for structuring the definitive casuistry.

The inclusion criteria for article selection were studies available in full, in any language, published from 2013-2023, that directly answered the research question.

Exclusion criteria were research in *in vitro* animals, laboratory studies, review articles, letters to the editor, congress reports, books, letters, errata, editorials, theses, dissertations, articles with inadequate methodologies (low quality evidence) or that were about PC but did not approach its psychological aspect and developments on the QoL of patients.

The researchers synthesized the selected studies by assessing the relevant aspects, based on the inclusion criteria and adequacy to the research question. Results were arranged in a summary table, contemplating the following items: study number, authors, year of publication, type of study, country where it was conducted, sample, average age of individuals, and main findings.

Regarding the evidence quality analysis, the Joanna Briggs Institute¹⁵ scale was used to assess the planning, follow-up, and article analysis, according to its methodological classification.

Data was organized in Microsoft Office Excel 2016 worksheets, and the most relevant were selected for the current review. Later, the findings were categorized by the information in the studies included in the final selection. The data analysis followed a qualitative approach in three steps: 1) full and meticulous reading of the publication; 2) content analysis of the articles; and 3) description of data and summary table composition.

RESULTS

A total of 1,597 studies were identified on the searched databases: 839 on PubMed, 624 on BVS, 91 on Scopus, 29 on Embase, 11 on Web of Science, and 3 on SciELO. However, among the total number of publications, 276 were duplicates, which were excluded from the selection, leaving 1,321 studies after this step. Then, researchers read the titles and abstracts of the

publications and considered 30 articles to be read in full and analyzed in the next step.

After considering the exclusion criteria in the full reading of studies found in the six databases, 15 publications were discarded for not answering directly to the research question, as they did not assess QoL in patients with PC, leaving 15 articles to be submitted to critical assessment of evidence quality using the Joanna Briggs Institute scale. Figure 1 illustrates the PRISMA flowchart of the study selection steps.

Since no articles were excluded in the evidence quality analysis using the Joanna Briggs Institute scale, 15 publications of considerable relevance and reliability related to the chosen theme were included in the present review. Chart 1 represents each study's score according to the Joanna Briggs Institute scale. The risk of bias was considered "high" when the study reached up to 49% of "yes" answers, "moderate" when it reached 50-69% of "yes" answers, and "low" when the study reached over 70% of "yes" answers. No articles were excluded after the methodological quality assessment to show a broad view of the current literature on the theme.

After careful reading of the included studies and detailed analysis of their content, the main information of each study (study number, authors, year of publication, type of study, country where it was conducted, sample, and main findings) was organized in Chart 2¹⁶⁻³⁰.

Chart 3 shows the questionnaires applied in each study for assessing QoL and functional, psychological,

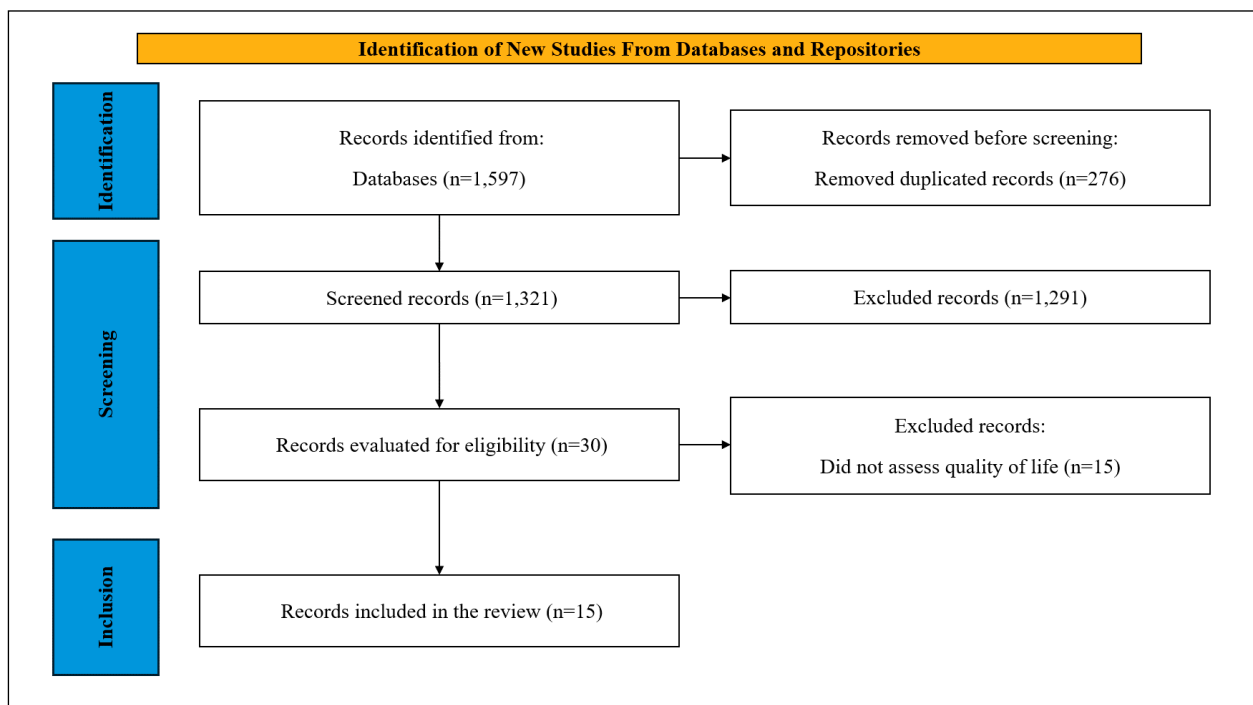


Figure 1. PRISMA flowchart regarding the selection steps

Source: authors, adapted from PRISMA¹¹.



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or physical aspects related to PC with influence on the self-reported quality, just like the domains analyzed in each questionnaire.

DISCUSSION

Sexual performance is one of the most important aspects in the QoL of men with penile neoplasms. Studies show that sexual satisfaction has a direct and robust relation with general psychological well-being, helping reduce stress, anxiety, and depression^{31,32}. Usually, worse sexual performance scores, as in most erectile dysfunction indexes, are related to a worse QoL reported^{22,24,26}. Aspects such as age also affect the patient's experience, as most men report that a PC diagnosis at a younger age would cause greater damage to their QoL, mental health, and sexuality³³.

Furthermore, surgical treatment usually worsens these criteria, considering reports of significant decrease

in sexual and erectile performance after partial penile amputation, associated with feelings of embarrassment regarding the penis' size or appearance and reduced frequency of sexual relations^{34,35}.

This group's family situation also influences the prognosis, since patients targeted by PC who live alone, are widowed, or divorced seem to suffer more from psychological stress and depression, and also present worse disease progression and lower survival rates, compared to patients who live with somebody else³⁶.

A key factor in this context is that living alone in a poor socioeconomic state may lead to less hygienic conditions and poor self-care, worsening the general clinical condition³⁷. Given this context, men who have had good affectionate relationships and the presence of their partner throughout the treatment reported better social, psychological, and sexual QoL³⁸.

Symptoms like sadness, micturition problems, anxiety, exhaustion, mobility limitations, and risk of suicide are

Chart 1. Evidence quality analysis of the selected studies according to the Joanna Briggs Institute scale

Type of study	SN	Joanna Briggs Institute scale											Risk of bias
		Q.1	Q.2	Q.3	Q.4	Q.5	Q.6	Q.7	Q.8	Q.9	Q.10	Q.11	
Cohort	1	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Low
	2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Low
	3	Y	N	Y	N	N	Y	Y	Y	Y	N	Y	Moderate
Cross-sectional	4	Y	N	Y	Y	Y	Y	Y	Y	NA	NA	NA	Low
	5	Y	N	Y	Y	Y	Y	Y	Y	NA	NA	NA	Low
	6	Y	N	Y	Y	Y	Y	Y	Y	NA	NA	NA	Low
	7	Y	Y	Y	Y	N	N	Y	Y	NA	NA	NA	Low
	8	Y	Y	Y	Y	Y	Y	Y	Y	NA	NA	NA	Low
	9	Y	Y	Y	Y	Y	Y	Y	Y	NA	NA	NA	Low
	10	Y	Y	Y	Y	Y	Y	Y	Y	NA	NA	NA	Low
	11	Y	N	Y	Y	Y	Y	Y	Y	NA	NA	NA	Low
	12	Y	N	Y	Y	Y	Y	Y	Y	NA	NA	NA	Low
	13	Y	Y	Y	Y	Y	N	Y	Y	NA	NA	NA	Low
	14	Y	Y	Y	Y	Y	N	Y	Y	NA	NA	NA	Low
	15	Y	Y	Y	Y	Y	N	Y	Y	NA	NA	NA	Low

Captions: "SN" means study number. Q.1 to Q.11 indicate questions 1-11 of the Joanna Briggs Institute risk of bias questionnaire. "Y" = yes; "N" = no; "U" = uncertain; "NA" = not applicable.



Chart 2. Articles included in the review

SN	Author/Year	Type of study	Country	Sample	Main findings
1	Dräger; Protzel; Hakenberg, 2017 ¹⁶	Prospective cohort	Germany	40	Self-reported global QoL average was 54, significantly lower than the age-standardized average for German patients. Concerning general function, there was a significant decrease in roles (daily, leisurely), cognitive, emotional, and social functioning. Regarding specific cancer scores, patients reported limitations related to sexual function and their body image, as well as adverse effects related to the treatment
2	Jakobsen et al., 2022 ¹⁷	Prospective cohort	Denmark	157	Life satisfaction compared between patients with penile cancer 0, 1, and 2 years or more after the diagnosis was no different among the groups. Compared to a control cohort, there was a difference only in the score attributed to the “daily life activities” item in the three groups. Concerning satisfaction with life in groups 2 and 3, by type of treatment, most invasive treatments showed a tendency toward decreasing satisfaction
3	Wan et al., 2018 ¹⁸	Retrospective cohort	China	15	The orgasmic function score of patients who had a PP was significantly lower than the preoperative score, just like the score of patients who underwent wide local excision. Postoperative SEAR scores were significantly better than before the surgery and higher than in the wide excision group. There was no difference in the EDITS scores, on urinary function, or QVRH among groups
4	Chavarriaga et al., 2022 ¹⁹	Cross-sectional	Colombia	74	After assessing QoL, lower urinary tract symptoms, and erectile dysfunction in patients with penis cancer, compared scores between groups who underwent PP and inverted urethral flap, associated with a dynamic biopsy of the sentinel lymph node or dissection of the ilioinguinal lymph node were not significantly different
5	Cilio et al., 2023 ²⁰	Cross-sectional	Italy	60	Two penis-sparing procedures were compared: wide local excision and glandectomy. Patients who underwent glandectomies had significantly worse IIEF-5 and CSFQ scores
6	Croghan et al., 2021 ²¹	Cross-sectional	Ireland	35	Functional and QoL results of patients who underwent partial or radical glandectomy and PP were analyzed. Overall QoL was similar between groups. The tendency to urinate while standing was significantly associated with a better perception of overall urinary function. Patients who underwent glandectomy were more satisfied with the appearance of their genitalia and mostly reported absent or moderate erectile dysfunction, as well as some sensibility in the reconstructed glans. Better sexual performance was significantly related to better self-reported QoL
7	Firmansyah et al., 2023 ²²	Cross-sectional	Indonesia	9	All the patients who answered the questionnaire reported low QoL after penile cancer treatment
8	Gambachidze et al., 2018 ²³	Cross-sectional	France	23	Brachytherapy is related to greater satisfaction with the male genital self-image. There was a meaningful relationship between reported QoL and patient pain, not with sexual or urinary function. Average reported QoL was 80

to be continued



Table 2. continuation

SN	Author/Year	Type of study	Country	Sample	Main findings
9	Harju et al., 2021 ²⁴	Cross-sectional	Finland	68	The self-reported average QoL was 0.841, significantly lower than the average Finnish population. Statistical differences were in the following dimensions: breathing, sleep, usual activities, suffering, depression, vitality, and sexual activity. Overall sexual function and hardness of the erection were associated with the reported QoL. Patients with no changes to sexual function had better QoL scores
10	Kieffer et al., 2014 ²⁵	Cross-sectional	Netherlands	90	The overall QoL of patients was similar to that of men of the same age in the population. Men who underwent PP reported significantly more problems with orgasm, appearance, interference in life, and urinary function. Those who underwent lymphadenectomy reported significantly more interference in life than those who did not undergo it. Urinary problems were significantly greater after PP compared to conservative procedures
11	Perez et al., 2020 ²⁶	Cross-sectional	Colombia	32	The average QoL score reported was 82.5%, and 94% reported not being depressed or anxious after the treatment. There was no significant functional difference among the adopted penis-sparing procedures
12	Santos-Lopes et al., 2017 ²⁷	Cross-sectional	Portugal	16	After the cancer treatment, the average IIFE-5 score was 16.25 – highlighting mild/moderate erectile dysfunction, compared to the absence of dysfunction before treatment. The score was lower in the group of patients that underwent PP (15.0), compared to other treatments (18.6)
13	Sosnowski et al., 2017 ²⁸	Cross-sectional	Poland	51	More aggressive interventions were significantly related to a worse QoL and overall health state perceived by some of the patients, as well as worse physical function
14	Sosnowski et al., 2018 ²⁹	Cross-sectional	Poland	40	High self-esteem levels were reported in both penectomy groups with low or intermediate disfigurement. Men who underwent conservative treatment reported feeling significantly more masculine. Patients prefer treatment methods associated with worse survival but with a greater chance of having satisfactory sexual performance. No significant difference was perceived between erectile function or self-esteem
15	Suarez-Ibarrola; Cortes-Telles; Miernik, 2018 ³⁰	Cross-sectional	Mexico	10	Patients kept high QoL scores, despite alterations in the pain sub-scale. Men who underwent PP reported more pain than those who underwent total penectomy. Similarly, patients submitted to inguinal lymphadenectomy also reported significantly more pain than other groups. The average IIEF-5 score in patients who underwent PP was 6.5, indicating severe erectile dysfunction

Captions: SN = means study number; SEAR = Sexual Experience and Relationship Quality Questionnaire; EDITS = Erectile Dysfunction Inventory of Treatment Satisfaction; QVRH = Quality of Life Related to Health; QoL = quality of life; IIEF-5 = International Index of Erectile Function; CSFQ = Changes in Sexual Functioning Questionnaire; PP = partial penectomy.

Chart 3. Applied questionnaires and assessed domains

Study	Applied Questionnaires	Assessed Domain
S1, S3, S6, S7, S13	<i>European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire C30 (EOETC-QLQ-C30)</i>	Quality of life
S4, S8, S11	EQ-5D-5L	Quality of life
S9	15D	Quality of life
S10, S15	<i>Short Form-36 (SF-36)</i>	Quality of life
S10	<i>Impact Of Cancer (IOCV2)</i>	Quality of life
S1	<i>Health-Related Outcomes in Penile Cancer (HRO-PE29)</i>	Quality of life
S2	<i>Life-Satisfaction Questionnaire-11 (LISAT-11)</i>	Satisfaction with life
S3, S4, S5, S6, S10, S11, S12, S14, S15	<i>International Index of Erectile Function (IIEF-15)</i>	Erectile function
S3	<i>Erectile Dysfunction Inventory of Treatment Satisfaction (ED-ITS)</i>	Erectile function
S9	<i>Erection Hardness Score</i>	Erectile function
S3	<i>Sexual Experience and Relationship Quality Questionnaire (SEAR)</i>	Self-esteem and sexual function
S9	Rosenberg Self-Esteem Scale	Self-esteem
S5	<i>Changes in Sexual Functioning Questionnaire (CSFQ)</i>	Sexual function
S9	<i>Overall Sexual Functioning Questionnaire (OSFQ)</i>	Sexual function
S4, S8, S11	<i>International Consultation on Incontinence Questionnaire – Male Lower Urinary Tract Symptoms (ICIQ-MLUTS)</i>	Lower Urinary Tract Symptoms
S8	<i>International Continence Society Male Short Form (ICS-maleSF)</i>	Lower Urinary Tract Symptoms
S6, S8	<i>Index of Male Genital Image (IMGI)</i>	Genital image
S14	<i>Conformity to Masculine Norms Inventory-22 (CMNI-22)</i>	Feeling masculine

common in patients with PC, thus, psychological support is seen as an important improvement factor¹⁶. Although most patients reported needing psychosocial care in one of the analyzed studies, not enough referrals to psychologists or sexologists were made³⁹.

In this aspect, interventions from the nursing team in treating lesions derived from PC may also focus on emotional support at each consultation, helping patients and families express their doubts and feelings, requiring knowledge that encompasses the psychic and emotional aspect of care⁴⁰.

Regarding treatment, an emotional and psychological assessment must be conducted in the postoperative period, considering the domains “life as a whole”, “sex life”, and “relationship with partner” analyzed in men with PC presented lower scores after diagnosis and after

more aggressive surgical treatments, like total and partial penectomy¹⁷. Moreover, radical penectomy has a profound impact on the psychological condition, sexual life, and QoL of these patients, especially in cases of previous anxiety disorder and depressive syndrome⁴¹.

Preserving the urinary function was a crucial factor in the mental well-being of patients with penile neoplasms. More invasive surgeries, like partial penectomy, were associated with more limitations related to genital symptoms, in addition to erectile and urinary dysfunction, like leakages or need to sit down to urinate, especially in men submitted to perineal urethrostomy^{24,30}.

The questionnaires used to assess the lower urinary tract symptoms (LUTS) highlighted the role of penis-sparing surgeries in conserving urinary functions and, consequently, quality and satisfaction with life^{23,26}.



Moreover, the ability to urinate while standing was correlated with feelings of happiness in those patients²¹.

Penile carcinoma in the initial stage may be treated with a penis-sparing strategy, like laser conservative treatment, Mohs micrographic surgery, circumcision, wide local excision, glandectomy, and de-epithelialization of the glans⁴². In general, most patients report these strategies to have had less impact on their sex life, improving sensibility and erectile function, in addition to less psychological damage compared to partial or total penectomy⁴³.

This is in line with the studies analyzed, in which men who have been submitted to penis-sparing surgeries and/or genital reconstruction reported less incidence of erectile dysfunction, feeling more masculine, satisfaction with the organ's aesthetic, proper voiding of the bladder, presenting better overall QoL scores when compared to those who had more aggressive surgeries^{16,19,20,23,27-29}. Preserving the functional and aesthetic anatomy by performing wide local excision reduced the post-surgery psychosocial side effects¹⁸.

However, one of the analyzed studies reported significant differences only in the orgasmic function in patients submitted to conservative procedures or partial penectomy, with similar health QoL among groups²⁵. Despite the benefits, penis-sparing procedures are associated with a substantial risk of local recurrence, varying according to the cancer staging. Patients must be carefully followed up for proper monitoring of this situation⁴⁴.

Research limitations include the absence of studies focused on the Brazilian reality, where PC has a high incidence. A considerable number of studies were especially focused on specific case studies, which would need more patients to better enlighten about the technique performed and the oncological cure, in addition to following up with the patients for psychological and emotional assessment. Moreover, studies tend to focus on the functional aspect of PC, often leaving psychological analysis in the background.

CONCLUSION

The findings from this review show that PC has profound impacts on the lives of affected patients, causing important psychological damage associated with worse QoL. The sexual outcomes are more relevant due to the high influence they have on men's mental health, self-esteem, and happiness.

Preserving the urinary function, mainly the ability to void the bladder while standing, having a family support network, and a good relationship with partners were factors related to better satisfaction with life. Furthermore,

more invasive surgical treatments are frequently associated with depression, anxiety, and anguish conditions, while penis-sparing procedures show less harmful psychological effects and increase QoL.

Therefore, this review identified a need for extensive psychological follow-up for men living with this condition, given the deterioration of the mental and emotional well-being caused by the disease's natural course during and after treatment.

CONTRIBUTIONS

Lucas Quaresma Martins and Jade de Moraes Bezerra have substantially contributed to the study design and planning, acquisition, analysis, and interpretation of data, wording, and critical review. Carlos Eduardo Oliveira da Silva and Stefanne de Cássia Pereira da Silva contributed to the study design, analysis, and interpretation of data, as well as the wording and critical review. Luma Fleury de Figueiredo contributed to the study design, data acquisition, and wording. Júlio César Coelho de Lima, Luiz Felipe Leão Lima, Giovanna Gilioli da Costa Nunes, and Luís Eduardo Werneck de Carvalho contributed to the study design, data analysis, and critical review. All the authors approved the final version for publication.

DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interest to declare.

FUNDING SOURCES

None.

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Recebido em 25/7/2024
Aprovado em 24/4/2025

