

Impacto sobre la función sexual en hombres con cáncer de mama: revisión de alcance

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Impact on sexual function in men with breast cancer: scoping review

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Resumen

Introducción: El cáncer de mama en hombres es una enfermedad poco frecuente que trae consecuencias directas relacionadas con la calidad de vida, la apariencia física y la función sexual. El objetivo de la investigación fue sintetizar la información sobre la función sexual en hombres con cáncer de mama.

Materiales y métodos: Se realizó una revisión de alcance mediante la búsqueda de información disponible en las bases de datos PubMed, doaj, Scientific Research Publishing y National Library of Medicine. Se utilizaron conceptos relacionados con el cáncer de mama en hombres y la función sexual. Se identificaron 73 artículos y se seleccionaron 25.

Resultados: El análisis identificó cuatro tipos de repercusiones del cáncer de mama con respecto a la sexualidad: a nivel de actividad sexual, a nivel corporal, a nivel hormonal y a nivel socioemocional. Se encontró que tanto el diagnóstico como su tratamiento, especialmente el tamoxifeno, provocan disminución o ausencia de deseo sexual, disfunción eréctil, inflamación y dolor de la mama afectada, retracción y supuración del pezón, alteraciones del estado de ánimo, depresión y masculinidad afectada.

Conclusiones: Los hombres con cáncer de mama presentan condiciones adversas relacionadas con su patología y tratamiento que pueden reducir su función sexual y su calidad de vida.

PALABRAS CLAVE

Endocrinología, Hormona, Comportamiento sexual.

Abstract

Introduction: Breast cancer in men is a rare disease that brings direct consequences related to quality of life, physical appearance, and sexual function. The objective was to synthesize information on sexual function in men with breast cancer.

Materials and methods: A scoping review was performed by searching for information available in PubMed, doaj, Scientific Research Publishing and National Library of Medicine databases. Concepts related to breast cancer in men and sexual function were used. Seventy-three articles were identified and 25 were selected.

Results: The analysis identified four types of repercussions of breast cancer with respect to sexuality: at the level of sexual activity, at the body level, at the hormonal level, and at the socio-emotional level. Both the diagnosis and its treatment, especially tamoxifen, were found to cause decreased or absent sexual desire, erectile dysfunction, inflammation and pain of the affected breast, nipple retraction and discharge, mood alterations, depression and affected masculinity.

Conclusions: Men with breast cancer present adverse conditions related to their pathology and treatment that may reduce their sexual function and quality of life.

KEY WORDS

Endocrinology, Hormones, Sexual behaviour..

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Introducción

Breast cancer in men is a rare condition commonly documented in less than 1 % of all reported breast cancer cases. This type of neoplasm occurs mainly in those over 60 years of age, and risk factors include previous bone fractures, obesity,¹ Klinefelter syndrome, testicular disorders, benign breast disease, use of exogenous estrogens, radiation, and family history of cancer. Scientific evidence refers that there is a higher incidence of breast cancer in men in Africa, followed by Asia, and in turn, the prognosis of breast cancer in men is worse than in women.²

Breast cancer in men can have direct consequences related to the quality of life, physical appearance, and sexual function. In this last section, it is essential to highlight that this type of cancer directly affects organs related to sexual practice, a situation that could translate into a decrease in sexual function in subjects who are undergoing treatment or even those who have survived the disease. Sexuality plays a vital role in an individual's personal and social functioning. If sexual satisfaction is inadequate, it can negatively impact psychology,¹ affecting body image, self-esteem, and masculinity.^{2,3,4}

For Freud, human sexuality is one of the main aspects of the vital energy that moves human behavior. According to Freud's psychosexual theory, sexuality has profound implications for the personality with intimate, affective, and impulsive aspects. This could translate into implications for the quality of life of men with breast cancer⁵. Some authors state that more than 60 % of people treated for cancer have long-term sexual dysfunctions, mostly untreated because they are undetected or unknown⁶. Health personnel and users must be informed of the possible repercussions on the sexual function of men with breast cancer to provide adequate support and successful treatment.^{7,8,9}

Therefore, it is crucial to know the impact on sexual function in men with breast cancer so that health authorities and those affected know the possible repercussions and can implement strategies to minimize the ravages of this pathology and its treatment. Given the growing emergence of literature related to the subject, the purpose of this study is to synthesize the information reported on sexual function in men with breast cancer and to identify whether they are undergoing treatment or are survivors.¹⁰

Methods

The present scoping review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-analysis Protocol) statement, where the information was always peer-reviewed.

Eligibility criteria, information sources and search strategy

For the collection of information on sexual function in men with breast cancer, a scoping review was performed by searching for information available in PubMed, DOAJ, Scientific Research Publishing, and National Library of Medicine databases. Concepts related to breast cancer in men and sexual function were used. Table 1 shows the strategies and terms used for each database and the results obtained.

Studies were sought between October 3 and November 22, 2022. The selected studies span from 2004 to 2022. Terms indexed in Medical Subject Heading (MeSH), and Descriptors in Health Sciences (DeCS) were used. Inclusion criteria included studies addressing a sexual function in men with breast cancer and survivors. The exclusion criteria were studies involving sexual function in female breast cancer (Table 1).

Table 1

Search strategies

Source	Search Strategies	Articles
Pubmed	((male) AND (breast)) AND (cancer)	5,745
	(((((male) AND breast) AND cancer) NOT female) NOT woman) NOT women	912
DOAJ	male breast cancer	82
Scientific Research Publishing	male breast cancer	7
National Library of Medicine (NIH)	((male) AND (breast)) AND (cancer)	14,175
	(((((male) AND breast) AND cancer) NOT female) NOT woman) NOT women	3,128

Note: this table shows the search strategies with the highest frequency-Source: own elaboration.

Selection of sources of evidence, Data charting process

The articles included in the present review corresponded to original studies that included aspects related to sexual function in men with breast cancer. The data tables were created in Excel tables according to Arksey and O'Malley framework, where one of the authors extracted the most relevant information of the research article to evaluate.

The information was article number, name of the authors, country, purpose of the study, type of article or methodological approach, mean age or age range, variables identified related to sexuality, and a specification if were patients in treatment or survivors. A second author corroborated the information. The tables were created by the authors of this research according to the variables of interest declared in this review, and it was verified that all the articles included complied with these requirements. Data was not confirmed from investigators.

Data items and Critical appraisal of individual sources of evidence

The studies were classified according to whether they were clinical trials or basic research. This allowed to discern between those studies whose main purpose was to be able to modify the variable of interest, which is sexual function, and those that were not. Sources of evidence were evaluated according to the following factors: 1) The publication had to be in an indexed journal, and 2) The publication had to be in a peer-reviewed journal, and 3) The publication had to have a risk of bias statement. If they met all three of the above criteria, the articles included in the review.

Synthesis of results

The results of the included research were subjected to a narrative synthesis, using text as the main means of summarizing, and explaining the results. The summary was based on the main characteristics found and according to the study variables.

Results

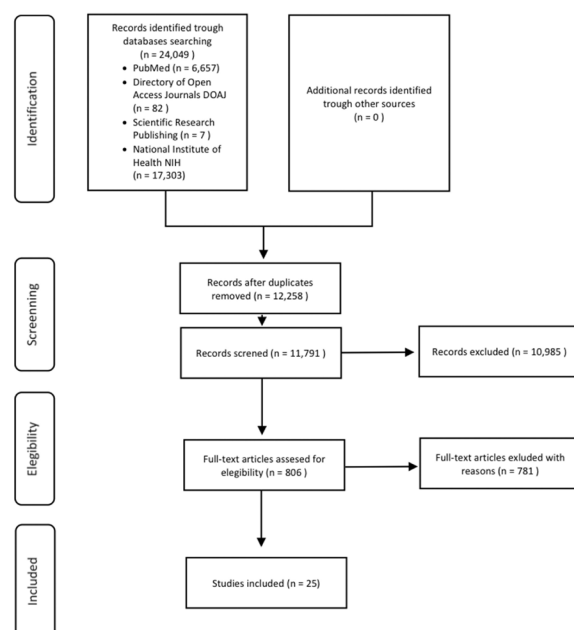
The information search retrieved 17,303 articles, and duplicates were manually removed ($n = 5,045$). The remaining articles ($n = 12,258$) were peer-reviewed by title and abstract for eligibility. There were no disagreements and no referees involved. Based on the objective of the present review, ($n = 10,985$) records were eliminated as irrelevant. The remaining articles were analyzed in full text and were excluded ($n = 781$) for not responding to the interests of the study. Finally, 25 articles were included. The information collected is presented using the PRISMA flowchart (Figure 1).¹¹

Critical appraisal within sources of evidence, Results of individual sources of evidence, Synthesis of results

The analysis of the data allowed to group the information into four main categories: repercussions at sexual activity level, at body level, at hormonal level and at socio-emotional level. Detailed information is presented by analysis group. Table 2 shows the most relevant aspects such as author, year, country, objective, design, mean age of the sample, results on the impact of male breast cancer on sexual function, and whether the study was carried out during cancer treatment or in survivors.

Figure 1

Flow diagram of the bibliographic selection process and results



Source: own elaboration

Repercussions at sexual activity level

Of the 25 articles analyzed, a total of 17 addressed repercussions at the level of sexual activity in men with breast cancer, which appear from the early stages as an innate response to anaplastic changes in mammary organs. In this regard, it was found that there are repercussions appropriately attributed to the pathology and the initiation of pharmacological.^{12,13} Regarding those repercussions appropriately attributed to breast cancer in men, the primary data found were sexual inactivity, reduced sexual desire, erectile dysfunction, dissatisfaction with sexual relations, and loss of sexual desire.^{14,15,16,17}

Regarding the practice of sexual activity, authors report a complete cessation of sexual activity³ and decreased sexual activity.^{7,18} The practice of sexual activity has been reported as high as 22.1 %, and enjoyment or enjoyment of sexual activity has been reported as high as 16.9%.¹⁴ Decreased sexual and orgasmic satisfaction is also reported.¹³

Concerning the repercussions attributed to the pharmacological treatment, authors such as,^{9,19} declare the adverse effects directly related to the level of sexual activity derived from tamoxifen treatment, such as decreased sexual desire and decreased sexual activity itself.²⁰ Final discontinuation of drug treatment due to the side effects mentioned above is also declared.⁶

On the other hand, authors report the existence of sexual dysfunction in up to 53 % and the interruption of pharmacological treatment in 20.3 % of those affected due to causes attributed to the unwanted effects of the treatment.²¹ The literature expresses that the affected and their partners remain with the desire to maintain sexual activity despite treatment and present collateral side effects.²²

Repercussions at body level

Most body repercussions attributed to breast cancer in men occur in the upper trunk, with the right and left breast equally affected. Current evidence indicates no significant difference in the location of the tumors.¹ Therefore, neither is the location of the repercussions caused by this neoplasm. Body-level repercussions in men with breast cancer usually appear even in stage I of oncogenesis. Thus short, and long-term repercussions are possible. According to the literature, the first reported signs are swelling, slight pain, and nipple retraction, sometimes accompanied by bloody or watery exudate,²³ and the formation of a painless palpable retro areolar lump.¹

Long-term repercussions are attributed to tamoxifen, a drug used as adjuvant therapy for breast cancer by preventing estrogen binding to the estrogen receptor. Such repercussions may be primarily due to the onset of treatment, such as gynecomastia, testicular retraction, infertility,^{2,23,24} as well as body dysmorphism from a mastectomy^{9,22,25} and body weight gain reported from 23.4%,¹⁴ to 53 % of cases.²¹ All repercussions from the use of drug therapy have been reported before the fifth continuous year of drug treatment use.²⁶

Increased volume in the affected breast has also been reported in 18.2 % of cases, physical problems related to sexuality in 23.4 %, and the presence of undescended testes.¹²

Repercussions at hormonal level

Five relevant articles were identified, and a relative deficiency of androgens and estrogens was evidenced. Androgens are male sex hormones and include testosterone, androsterone, and androstenedione. The primary function of these hormones is to promote the development of male sexual characteristics, such as beard and voice tone. Estrogens are mainly female sex steroid hormones produced by the ovaries, the placenta during pregnancy, and, in smaller quantities, by the adrenal glands. In men, an alteration in estrogen levels has been related to repercussions related to sexual function.¹⁰ Erectile dysfunction has been reported in up to 61.7 % of men with breast cancer cases under treatment, while decreased sexual desire in 42.3%. In addition to the above, sexual function and quality of life are reported to decrease when GnRHa, a gonadotropin-releasing hormone analog, is added to the usual pharmacological treatment of tamoxifen.¹⁷

Wibowo et al. (2016)¹⁹ emphasize the total or partial loss of sexual desire due to tamoxifen, attributing its decrease due to the antagonistic effects of the drug on estrogen receptors in these regions. However, it is also emphasized that there are studies where the diminution of sexual desire has not been reported as a hormonal-level impact on sexual function in men with breast cancer.¹⁰

In breast cancer, in men, there is a positive rate of estrogen receptors, documented up to 87.9 %, and statistically higher than in cases of female breast cancer¹. On the other hand, approximately 20 % of circulating estrogen in men is secreted directly to the testes. However, it is not affected by aromatase inhibitors, an enzyme of the cytochrome P450 family group that catalyzes the conversion of androgens to estrogens, which suppresses the primary source of estrogen in men, do not affect testicular production.²⁷

Repercussions at socio-emotional level

Three articles refer to repercussions at the socioemotional level in men with breast cancer and highlight mood alterations such as depression, altered body image, and affected masculinity. Leone et al. (2015)⁹ and Wibowo et al. (2016)¹⁹ refer to mood alterations and depression derived from the use of tamoxifen. Among those affected is anxiety about breast reconstruction,⁴ loss of interest in having sex,^{2,13,28} feeling less sexually attractive to partners, negative impact on emotional and sexual relationships, and altered masculinity in body image.² Interest in sex has been documented in 23.4 % of those affected.

It is known that 46.8 % of those affected in treatment and survivors have sought emotional support, including 6.5 % for psychological appointments, 1.3 % for counseling with a sexologist, 9.1 % for a visit with a social worker, 19.5 % for an appointment with a therapist specializing in lymphedema, 1.3 % for a nutritional appointment, and 1.3 % for rehabilitation programs.

Other repercussions at the socioemotional level in men with breast cancer, little described in the literature, highlight concern about future health, including sexual and reproductive health in 19.5 % of those affected,¹⁴ anxiety about sexual function and post-treatment breast reconstruction, loss of sexual desire towards partners during chemotherapy appointments, difficulty in addressing sexual life and sexual stigmatization.^{3,4}

Table 2

Information on sexual function in men with breast cancer

#	Article	Authors/ Country	Purpose of the Study	Identified Variables Related to Sexuality
1	A Pilot Study on Tamoxifen Sexual Side Effects and Hand Preference in Male Breast Cancer.	Motofei et al., 2015. Romania	Specifying the relationship between hand preference, estrogens, and sexual function in subjects with male breast cancer.	Erectile dysfunction Sexual dissatisfaction Orgasmic dysfunction General dissatisfaction
2	Male breast cancer: risk factors, biology, diagnosis, treatment, and survivorship.	Ruddy & Winer, 2013. United States	A systematic review was conducted for male breast cancer in PubMed using the terms "male breast cancer" or "male breast carcinoma."	Sexual dysfunction
3	Pharmacological management of male breast cancer.	Duso et al., 2020. Italy	The review discusses the current landscape of male breast cancer treatment in the adjuvant and in the metastatic setting.	Sexual dysfunction Androgen/estrogen imbalances
4	Men With a "Woman's Disease": Stigmatization of Male Breast Cancer Patients-A Mixed Methods Analysis.	Midding et al., 2018. Germany	A mixed methods design is applied to analyze quantitative and qualitative data.	Masculinity affected Sexual stigmatization
5	"My Husband Has Breast Cancer": A Qualitative Study of Experiences of Female Partners of Men With Breast Cancer.	Egestad et al., 2020. Denmark	To explore the experiences of men's partners with of men with breast cancer in relation to care, information, and emotional support, and to explore the impact of men with breast cancer on their partner's daily life.	Masculinity affected Affected body image Sexual inactivity Sexual dissatisfaction
6	Unmet information needs of men with breast cancer and health professionals.	Bootsma et al., 2020. Netherlands	The objective was to assess the unmet information needs of CMB patients and healthcare professionals.	Sexual dysfunction Sexual dissatisfaction Orgasmic dysfunction General dissatisfaction Erectile dysfunction Affected breast swollen

#	Article	Authors/ Country	Purpose of the Study	Identified Variables Related to Sexuality
7	A systematic review of men's experiences of their partner's mastectomy: coping with altered bodies.	Rowland & Metcalfe, 2014. England	To explore men's experiences of altering their partner's physique and body image as a result. of mastectomy and subsequent reconstructive surgeries.	Decreased sexual desire Erectile dysfunctionOrgasmic dysfunction Affected body imageSexual stigmatizationAnxiety about breast reconstruction
8	Endocrine correlates of male breast cancer risk: a case-control study in Athens, Greece.	Petridou et al., 2000. Greece	The relationship of certain endocrine-related variables between 23 cases of male breast cancer and 76 apparently healthy male controls was studied.	Decreased sexual desire
9	Efficacy of Endocrine Therapy for the Treatment of Breast Cancer in MenResults from the MALE Phase 2 Randomized Clinical Trial.	Reinisch et al., 2021. Germany	To evaluate changes in estradiol levels in male breast cancer patients after 3 months of therapy.	Decreased sexual desire Erectile dysfunctionOrgasmic dysfunction
10	Breast cancer or chest cancer? The impact of living with a 'woman's disease.	Lewis-Smith, 2016. England	Investigating the psychosocial impact of breast cancer in men.	Decreased sexual desire Affected body image
11	Optimal delivery of male breast cancer follow-up care: improving outcomes.	Oncology Nurse Advisor, 2015. United States	Discuss the clinical features of male breast cancer. as well as current best practices for long term care with a focus on surveillance, screening and symptom management in male breast cancer survivors.	Sexual dysfunction Decreased sexual desire Affected body image
12	Male breast cancer survivors' perspectives on the adequacy of their survivorship care.	Walker et al., 2018. United States	To describe male breast cancer survivors' perspectives on the adequacy of survivorship care.	Sexual dysfunction
13	Men's Lived Experiences with Breast Cancer: The Double Consciousness of Marginal Men.	Thompson & Haydock, 2020. United States	Investigated men's experiences of their breast cancer diagnosis and life after mastectomy.	Sexual dysfunction
14	Clinicopathological Characteristics and Survival of Male Breast Cancer.	Liu et al., 2014. China	Retrospective analysis of Clinicopathological features and prognosis of male patients diagnosed with breast cancer.	Nipple discharge Affected body image
15	Clinical features and prognostic factors of male breast cancer vs. female breast cancer.	Sang et al., 202. China	To investigate the Clinicopathological features and prognostic factors of male breast cancer and female breast cancer.	Decreased sexual desire
16	Male breast cancer: a disease distinct from female breast cancer.	Gucalp et al., 2019. United States	To describe the current knowledge of breast cancer in men, with a discussion of. future treatment options for the disease.	Decreased sexual desire
17	Male breast cancer clinical features, risk factors, and current diagnostic and therapeutic approaches.	Darkeh & Azavedo, 2014. Sweden	To review the presentation, diagnosis, treatment and prognosis of male breast cancer.	Gynecomastia Nipple retraction and discharge Affected body image
18	Male breast cancer: a special therapeutic problem. Anything new? (Review).	Gennari et al., 2004. Italy	Not specified.	Retraction, discharge, erosion and/or ulceration of the nipple Undescended testiclesInfertility Relative androgen deficiency Affected body image Decreased sexual desire
19	A Review on Gynecomastia and Male Breast Cancer for Radiologists.	Hwang & Cha, 2020. Korea	Summarize breast screening algorithms in symptomatic men and gynecomastia and male breast cancer.	Gynecomastia Hypogonadism
20	Ultrasonographic and Mammographic Findings of Male Breast Disease.	Kim, S. & Kim, Y., 2019. Korea	Review of ultrasonographic and mammographic findings in benign and malignant breast cancer.	Gynecomastia Nipple discharge
21	Survival benefit of tamoxifen in male breast cancer: prospective cohort analysis.	Eggemann et al., 2020. Germany	Not specified.	Decreased sexual desire
22	Management of Male Breast Cancer: The Journey so Far and Future Directions.	Sabih et al., 2021. United States and Japan	To review the available literature on surgical, radiation, and systemic therapies for male breast cancer, and to analyze current practice recommendations.	Decreased sexual desire Affected body image
23	Tamoxifen in men: a review of adverse events.	Wibowo et al., 2016. Canada	Show long-term studies that rigorously document the side effect profile of tamoxifen in men.	Sexual dysfunction Decreased sexual desire
24	A contemporary review of male breast cancer: current evidence and unanswered questions.	Leon-Ferre et al., 2018. United States	To summarize the current knowledge on the biology and clinicopathology of the male breast cancer, as well as reviewing current approaches to regional and systemic treatment of this rare disease.	Androgen/ estrogen imbalances Undescended testicles Gynecomastia
25	Prognostic significance of tumor subtypes in male breast cancer: a population-based study.	Leone et al., 2015. United States	Comparing male vs. female breast cancer.	Sexual dysfunction Decreased sexual desire

Discussion

This research is considered enriching given the gap in the literature regarding the impact on sexual function in men with breast cancer. It was found that those men in treatment or survivors showed a decrease or disappearance of sexual activity. This was mainly reflected by erectile and orgasmic dysfunction. This agrees with some authors^{19,20}. On the other hand, there is evidence that the repercussions at the corporal level caused by breast cancer alter the psyche, causing an altered sexual response.^{29,30,31} Regarding the repercussions at the corporal level, the presence of inflammation and pain in the affected breast was identified, as well as nipple retraction and exudate.^{12,20,23} The above is compatible with the findings of the American Cancer Society (2020),³² which identified that the cancer process and its treatment negatively impact sexuality, such as sexual desire and function. In turn, this coincides with other authors^{33,34} who refer that the anatomical changes derived from gynecomastia and mastectomy impact the security of the individual and, consequently, the sexual response.

Regarding the hormonal impact, it was observed that sexual function and quality of life decreased when a gonadotropin-releasing hormone agonist (Gn-RHa) was used as treatment. These results are like those of Bettahar and Pinton (2019)³⁵ in that GnRHa affects gonadotropins and sex hormones. This results in a decrease in testosterone that manifests in sexual dysfunction, penile atrophy, and decreased sexual characteristics. In terms of socioemotional effects, alterations in mood, depression, body image and masculinity affected when a breast cancer diagnosis occurs in men were identified. These data coincide with those reported by Campo-Arias and Herazo (2016)³³ and Marina et al. (2013).³⁴ On the other hand, it was evidenced that socioemotional factors do not lead to erectile dysfunction but to pharmacological treatment.^{15,25,36} These results disagree with those reported by Marina et al. (2013),³⁴ who mention that the emotional state alters the sexual response causing a decrease in sexual desire and erectile dysfunction.

Limitations

The present scoping review may have some limitations, which are discussed below. Firstly, the exclusion of gray literature, since information that could have provided information to support this research, such as these, protocols, school projects, journalistic articles, among others, was omitted. On the other hand, there were case reports that, although they provided relevant information, were not included because they did not meet the eligibility criteria. On the other hand, no bibliometric map in software was used in this research, which could have led to an unintentional manual error.

Conclusions

Men with breast cancer present various situations related to their pathology and treatment that can reduce their quality of life. The results of this research can be used to carry out interventions focused on promoting sexual and reproductive health in this population group, prioritizing those undergoing treatment as a possible measure to manage the side effects derived from the drugs and as a strategy to promote adherence to treatment.

In addition, counseling before, during and after the diagnosis of breast cancer in men is suggested to reinforce the measures that lead to successful treatment. On the other hand, it would be enriching to conduct qualitative studies where the experiences of the affected person and his romantic partner are explored as a measure to document the impact on sexual function in men with breast cancer. Further research on breast cancer in men is advised to contribute to the benefit of this understudied population. Sexuality is an essential aspect in the life of the human being, so it is relevant to continue studying the

repercussions of cancer and its treatments, as well as possible solutions to improve the quality of life.

Conflict of interest

The authors declare that they have no conflict of interest concerning this article's research, authorship, and/or publication.

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