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Sexual health and impact of treatments on Colombian women with breast cancer and their sex partners

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Abstract

Background:

The adverse effects of breast cancer and treatments to confront it impact negatively on the sexual health, not only of the women who endure it, but also their sex partners.

Objective:

This study sought to determine the relationship of sexual health and the impact of treatments between women subjected to treatment due to breast cancer and their sex partners.

Methodology:

This was a correlational-type study with cross-sectional design and quantitative approach. The sampling was non-probabilistic and the sample was comprised of 103 couples from five Colombian cities. The women received the Sexual Functioning Questionnaire-Women (SFQ-W); and the version for the sex partners, denominated Sexual Functioning Questionnaire-Men (SFQ-M) by Syrjala KL *et al.* For the variable *Impact of treatments*, the study used the subscale *Impact of treatments version for women and men* by Syrjala KL *et al.*, 2000, with prior informed consent.

Results:

Sexual health ($\mu = 2.34$ vs. 3.24) and the impact of treatments were more compromised in women than in their sex partners ($\mu = 2.22$ vs. 1.73). Likewise, the mean positive correlation between sexual health of women and their partners was $r = -0.420$; $p = <0.001$. In turn, significant negative

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correlations between *sexual health* and the *impact of treatment* were $r = -0.623$; $p = <0.001$ in women and $r = -0.369$; $p = 0.002$ in their sex partners.

Conclusions:

Consequential of the oncological treatment, women tend not to reach optimal sexual health and, hence, experience a higher significant impact than their sex partners. Definitely, the sexual health of women diminishes with the increased impact of treatments against breast cancer.

Keywords: Breast cancer; Sexual health; Woman's health; Treatment

Introduction

The impact endured by women suffering from breast cancer, as a result of treatments and how each type or combination of them alter their sexual health, is a phenomenon of great importance and merits detailed study. According to figures reported by the International Agency for Research on Cancer, 2018 (IARC), globally, breast cancer reached an incidence rate of 46.3 for every 100,000 inhabitants; in North America of 84.8; in Latin America and the Caribbean of 51.9; in South America of 56.8 and in Colombia of 44.1 (1).

However, due to progress in early detection strategies, awareness campaigns, and development of new treatments the number of women survivors from breast cancer has been increasing since the end of the 20th century (2). In this sense, the American Cancer Society (ACS) reports a current relative five-year survival of up to 93% in women in the early stages (0, I, and II) of breast cancer (3).

This data evidences the possibility of finding a large number of survivors in the long term, which, nevertheless, will experience on their sexual health the adverse effects of the treatments over the years (2). This factor could be present, especially in women in the age range from 22 to 50 years, according to some studies (4, 5), or, according to other studies, in women younger than 40 years of age in which greater prevalence of sexual alterations is reported during treatment throughout their lives (6). Thus, changes in sexual health as effect of breast cancer relate directly with the women's ages. For example, for the younger women, it implies alterations in sexuality, fertility, and bodily image. However, it should be clarified that the impact of the disease and the treatments affects all women and their partners, independent of age (7).

Regarding the consequences of cancer treatment in women, literature consulted reports that it is one of the principal factors affecting sexual health (8, 9). Thereby, chemotherapy, radiotherapy, surgery, and hormone therapy seem to bear greater influence on the development of negative effects on the sexual life in this group of women. The effects include physical and emotional changes, which are manifested by fluctuations in sexual desire, arousal, occurrence of orgasms, and frequency of sexual encounters, as well as vaginal dryness and dyspareunia (10).

These variations cause diverse concerns on sexual health in up to 50% of the survivors, which could worsen over time (11, 12). For example, a study conducted in the United States highlights that between 31% and 67% of the women with breast cancer perceive changes in their bodily image

(5). The study by Crowley SA *et al.*, found that the participants felt changes in attraction, difficulties in the capacity to experience sexual pleasure, and pain during sexual encounters with their partners (13). Likewise, research with Brazilian women with breast cancer concluded that one of the recurrent concerns was “maintaining the desire for a sexual experience that provided pleasure” (14).

A comparative study conducted in Austria with 105 women survivors of breast cancer and 3-year mean time of diagnosis and with 97 women without the disease and with a mean age of 49 years, found that sexual health was significantly worse in women with breast cancer compared to the group without the disease ($p = 0.005$ with a median of = 24.9 vs. 29.8, respectively). Additionally, high levels of depression were found in women with breast cancer and, in those who were older, lower sexual satisfaction with the partner was found, as predictors of poor sexual health (2).

According to the type of treatment, it is possible to evidence effects upon sexual health in up to 77% of the survivors, even up to five years after treatment (5, 15). Thus, in a group of women subjected to chemotherapy — of which 63% were in premenopausal state — it was found that sexual activity diminished from 71.9%, prior to therapy, to 47%, at the end, besides experiencing changes in pleasure and discomfort (15). A case, with a surgical procedure in young women with early stage cancer one year after lumpectomy, reported lubrication disorder in 57% of the participants, followed by disorder in sexual satisfaction in 53.8%, desire disorder in 42.5%, and arousal disorder in 37%. In conclusion, the association of radiotherapy plus chemotherapy plus hormonal therapy showed a six-fold increase in the risk of lubrication and satisfaction disorders (16).

In the study by Ganz Pa *et al.*, the sexual health of the participants subjected to conservative surgery and mastectomy after chemotherapy had a higher negative impact —48% in the conservative surgery and 51% in mastectomy—; while in another study, women had lower impact on their sexuality —18% in the conservative surgery and 25% in mastectomy (17). In addition, 68% of the patients stated that surgical treatment caused changes in the frequency of their sexual encounters, which can decline, at least, for 12 months or even up to five years after surgery (18).

Breast cancer and treatments to confront it impact negatively upon the sexual health, not only of the women enduring it, but also of their sex partners (7.19). It is worth emphasizing that, although some studies have inquired on sexual changes from the man’s perspective (20, 21, 22), current literature consulted tends to focus more on the characteristics of the sexual aspects altered in them and in the partner, but from the woman’s perspective (22).

The sex partners of women with breast cancer also report changes in sexual activity due to the impact of the treatments, exhaustive care of the ill woman, to repositioning of the person with cancer as a patient but not as a partner, to thoughts of self-blame, rejection, sadness, anger or lack of sexual satisfaction; to the difficulty to share with close relatives and high levels of depression (23, 24). A study conducted in Australia detected decreased frequency of sex and intimacy of the sexual partners of women with breast cancer in 79% of the men, while in 14% there was renegotiation of sexuality and intimacy after the cancer treatment. According to the authors, changes in sexual regularity were caused by the impact of treatment, exhaustive care, and feelings of guilt, rejection, sadness, anger, and lack of sexual satisfaction (23). Research with

Israeli men reported changes to address sexual activity in 72%; 13% had moderate difficulty and 59%, slight (22).

As evidenced, humans, upon interacting with their environment and with the health situation of others, sexual health becomes inherent in their daily lives, which is why it can be affected by breast cancer and by oncological treatments (25). Consequently, sexual health is considered a state of physical, emotional, and social wellbeing, which requires a positive approach to permit in patients as in their sexual partners a pleasant experience (26, 27).

The impact of treatments is defined as the negative effects women experience on the sexual function when subjected to procedures due to breast cancer and impacting upon the sexual activity with their sex partners (28). However, most of the studies consulted only address the condition of sexual health individually, presenting asymmetric results between the woman and her sex partner. Therein, our study proposes approaching the dyad of the woman with cancer and her sex partner through the following objectives: a) determine the relationship of sexual health between women subjected to treatment due to breast cancer and their sex partners; b) determine the relationship of the impact of the treatments between women subjected to treatments due to breast cancer and their sex partners.

Materials and Methods

This study was of quantitative approach, cross-sectional and correlational type, with non-probabilistic sampling. The study was endorsed by the Ethics Committee of the Faculty of Nursing at Universidad Nacional de Colombia. Likewise, it received authorization from the foundations of breast cancer survivors, besides the informed signed consent from each of the participants. The study was carried out under the principles of veracity, fidelity, reciprocity, autonomy, non-maleficence, beneficence, and justice (21).

The study took place between August 2010 and January 2012. The sample was comprised of 103 women who been subjected to breast cancer treatments with their respective 103 sex partners. The participants fulfilled the following inclusion criteria: a) women who had ended breast cancer treatment, that is: surgery, chemotherapy, and radiotherapy, applied individually or in combination, for a maximum period of up to five years since ending the treatment, given that, according to the literature consulted, sexual problems may arise up to five years after ending the treatment (5); b) women between 25 and 64 years of age; c) women and sex partners with no psychiatric alterations prior to the breast cancer diagnosis. Exclusion criteria only highlighted that of not being female sex workers.

The sample came from the different support foundations for women with breast cancer located in five Colombian cities. Thereafter, the principal author contacted each of the couples via telephone and a meeting was held with the women and their sex partners, during which, prior agreement of the meeting, each of the participants filled out the instruments separately, either in the foundation facilities or in their homes, providing the privacy required by these types of interventions. As soon as the application of the instrument took place, a database was constructed. Data analysis was conducted in the IBM SPSS Statistics 19.0 statistical package.

The instrument selected to measure the variable *Sexual health* was the sexual function questionnaire, version for women, denominated Sexual Functioning Questionnaire-Women (SFQ-W); and the version for the sex partners, denominated Sexual Functioning Questionnaire-Man (SFQ-M), developed by Syrjala KL *et al.*, in 2000. The instrument contains 19 Likert-type questions for each version and includes nine subscales: *Interest, Desire, Activity, Arousal, Orgasm, Satisfaction, Relationships, Masturbation, and Problems*. To interpret the questionnaire — with a global score on sexual health ranging from 0 to 5, it is considered that the highest score of the Sexual Function instrument indicates better sexual health. The variable *Impact of treatments* used the subscale *Impact of treatments versions for women and for men* (Syrjala KL *et al.*, 2000) comprised of six questions: five Likert-type — with a score ranging from 0 to 5 — and an open question. Thus, a higher score indicates higher impact of the treatment on the sexual function (28).

Additionally, authorization was obtained from the instrument's author for validation and cultural adaptation to the Colombian context of the version for women; likewise, the version for men was adapted for the sex partners participating in our study, a process requiring professional translation of the instruments from English to Spanish. In turn, face validity of the instrument showed consensus among the participants who evaluated clarity, accuracy and comprehension of each of the questions in the Colombian context.

Through the modified Lawshe model, the content validity index (CVI) reached 0.90 in the questionnaire of sexual function version for women and 0.91 in the version for sex partners. In the subscale *Impact of treatments*, the CVI yielded a value of 1 in both versions of the questionnaire, showing acceptability of the items as essential for each of the instruments. Additionally, a factorial analysis was performed on the application of the Kaiser-Meyer-Olkin (KMO) test, which yielded a value of 0.83 in the questionnaire version for women and a value of 0.73 for the version for the sex partners. The subscale *Impact of treatments* obtained a value of 0.79 for the women and 0.72 for the sex partners, which demonstrates an acceptable fit of the data to the factorial analysis model. Sociodemographic variables were collected through a registry elaborated by the study's principal author.

The sociodemographic variables and central variables of the study, *Sexual health* and *Impact* were analyzed with descriptive statistics through the central tendency measures, like frequencies, median, and standard deviation. Likewise, inferential statistics was applied to the variables *Sexual health* and *Impact* of the treatments through Student t-type tests for parametric and non-parametric independent samples, as well as for the Pearson correlation coefficients.

Results

The study participants were comprised by 103 heterosexual couples. The mean age in the group of women was 48 years ($\sigma = 8.5$), while in the sex partners it was 51 years ($\sigma = 11.3$). The couples reported a median of 20.5 years of time together. Regarding marital status, 71 couples (69%) were married at the moment of data collection; 30 (29.1%) in common-law; and 2 (1.9%) were single.

Sexual health, measured through the SFQ questionnaire, showed a median of 2.34 ($\sigma = 0.853$) in the women, while in their partners it had a median of 3.24 ($\sigma = 0.861$). This result demonstrates

that, although the sexual health of the couples is not completely optimal, the men revealed better physical, emotional, and social wellbeing related with sexuality, compared with the women.

The Kolmogorov-Smirnov test was applied and a normal distribution was evidenced in the final data of the SFQ-W and SFQ-M instruments and, specifically in the subscales of *Interest*, *Desire*, and *Activity*; the remaining subscales obtained a non-normal distribution. Hence, the parametric statistical t test was applied in the first three subscales for independent samples and with respect to the medians. This test yielded *p*-values lower than the level of significance (0.05) in the subscale *Interest* ($p = < 0.001$) and in *Sexual health* ($p = < 0.001$). Due to the aforementioned, it was verified that significant differences exist in some subscales between the average of the women and their partners: total *Interest* and *Sexual health* (Table 1). These results permit inferring that women and their partners experience interest and their sexual health differently.

Table 1. Descriptive statistics and test of independent samples of sexual health in women and sex partners in the variables with normal distribution ($n = 103$)

Sexual health and subscales	Group	Minimum	Maximum	Median	SD	$t_{(204)}$	<i>p</i> -value
<i>Interest</i>	Women	0	6	1.63	1.122	-5.424	<0.001
	Partners	0	6	2.55	1.277		
<i>Desire</i>	Women	0	5	2.30	1.450	-1.943	0.053
	Partners	0	6	2.71	1.540		
<i>Activity</i>	Women	0	6	1.73	1.207	-0.905	0.367
	Partners	0	5	1.89	1.059		
<i>Sexual health</i>	Women	0	4	2.34	0.853	-7.418	<0.001
	Partners	1	5	3.24	0.861		

Source: Research data.

A non-parametric statistic was applied in the subscales with non-normal distribution. Similarly, the Mann-Whitney U test generated *p*-values lower than the level of significance (0.05) in the subscales *Arousal* ($p = 0.008$), *Orgasm* ($p = 0.004$), *Satisfaction* ($p = < 0.001$), *Relationships* ($p = 0.029$), *Masturbation* ($p = < 0.001$) and *Problems* ($p = < 0.001$). These values show significant differences in each of the sub-scales described between women subjected to treatments due to breast cancer and their sex partners (Table 2).

Table 2. Descriptive statistics and test of independent samples of sexual health in women and their sex partners in the sub-scales with non-normal distribution ($n = 10$)

Subscales	Group	Minimum	Maximum	Median	SD	Z ₍₂₀₄₎	p-value
<i>Arousal</i>	Women	0	6	1.83	1.35	-2.663	0.008
	Partners	0	6	2.30	0.9		
<i>Orgasm</i>	Women	0	5	2.78	1.50	-2.841	0.004
	Partners	0	5	3.42	0.4		
<i>Satisfaction</i>	Women	0	5	3.03	1.55	-9.032	<0.001
	Partners	0	10	6.86	0.7		
<i>Relations</i>	Women	2	5	3.68	1.03	-2.181	0.029
	Partners	1	5	3.63	0.3		
<i>Masturbation</i>	Women	0	2	0.17	0.43	-5.131	<0.001
	Partners	0	5	0.87	0.2		
<i>Problems</i>	Women	1	5	3.97	0.99	-5.495	<0.001
	Partners	2	5	4.64	0.7		

Source: Research data.

Description of the impact of treatments

The subscale *Impact of treatments*, developed by Dr. Karen Syrjala, permitted measuring this variable. In the women, this variable had a median of 2.22 ($\sigma = 1.033$), while in the partners it had a median of 1.73 ($\sigma = 0.645$). Upon applying the Kolmogorov-Smirnov test, a normal distribution was evidenced, so that the parametric statistic t test was used for two independent samples with respect to the medians. This test yielded a t value of 4.360; $p = < 0.001$, which is why it is concluded that the impact of the treatments also differs between men and women (Table 3).

Table 3. Descriptive statistics and test of independent samples of the impact of treatment in women and sex partners ($n = 103$).

<i>Impact of treatment on sexual health</i>	Median	SD	$t_{(204)}$	p -value
Women	2.22	1.033	4.360	<0.001
Sex partners	1.73	0.645		

Source: Research data.

Correlations

Table 4 shows the correlation between sexual health of women subjected to breast cancer treatment and that of their sex partners. This result determines the existence of a mean positive correlation between the sexual health of women and that of their partners (Pearson's correlation = 0.420; $p = <0.001$), demonstrating that higher sexual health in the women indicates higher sexual health in the men.

Table 4. Correlation between the sexual health of women and that of their sex partners

Correlation between women and sex partners		Pearson correlations (r)	p -value
<i>Sexual health</i>		0.420**	0.004
<i>Impact of treatments</i>		0.185	0.062
Correlation among sub-dimensions	<i>Interest</i>	$r = 0.287^{**}$	0.003
	<i>Desire</i>	$r = 0.286^{**}$	0.003
	<i>Activity</i>	$r = 0.395^{**}$	<0.001
	<i>Arousal</i>	$rs = 0.219^{*}$	0.026
	<i>Orgasm</i>	$rs = 0.417^{**}$	<0.001
	<i>Satisfaction</i>	$rs = 0.255^{**}$	0.009
	<i>Relationships</i>	$rs = 0.485^{**}$	<0.001
	<i>Masturbation</i>	$rs = 0.164$	0.097
	<i>Problems</i>	$rs = 0.083$	0.407
* Significant correlation at 0.005			
** The correlation is significant at 0.01 level			

Source: Research data.

Upon analyzing the sub-dimensions between the dyad, it was found that these mostly had *weak* and *median* positive correlations. Those with *weak* correlations included *Arousal*, *Satisfaction*, *Interest*, *Desire*, and *Activity*; those with median correlations were *Orgasm* and *Relationships*. Thereby, if women experience higher intensity in each of these sub-dimensions, their partners can also experience it (Table 4). On the contrary, the sub-dimensions *Masturbation* and *Problems* showed no significant correlations.

Analysis of the variables was performed in further detail for each of the members of the dyads. Table 5 illustrates the correlations between both variables analyzed, like the negative correlation

between sexual health and the impact of treatments experienced by each of them. However, in the partners the correlation is *weak* (-0.369), while in the women considerable data was found (-0.623). It was evidenced that as sexual health is better, the impact of the treatment is lower in the women and their sex partners.

Table 5. Pearson's correlations between Sexual health and Impact of women subjected to treatments in each of the members of the dyad

Groups	Variables related	Pearson's Correlations	p-value
Women	<i>Sexual health</i> <i>Impact</i>	-0.623**	<0.001
Sex partners	<i>Sexual health</i> <i>Impact</i>	-0.369**	0.002

* Significant correlation at 0.005

** The correlation is significant at 0.01 level

Source: Research data.

Finally, the correlations of the variable *Impact of treatments* between women and their sex partners were analyzed (Table 4), showing a lack of significant correlation between the dyad (Pearson's correlation = 0.185; $p = 0.062$).

Discussion

The findings regarding optimal sexual health not reached in the women participating in our study (median = 2.34/5) are similar to those reported by Syrjala *et al* (28). Similarly, studies conducted in the United States, Tunisia, and Austria also coincide with the presence in their results of changes in its participants' sexual activity, like decreased sexual interest, arousal, orgasm, and sexual satisfaction, as well as problems in sexual functioning and appearance of vaginal dryness and vaginal pain (2, 29, 30, 31).

From the perspective of the partners of women with breast cancer, the median of sexual health (3.24/5) surpasses that reached by the women. In contrast, this result is significant against the findings from the study by Syrjala *et al.*, (3.93) who conducted the measurement in healthy men, who did not have the condition of dyads, as evaluated in the present study (28). In spite of the median obtained in the sex partners participating in our study, these also did not reach optimal health, which coincides with the results from the study by Wagner *et al.*, who indicate that in the couples evaluated sexual health was not affected negatively (19). Rather, Hawkins *et al.*, highlight from their research the positive consequences related with sexual health, like acceptance of changes in the relationship and greater closeness and intimacy with the woman, emphasizing aspects of sexual satisfaction in spite of problems (23).

Thus, it has been demonstrated that sexual health is most affected in women with breast cancer than in their sex partners, a finding that agrees with that reported by Miaja *et al.*, who estimate that sexual health is largely determined by the effects of oncological treatments (7). This is also corroborated when comparing the impact of treatment between women subjected to procedures

due to breast cancer and the sex partners, although, again, the impact is lower in the partners (2.22 against 1.73; $p = <0.001$. respectively).

Precisely, upon evaluating the impact of oncological treatment, Grimsbø *et al.*, concluded that sexual health may be altered significantly during different moments as consequence of the impact of treatments (32). When comparing the median figures in the group of women from our study, it was found that it was lower than the results by Syrjala *et al.*, (2.22/5 vs. 2.92/5) (28). This lower impact may be related with the marked differences between both groups of the studies, such as sociodemographic factors.

Upon comparing the principal variables of the study described between the women and their sex partners, the positive correlation is emphasized in the sexual health of the dyad ($r = 0.420$; $p = <0.001$), meaning that, if it improves in them, it also occurs in their partners. This finding coincides with the results reported by Sheppard *et al.*, who state that a relationship exists between the sexual wellbeing of the women and of their sex partners (18). In contrast, the impact of treatments in our study had no significant correlation (Pearson's correlation = 0.185; $p = 0.062$), which permits inferring that what the women and their partners experience are individual actions, given that each of the members of the dyad has different forms of sharing. According to this, it is worth highlighting the statement by DeBoer *et al.*: "together we are different", although connected by the breast cancer experience (33).

A procedure worth stressing in this study is the analysis of the detailed results, which show the correlations between the sub-scales, managing to determine that if women experience greater arousal, satisfaction, interest, desire, activity, orgasm and relationships, the sex partner, in turn, can experience it in a similar intensity; while masturbation and problems do not generate impact with each other. Although most of the research consulted has data generally focused on the women's perspective, our study goes beyond, given that it seeks to delve more on the dyad per se. This novelty coincides with the results by Leila *et al.*, who consider that the sexual satisfaction of the women may be involved with that of their partners (30).

Furthermore, our study on the group of women obtained a significant negative correlation between sexual health and the impact of treatments they experienced; specifically, sexual health diminished due to the impact the women perceived ($r = -0.623$; $p = <0.001$). This finding is coherent with the results from the study by Wagner *et al.*, who reported negative impact (19). In addition, it coincides with that published by Ganz *et al.*, whose results demonstrated that treatments, like conservative surgery and mastectomy after chemotherapy imply greater negative impact in women (17). In the sex partners, sexual health diminished because of the impact they experienced as a result of the treatments their partners received (Pearson's correlation = -0.369 ; $p = 0.002$). This result agrees with those in the study by Hawkins *et al.*, and with those reported by Storniolo, who described a similar situation (19, 23).

In all, the findings in our study show that in the women and in their partners sexual health diminishes as the impact of the treatments increases. This study contributes to the knowledge on sexual health from the dyad's perspective; however, further research is warranted on this topic and in people with other types of cancer.

Conclusions

The results of the study herein evidence that the dyads do not achieve optimal sexual health and experience significant impact as consequence of oncological treatments, although women are affected most.

From comparing the variables between the women and their partners, it was possible to identify that when the sexual health of the women increases, so does the sexual health of their sex partners; while the impact experienced by women because of the procedure to treat the breast cancer with respect to the impact endured by their partners are individual experiences that do not manage to show a relational behavior between the couple. However, the sexual health and the impact of the treatments measured individually indicate that in women as well as in their partners, sexual health diminishes as the impact of the treatments increases.

The results of this study reveal the need to develop a program for women with breast cancer to strengthen the sexual health in the dyad. This program must be characterized by including the sex partner and by its very offer, from the moment of the disease diagnosis to the certainty of survival.

Our study is an important contribution to knowledge on sexual health and to the impact of treatments of women confronting breast cancer and their sex partners. Most studies conducted on sexual health focus on the individual plane, especially on women with breast cancer. Nevertheless, this study permits enhancing our understanding of the phenomenon regarding the couple's interaction.

Limitations

Difficulty to complete the sample is highlighted as a study limitation, given that more than 60% of the women with breast cancer who were contacted were abandoned by their sex partner; also highlighted as limitation is the cultural context, given the topic addressed because speaking of sexual health in Colombia is still taboo. Work schedules and commitments, especially of the men, hindered participation by some of the couples.

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Conflicts of interest

The authors declare having no types of conflicts of interest in gathering the data or in the subsequent publication of the study results.

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