Sexual perception in Spanish female breast cancer survivors. Cross-sectional survey.

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Highlights:

- A low percentage of women resorted to or requested information and treatment from a pelvic physical therapist.

- It seems that there is a negative correlation between the presence of pain during sexual intercourse and its effect on ~~s~~exual life.

- Surviving women of breast cancer have little knowledge about the role of physiotherapy in the conservative treatment of sexual dysfunction that can appear as a side effect of the treatments received.

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survey.

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ABSTRACT

Background: The aim was to assess sexual perception in female breast cancer survivors and establish if women presenting with sexual dysfunctions symptoms receive pelvic floor physiotherapy or request information on treatment.

Methods: Cross-sectional survey carried out between January and March 2021. An online survey designed by the authors was structured in three dimensions: demographic and anthropometric data, medical data and sexual perception data. An open format survey with 23 questions available to any website visitor. The survey followed the CHERRIES guidelines. The study included 130 women who fulfilled the inclusion criteria.

Results: The presence of pain during sexual activity was reported in 56.92% of cases. Specifically, 40.8% reported superficial dyspareunia, which is most commonly expressed by women as a "stinging pain". Surprisingly, only 4.6% of the women had received any type of pelvic floor physiotherapy treatment or had sought information.

Conclusions: Women breast cancer survivors have a negative perception of their sexuality. In addition, there is a lack of knowledge about the role of physiotherapy in sexual dysfunction, and only a small percentage of women received pelvic floor treatment or information to address their sexual dysfunction

MICRO ABSTRACT

We analyze the results obtained from the online survey carried out on 130 female breast cancer survivors. 56.92% reported sexual dysfunction. The most frequent was superficial dyspareunia (40.8%). Only 4.6% reported receiving pelvic floor

physiotherapy treatment. This fact emphasizes the need to inform these women about the role of physiotherapy in improving their sexual dysfunctions.

Keywords

Physiotherapy, Sexual Dysfunction, breast cancer survivor, dyspaurenia, pain.

Abbreviations

BC Breast cancer

BMI Body Mass Index

VAS scale: Visual analogic scale

WHO Word health organization

IP Internet Protocol address

QoL Quality of life

INTRODUCTION

Breast cancer (BC) is the most prevalent cancer worldwide,[1] representing 15% of new diagnoses annually.[2] In 2040, there will be 26 million female BC survivors.[3] In Spain, it is the third most frequently diagnosed form of cancer and it is estimated that in 2022 it will be the most common cancer in the female population.[4–6] Thanks to early detection and treatments available, survival has increased, as has life expectancy.[7]

Cancer treatments inflict a substantial burden on patients in terms of adverse effects,[8] sexual dysfunction being one of the most common and distressing consequences of treatment [9]. Several studies show that the percentage range of women who suffer sexual problems after completing breast cancer treatment ranges between 70% and 90%,

becoming chronic in up to 50% of cases.[2,10,11] This has an impact on all phases of sexual response including vaginal dryness,[2,10,12,13] dyspareunia,[2,10,12,13,14] vulvodynia,[2] vaginal atrophy,[10,14] burning and irritation,[10] reduced sexual arousals in breast and genital stimulation,[13] decreased libido[11,13] and impaired orgasmic function.[15]

Scarce consideration given to the lack of treatment of genitourinary symptoms can contribute to greater distress and difficulty in relationships, thus affecting other aspects of the lives of these women.[16,17] There are few studies that explore women's perception of genitourinary symptoms and their sexuality after breast cancer treatment.[16] In this context, women report a low level of satisfaction with regard to the information received about treatment sequelae and their toxicities in breast cancer survivors.[18] Health professionals focus on medical treatment for breast cancer. Instead, guidelines or advice for the prevention or treatment to sexual health problems in breast cancer survivors are often unaddressed [19]

With regards lines of therapy, physiotherapy for pelvic floor dysfunction and sexuality problems as a first-line treatment has obtained important evidence-based support and becomes a clear benefit for most pelvic floor disorders.[20,21]

Therefore, the aim for the present study was to assess the perception of sexual function in Spanish women after breast cancer and to determine their knowledge of the role of physiotherapy in the treatment of sexual dysfunction.

MATERIAL AND METHODS

Study design

This cross-sectional survey was performed to evaluate women's sexual perception after recovery from breast cancer. An online self-made survey based on CHERRIES was carried out. CHERRIES guideline consists of a checklist which consider the main items

that must be evaluated in an online survey (design, ethical and legal aspects, survey administration, response rate and response analysis) to confirm its evidence and rigor. [22] The data reported herein were collected between January and March 2021.

Participants and recruitment

The final study sample included 130 women between 30 and 62 years old. The inclusion criteria were as follows: (1) Females over 30 years-old; (2) a breast cancer survivor; (3) able to speak and understand Spanish; (4) being a resident in Spain; (5) without cognitive difficulties that would prevent completion of the questionnaire; and (6) having agreed to participate voluntarily. Exclusion criteria related to women with other types of cancer. All participants filled out the informed consent document prior to conducting the survey. All procedures were conducted in accordance with the principles of the World Medical Association Declaration of Helsinki[23] and the protocols were approved independently by the Ethics Committee of the Universitat de València (UV-INV_ETICA-1568559).

Sample recruitment was carried out through social networks, via e-mail and specialized oncology units and through other health professionals (gynecologists, nurses and physiotherapists).

Data collection

The research was carried out through an online survey created by the authors using the open source LimeSurvey software (Version 3.22.14+200423). This open source solution generates surveys and forms by registering or entering data anonymously.

Survey design

The survey was supervised by the members of the research team and oncology specialists. The online-survey was carried out according to the CHERRIES guidelines,

based on the evidence and assessment of online surveys and publications related to this type of questionnaire.[22] Participants completed an online survey on the same day they gave consent. The survey included 23 open-format questions, being available to any website visitor. Duplicate responses were controlled and registered (using the IP address), while all fields and all questions had to be completed in order to submit the results to the database. The survey was structured in three dimensions: demographic and anthropometric data, medical data and sexual perception. The questions were closed-ended with a series of options except those related to demographic details: age, Body Mass Index (BMI), profession and education level. Medical history information was requested: specify breast cancer, radiotherapy, chemotherapy, hormonal status before and after the oncological process, date of diagnosis and recovery from cancer and the pharmacological treatment followed at present. In connection with sexual perception, women were asked about: presence of sexual desire, sexual activity before and after breast cancer, presence of pain during intercourse, definition and intensity of pain (the researchers had included a VAS scale (0-10) to measure the intercourse-related pain intensity), women were also asked about the use of lubricants and if they had undergone any physiotherapy treatment or received physiotherapy information after recovering from cancer (Table 1).

Statistical analysis

Data analysis was performed using SPSS (Statistical Package for Social Sciences, SPSS Inc., Chicago, IL, USA) software, version 22.0 (IBM Corp). Descriptive statistics were calculated using the arithmetic mean and standard deviation as indices of central tendency and dispersion for the quantitative variables or using the median and interquartile ranges when wide dispersions conditioned the interpretation of the variable. For the categorical variables the absolute and relative percentage frequencies

were used. The assumption of normality was verified by the Shapiro–Wilk statistical test considering a p-value <0.05 as statistically significant. Mann-Whitney U test was used to calculate the difference between the means when the variable violated the assumption of normality and Spearman's correlation coefficient to analyze the relationships between the variables. All statistical analyses were based on a significance level of $p \leq 0.05$.

RESULTS

Sample characteristics

A total number of 130 participants were included in the study aged between 30 and 62 years old. All women had a history of breast cancer. All women completed the survey (Figure 1).

The increased mean BMI in our study is due to the high percentage of overweight participants. Most women reported to have taken Tamoxifen after breast cancer. Demographic anthropometric and clinical data are shown in Table 2.

Clinical data correlation

In terms of quantitative results, the researchers observed a significant correlation between hormonal therapy and reduction of sexual desire (p=0.002) (table 3). This finding is very interesting since a majority of breast cancers are hormone-dependent.

Sexual perception and knowledge about physiotherapy treatments for the pelvic floor

In connection with sexual perception, women were asked with about their previous sexual activity and a high percentage confirmed a decline in sexual desire after breast cancer treatment. Women had indicated vaginal discomfort or pain and unpleasant vaginal sensations, specifically they defined pain or discomfort at the vaginal introitus

at the time of penetration and believed it was likely caused by the absence of lubrication (Table 4).

Sixty-eight women confirmed that they had pain during sexual intercourse, and a very high percentage, 91.18%, denied having received any pelvic floor physiotherapy treatment or information. In addition, when the researcher asked the women to rate the intensity of their pain using VAS scale (0-10), the average score was 6.

More specifically, the researchers propose an open-ended question requesting a one-word description of the pain. The most frequently used expressions were: Stinging (28%), tightness (21.3%), burning (20%) and dryness (10.7%) (Figure 2).

In terms of quantitative analysis, significant relationships were found between the presence of pain during sexual intercourse and the negative impact on the quality of life ($p=0.000$). We also obtained a significant correlation between pre- and post-cancer sexual activity ($p = 0.004$). A non-significant correlation was observed between the variables effect on sex life and presence of pain during sex with respect to the physiotherapy treatment received, due to the low number of patients receiving physiotherapy. Significant relationships were obtained between sexual intercourse and the use of lubricants and/or moisturizing gels ($p=0.041$) (Table 5).

DISCUSSION

The importance of sexual perception and awareness of physiotherapy treatments was reported in this study; 56.92% of women reported sexual activity with pain and that this fact significantly affects their quality of life. However, only six women received treatment from a physiotherapist. This finding suggests the need to promote sexual health care strategies and sexual education to promote awareness on the role of physiotherapy in the treatment of sexual dysfunctions. In our study, the most common

type of breast cancer was hormone-sensitive cancer, the treatment of which is linked to menopause. Women treated for cancer with radiation therapy, chemotherapy, and/or endocrine therapy often experience sexual dysfunction and vaginal changes; vaginal dryness, dyspareunia, vulvodynia, vaginal atrophy, burning and irritation[24,25,26] reduced libido and orgasmic dysfunction.[16] In addition, the menopausal process increases these symptoms and is usually accompanied by an increase in BMI,[27,28] as observed in our sample. In many cases, this fact leads to a negative perception of their body image that leads to a reduction in sexual activity.[29] With regards to medication, in our study women with received tamoxifen manifested minor sexual desire (p<0,000), this fact also observed in women which not refer the type of medication (p>0,000). It's interesting to mention that due to the average age of the population (45 years) and that a 75% indicates cancer of hormonal receptors positive, the authors suppose that in a high percentage of cases the drug used was tamoxifen. Other articles observed the decrease of the sexual desire as one of the side effects of hormone therapy (aromatasa inhibitors and tamoxifen).[10,11,17] Only Santen et al. 2017 observed that postmenopausal women treated with aromatase inhibitors have significantly higher rates of vaginal sequelae and dyspareunia than Tamoxifen, without mentioning the effect on libido.[12]

Women's sexual perception

A high percentage confirmed a significant decline in sexual desire after overcoming breast cancer, 87.7% reporting a negative effect on their sex lives. The most prevalent sexual dysfunction in the present study was superficial dyspareunia, consistent with other studies.[2,10,12] This type of vaginal pain during penetration was caused by deficient lubrication. This finding was confirmed based on the pain descriptions provided by the patients. For this reason, there was a significant relationship between the percentages of women who used moisturizers and/or lubricants and those who had sexual intercourse.

It should be noted that, although the percentage of women with sexual activity after suffering from breast cancer was high, there is a representative decrease with respect to the total number of sexually active women before the oncological process ($p = 0.004$).

For pain intensity during sexual activity, most women rated their pain as 6 out of 10, so it can be considered a limiting pain. The relationship between this pain and the patient's quality of life was studied and the results obtained were highly significant. However, only 4.6% of the sample had visited a pelvic floor physiotherapist to improve their symptoms. Therefore, the correlations were not significant between effect on sex life and sexual pain and between sexual activity with respect to the physiotherapy treatment received. Interestingly, among the small percentage who had received information and treatment, 100% of the women obtained a significant improvement.

Other studies also mention the need to address problems related to sexuality after suffering from breast cancer in order to optimize and improve the patient's quality of life.[15,30] Boquiren et al. 2016 reported that few health professionals are adequately trained to comprehensively evaluate or treat sexual dysfunctions related to breast cancer,[13] so making visible the role of physiotherapy in the prevention and treatments derived from this process should be a must.

Limitations and future lines of research

This study has certain limitations related to sample size and design. Regarding the sample size, according to the G-power performed, a total of 380 participants would have been needed (with a confidence of 95% and an error of 5%) to be able to extrapolate the data obtained to the entire Spanish population surviving breast cancer. Regarding the design of the study, the main limitation was that a cross-sectional study was carried out, obtaining data in a given period of time, while a longitudinal study, in which the

evolution of the patients is recorded, would have been more enriching. In addition, the sample was very uneven in terms of the date of overcoming breast cancer, given that some participants overcame the oncological process more than ten years ago and others, only very recently. This means that many of them continued with hormonal treatment and others no longer took any drugs that might affect their sexual perception. Likewise, the study focuses on sexual perception, and other factors possibly influencing this perception were not addressed (such as changes in body image, relationship problems, depression, anxiety, etc), only accounting for the type of cancer and the treatment received.

Future studies would contribute to design a first-line treatment for sexual dysfunction in female breast cancer survivors.

CONCLUSIONS

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Breast cancer survivors had indicated a negative perception of their sexuality, suffering pain during intercourse. These findings indicate the importance of improving awareness of the potential impact of breast cancer treatment on sexual health and perception for both clinicians and patients. Clinicians may be able to offer effective solutions for adjustment to sexual changes.

CLINICAL PRACTICE POINTS

Survival rates for women with breast and gynecologic cancer are increasing thanks to advances in science. As the prevalence of women living after cancer diagnosis continues to increase, the side effects of cancer treatments performed and how these may affect quality of life should be considered. There is a need for clinicians to recognize the negative impact of sexual dysfunction secondary to cancer treatments and

its negative effect on the quality of life of female breast cancer survivors. In this sense, women with breast cancer identified high levels of dissatisfaction regarding information on sexual health and indicated low satisfaction regarding the information received on the sequelae of treatment. Physiotherapy should be considered by clinicians as a solution for the conservative treatment of different sexual dysfunctions. Greater medical knowledge of the different healthcare resources available to patients will help them survive cancer with a better quality of life and feel better informed.

Our study shows the perception of women breast cancer survivors regarding their sexual function. Highlighting the presence of sexual dysfunctions after cancer treatments, and how this negatively affects their quality of life. In the study it can be highlighted how the knowledge of the figure of the pelvic floor physiotherapist is very limited and only a small number of women had attended treatment. This fact highlights the need for a more global vision of patients, considering not only survival but also ensuring that these patients have a good quality of life.

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Table 1. Survey question classification and type of variable

Question	Type of variable	Values
Demographic and anthropometric data		
Age	Continuous quantitative	18+
BMI	Continuous quantitative	10 to 53.3 (WHO criterio)
Number of pregnancies	Discrete quantitative	1. None 2. One 3. Two 3. Three or more
Marital status	Qualitative polytomous	1. Married 2. Separated/Divorced 3. Single 4. Widowed
Education level	Qualitative ordinal	1. Missing 2. Elementary education level or professional education 3. Higher education 4. University degree
Employment status	Qualitative polytomous	1. Employed 2. Unemployed 3. Retired 4. On leave
Clinical data		
Type of breast cancer	Dichotomous qualitative	1. Hormone receptor (HR) positive 2. Hormone receptor (HR) negative
Treatment regimen	Qualitative polytomous	1.Chemotherapy 2. Radiotherapy 3. Breast surgery 4. Hormonotherapy
Data at diagnosis	Discrete quantitative	
Data at end of treatment	Discrete quantitative	
Medication received	Dichotomous qualitative	Yes/No
Type of medication	Qualitative polytomous	1. Tamoxifen 2. Letrozol

		3.Tamoxifen+Zotadex 4.Letrozol+Zotadex 5.Unclear information 6.Other medication (Alomadix, Calodis, Decapthil)
Menstruation	Dichotomous qualitative	1. Not present 2. Present
Sexual perception		
Sexual desire	Dichotomous qualitative	Yes/No
Previous sexual activity	Dichotomous qualitative	Yes/No
Sexual activity	Dichotomous qualitative	Yes/No
Pain during sexual intercourse	Dichotomous qualitative	Yes/No
If sexual intercourse causes pain, please specify the painful location	Qualitative polytomous	1. Superficial Dyspareunia 2. Deep Dyspareunia
Pain intensity	Discrete quantitative	VAS scale (0-10)
One-word description of the pain		Open-ended
Use of vaginal lubricants and gel	Dichotomous qualitative	Yes/No
In the event of sexual dysfunction, have you received any pelvic floor physiotherapy information or treatment?	Dichotomous qualitative	Yes/No

BMI: Body mass index; WHO: Word Health Organization; VAS: Visual Analog Scale.

Figure 1. Flowchart

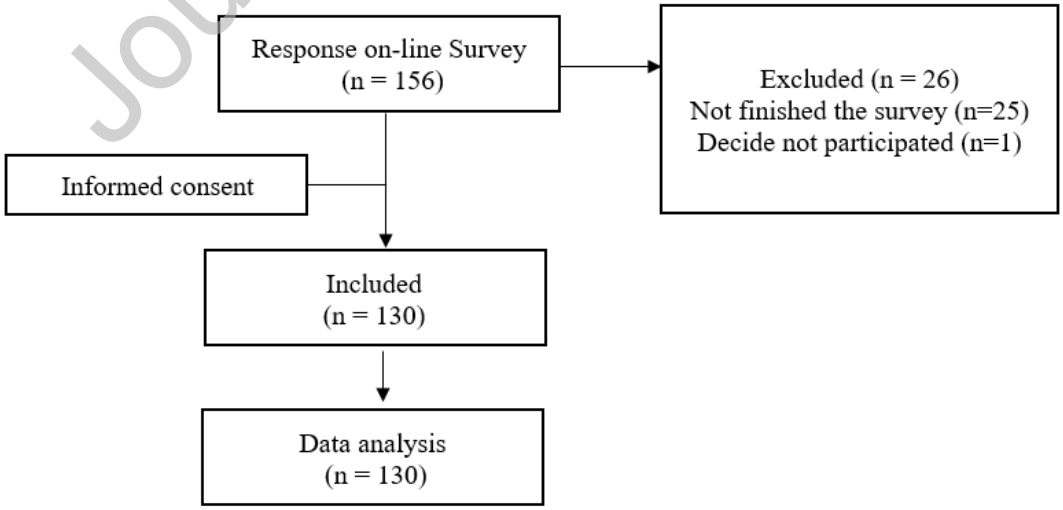

Table 2. Demographic, anthropometric and clinical data

Demographic and anthropometric dates	**n=130**	
Age (years)– median (IRQ)	45	12
BMI (Kg/m$^{2)}$ – median (IRQ)	25.41	6.65
Pregnancies – median (IRQ)	2	1
Marital status– n (%)		
Single	20	15.2%
Married	97	74.2%
Separated/divorced	11	9.1%
Widowed	2	1.5%
Employment status – n (%)		
Employed	73	55.3%
Unemployed	24	18.2%
Retired	6	4.6%
On leave	27	21.9%
Educational Level – n (%)		
None Elementary education or professional education Higher educational University degree	1 15 40 74	0.8% 12.1% 30.3% 56.8%
Clinical data	**n=130**	
Type of breast cancer – n (%)		
Hormone receptors (HR) positive Hormone receptors (HR) negative	98 32	75% 25%
Type of cancer treatment received – n (%)		
Chemotherapy	104	78.8%
Radiotherapy	102	77.3%
Breast surgery	125	94.7%
Hormone Therapy	75	57.7%
Medication after cancer treatment- n (%)		
Yes	96	76.2%
No	30	23,8%
Medication received- n (%)		
Tamoxifen	23	18.3%
Letrozole	11	8.7%
Tamoxifen+Zoladex	7	5.6%
Letrozole+Zoladex	6	4.8%
Unclear information	37	29.4%
Other medication (Alomadix, Calodis, Decapthil)	12	9.5%
Data at diagnosis – median (IRQ)	3	2
Data at end of treatment- median (IRQ)	1	2
Menstruation – n (%)		
Present	114	87.7%
Not present	16	12.3%

BMI: Body Mass Index; IRQ: Interquartile range.

Table 3. Clinical data correlations.

Clinical data	Correlation coefficient	p-value
Chemotherapy *vs* sexual desire	r^s =-0.083	0.350
Radiotherapy *vs* sexual desire	r^s =-0.121	0.171
Breast cancer surgery *vs* sexual desire	r^s =-0.027	0.758
Hormonal therapy vs sexual desire	r^s =--0.271**	0.002
Type of cancer *vs* sexual life	r^s =-0.051	0.564

**Significant values p<.01

Table 4. Women's sexual perception and knowledge of physiotherapy for the treatment of pelvic floor dysfunction

Women's Sexual perception	N=130	%
Sexual desire – n (%)		
Yes	57	43.8%
No	73	57.9%
Effect in Sexual life – n (%)		
Yes	114	87.7%
No	13	12.3%
Sexual activity – n (%)		
Yes	86	66.2%
No	44	33.8%
Previous sexual activity- n (%)		
Yes	121	93.1%
No	9	6.9%
Presence of pain during sexual intercourse n (%)		
Yes	73	56.92%
No	30	23.07%
If sexual intercourse causes pain, please specify the painful location –n (%)	53	40.8%
Superficial Dyspareunia	17	13.08%
Deep Dyspareunia	32	24,62%
No pain	28	21,6%
Use of vaginal lubricants and gel- n (%)		
Yes	89	68.5%
No	41	31.5%
In the event of sexual dysfunction, have you received any pelvic floor physiotherapy information or treatment? – n (%)		
Yes	6	4.6%
No	124	95.4%

Figure 2. Words offered by the women to describe their sexual pain

Table 5. Sexual perception correlations

Sexual perception	Correlation coefficient	p-value
Presence of pain during sexual intercourse vs QoL	0.356**	0.000
Sexual activity *vs* previous sexual activity	0.253**	0.004
Effect on sex life *vs* physiotherapy treatment	0.082	0.351
Presence of pain during intercourse *vs* physiotherapy treatment	0.119	0.179
Sexual activity *vs* Use of vaginal lubricants and gel	0.179*	0.041

*Significant values p<.05; **Significant values p<.01