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Time perspective and attitudes towards preventive mastectomy

Perspektywa czasowa a postawy wobec profilaktycznej mastektomii

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Abstract

Introduction and objective: Breast cancer is considered to be the most common cancer among women and a significant challenge for prevention. The aim of this study was to determine the relationship between the time perspective (focus on the past, present or future) and attitudes towards prophylactic mastectomy as one of the methods of breast cancer prevention available in healthy people who are predisposed to the disease because of factors including mutations in the *BRCA1* and/or *BRCA2* genes. **Materials and methods:** The study was conducted from June to July 2019 and included only women over 18 years old. The project was implemented in public and generally accessible spaces in the western part of Poland. The Temporal Perspective Inventory by Philip Zimbardo and John Boyd in the Polish adaptation by Aneta Przepiórka and the author's Anonymous Questionnaire for Respondents were used for the analysis, with a view to deepening the knowledge about the subjective life situation of the respondents and their awareness in the field of cancer prevention, and identifying their attitudes related to preventive mastectomy. **Results:** The results of the study revealed that the level of knowledge of the surveyed women increased with an increase in their positive orientation to the past and future. It was noted that time orientations differed depending on the presence of cancer in the family of the examined woman. Women with a negative focus on the past were slightly more ready to undergo prophylactic mastectomy. **Conclusions:** It seems reasonable to include the diagnosis of women's individual temporal perspectives in the development of personalised programs and activities in the fields of oncological prevention and social psychoeducation.

Keywords: time perspective, prophylactic mastectomy, risk of disease for cancer, social psychoeducation, cancer prevention

Streszczenie

Wprowadzenie i cel: Nowotwór piersi uznawany jest za najczęściej występujący nowotwór u kobiet i znaczące wyzwanie dla profilaktyki. Celem niniejszej pracy było określenie związku między perspektywą czasową (koncentracja na przeszłości, teraźniejszości lub przyszłości) a postawami wobec profilaktycznej mastektomii, jako jednej z metod prewencji raka piersi, przeznaczanej dla osób zdrowych, ale predysponowanych do zachorowania z uwagi m.in. na posiadanie mutacji w genach *BRCA1* i/lub *BRCA2*. **Materiał i metody:** Badanie prowadzone było od czerwca do lipca 2019 roku i obejmowało wyłącznie kobiety powyżej 18. roku życia. Projekt realizowano w przestrzeniach publicznych i ogólnodostępnych w zachodniej części Polski. Do analiz wykorzystano Kwestionariusz Perspektywy Temporalnej Philipa Zimbardo i Johna Boyda w polskiej adaptacji Anety Przepiórki oraz autorski Anonimowy Kwestionariusz dla Respondentów, pozwalający na pogłębienie wiedzy na temat subiektywnej sytuacji życiowej respondentek, ich świadomości w zakresie profilaktyki nowotworowej, a także wyodrębnienie postaw związanych z metodą profilaktycznej mastektomii. **Wyniki:** Otrzymane wyniki ujawniły, że poziom wiedzy badanych kobiet wzrastał wraz ze wzrostem pozytywnej orientacji na przeszłość i przyszłość. Zauważono, że orientacje czasowe różniły się ze względu na występowanie nowotworów w rodzinie badanej kobiety. Kobiety negatywnie skoncentrowane na przeszłości były nieco bardziej gotowe do poddania się profilaktycznej mastektomii. **Wnioski:** Zasadne wydaje się włączenie diagnozy indywidualnych perspektyw temporalnych kobiet do budowania spersonalizowanych programów i działań z zakresu profilaktyki onkologicznej i psychoedukacji społecznej.

Słowa kluczowe: perspektywa czasowa, profilaktyczna mastektomia, ryzyko zachorowania na nowotwory, psychoedukacja społeczna, profilaktyka nowotworów

INTRODUCTION

Nowadays, breast cancer is considered the most common cancer among women and thus one of the most serious epidemiological problems (Bojakowska et al., 2016). At the same time, it is a major challenge for prophylaxis, where effective and early detection can be an important protective factor. Prophylactic mastectomy, one of the methods of breast cancer prevention, is a procedure to remove one or two healthy breasts in people with an increased risk of developing cancer in this part of the body. As a highly effective surgical method, it is intended for healthy individuals who are predisposed to the disease because of factors including mutations in the *BRCA1* and/or *BRCA2* genes as well as people struggling with cancer lesions located in one of the breasts. The breast that is not affected by cancer is preventively removed in order to reduce the risk of developing the disease. Although the efficacy of prophylactic mastectomy reaches up to 90% (Gu et al., 2019) making a decision about surgery is a process and for many it poses a serious difficulty.

In cancer prophylaxis, one can distinguish primary, secondary, and tertiary prevention. According to experts, the most important role in cancer prophylaxis is played by primary prevention, which most often involves the entire population and focuses on disease prevention or reduction of the risk of cancer development. The primary measures are aimed at preventing malignant cancer. As part of this type of interactions, special attention is paid to educating the society in the field of oncology and available prevention methods, and focusing on the promotion of the so-called oncological vigilance and pro-health behaviours (Gośliński, 2019). In the case of breast cancer, patients are offered various preventive methods, including prophylactic adnexectomy and mastectomy procedures, in which the ovaries and fallopian tubes, as well as the mammary glands, are successively removed. Including preventive surgery in the canon of health-promoting behaviours, the authors of this study searched for links between the time perspective of Polish women and their attitude towards prophylactic mastectomy. The relationships between temporality and broadly understood health behaviours have been analysed by numerous researchers and have led to significant conclusions. The studies by Gulla and Tucholska (2019) show that a high intensity of the negative past perspective is not conducive to taking into account the consequences of one's own actions in the regulation of current behaviour. Similarly, a pessimistic attitude towards the present is associated with a lower inclination to include them in the process of taking up an activity. It turns out, however, that high scores on the hedonistic present scale and the orientation of individuals towards the future have an impact on the shaping of the undertaken procedures. Griva et al. (2015) attempted to determine how the time perspective was related to the tendency to engage in health-promoting behaviours. They confirmed, inter alia, the relationship of all temporal attitudes with

the subjective assessment of their own health. A worse perception of health level was reported by people with a negative past and present attitude, while a positive past and present perspective and the respondents' orientation towards the future were associated with a higher level of subjectively assessed health condition. Researchers have highlighted a particularly important link between the future-oriented temporal perspective and the propensity to maintain a healthy lifestyle. In their research, Zimbardo and Boyd (2009) confirmed that future-focused individuals were more willing to take care of their health, undergo regular preventive examinations, follow balanced diets, and are seek medical advice. Roncancio et al. (2014) analysed the tendency of Latin American women to report for cervical cancer prevention tests. In this case, the existence of a significant relationship between the future temporal perspective and the independent undertaking of screening tests by women was confirmed, which, in turn, was not demonstrated in relation to the hedonistic time perspective. This attitude was found to be favour a greater degree of pleasant behaviours, but not necessarily positive effects on health.

AIM OF THE STUDY

The aim of this study was to assess women's attitudes towards breast cancer and methods of its prevention. The authors attempted to capture the nature of the relationship between the time perspectives of Polish women and their attitudes towards preventive breast removal.

MATERIALS AND METHODS

Research tools

For the purpose of the study, the Temporal Perspective Inventory (ZTPI) by Zimbardo and Boyd in the Polish adaptation of Przepiórka and the original Anonymous Questionnaire for Respondents were used.

The ZTPI by Zimbardo and Boyd (1999) was created to measure the broadly understood time perspective. According to the authors, the temporal perspective is formed by assigning experiences to the categories of the future, present, and past (Sobol-Kwapinska, 2013). The resulting framework is helpful for evaluating experiences, and giving them coherence and proper order. Different time categories as well as their extent and scope mean different things for different people. Speaking of the dominant time perspective, one should see it as a certain fixed inclination to perceive reality through the prism of taking a stance and settling in a specific time period: future, present or past. This entrenched preference stabilises in a specific cognitive style and depends on the current situation of the subject. The tool consists of 56 statements that form five different time perspectives, falling into five different scales. The highlighted time perspectives include:

1. Past-Negative scale – focusing on the negatively valued past (10 items);

2. Past-Positive scale – focusing on the positively valued past (nine items);
3. Present-Hedonistic scale – focusing on the present; maximising the pleasure and living “here and now” (15 items);
4. Present-Fatalistic scale – negative perception of the present; belief that they have no influence on the future; passivity (nine items);
5. Future scale – focus on the future, planning, setting goals (13 items).

The reliability of the tool was confirmed using the internal compliance method. The Cronbach's alpha coefficient ranges from 0.61 (Past-Positive) to 0.83 (Past-Negative). The factor analysis method confirmed the validity of the tool and its five-factor structure. The percentage of explained variance for the entire scale was 32.07%.

The original Anonymous Questionnaire for Respondents was created to deepen the knowledge about the subjective life situation of the respondents and their awareness of cancer prevention, and to distinguish attitudes related to the method of prophylactic mastectomy. The tool is divided into two parts. The first part deals with sociodemographic data such as age, place of residence, education, marital status, relationship status, having children, and own and family cancer history. The second part of the questionnaire (i.e. “knowledge in the field of cancer prevention”) contains questions closely related to medicine and cancer prevention, and also refers to the expected hypothetical impact of preventive breast removal on the private life of the respondents. The answers to the items in this part of the questionnaire were given based on two types of scales: two-level (Yes/No) or: four-level (Yes/Rather Yes/No/Rather No). The questions in the survey were divided and assigned to the appropriate components of attitudes distinguished on the basis of the theory of attitudes put forward by Soborski (1987), i.e. the cognitive component and the emotional-motivational component.

a) The assignment of the questions was as follows:

Cognitive component of attitudes:

Question 1. Have you ever come across the term “BRCA1 mutation”?

Question 4. Do you know where you can perform genetic testing for BRCA1 gene mutation?

Question 6. How would you rate your level of knowledge about prophylactic mastectomy?

Question 7. In what cases is prophylactic mastectomy used?

b) Emotional and motivational component:

Question 11. If you obtained a positive result of a genetic test (you were a carrier of the BRCA1 mutation), would you encourage the women in your family (sisters, cousins, aunts, etc.) to also undergo genetic testing?

Question 14. If you obtained a positive result of a genetic test (you were a carrier of the BRCA1 mutation), would you opt to have your healthy breast surgically removed, knowing that this procedure will significantly reduce the risk of breast cancer?

Question 17. If you knew that the surgery to remove a healthy breast and its reconstruction are reimbursed, would this information affect your decision to undergo a prophylactic mastectomy?

Question 18. Could an opinion of your partner have an impact on your decision to undergo prophylactic breast removal?

Question 19. How much influence could the opinion of your partner have on your decision about the procedure?

c) Component of partnership relationship:

Question 20. Do you think that breast removal could affect the quality of your relationship?

Question 21. In what way do you think breast removal could affect the quality of your relationship with your partner (Choose up to two answers)?

Question 22. Do you think that breast removal could affect the quality of your sexual relationship with your partner?

Question 23. In what way, in your opinion, could breast removal affect the quality of your sex life (Choose up to two answers)?

The respondents answered the questions on the basis of the statements they had chosen. The individual responses, referred to as attitudinal valence indicators, were assessed as follows:

1. indicator of negative attitude/lack of knowledge;
2. moderate attitude indicator/moderate level of knowledge;
3. indicator of positive attitude/high level of knowledge.

The sum totals of the answers to individual questions assigned to the respective components of attitudes became measures of their severity.

Research procedure

The study used purposeful selection, with the composition of the study sample limited to women over 18 years of age. The ethics committee approved the study plan and granted consent to conduct the study. Before starting the procedure, the participants of the research project were each time informed about the fully voluntary nature of participation and the possibility to withdraw from the study at any time during its duration. The respondents were assured of the full confidentiality of the research procedure and the use of the results only for scientific purposes. The respondents gave their informed consent to participate in the procedure without receiving any remuneration for it. The study lasted from June to July 2019.

Study group

A total of 96 women participated in the study. The most numerous group were young women (63.5% under 30 years old), every fourth participant (25% of the group in total) was aged 30–49, and 10.5% were people over 50. Almost 48% of women had higher education, 26% had the student status, 4.2% had vocational education, and one patient

Temporal orientations	Attitude indicators			
	Knowledge	Behaviour	Relation to partner	General attitude
Past-Positive	0.238*	-0.122	0.136	0.107
Past-Negative	-0.117	0.110	-0.052	-0.061
Present-Hedonistic	-0.090	0.015	0.046	-0.008
Present-Fatalistic	-0.113	-0.044	0.044	-0.074
Future	0.252*	-0.020	0.078	0.174

Source: own research.
* $p < 0.05$; ** $p < 0.01$.

Tab. 1. Analysis of the significance, strength and direction of the relationship between time orientation and attitudes towards prophylactic mastectomy in women

Temporal orientations	Yes		No		Mann-Whitney U test	
	M	SD	M	SD	Z	p
Past-Positive	26.62	3.80	24.80	4.69	-1.717	0.086
Past-Negative	34.98	9.58	35.47	7.90	-0.041	0.968
Present-Hedonistic	60.52	8.55	61.20	11.94	-0.410	0.682
Present-Fatalistic	24.80	5.21	25.43	5.83	-0.419	0.675
Future	37.56	5.49	34.30	7.55	-2.104	0.035

Source: own research.

Tab. 2. Comparison of the severity of temporal orientations depending on the incidence of cancer in the family

declared primary education. Overall, 65.7% of the participants were in relationships at the time of the study, of which 36.5% were in informal relationships. A total of 33.3% ($n = 32$) of the respondents had children. Neoplastic disease occurred in the families of 66.7% of the examined women ($n = 64$). The grandparents (close to 40%, $n = 25$) were most often affected, followed by uncles/aunts (nearly 30%, $n = 18$), while less than 20% of the respondents ($n = 11$) had an affected parent. 14.6% of the respondents admitted that their family member had suffered from breast cancer and 8.3% had someone in their family who had ovarian cancer. Over 5% of the respondents admitted that they had suffered or still suffer from an oncological disease, with one person declaring a preventive mastectomy in the past, and six people reporting that someone from their close circle had undergone the procedure.

RESULTS

The IBM SPSS Statistics 25.0 package was used for data analysis. The hypotheses relating to the relationship between the components of attitudes and the temporal orientation were tested using the pairwise correlation method, based on the Spearman's ρ coefficient because the distributions of the quantitative data deviated from the normal. The statistical value of $p < 0.05$ was taken as an indicator of full statistical significance, while the value of $p < 0.1$ was additionally taken as an indicator of not fully significant statistical tendency.

As shown in Tab. 1, the only attitude indicator that was related to the selected time orientations was the knowledge of the examined women about prophylactic mastectomy.

Two weak and positive correlations were observed, indicating that the women's knowledge about the subject of the attitude under study increased slightly with an increase in the past positive orientation ($\rho = 0.238$; $p = 0.019$), as well as the future orientation ($\rho = 0.252$; $p = 0.013$). Moreover, at the level of a very weak statistical tendency, the relationship between the future orientation and the general indicator of attitude towards breast cancer prevention ($\rho = 0.174$; $p = 0.090$) persisted.

The main research hypothesis can be considered partially positively confirmed – there are significant relationships between some temporal orientations and certain indicators of attitudes towards prophylactic mastectomy. The level of knowledge of the surveyed women was found to increase with growing intensity of their past positive and future orientation. In order to deepen the description of the phenomenon under study, the relationships between time orientations and individual questions regarding the knowledge and behaviour of the women towards the subject of the attitude under study were also checked. Several individual relationships of statistical significance were identified, and due to the large pool of data and their considerable fragmentation, the description was limited to those that showed statistical significance, or at least the level of statistical trend. It was noted that the time orientations differed depending on whether there were tumours in the family of the examined woman. As shown in Tab. 2, women with a positive family history of cancer had a significantly greater focus on the future (on average by 3.26 crude points; $p < 0.05$) and a tendency to concentrate slightly more on the positive aspects of the past (on average by 1.82 points; $p < 0.1$).

Temporal orientations	Yes		No		Mann–Whitney <i>U</i> test	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>Z</i>	<i>p</i>
Past-Positive	25.54	4.29	26.90	4.00	–1.583	0.113
Past-Negative	33.93	8.97	37.54	8.63	–1.894	0.058
Present-Hedonistic	61.05	9.24	60.82	10.85	–0.545	0.585
Present-Fatalistic	24.71	4.87	25.74	6.21	–1.274	0.203
Future	36.95	5.59	36.03	7.33	–0.606	0.544

Source: own research.

Tab. 3. Comparison of the severity of temporal orientations based on whether if a person obtained a positive genetic test result (for a mutation in the BRCA1 gene), they would decide to undergo surgical removal of a healthy breast

Temporal orientations	No		Rather no		Rather yes		Yes		Kruskal–Wallis test		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>H</i>	<i>df</i>	<i>p</i>
Past-Positive	27.00	4.35	26.27	4.48	25.50	4.41	26.24	3.91	1.800	3	0.615
Past-Negative	32.79	10.28	37.19	9.16	37.50	9.18	32.97	7.81	6.855	3	0.177
Present-Hedonistic	57.64	8.65	62.88	10.20	61.50	11.24	60.55	8.92	2.053	3	0.562
Present-Fatalistic	23.86	4.37	26.77	6.03	26.12	5.52	23.00	4.78	9.661	3	0.022
Future	36.71	9.68	35.31	5.71	36.42	6.17	37.41	5.01	2.667	3	0.446

Source: own research.

Tab. 4. Comparison of the severity of temporal orientations based on whether the reimbursement of the removal of a healthy breast and its reconstruction would affect the person's decision to undergo prophylactic mastectomy

The decision on the preventive removal of a healthy breast was associated, with a negative focus on the past, albeit at the level of a statistical trend that was not fully significant. It turns out that the women who are less focused on past problems would be slightly more ready for prophylactic breast removal (Tab. 3; $p < 0.1$).

Interesting results were obtained for the question regarding the reimbursement of the procedure and its possible impact on the decision to have a healthy breast removed. It turns out that the women who gave answers indicating a moderate influence of the reimbursement on the decision to undergo the procedure (rather yes and rather no) showed a similar intensity of focus on the future, while the women who gave both more extreme answers (both yes and no) were similar, by about 3 points raw, with a lower intensity of present fatalistic orientation ($p < 0.05$). Detailed data is presented in Tab. 4.

The women who declared that their partner's opinion would have an impact on their possible decision to have a healthy breast removed had a significantly higher intensity of negative orientation towards the past, scoring on average 4.87 raw points more on this scale ($p < 0.05$). Moreover, they showed a very weak tendency towards a more (on average 1.7 points) fatalistic approach to the present ($p < 0.1$).

DISCUSSION AND CONCLUSIONS

The studies by other researchers described in the article are largely consistent with the data obtained in these analyses. It is worth noting, though, that in the undertaken study, the relationships of the temporal perspective with attitudes towards cancer and prophylactic mastectomy show statistical

significance only for the knowledge component. However, the relationship between the above-mentioned attitudes and the motivational-behavioural dimension of attitudes, which is found in other studies, was not confirmed. One of the ways to explain this phenomenon may be to refer to the study by Przysada et al. (2009), which proved that despite a consensus among the surveyed women as to the validity of carrying out preventive examinations and the knowledge about their significant impact on health, only 33% of the respondents expressed their willingness to undertake such procedures, and the vast majority have never similar share. This shows that even though women may know about the benefits of caring for their own health, it does not always translate to any actions aimed at health protection. Despite the lack of statistically significant results regarding the relationship between the adopted temporal perspective and the emotional-motivational component of attitudes as well as the additionally distinguished element of assessing the significance of the partnership relation for undertaking the procedure, the analysis of individual questions included in the original survey revealed interesting facts. They can be a starting point for researchers taking up similar topics in the future. It turns out that the women with a lower level of negative attitude towards the past are characterised by a greater readiness to undergo a prophylactic mastectomy procedure. On the other hand, the respondents for whom the partner's opinion would influence the decision to undertake the procedure or not had lower scores in the pessimistic present scale and higher scores in terms of future orientation.

When looking for the cause of these findings, it should be noted that entering into a partnership is a conscious decision to include another person in your life. The opinion of

the partner is, therefore, an important factor that shapes attitudes and may influence the decision-making process. Preventive mastectomy is a procedure affecting various aspects of the functioning of both the patient and the partner with whom she shares her life. It is a treatment that interferes with the body, psyche, lifestyle, as well as the way of living on various levels. The future temporal perspective is conducive to considering possible consequences of the procedure during the decision-making process, and the opinion of the partner as a potential companion of the further life path is its important component, which, unlike the context of settling in the past or present time, may assume a regulatory nature. The research of other authors (Adams and White, 2009) shows that important benefits can be gained from activating the future time perspective, which may increase the effectiveness of health-promoting actions and provide motivation to continue them. Awareness of the existence of relationships between temporal relations and attitudes towards prophylaxis may additionally suggest the inclusion of individual temporal perspectives in the spectrum of interventions and building personalised programs, methods, and preventive actions on their basis. They would contribute to reducing harmful behaviours and promote attitudes conducive to maintaining good health, making them more effective and lasting.

Conflict of interest

The authors do not report any financial or personal affiliations to persons or organisations that could adversely affect the content of or claim to have rights to this publication.

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