



Sexual dysfunction in women with cervical cancer undergoing radiotherapy: concept analysis

Disfunção sexual em mulheres com câncer do colo do útero submetidas à radioterapia: análise de conceito

Disfunción sexual en mujeres con cáncer de cuello uterino sometidas a radioterapia: análisis de concepto

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ABSTRACT

Objective: to analyze the concept of sexual dysfunction in women with cervical cancer undergoing radiotherapy. **Method:** a concept analysis study based on the methodological framework proposed by Walker and Avant, which consists of eight stages: concept selection; determination of the objectives of the conceptual analysis; identification of possible uses of the concept; determination of critical or essential attributes; construction of a model case; construction of additional cases; identification of the antecedents and consequences of the concept; and definition of empirical references. **Results:** the final sample resulted in 11 articles, which identified 4 critical attributes, 18 antecedents and 07 consequences of the concept, which allowed the construction of a conceptual definition and the elaboration of a model case in order to exemplify the social context in which the concept is inserted. **Conclusion and implications for practice:** changes in body structure, lack of knowledge, decreased frequency of sexual intercourse, dyspareunia, and partner's indifference are some of the main antecedents and consequences of sexual dysfunction in the studied population. However, these factors are still little known, which limits the performance of actions of promotion, prevention and sexual rehabilitation, especially in the field of nursing.

Keywords: Nursing diagnosis; Radiotherapy; Uterine cervical neoplasms; Sexuality; Women's Health.

RESUMO

Objetivo: analisar o conceito de disfunção sexual em mulheres com câncer do colo do útero submetidas a tratamento radioterápico. **Método:** estudo de análise de conceito fundamentado no referencial metodológico proposto por Walker e Avant, o qual é composto por oito etapas: seleção do conceito; determinação dos objetivos da análise conceitual; identificação dos possíveis usos do conceito; determinação dos atributos críticos ou essenciais; construção de um caso modelo; construção de casos adicionais; identificação dos antecedentes e consequentes do conceito; e definição das referências empíricas. **Resultados:** a amostra final resultou em 11 artigos, que identificaram 4 atributos críticos, 18 antecedentes e 07 consequentes do conceito, os quais permitiram a construção de uma definição conceitual e elaboração de um caso-modelo, com a finalidade de exemplificar o contexto social no qual o conceito encontra-se inserido. **Conclusão e implicações para prática:** alterações na estrutura corporal, déficit de conhecimento, diminuição da frequência das relações sexuais, dispareunia e indiferença do parceiro são alguns dos principais antecedentes e consequentes da disfunção sexual na população estudada. Entretanto, esses fatores ainda são pouco conhecidos, o que limita a realização de ações de promoção, prevenção e reabilitação sexual, sobretudo no campo da enfermagem.

Palavras-chave: Diagnóstico de enfermagem; Radioterapia; Neoplasias do colo do útero; Sexualidade; Saúde da Mulher.

RESUMEN

Objetivo: analizar el concepto de disfunción sexual en mujeres con cáncer de cuello uterino sometidas a tratamiento radioterápico. **Método:** estudio de análisis de concepto basado en el marco metodológico de Walker y Avant, compuesto por ocho etapas: selección del concepto; determinación de los objetivos del análisis conceptual; identificación de posibles usos del concepto; determinación de atributos críticos o esenciales; construcción de un caso modelo; construcción de casos adicionales; identificación de antecedentes y consequentes del concepto; y definición de referencias empíricas. **Resultados:** La muestra final resultó en 11 artículos: 04 críticos, 18 antecedentes y 07 consequentes del concepto, lo que permitió la construcción de una definición conceptual y la elaboración de un caso modelo con el fin de ejemplificar el contexto social en que se inserta el concepto. **Conclusión e implicaciones para la práctica:** Cambios en la estructura corporal, déficit de conocimiento, disminución de la frecuencia de las relaciones sexuales, dispareunia y la indiferencia de la pareja son algunos de los principales antecedentes y consequentes de la disfunción sexual en la población estudiada. Sin embargo, estos factores aún son poco conocidos, lo que limita la realización de acciones de promoción, prevención y rehabilitación sexual, especialmente en el campo de la enfermería.

Palabras clave: Diagnóstico de enfermería; Radioterapia; Neoplasias del cuello uterino; Sexualidad; Salud de la Mujer.

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INTRODUCTION

Cervical cancer is responsible for 265,000 deaths each year, worldwide, and is the fourth leading cause of death due to cancer in the female population. In Brazil, 16,590 new cases are estimated for each year of the 2020-2022 triennium. In the Brazilian Northeast, this type of cancer is among the most frequent female neoplasms, and has high incidence and mortality rates in developing countries, due to the deficient structure of the screening programs¹⁻⁴.

Its etiology is multifactorial, and is mainly associated with low socioeconomic status and persistent infection with human papillomavirus (HPV)²⁻⁴. In the initial stages, the first line of treatment is surgical resection. In more advanced cases, chemotherapy and/or radiotherapy are chosen⁴. Radiotherapy treatment causes significant changes in the vaginal epithelium, with expressive changes in quality of life and sexual functioning^{5,6}. Among them, the following are to be mentioned: dyspareunia, decreased sensitivity and vaginal elasticity, in addition to a reduction in the ability to reach orgasm⁵.

These changes lead to decreased sexual function, since female sexuality is composed of an interaction of physical, social, behavioral and cultural factors. The imbalance between these factors can cause significant harms to sexual pleasure and lead to sexual dysfunction^{5,7}. These harms negatively affect quality of life due to the presence of some degree of sexual dysfunction, after treatment for cervical neoplasms, requiring counseling and monitoring by health professionals – physicians, nurses and psychologists – before and after treatment, so that their needs in relation to sexual issues are assessed and met¹.

However, in spite of the high prevalence of sexual dysfunction in this post-treatment phase, it is still little studied, mainly as a Nursing Diagnosis (ND), given that this population is directly assisted by nurses in health services specialized in cancer treatment. In this sense, it is important to understand the complexity of the sexual behavior of women undergoing radiotherapy treatment, as the context induces them to experience a decrease in sexual desire. Additionally, it is perceived that health professionals – especially physicians and nurses – have difficulty in addressing this issue, due to lack of knowledge, personal beliefs, or even because they are more focused on treating the disease^{8,9}.

Thus, identifying the critical attributes, antecedents and consequences of sexual dysfunction in this population becomes relevant to the care practice, since knowledge of these components allows nurses to develop NDs focused on female sexuality, to plan and implement health promotion actions for the quality of life of these women, so that they can experience sexuality in a more pleasurable and satisfactory manner^{10,11}.

In addition to that, the identification of new diagnostic components provides nurses with greater understanding and clarity of the studied concept, which supports and qualifies their practice in specialized cancer treatment services, in regard to health education actions and prevention of disorders in female sexuality.

Thus, considering the relevance of the theme in question, this study aims to analyze the concept of sexual dysfunction in women with cervical cancer undergoing radiotherapy.

METHOD

This is a concept analysis, whose objective is to carry out a careful evaluation and description of a term and its uses.¹² This concept is not restricted to a word, but represents the idea that is expressed when using it.¹³ In this study, the concept of Sexual Dysfunction in women with cervical cancer undergoing radiotherapy treatment was analyzed, according to the theoretical and methodological framework proposed by Walker and Avant¹², which consists of eight stages.

In the first stage, choice of the concept, it was defined that the concept to be analyzed would be sexual dysfunction. It was decided to include the prefix “dys” (judgment), to specify what should be investigated. In the second stage, the objectives of the concept analysis were defined, namely: to determine the critical attributes, antecedents and consequences of sexual dysfunction in women with cervical cancer, undergoing radiotherapy treatment; to elaborate the conceptual definition of sexual dysfunction; and to define the empirical references. The third stage – identification of the uses of the concept – was carried out through an integrative literature review, which followed the stages proposed by Whittmore et al.¹⁴.

For the elaboration of the research question of the integrative review – Which is the scientific evidence about the critical attributes, antecedents and consequences of sexual dysfunction in women with cervical cancer undergoing radiotherapy? –, the PICo¹⁵ strategy was used, where P = Population (women), I = Phenomenon (sexual dysfunction), and Co = Context (cervical cancer and radiotherapy).

The literature search was carried out electronically, via the CAPES journals portal, in the CINAHL, Medline, PubMed, Scopus and Web of Science databases. The search was performed in an uncontrolled manner, using descriptors indexed in the MeSH (Medical Subject Headings) and in the DeCS (*Descritores em Ciências da Saúde*), in Portuguese, English or Spanish. The descriptors used were the following: sexual dysfunction, radiotherapy, toxicity, pelvic neoplasms and women. The following crossings were used: radiotherapy AND “sexual dysfunction” AND women; Radiotherapy AND “sexual dysfunction” AND “pelvic neoplasms”; radiotherapy AND “pelvic neoplasms” AND toxicity. The Boolean operator “AND” was used for the crossing of the aforementioned descriptors. The crossings were performed in a similar way in all databases, in order to identify the largest possible number of articles.

The search was performed by two independent researchers, during the entire process, according to double-blind recommendations. In case of disagreements between the researchers, these were resolved by a third researcher, who issued the final opinion. Original articles that answered the research question were included, as well as studies available in full in the selected databases, in Portuguese, English or Spanish, published in the

period from 2015 to 2019. The time frame was used to meet the recommendation of the Taxonomy proposed by the North American Nursing Diagnosis Association (NANDA-I)¹⁶, which suggests the use of publications from the last five years to carry out studies for the review and validation of nursing diagnoses.

The studies identified were submitted to the reading of their titles and abstracts, according to the eligibility criteria previously established. In case of doubts, full readings were conducted. For data collection, an instrument adapted from Manguera¹⁷, was used, previously elaborated, so that the data could be extracted in its entirety and the risk of transcription errors was minimized. Methodological rigor was assessed using the Critical Appraisal Skills Program (CASP)¹⁸, specific to each type of study. Studies with good methodological quality and reduced bias received score A (6 to 10 points); and score B (up to 5 points) was assigned to studies with satisfactory methodological quality and risk of bias.

The level of evidence of the selected studies was assessed using the classification proposed by Melnyk and Fineout-Overholt,¹⁹ which classifies studies from Level I (evidence from systematic review or meta-analysis) to Level VII (evidence from the opinion of authorities and/or experts committee reports).

Through the initial search in the electronic databases and portals, 3,886 publications were found, of which 739 were selected for reading titles and abstracts, after applying the eligibility criteria. Of these, 674 were excluded for not answering the study question, and 17 for being duplicated. Thus, 48 publications were selected for full-reading, after which, 37 publications were excluded, for not answering the research question. The final sample resulted in 11 articles, from which the critical attributes, antecedents and consequences of sexual dysfunction in women diagnosed with cervical cancer and undergoing radiotherapy treatment were extracted (Figure 1).

In relation to the characterization of the articles, most of them were obtained from the Scopus database (45.5%), were written in the English language (100%), and Asian countries were the main places of publication (54.6%). Linearity was observed regarding the number of publications made in the last five years about the study object; nonetheless, the publications were concentrated in the medical area (90.9%), with only one nursing publication (9.1%), which did not address the nursing diagnosis of sexual dysfunction for the population studied.

As for the level of evidence of the 11 selected articles, the majority (63.7%) was classified as descriptive studies and

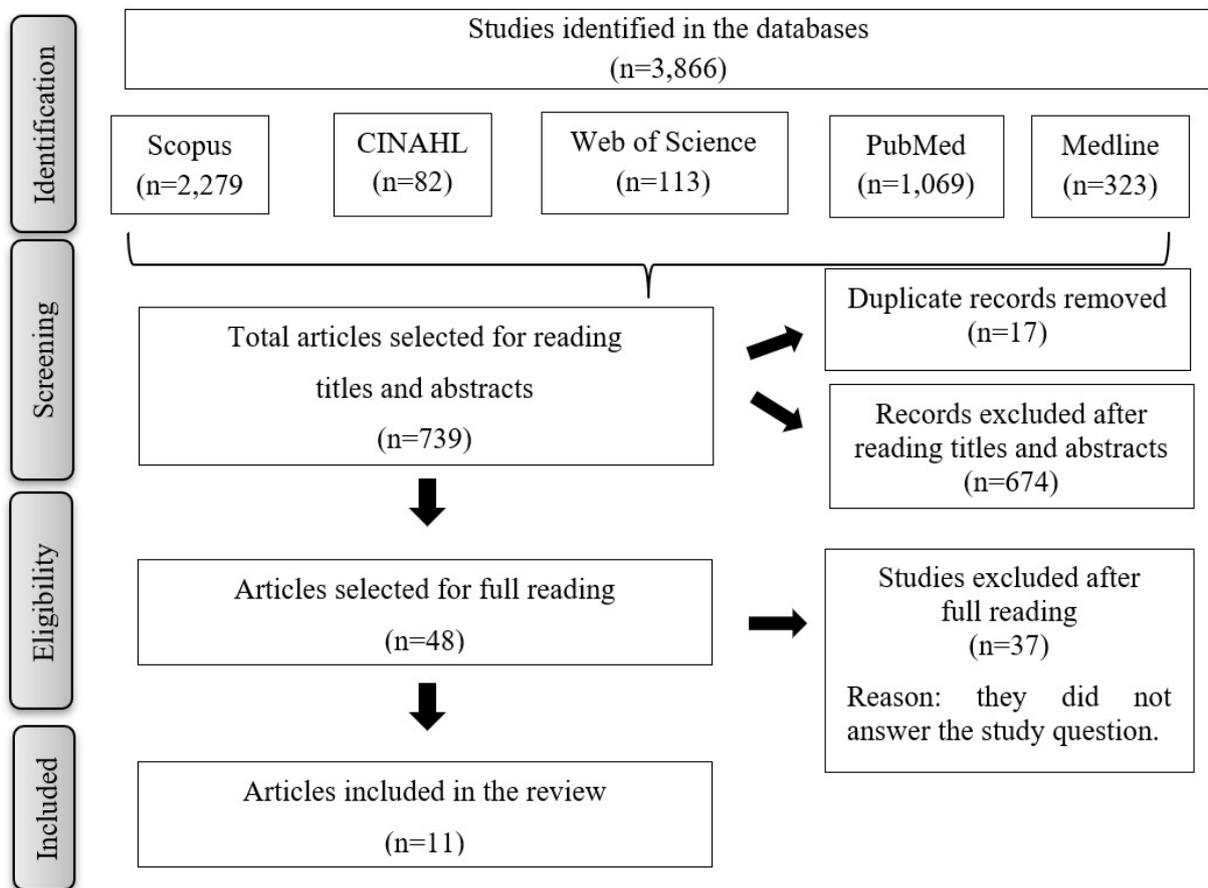


Figure 1. Flowchart of the integrative review. Recife, PE, Brazil, 2020. Source: Adapted from Ferrari²⁰

obtained Level VI. When assessing methodological rigor, 90.9% of the articles scored above six and were classified as Level A.

In the fourth stage of the concept analysis, the critical or essential attributes were determined, based on the studied literature. In this stage, words or expressions that appeared continuously were identified in the literature and characterized the essence of the concept. Subsequently, in the fifth stage, a model case was elaborated in order to exemplify the use of the concept, which demonstrates all of its critical attributes found in the literature review¹². In this study, the model case was built from the studied literature, as well as from the authors' professional experience with the phenomenon under study.

The sixth stage is characterized by the identification of additional cases and must be conducted only if the concept is not clear in the model case¹². In this study, the construction of additional cases was not necessary. In the seventh stage, the antecedents (events necessary for the occurrence of the phenomenon) and consequences (situations resulting from the presence of the concept) were identified, based on the integrative literature review carried out¹².

In the last stage of the concept analysis, the empirical frameworks were determined, which correspond to the observable phenomena in the practice and which, when present, demonstrate the occurrence of the concept itself¹². By means of an expanded search in books, articles, dissertations, theses and manuals, conceptual and operational definitions of the antecedents and consequences of the concept under study were elaborated.

RESULTS

In the analysis of the articles, it was possible to observe that the concept of sexual dysfunction is used in all environments where care occurs in women with cervical cancer, undergoing radiotherapy treatment. A total of 4 critical attributes were identified, as well as 18 antecedents and 7 consequences of sexual dysfunction in women diagnosed with cervical cancer, undergoing radiotherapy treatment. Among these, only three antecedents are mentioned in the latest version of the NANDA-I Taxonomy¹⁶, namely: decreased libido, poor health education activities and vaginal stenosis. Related to the consequences, of the seven components identified, only sexual dissatisfaction/satisfaction is mentioned in the Taxonomy cited (Chart 1). Given this context, the inclusion of new antecedents and consequences of sexual dysfunction in the NANDA-I Taxonomy is necessary and opportune.

From the attributes identified (Chart 1), the following conceptual definition for the Sexual Dysfunction nursing diagnosis was elaborated: change in the healthy sexual response due to changes in the body's anatomical and/or physiological structure, which can be influenced by psychological, social and cultural factors.

In order to exemplify the social context in which the concept is inserted, the following model case was elaborated: M.R.S., 45 years old, female, attends the review consultation after finishing the radiotherapy sessions for the treatment of recently diagnosed cervical cancer. During the consultation, she reported difficulty

in having sex with her partner, since she felt a lot of pain during intercourse and vaginal "dryness", in addition to fear of disease relapse, which caused a decrease in her sexual desire. When evaluating the laboratory tests of M.R.S., the professional observed a decrease in the estradiol and progesterone levels. During the physical examination, a decrease in vaginal elasticity and length was also identified. From the findings during anamnesis and physical examination, the professional instructed M.R.S. as to the vaginal exercises that could be performed to promote dilation of the vaginal canal, as well as the use of vaginal lubricants to facilitate intercourse. The professional also explained that sexual intercourse was not a factor causing a possible relapse, and referred her to the Psychology Service, so that her biopsychosocial needs could be fully met^{†1,5,21,22,24,27}.

DISCUSSION

The data in this study reveal the prevalence of research studies regarding female sexual dysfunction in women diagnosed with cervical cancer, undergoing radiotherapy treatment in Asia, which can be explained by the high rate of female sexual dysfunction in that continent, with a variation between 46% and 73%³⁰. In Latin America, this rate varies between 25% and 43%; however, studies of this nature were not found^{31,32}.

For the World Health Organization³², female sexual dysfunction has become an important public health problem, since it directly interferes with quality of life. Nevertheless, the approach to this subject matter in the care provided by health professionals – mainly by nurses – is still incipient, which contributes to the chronicity of the problem⁵.

Among the most frequent related factors, there is poor communication between health professional and patient and the reduced number of health education activities in the Oncology services. The occurrence of these events can be explained by the difficulty of the professionals in addressing the theme during routine consultations, either due to lack of sufficient knowledge and to personal beliefs, or to the focus on the underlying disease. Another contributing factor to this problem is the shame that many women feel in addressing the issue during the consultations, which prevents them from seeking professional help^{5,33}.

The development of educational health actions and good communication can reduce sexual dysfunctions by clarifying doubts, fears and desires. In addition to that, carrying out such actions allows for a joint construction of knowledge and for exchange of experiences, as well as it reinforces trust between professional and patient³⁴.

Concept analysis also revealed that anguish, anxiety, shame and fear are related factors that contribute to sexual dysfunction in women diagnosed with cervical cancer, undergoing radiotherapy. During or after treatment, some women experience urinary and intestinal incontinence, which leads to negative feelings about their own bodies, such as shame and fear. The fear of involuntary urine loss during sex and shame for their lack of control of the body itself make sex less spontaneous, leading to sexual dysfunction³⁵.

Chart 1. Characterization of the articles included in the Integrative Review, according to title, year, attribute, antecedents and consequences of sexual dysfunction in women diagnosed with cervical cancer, undergoing radiotherapy treatment. Recife, PE, Brazil, 2020.

Title	Year	Attributes	Antecedents	Consequences
Sexual function in South African women treated for cervical cancer ¹	2019	Change in the structure of the vaginal epithelium; decreased estradiol and progesterone levels; influence of psychological, social and cultural factors; change in one of the phases of healthy sexual response (desire, arousal, orgasm and resolution).	Related factors: fear; decreased libido; decreased vaginal lubrication; vaginal stenosis, abnormal vaginal bleeding. Associated conditions: radiotherapy; low schooling. At-risk population: women aged 40 years old and over.	Defining characteristics: decreased frequency of sexual intercourse; dyspareunia.
Sexual experience of women after pelvic radiotherapy for cervical cancer ⁵	2016	Change in the structure of the vaginal epithelium; decreased estradiol and progesterone levels; influence of psychological, social and cultural factors.	Related factors: poor communication between professional and patient; poor health education activities; anxiety, self-image disorder; absence of a steady partner; decreased libido, vaginal stenosis; abnormal vaginal bleeding. Associated conditions: radiotherapy, depression, low schooling. At-risk population: women aged 40 years old and over.	Defining characteristics: partner's indifference; feeling of obligation to maintain sexual intercourse; dyspareunia.
Autologous platelet-released growth factor and sexual dysfunction amendment: a pilot clinical trial of successful improvement sexual dysfunction after pelvic radiotherapy ²¹	2019	Change in the structure of the vaginal epithelium.	Related factors: decreased vaginal lubrication; vaginal stenosis. Associated conditions: radiotherapy.	Defining characteristics: sexual dissatisfaction; decreased frequency of sexual intercourse; dyspareunia.
Radiotherapy for cervical cancer- impact on the vaginal epithelium and sexual function ²²	2017	Change in the structure of the vaginal epithelium.	Related factors: decreased vaginal lubrication; vaginal stenosis; vaginal edema. Associated conditions: radiotherapy.	Defining characteristics: dyspareunia.

Source: Prepared by the authors, Recife, PE, Brazil, 2020.

Chart 1. Continued...

Title	Year	Attributes	Antecedents	Consequences
Survey of cervical cancer survivors regarding quality of life and sexual function ²³	2016		<p>Related factors: poor communication between professional and patient; poor health education activities; fear; anxiety; decreased libido; vaginal stenosis.</p> <p>Associated conditions: radiotherapy; surgery; depression; low schooling; informal occupation.</p> <p>At-risk population: women aged 40 years old and over.</p>	<p>Defining characteristics: sexual dissatisfaction; dyspareunia.</p>
Pelvic radiotherapy and sexual function in women ²⁴	2015	Change in the structure of the vaginal epithelium; change in one of the phases of healthy sexual response (desire, arousal, orgasm and resolution).	<p>Related factors: fear; anxiety, self-image disorder; decreased vaginal lubrication; vaginal stenosis; abnormal vaginal bleeding.</p> <p>Associated conditions: radiotherapy; chemotherapy.</p> <p>At-risk population: women aged 40 years old and over.</p>	<p>Defining characteristics: abandonment of the partner; sexual dissatisfaction; altered orgasm; dyspareunia.</p>
Qualitative accounts of patients' determinants of vaginal dilator use after pelvic radiotherapy ²⁵	2015		<p>Related factors: decreased vaginal lubrication; decreased libido; vaginal stenosis; abnormal vaginal bleeding.</p> <p>Associated conditions: radiotherapy.</p>	<p>Defining characteristics: sexual dissatisfaction; altered orgasm; dyspareunia.</p>
Quality of life (QOL) in women treated for gynecologic malignancies with radiation therapy: a literature review of patient-reported outcomes ²⁶	2014		<p>Related factors: anxiety; self-image disorder; decreased vaginal lubrication.</p> <p>Associated conditions: radiotherapy.</p>	<p>Defining characteristics: partner's indifference; dyspareunia.</p>

Source: Prepared by the authors, Recife, PE, Brazil, 2020.

Chart 1. Continued...

Title	Year	Attributes	Antecedents	Consequences
An examination of the sexual functions of patients who underwent a gynecologic cancer operation and received brachytherapy ²⁷	2018	Change in the structure of the vaginal epithelium; decreased estradiol and progesterone levels.	Related factors: poor communication between professional and patient; shame; self-image disorder; decreased libido; vaginal stenosis. Associated conditions: radiotherapy; chemotherapy; surgery.	Defining characteristics: sexual dissatisfaction; altered orgasm; dyspareunia.
Impact of cervical cancer on quality of life: beyond the short term (Results from a single institution) ²⁸	2015		Related factors: fear; self-image disorder; decreased libido; decreased vaginal lubrication. Associated conditions: surgery.	Defining characteristics: sexual dissatisfaction; altered orgasm.
Sexuality of Moroccan Survivors of Cervical Cancer: a prospective data ²⁹	2018		Related factors: poor communication between professional and patient; poor health education activities; anxiety; decreased libido. Associated conditions: radiotherapy; surgery; depression.	Defining characteristics: sexual dissatisfaction; dyspareunia.

Source: Prepared by the authors, Recife, PE, Brazil, 2020.

A study carried out in Amsterdam – whose objective was to assess the sexual experiences and the needs for psychosexual support of patients and their partners after completion of the treatment for cervical cancer – identified that more than half of the research participants had a feeling of anxiety related to pain during vaginal penetration, regardless of whether this had been previously experienced. It was possible to observe that many partners felt distressed due to the fear of injuring their partner during the sexual act³⁵.

Feelings of guilt, loss and distress, in relation to the sexuality experienced after treatment, allowed the researchers to conclude that these patients were sexually distressed and experienced some degree of sexual dysfunction³⁵.

The self-image disorder leads women to sexual dysfunction, because a person's perception of themselves influences how they will develop their personal relationships and, within this context, sexuality will be expressed through desires, thoughts, fantasies, values, behaviors and social roles. In this sense, the body changes caused by the radiotherapy treatment exert a negative influence on the way the woman sees her femininity and her body, which causes a decrease both in self-esteem and in sexual desire^{1,36}.

Another factor related to sexual dysfunction identified in the study was the absence of a steady partner. For some authors, the presence of a steady partner reduces the chances of female sexual dysfunction due to the security that the relationship provides to the woman, as she has more intimacy with her body as well as that of her partner, is able to break moral taboos, and conducts her sexuality in a satisfactory manner^{34,37,38}.

Thus, when studying the presence of sexual problems, anxiety and depression in young women and correlating their findings with the current relationship status of the participants, Brazilian researchers observed that single women presented a significantly higher prevalence of problems in the lubrication (45.3%), orgasm (53.1%), satisfaction (67.2%) and pain (50%) domains– as well as in the total scores of the Female Sexual Function Index (60.9%) – in comparison to the group of women who were in stable relationships, corroborating the results of this study, despite the fact that the studied population was not undergoing radiotherapy for the treatment of cervical cancer³⁹.

Sexual dysfunction is characterized by changes in one of the phases of a healthy sexual response, namely: desire, arousal, orgasm and resolution^{16,31,37,40,41}. However, social, cultural and

emotional issues also need to be considered and investigated, so that female sexuality is fully understood.

It is common to find reports of reductions in sexual desire by women treated for cervical neoplasms, in addition to the feeling of loss of femininity. Changes in the vaginal structure resulting from the treatment lead to decreased libido due to anxiety and fear of experiencing pain during sexual intercourse, even before vaginal penetration occurs³⁵.

Decreased vaginal lubrication is also a common complaint of women treated for cervical cancer and contributes to the development of sexual dysfunction due to the discomfort caused during vaginal penetration. Less lubrication causes friction in the vaginal wall, which is atrophied, and the result is pain during sexual intercourse, requiring the use of vaginal moisturizers to reduce these symptoms⁴². Local edema caused by lymphatic obstruction causes feelings of embarrassment in women due to the appearance of their genital organs, leading to decreased self-esteem and less sexual desire^{22,37}.

Radiotherapy treatment causes stenosis and decreased vaginal length, whose structural changes exert a negative impact on female sexuality due to the decreased sensitivity of the clitoris and the vaginal mucosa, in addition to reducing the extent of vaginal penetration; consequently, the woman will present less sexual satisfaction⁴³.

The change in the vaginal structure after radiotherapy treatment leads to excessive bleeding during intercourse due to local inflammation, which is often accompanied by edema, loss of elasticity and ulceration of the vaginal tissue. The presence of bleeding during sexual intercourse causes discomfort and embarrassment to the woman, making it difficult for the pelvic muscles to relax and causing negative feelings about the sexual act⁵.

Decreased vaginal elasticity, reduced vaginal length, wall atrophy, pelvic fibrosis and dyspareunia caused by radiotherapy are also contributing factors for the development of female sexual dysfunction, as observed in a study carried out in Sweden, with women who survived cervical cancer that had undergone radiotherapy treatment⁴⁴.

These changes cause intense distress, both physical and psychological; thus, many women do not feel attractive anymore, and the fear of abandonment of the partner is constant, in addition to the pain experienced during sexual intercourse, resulting from the structural changes in the vaginal epithelium³⁵.

Among the conditions associated with sexual dysfunction identified in the studied population, there is surgery, radiotherapy and chemotherapy. The side effects of these treatments cause decreased vaginal lubrication, local edema and important changes in the structure of the vaginal epithelium, leading to vaginal morbidity²².

Surgical treatment can result in vaginal shortening, decreased vaginal lubrication, lymphedema and changes in the bladder and intestine, which will result in dyspareunia and difficulties in reaching orgasm. Radiotherapy, in turn, causes scarring of the irradiated tissues, generating progressive stenosis of the vagina,

completely precluding penetration, educational health actions that guide patients on preventive measures being necessary⁴⁵.

Chemotherapy treatment, in turn, causes hair loss, fatigue, skin changes, weight loss, nausea and diarrhea, leading to the development of self-image and sexual identity disorders, in addition to depressive conditions.⁴⁵ Thus, women start to develop an erroneous image of themselves, many cease to feel attractive to their partners, and fear of rejection is present. Such feelings decrease sexual desire, generating female sexual dysfunction⁴⁶. A study⁴¹ carried out in the Gynecology and Obstetrics Department of a tertiary-level hospital in India, among women diagnosed with major depression, observed that 90% of the research participants had some degree of sexual dysfunction, corroborating the findings of this research, which identified depression as a factor associated with sexual dysfunction.

As for the schooling level, the literature indicates that women with less than eight years of study have less understanding about their sexual issues, as well as less access to information, a fact that generates barriers to the full development of their sexuality.³⁶ In a study carried out in Peru, in order to identify the factors associated with sexual dysfunction in women treated in a tertiary-level University Hospital, the researchers concluded that lower schooling level was associated with the presence of sexual dysfunction in the population studied³¹.

Another associated condition identified for sexual dysfunction in this group of women was the fact that they were informally employed. Having a formal occupation allows women to experience a feeling of greater security in relation to themselves and their health needs, which makes them more independent and reflects on their sexuality in a positive manner⁴⁷.

As for the at-risk population, it was noticed that being 40 years old or older classified this population in the risk group for the development of female sexual dysfunction, as pointed out in the literature^{31,40}. At this age, there is a 25% reduction in sexual fantasies, in addition to physiological and structural changes in the body – such as vaginal atrophy and hormonal changes –, which contribute to less sexual desire⁴⁶.

Three studies^{24,25,27} identified the partner's indifference and abandonment as a consequence of female sexual dysfunction, in addition to the feeling of obligation for sexual intercourse. These data corroborate a study carried out in Peru, whose objective was to identify the factors associated with sexual dysfunction in women treated in a tertiary-level health unit. The results of the research pointed out the following causes for female sexual dysfunction: marital conflict, emotional abuse and having sexual intercourse in an unwanted or mandatory manner³¹.

To achieve good sexual performance, a woman needs to be sexually responsive, receive love, affection and feel that she belongs to someone. Thus, when she is treated with indifference by her partner or suffers from abandonment, she will trigger negative feelings about herself and her body, and have difficulties in relating sexually due to mental blocks, which can lead to sexual dysfunction⁴⁸.

Many women report difficulty in talking openly about their sexuality with their partners, causing distancing in the relationship. And even with difficulties to feel pleasure, they end up having sexual intercourse to satisfy their partners; this feeling of obligation creates a decrease in libido and, consequently, sexual dysfunction³⁵.

This dysfunction can be represented by the decrease in sexual satisfaction, as well as the reduction in the frequency of sexual intercourse. Subjective female arousal is more consistent than modulation of genital vasocongestion; that is, female sexual satisfaction occurs without necessarily the woman having reached the orgasm stage. To that end, she needs to be positively connected with her partner⁴⁹.

Arousal, lubrication, orgasm, satisfaction and pain disorders are domains that affect female sexuality and cause sexual dysfunction, among which are orgasm and desire disorders^{30,37,38,47}. These disorders are associated with poor communication with the partner, absence of foreplay and religion. Low frequency of sexual intercourse, unemployment, menopause and presence of an underlying disease are also considered risk factors for sexual dysfunction³⁰.

A study carried out in the Brazilian South region, with the objective of studying the sexual function and quality of life of women who survived gynecological cancer, between 2009 and 2013, observed that more than 40% of the participating women became sexually inactive after treatment, which leads to lower quality of life³⁶.

Women who were sexually active after the treatment for gynecological cancer generally presented sexual dysfunction, dyspareunia and vaginal stenosis³⁶. Dyspareunia, when present, causes the woman to fear pain during sexual intercourse, which generates greater tension in the pelvic muscles and, consequently, vaginal penetration becomes more difficult, causing negative feelings for the sexual act⁵⁰.

In this context, health education actions promote the recovery of self-knowledge and self-confidence, in addition to exerting a positive influence on the emotional health of these women, since the recovery of self-confidence generates a greater sense of control over their own bodies, and greater relaxation of the pelvic muscles during sexual intercourse⁵¹.

CONCLUSION AND IMPLICATIONS FOR THE PRACTICE

The study data showed that the change in the structure of the vaginal epithelium, the reduction in the estradiol and progesterone levels, the influence of psychological, social and cultural factors, and the change in one of the phases of the healthy sexual response are the main critical attributes of the concept of sexual dysfunction in women with cervical cancer undergoing radiotherapy.

It was also possible to observe that changes in body structure, lack of knowledge, poor communication, negative feelings, socioeconomic condition, age and treatment conducted are the main antecedents of female sexual dysfunction. Likewise, decreased frequency of sexual intercourse, decreased sexual

satisfaction, decreased orgasm, dyspareunia, partner's indifference, abandonment and feeling of obligation are the consequences of the concept. It is for this reason that, from the components identified in this study, it was possible to more clearly understand the concept under study, providing elements that support the nurse's clinical practice, regarding the planning of health education actions and the prevention of disorders in female sexuality.

The findings of this study reiterate the need for more research studies on female sexual dysfunction – especially for the population of women diagnosed with cervical cancer who are undergoing radiotherapy treatment – mainly in the field of nursing, as nurses play a fundamental role in carrying out health promotion, prevention and rehabilitation actions.

The reduced number of studies available in the literature and the low level of evidence of the studies found related to the theme, in the field of nursing, were the main limitations of this review.

AUTHOR'S CONTRIBUTIONS

Study design. Thaynan Gonçalves da Silva. Sheila Coelho Ramalho Vasconcelos Morais. Francisca Márcia Pereira Linhares.

Data acquisition. Thaynan Gonçalves da Silva. Francisca Márcia Pereira Linhares.

Data analysis. Thaynan Gonçalves da Silva. Kilders Mitschel Lucas de Oliveira. Sheila Coelho Ramalho Vasconcelos Morais. Jaqueline Galdino Albuquerque Perrelli. Santana de Maria Alves de Sousa. Francisca Márcia Pereira Linhares.

Interpretation of the results. Thaynan Gonçalves da Silva. Kilders Mitschel Lucas de Oliveira. Sheila Coelho Ramalho Vasconcelos Morais. Jaqueline Galdino Albuquerque Perrelli. Santana de Maria Alves de Sousa. Francisca Márcia Pereira Linhares.

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