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Difficult legacy in a close relationship. Sexual satisfaction, relationship satisfaction, and body image in patients with BRCA mutation after prophylactic mastectomy and/or adnexectomy

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Abstract

Aim of the study: Continuous scientific progress and the development of genetics have opened up new possibilities in the field of cancer prevention by detecting DNA mutations that increase oncological risk. In the case of high risk, special recommendations are addressed to the carriers of gene mutations and they concern, inter alia, surgical prophylactic procedures – mastectomy and adnexectomy. The aim of this study was to determine the relationship between sexual satisfaction, partner satisfaction and body assessment in women with the BRCA mutation depending on the preventive surgery performed by them that reduce cancer risk.

Material and methods: The study involved 310 women with the BRCA genetic mutation and were healthy at the time of the study. The study lasted 7 months and the variables were measured using the Sexual Satisfaction Sale for Women (SSS WR15), the Matched Marriage Questionnaire (KDM-2), the Body Esteem Scale (BES) and the questionnaire enabling the collection of sociodemographic data and information related to cancer history and preventive operations performed.

Results: The conducted analysis showed significant differences between the patients depending on the preventive surgery performed in terms of sexual attractiveness, weight control and all dimensions of partner and sexual satisfaction.

Discussion: The results obtained are consistent with the results of studies conducted in other countries.

Conclusions: It has been proven that there are relationships between body assessment and sexual satisfaction as well as between body assessment and relationship satisfaction, and that there are differences in these areas between the groups of women who performed preventive mastectomy, adnexectomy, both procedures or none.

BRCA gene mutation; sexual satisfaction; risk management; marital satisfaction; preventive operations

INTRODUCTION

The specificity of neoplastic disease, classified as a chronic disease posing a threat to the patient's life, has been the subject of analyzes and scientific research for many years. The dynamic de-

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velopment of medicine, the increase in knowledge in the field of clinical genetics, oncology and psycho-oncology allowed for the broadening of research perspectives, but also contributed to the increase in social awareness of possible actions to reduce cancer risk. The methods of genetic diagnosis played a key role, as they allow to detect the risk of cancer and give the opportunity to take appropriate action. The constant advancement of molecular genetics has made it possible to detect mutations in DNA that increase the risk of certain cancers.

In the Polish population, significant genetic susceptibility to breast / ovarian cancer is usually associated with mutations in the BRCA1, CHEK2, PALB2, BRCA2, RECQL genes and is usually manifested in hereditary breast-ovarian cancer (HBOC), hereditary breast cancer – site specific (HBC-ss) and hereditary ovarian cancer (HOC) [1]. The most common causes of HBOC, HBC-ss, and HOC syndromes include constitutional mutations in the BRCA1 and BRCA2 genes, which have been associated with an increased lifecycle cancer incidence rate of 35% to 85% for breast cancer [2] and from 16% to 60% for ovarian cancer [3]. Detection of the indicated mutations means that, as a consequence of the changes, excessive cell division occurs and their multiplication may contribute to the development of the tumor. We may then speak of the so-called predisposition to inherit cancer.

Special recommendations regarding the management of high-risk cases are addressed to carriers of tumor gene mutations and concern the scheme of control examinations and treatment, as well as specific prophylaxis. It is based on several basic pillars, which include: oral hormone contraception, hormone replacement therapy, breastfeeding, early childbirth, chemoprevention and surgical prophylactic procedures – mastectomy and adnexectomy [1].

Surgical prophylactic treatment is proposed based on a number of complex factors. This is related to with a family [4] or personal history of breast / ovarian cancer [5].

Taking into account the specificity of the situation of women with BRCA genetic mutation, this study attempts to determine the sexual satisfaction, partner satisfaction and body assessment of the patients depending on the prophylactic operations performed – mastectomy and adnexectomy. According to modern knowledge, the body image of women after mastectomy includes not only the physical appearance of the breast, but also the associated psychological feelings. This also applies to gynecological operations [6]. Thus, mastectomy may lead to a number of consequences related to the emotional sphere of patients, such as the feeling of mutilation, lowering self-esteem or the sense of femininity and sexual attractiveness [7]. Breast loss or their unattractive appearance may be of concern as they relate to the assessment of physical appearance [8]. Many studies indicate that dissatisfaction with the body may negatively affect the perceived sexual pleasure [9, 10]. Researchers hypothesize that a person who is generally concerned about what other people think about their body may also worry about it during sexual activity.

As a result, they may become more tense and passive during intercourse and feel less sexual satisfaction [11]. The results of Træen, Markovic and Kvalem [12] showed that intimacy with a partner was perceived as the most important direct leading to increased sexual satisfaction, followed by body image and age. The studies conducted so far have also shown that negative body image is often associated with the feeling of sexual insecurity and discredit [13,14].

The relationship between body assessment and sexual functioning as well as the relationship between body image and sexual satisfaction has been demonstrated [15]. Research results suggest that positive body image is associated with sexual confidence [14, 16], while negative body image is a predictor of a lower frequency of intercourse [17], distraction during sexual intercourse [18], and inhibits sexual arousal and pleasure experienced by women however, do not appear to affect sexual functioning in men [19]. As demonstrated by Pujols, Meston and Seal [20], sexual satisfaction in women was predicted on the basis of the positive and low frequency of distracting appearance-based thoughts during the sexual act.

All these conclusions seem to be of particular importance in the process of analyzing the sexual satisfaction of patients with BRCA mutation, who remain healthy at the time of making the decision to perform preventive surgery (significantly interfering with the body image). Re-

search by Rojas et al. [21] found that more than half of women with BRCA mutation reported that the role of breasts in intimacy is important, while most patients without cancer and all cancer patients experienced a postoperative significant decrease in some specific parameters of sensuality for the breasts. The research findings showed that women with BRCA mutations are prone to sexual dysfunction during both screening and treatment. However, it should be clearly noted that although mastectomy is generally associated with changes in the scope of breast-specific sensory experiences, at the same time the studies by Gass and colleagues [22] showed that patients who reported improved satisfaction with the appearance of their breasts after surgery showed at the same time fewer sexual dysfunctions. The study of Canadian women with the BRCA 1/2 mutation examined the effect of prophylactic ovariectomy on sexual functioning. Women who underwent the procedure in the period before and after menopause were compared and it was shown that both groups experienced discomfort during intercourse after the procedure. At the same time, women in the premenopausal period also experienced a decrease in pleasure from undertaken sexual activities [23].

It seems that the detection of mutations and the need to make a decision on risk reduction methods, especially the performance of preventive operations, are also important for the partnership relation. In 2011, it was proved that most couples, faced with the stressor of cancer, have a successful partner relationship. They treat high risk of disease as a shared experience that they live using adaptive forms of coping [24]. There were no significant differences in the satisfaction with the relationship in healthy BRCA1 / 2 mutation carriers who underwent prophylactic surgery to remove the breast, ovary or both, and those who did not [25]. All this is important especially due to the current state of knowledge regarding the relationship between partner satisfaction and body image. However, the results of the studies conducted so far indicate that dissatisfaction with one's own body leads to a low level of satisfaction with romantic relationships [26]. A negative correlation was found between dissatisfaction with body image and the romantic relationship. Moreover, negative body image leads to fear of intimacy, anxiety and deterioration of mental health, which in turn negatively affects romantic relationships [27]. Researchers have provided empirical evidence that body image is related to the perceived quality of relationships between men and women [28, 29, 30]. Meltzer and McNulty [31] additionally showed that this relationship was mediated by sexual satisfaction.

MATERIAL AND METHOD

Test procedure

The study described in this paper is the result of the need to broaden knowledge about the body image, sexual and partner satisfaction in women with the BRCA genetic mutation, depending on the preventive operations performed by them and personal or family cancer experiences. This study was approved by the ethics committee and lasted from March to November 2019. The study involved 310 women who had the BRCA1 and / or BRCA2 genetic mutation detected. During the research, all patients were looked after by a prophylactic program to combat breast and ovarian cancer at the Oncological Genetic Clinic operating as part of the International Hereditary Cancer Center in Szczecin. The participants gave their written consent to participate in the study. Women who agreed to take part in the study were informed of their anonymity and, if necessary, received the needed information to complete the questionnaires correctly. The research was individual and was conducted with the consent of the participants. The respondents received questionnaires with brief information about the nature of the survey. It was possible to return the sheets to a specially prepared folder, located in the Oncological Registration of the Genetic Clinic. The respondents completed the tests on paper.

The variables adopted in the study are body assessment, partner satisfaction and sexual satisfaction. In addition, an own questionnaire was used, which allowed the collection of important information about patients, such as age, type of preventive treatment performed by the doctor, personal or family history of cancer.

Studied group

The studied group was diversified in terms of age, place of residence, education, professional status, family situation (relationship status and seniority, offspring) and cancer history (personal experience of oncological disease in the past and experience of oncological disease in the family). 34 women had cancer in the past, 276 had a family history of cancer. In the study heterosexual women in a relationship participated. Among the participants, the most numerous group were patients between 40 and 49 years of age (28.7%) and the least numerous patients between 18 and 29 years of age (8.4%). 146 patients (47.1%) decided to perform prophylactic surgery, of which 55 women (17.7%) underwent prophylactic mastectomy, 51 women (16.5%) chose prophylactic adnexectomy and 40 women (12.9%) performed both treatments. 164 study participants (52.9%) decided not to perform any of the indicated operations. Most of the surveyed women (99 people) lived in cities with 50 to 100 thousand inhabitants (31.9%), 84 (27.1%) women lived in large cities with more than 400 thousand inhabitants, 79 (25.5%) patients lived in the countryside and 48 patients (15.5%) lived in cities with 100,000 to 400,000 inhabitants. The study participants had various education. 147 women (47.4%) graduated from higher education, 73 patients (23.6%) had secondary education, 54 vocational (17.4%), 30 post-secondary (9.7%), 5 (1.6%) primary and 1 (0.3%) lower secondary school. At the time of the study, the majority of women (77.7%) were professionally active, 16.8% of the surveyed patients were retired or on a disability pension, and 5.5% were unemployed. Most of the respondents (86.8%) had children. All of them had been in a relationship in the last 6 months. The dominant group among the surveyed women were married women (75.1%), 18.1% of the patients co-created an informal relationship, 3.9% were divorced and 2.9% were widows. The duration of the relationship assessed in the questionnaires was in most cases 5 years or more (83.5%). Some patients, however, assessed satisfaction with shorter-term relationships, for 7.8% of women the relationship lasted six months, 6.8% assessed the relationship lasting from 2 to 4 years, and 1.9% assessed the relationship lasting from half a year to 2 years.

Research tools

The Women's Sexual Satisfaction Scale (SSS-W-R15) was used to measure sexual satisfaction in this study. The scale is the result of the Polish adaptation of the Women's Sexual Satisfaction Scale by Meston and Trapnell, conducted by Ilska, Przybyła-Basista and Brandt. The tool contains 15 statements, assessed on a 5-point scale. The questionnaire is aimed at examining women's sexual satisfaction and its individual dimensions – satisfaction, communication and fit. The selected questionnaire takes into account the specificity of women's functioning in the sexual relationship. It emphasizes the importance of both sexual and non-sexual aspects of the relationship, such as personal and relational components. The overall result of the level of perceived sexual satisfaction is expressed by the sum of the results obtained in three dimensions: Communication, Fit and Overall Sexual Satisfaction Assessment [32]. The scale has good psychometric properties, including reliability at the Cronbach's alpha level of 0.944.

Partnership satisfaction was measured using the Matched Marriage Questionnaire (KDM-2). The questionnaire was developed by Plopa and Rostowski and is used to measure the quality of the marital relationship in the perception of each spouse. The tool consists of 32 statements about marriage, assessed on a 5-point scale. The result is an overall measurement of ties and the measurement of 4 dimensions: Intimacy, Self-Realization, Similarity and Disappointment. The reliability of the test and the individual scales is at a satisfactory level (Cronbach's alpha 0.81-0.89) and it was tested in a group of 2,279 married people.

Body assessment was tested using the Body Esteem Scale (BES) by Franzoi and Shields in the Polish adaptation of Lipowska and Lipowski, which consists of 35 test items in three subscales. The tool allows to determine the attitude of respondents to their own body. The subscales for women are Sexual Attractiveness, Weight Control and Physical Condition. Sexual Attractiveness concerns the perception of those aspects of the body, the appearance of which cannot be changed, for example, through physical exercise – it is for example satisfaction with the appearance of the mouth or breasts. The attitude to-

wards these parts of the body also applies to emphasizing the features of appearance related to sexuality. Weight Control relates to aspects of the body whose appearance can be modified, for example thanks to exercise or diet. Physical Condition is about assessing qualities such as endurance, agility and strength.

The last of the tools used in the study was the proprietary questionnaire containing questions allowing to collect sociodemographic data such as place of residence, age, education, professional status as well as questions concerning the family situation – marital status and length of service as well as questions regarding the preventive operations performed and family or personal cancerous history.

Research goals and hypotheses.

The main goal of the study was to determine sexual satisfaction, partner satisfaction and body assessment in women with the BRCA genetic mutation depending on the preventive surgery performed by them reducing the risk of cancer.

The main research hypothesis was formulated: There is a statistically significant relationship between the level of partner satisfaction, sexual satisfaction and body assessment in women with the BRCA genetic mutation and the preventive operations that reduce the cancer risk undertaken by them.

The following specific hypotheses were formulated:

1. There is a relationship between age and sexual satisfaction in women with the BRCA genetic mutation.
2. There is a relationship between age and partner satisfaction in women with the BRCA genetic mutation.
3. There is a relationship between age and body assessment in women with the BRCA genetic mutation.
4. There are differences in the perceived sexual satisfaction of women with the BRCA genetic mutation depending on the preventive surgery performed.
5. There are differences in the perceived partner satisfaction in women with the BRCA genetic mutation depending on the preventive surgery performed.
6. There are differences in body assessment in women with BRCA genetic mutation depending on the preventive surgery performed.
7. There are differences in body assessments in women with the BRCA genetic mutation depending on personal and / or family history of cancer.

RESULTS

Statistical analyzes were performed with the use of IBM SPSS Statistics 25.0. The program was used to analyze basic descriptive statistics and to check the distribution of the analyzed variables. Pearson's correlation analysis was performed to establish the relationship between quantitative variables. In order to compare the two groups in terms of the analyzed quantitative variables, the analysis was carried out with the Mann Whitney U test, and when there were more groups – with the H Kruskal Wallis test. For the purposes of the analyzes, $\alpha = 0.05$ was assumed as the level of significance.

Descriptive statistics

In the first step, basic descriptive statistics were carried out along with the Kolmogorov-Smirnov distribution normality test for the measured quantitative variables, which were significant from the point of view of the analyzes performed. The conducted analysis showed that only age had a distribution consistent with the Gaussian curve. The dimensions of body assessment, partner satisfaction and sexual satisfaction were deviated from the normal distribution, with the skewness value for all analyzed variables within the range <-2; 2>, which indicates that this deviation was not significant [33]. The detailed results of the analyzes are presented in Table 1.

Table 1. Basic descriptive statistics with the test of normal distribution

	M	Me	SD	Sk.	Kurt.	Min.	Max	D	p
Age	50.04	49.00	14.45	0.13	-0.29	23	79	0.08	0.200
Body evaluation									
Sexual attractiveness	3.39	3.33	0.70	-0.03	-0.58	1.67	4.92	0.08	<0.001
Weight control	3.13	3.10	0.84	-0.25	-0.47	1.10	5.00	0.08	<0.001
Physical condition	3.38	3.39	0.77	-0.09	-0.77	1.56	5.00	0.11	<0.001
Partner satisfaction									
Intimacy	3.35	3.25	1.10	-0.28	-0.78	1.00	5.00	0.08	<0.001
Self Realization	3.37	3.29	0.94	-0.02	-0.55	1.00	5.00	0.06	0.004
Similarity	3.43	3.64	1.08	-0.42	-0.87	1.00	5.00	0.12	<0.001
Disappointment	3.42	3.30	1.05	-0.24	-0.79	1.10	5.00	0.09	<0.001
Sexual satisfaction									
Satisfaction	3.45	3.40	0.84	-0.02	-0.40	1.00	5.00	0.13	<0.001
Communication	3.54	3.50	0.91	-0.04	-0.58	1.00	5.00	0.14	<0.001
Fit	3.46	3.33	0.91	-0.02	-0.18	1.00	5.00	0.11	<0.001

Annotation. M – average; Me – median; SD – standard deviation; Sk. – skewness; Kurt. – kurtosis; Min – minimal result; Max – maximum result; D – statistics of the Kolmogorov-Smirnov test; p – test probability

Relationships between the age of the surveyed women and sexual and partner satisfaction as well as body assessment

In order to establish the relationship between age and sexual and partner satisfaction as well as body assessment among the surveyed women, an analysis of Pearson's r correlation was performed. The conducted analysis showed a weak and negative relationship between the age of the surveyed women and the assessment of sexual attractiveness (r = – 0.25). This means that the older the surveyed women were, the lower their assessment of sexual attractiveness was.

Age was positively and weakly correlated with all dimensions of partner satisfaction: intimacy (r = 0.22), self-fulfillment (r = 0.25), similarity (r = 0.21) and disappointment (r = 0.15). This proves that the older the surveyed women were, the higher the level of intimacy, self-fulfillment, similarity, but also disappointment in a partner relationship.

The sexual satisfaction of the surveyed women was not related to their age. The detailed results of the analyzes are presented in Table 2.

Table 2. Person's correlations between age and body assessment, partner and sexual satisfaction

	age	
	r	p
Body evaluation		
Sexual attractiveness	-0.25	<0.001
Weight control	-0.08	0.168
Physical condition	-0.09	0.113
Partner satisfaction		
Intimacy	0.22	<0.001
Self Realization	0.25	<0.001
Similarity	0.21	<0.001
Disappointment	0.15	0.007
Sexual satisfaction		
Satisfaction	-0.09	0.101
Communication	-0.09	0.104
Fit	-0.06	0.260

The type of surgery and the level of sexual and partner satisfaction as well as body evaluation

In order to compare women according to the type of surgery they underwent in terms of the

level of sexual satisfaction, partner satisfaction and body assessment, the H Kruskal Wallis test was performed. The analyzes included women after mastectomy, after andexectomy, after both treatments and those who did not undergo any surgery. The conducted analysis showed significant differences between the groups in terms of sexual attractiveness, weight control, all dimensions of partner and sexual satisfaction (Table 3). In order to establish the nature of the differences, post-hoc analyzes were performed using Dunn's test with a correction of the Bonferroni significance level.

Women after mastectomy showed a lower level of sexual attractiveness compared to women who underwent both procedures (p = 0.025), as well as a lower level of weight control than women after both procedures (p = 0.048). The differences in body assessment between the other groups proved to be statistically insignificant (p> 0.05).

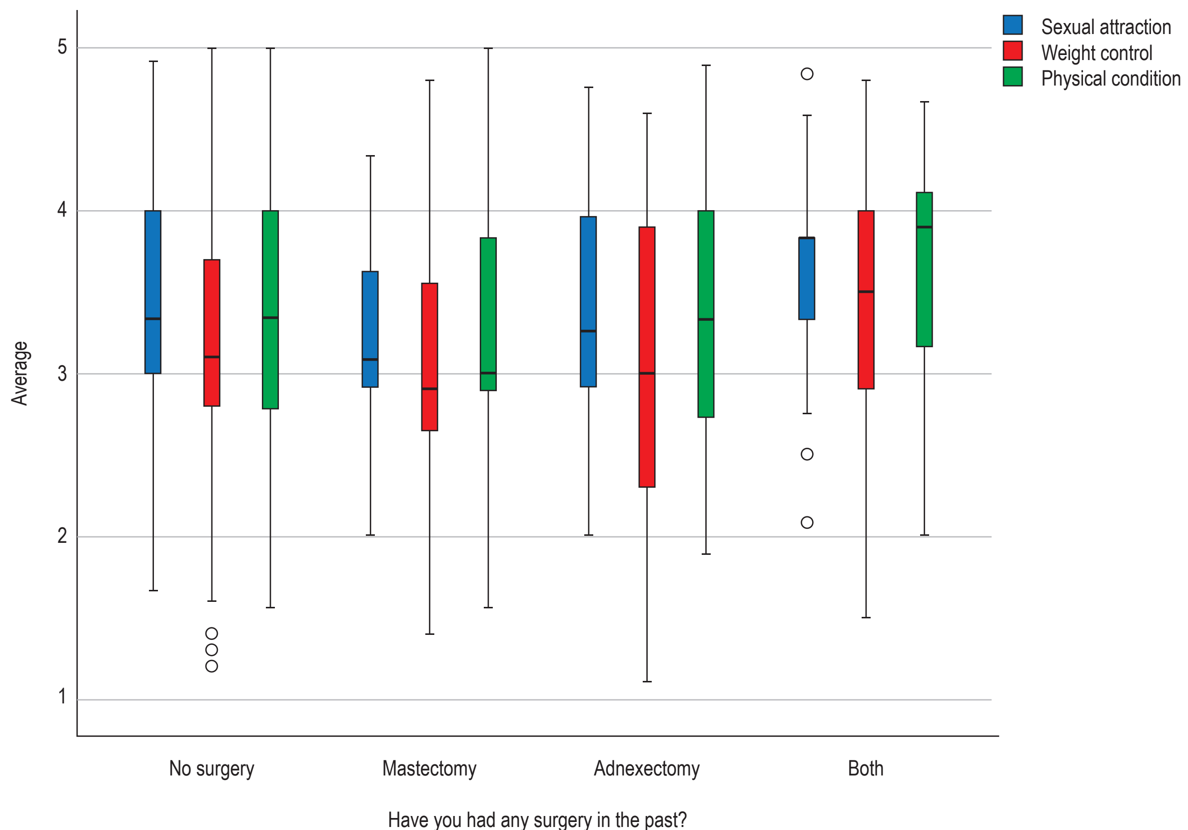

Fig. 1 Box plot for the body assessment by type of treatment.

Women who did not undergo any surgery assessed the level of intimacy significantly higher than women after andexectomy (p <0.001) and mastectomy (p = 0.002), while women after mastectomy assessed intimacy higher than women after andexectomy (p = 0.009).

Women after both procedures assessed the level of self-realization lower compared to women after mastectomy (p = 0.029) or women who did not undergo surgery (p <0.001). Patients who underwent the andexectomy procedure assessed the level of self-fulfillment in the relationship lower than women who did not undergo the procedure (p = 0.007).

The similarity in the relationship was rated higher by women who did not undergo any surgery compared to women who underwent andexectomy (p = 0.001) or both procedures (mastectomy and andexectomy) simultaneously (p = 0.018).

A higher level of disappointment was displayed by women who did not undergo surgery, compared to women after andexectomy (p <0.001) and after both procedures (p = 0.001), and women after mastectomy had a higher level of disappointment than those who underwent andexectomy (p = 0.023).

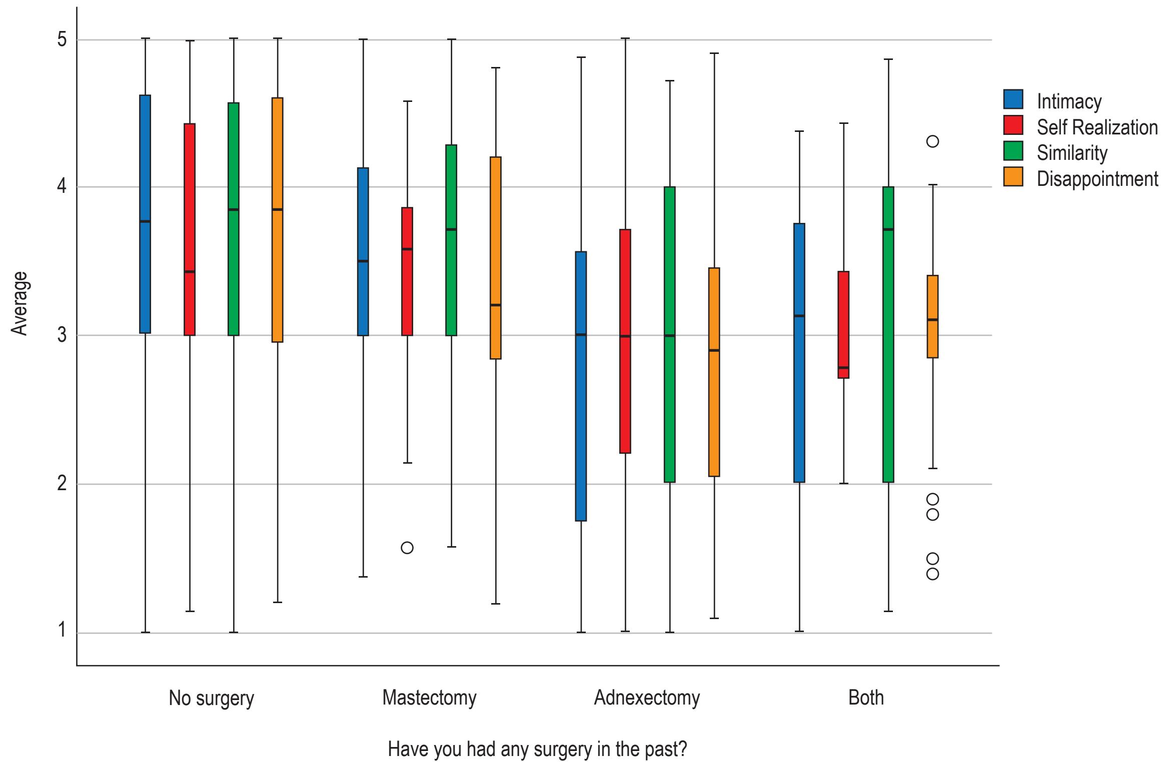

Fig. 2 Box plot for partner satisfaction by type of treatment.

Women who did not undergo any surgery showed a higher level of satisfaction with sexual activity than women after mastectomy (p <0.001), andexectomy (p = 0.009), or both

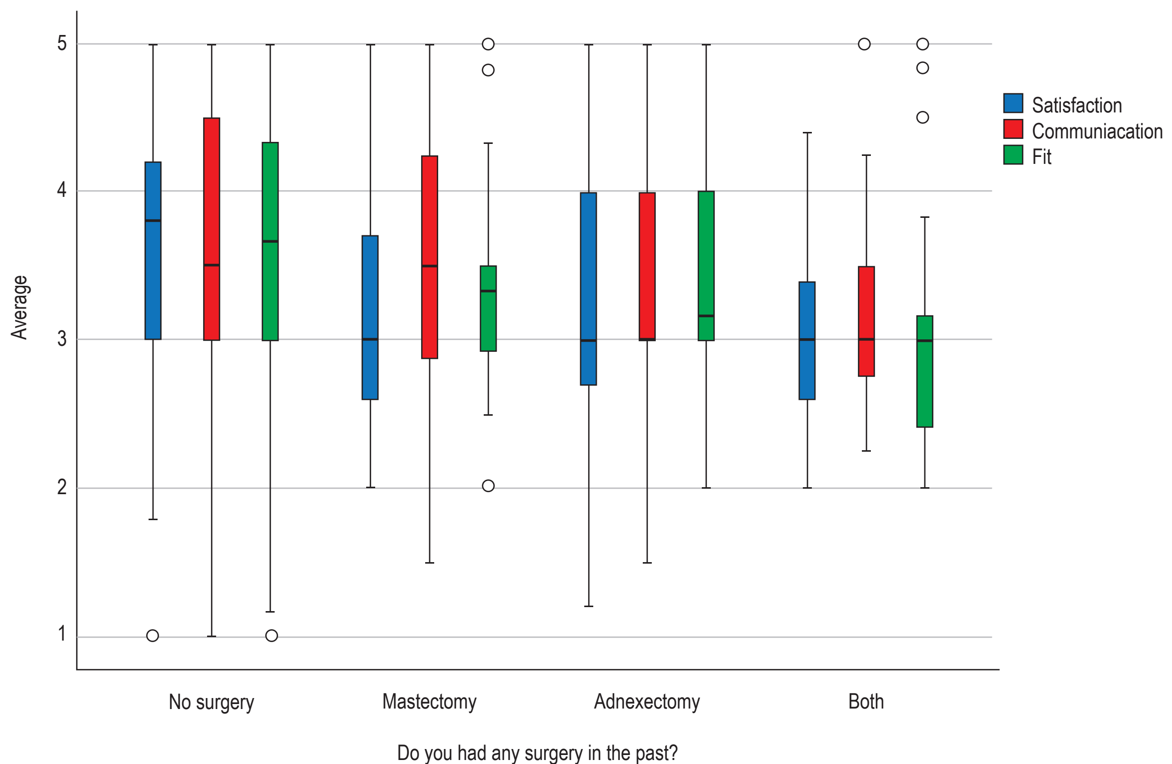

Fig. 3 Box plot for sexual satisfaction by treatment type.

(p <0.001). They also rated the level of communication higher compared to women after both treatments (p = 0.001). On the other hand, women after both procedures assessed the level of sexual matching significantly lower compared to women who had not undergone any surgery (p <0.001) or had undergone andexectomy (p = 0.010).

Table 3. Comparison of women depending on the procedure in terms of body assessment, partner and sexual satisfaction

	No surgery (n = 164)		Mastectomy (n = 55)		Andexektomy (n = 51)		Both (n = 40)				
	Me	IQR	Me	IQR	Me	IQR	Me	IQR	H	p	η^2
Body evaluation											
Sexual attractiveness	3.33	1.00	3.08	0.75	3.25	1.08	3.83	0.58	8.29	0.040	0.04
Weight control	3.10	0.90	2.90	1.00	3.00	1.60	3.50	1.20	7.85	0.049	0.04
Physical condition	3.33	1.22	3.00	1.00	3.33	1.33	3.89	1.03	5.29	0.152	0.03
Partner satisfaction											
Intimacy	3.75	1.63	3.50	1.13	3.00	2.25	3.13	1.75	28.82	<0.001	0.11
Self Realization	3.43	1.43	3.57	0.86	3.00	1.57	2.79	0.71	23.22	<0.001	0.09
Similarity	3.86	1.57	3.71	1.29	3.00	2.00	3.71	2.00	18.38	<0.001	0.07
Disappointment	3.85	1.68	3.20	1.60	2.90	1.80	3.10	0.58	27.92	<0.001	0.10
Sexual satisfaction											
Satisfaction	3.80	1.20	3.00	1.20	3.00	1.40	3.00	0.80	34.01	<0.001	0.12
Communication	3.50	1.50	3.50	1.75	3.00	1.00	3.00	0.75	16.88	0.001	0.07
Fit	3.67	1.33	3.33	0.67	3.17	1.00	3.00	0.79	20.48	<0.001	0.08

Annotation. Me – median; IQR – quartile range; H – statistics of the Kruskal Wallis test; p – test probability; η2 – effect size

Body assessment based on family history of breast cancer, ovarian cancer, or both

In order to compare women with a family history of breast cancer, ovarian cancer, or both in terms of body assessment, the Mann-Whitney U test was analyzed. The analysis showed no differences in body assessment in the compared groups. Women with a family history of breast cancer, ovarian cancer, or both, showed similar levels of sexual attraction, weight control, and physical condition to those who had no family history of the disease. The results of the analyzes are presented in Table 4.

Table 4. Body assessment by family history of breast cancer, ovarian cancer, or both

Body evaluation	A family history of breast cancer, ovarian cancer, or both								
	yes (n = 276)			no (n = 34)					
	average rank	Me	IQR	average rank	Me	IQR	Z	p	r
Sexual attractiveness	155.77	3.42	1.00	153.32	3.13	0.67	-0.15	0.881	0.01
Weight control	153.53	3.00	1.20	171.47	3.50	0.45	-1.10	0.270	0.06
Physical condition	152.48	3.33	1.22	179.99	3.89	0.58	-1.69	0.091	0.10

Annotation. Me – median; IQR – quartile range; Z – standardized statistic of the Mann Whitney test; p – test probability; r – effect size

Assessment of the body depending on the occurrence of neoplastic disease

Similar analyzes were performed to establish differences in body assessments in women with or without cancer. The conducted analysis showed that women who developed cancer had a lower level of sexual attractiveness and a lower level of weight control than women who did not develop cancer. The detailed results of the analyzes are presented in Table 5.

Table 5 Assessment of the body depending on the occurrence of neoplastic disease

Body evaluation	The occurrence of neoplastic disease								
	yes (n = 119)			No (n = 191)					
	average rank	*Me*	*IQR*	average rank	*Me*	*IQR*	*Z*	*p*	*r*
Sexual attractiveness	136.21	3.08	0.83	167.52	3.58	1.08	-2.99	0.003	0.17
Weight control	141.45	3.00	1.20	164.25	3.10	1.20	-2.18	0.029	0.12
Physical condition	146.32	3.22	1.00	161.22	3.56	1.33	-1.43	0.154	0.08

Annotation. Me – median; IQR – quartile range; Z – standardized statistic of the Mann Whitney test; p – test probability; r – effect size

DISCUSSION

The obtained results in terms of sexual satisfaction, partner satisfaction and body assessment among patients with the BRCA mutation did not allow for a positive verification of all hypotheses, although to a large extent confirmed the conclusions drawn from the analyzes conducted so far with the participation of healthy women and women struggling with cancer. The existence of a relationship between the age of the surveyed women and their assessment of sexual attractiveness was confirmed. The older the patients were, the lower they rated this attractiveness. This seems to be consistent with the body-defined approach to sexual attraction and how it is presented and then interpreted in a social context, which is related to changes in the body as a consequence of biological aging processes. At the same time, these results showed that the sexual satisfaction felt by the surveyed women was not related to their age. On the other hand, partner satisfaction was largely related to age. The older the patients were, the higher they rated the level of intimacy, self-fulfillment and similarity in relationships with partners, also showing a higher level of disappointment compared to younger patients. However, the analyzes conducted so far with regard to the relationship between age and partner satisfaction are not consistent. Research by Levenson et al. [34] indicated that older couples, compared to middle-aged couples, showed, inter alia, lower tendency to conflict, contributing to the improvement of marital satisfaction. However, some later studies proved a negative relationship between age and marital satisfaction [35]. Therefore, in similar analyzes, it seems reasonable to take into account not only the age of the patients, but also the age of their partners and the exact duration of the relationship. According to the research by Wang-Sheng Lee [35], marital satisfaction decreases with the duration of the relationship, but this applies to men and women, who have age differences compared to couples of similar age. Additionally, it is worth paying attention to other results [36] according to which, although older spouses report a moderate to high level of marital satisfaction, it is still unclear whether these assessments are constant and persist throughout the marriage or they also depend on different stages of life.

In this study, significant results were obtained in terms of body assessment by patients who, as a preventive measure, opted for surgery – mastectomy, andexectomy, or both. Women who underwent preventive mastectomy showed a lower level of weight control and a lower level of sexual attraction compared to women who underwent both procedures. It is difficult to identify a clear cause of such a condition, but it is worth remembering that in the case of women,

breasts play a special role in the body image due to their connection with the concept of sexuality and motherhood [37] and due to the specific, sensual meaning of the breast [21]. In the future, however, it would be worth making more complex analyzes that would allow to find out the reasons for the differences shown in the study. At the same time, it is worth noting that in these studies no differences in body assessment were found in women with a family history of breast cancer, ovarian cancer, or both, compared to women without a family history of cancer. On the other hand, women with personal experience of the disease in the past displayed a lower level of sexual attraction and lower level of weight control than women without such experiences, confirming the long-term influence of cancer on the functioning of women.

In an emotional crisis, which is often a consequence of receiving a diagnosis or the need for treatment, the social support received by the patients, especially the support present in the partner relationship, is of particular importance. For a woman with breast cancer, the support received from her husband is of exceptional importance in the coping process, but the needs of men related to their personal emotional experiences in the face of their wife's disease should not be forgotten [38]. According to contemporary research, the quality of sexual life and the so-called Dyadic adjustment in the relationships of women after mastectomy is lower than in women who have not performed this surgery [39]. These results are consistent with the present study, which showed that women who chose not to undergo preventive surgery rated relationship intimacy, level of self-fulfillment, or similarity higher than women who underwent mastectomy or andexectomy. At the same time, women who did not perform preventive surgery also indicated a higher level of disappointment in the partnership relationship. Perhaps it is related to the failure to receive the expected support in the decision-making process regarding the performance of an operation or other preventive actions. It has been shown that spouses, family and friends exert a significant influence on patients' decisions regarding prophylactic mastectomy [40] or breast reconstruction [41, 42].

Not all hypotheses have been positively verified. It should be noted that the groups of the surveyed women were not equal in terms of cancer history, – personal or family. Additionally, not all women were married at the time of the study. Some of them formed an informal relationship, few were widows or divorced. The assessments made by the participants of the study in the proprietary questionnaire were subjective.

CONCLUSIONS

The results obtained in this study suggest, first of all, that women with the BRCA genetic mutation require special psychological support at various stages – also after prophylactic surgery – but this support should probably be systemic and also include their partners, because the consequences of the treatments are reflected in the partner relationship and sexual parties. Taking into account the specificity of the situation in which patients with BRCA mutation find themselves when deciding on the preferred forms of preventive measures, it is worth conducting further research on the psychological and social consequences of these decisions. Increased knowledge of the described differences, as well as conducting more and more complex and detailed analyzes in this area, give an opportunity to create adequate forms of help, aimed at reducing concerns related to the decision made by the patients and its subsequent consequences.

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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