Original Paper

The influence of cognitive-behaviour therapy on quality of life and self-esteem in women suffering from breast cancer

Authors' Contribution:
A Study Design
B Data Collection
C Statistical Analysis
D Data Interpretation
E Manuscript Preparation
F Literature Search
G Funds Collection

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Summary

Background   Mastectomy, chemotherapy and radiotherapy, used in the treatment of breast cancer, cause physical and mental stress and may lead to substantial changes in the everyday life of the woman. The patient may also lose her social role and be exposed to increased risk of mental disorders, especially depression and anxiety [1,2]. Breast cancer and its treatment may then have a significantly negative influence on quality of life and self-esteem of women in the physical, mental and social dimensions.

Quality of life is inseparably related to patients' attitude toward the use of their own skills, achieving their goals and being able to satisfy their physical and emotional needs [3]. Health related quality of life is understood as a multi-level concept including all physiological, psychological and social factors that play a significant role for the health status [4]. It is connected with how the patient perceives the influence of the disease and the applied treatment on her functioning and general feeling of life satisfaction [5].

Aim   The aim of the study was to indicate the influence of cognitive-behaviour therapy (CBT) on self-esteem and quality of life (QoL) in women suffering from breast cancer.

Materials/Methods   The study comprised 67 women after mastectomy and undergoing chemotherapy or chemo- and radiotherapy. CBT (Simonton's Program) was adopted for the experimental group (n=35). The control group (n=32) consisted of women awaiting psychotherapy.

The studies were of a linear character, including measurements before and after psychotherapy. The following questionnaire methods were used: EORTC QLQ-C30 and the Self-Esteem Scale by R. Cibor.

Results   An improvement in general QoL, general health status assessment and self-esteem were observed in the period following the therapy among CBT patients in comparison with the control group. Higher self-esteem in the CBT group was related to the fact that the subjects were able to maintain the ideal self at a fixed level while constantly increasing the real self during the therapy.

The analysis of the results in relation to the functional dimensions indicated improvement in the field of cognitive and emotional features, which resulted from participa-

	tion in the therapy. The CBT patients reported lower intensification of somatic symptoms, which, however, was not tantamount to changes in the self-esteem of physical features. The psychotherapy did not have any impact on the level of social functioning and assessment of features in this respect between the examined groups.
Conclusions	CBT improves QoL and self-esteem in women suffering from breast cancer. It may also be used as a support method enhancing standard oncological treatment and improving the physician-patient relationship.
Key words	**breast cancer • cognitive-behaviour therapy • quality of life • self-esteem**

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BACKGROUND

Mastectomy, chemotherapy and radiotherapy, used in the treatment of breast cancer, cause physical and mental stress and may lead to substantial changes in the everyday life of the woman. The patient may also lose her social role and be exposed to increased risk of mental disorders, especially depression and anxiety [1,2]. Breast cancer and its treatment may then have a significantly negative influence on quality of life and self-esteem of women in the physical, mental and social dimensions.

Quality of life is inseparably related to patients' attitude toward the use of their own skills, achieving their goals and being able to satisfy their physical and emotional needs [3]. Health related quality of life is understood as a multi-level concept including all physiological, psychological and social factors that play a significant role for the health status [4]. It is connected with how the patient perceives the influence of the disease and the applied treatment on her functioning and general feeling of life satisfaction [5].

Several empirical studies have confirmed the thesis that psychotherapy may improve quality of life [6]. Patients' quality of life may also be significantly increased by other factors, such as good physician-patient relationship, education or participation in the activities of a support group [7–9].

From the practical point of view especially important for quality of life are those factors which the patient can control irrespective of how advanced the disease is and without the necessity of using help from other people of institutions. Among such factors is self-esteem.

Self-esteem, i.e. the basic cognitive structure of personality, constitutes one of the most important motivation forces in human life. It is formed over the years and results from self-observation of the individual and feedback and evaluation obtained from other people. Self-esteem is a synthesis of descriptive valuation assessment concerning one's own personality and one's own actions [10]. Self-esteem changes during life depending on the stage of the person's development and situations and events that occur during their life (such as serious disease). Self-esteem has a significant influence on human emotions and behaviour. It plays an important role in the process of experiencing and coping with disease and its treatment. Self-esteem determines certain actions and their valuation. Deteriorated self-esteem is a common experience among cancer patients [11], followed by decreased quality of life. It also causes disturbances in social relationships and hinders treatment.

The results of empirical studies on the role of self-esteem in the process of fighting a serious disease such as cancer are encouraging. Self-esteem influences the assessment of the stress situation – the better the self-esteem, the more often the patient approaches the disease as a challenge. This leads to experiencing positive emotions such as

hope [12], positive overvaluation of the disease [13] and finally to constructive adaptation to the state of being ill [14].

The more positive the self-esteem, the lower the probability of occurrence of mental disorders (anxiety, depression) over the course of the disease and during treatment. This also applies to women after mastectomy [15]. Interestingly, self-esteem remains in a significant relationship with the feeling of being in control of the disease. It also encourages the patient to initiate and continue treatment.

Self-esteem constitutes an important variable in the assessment of the situation of the disease, the ability to adjust to the disease as well as the ability to cope with the disease. It is also a significant factor related to patients' quality of life [8,16].

The aforementioned data indicate that the studies on self-esteem have important practical implications. Improving self-esteem may lead to better coping with the disease. The examinations carried out so far indicate that psychological intervention may cause improvement in self-esteem. Especially useful are sustaining therapy enabling emotional expression, cognitive-behaviour intervention and educational techniques [8,17,18]. Surprisingly, the results seem to suggest that patients in especially difficult psychological situations (little social support, high levels of stress) benefit most from the therapy and exhibit the most substantial improvements in self-esteem [15,18].

The empirical data gathered so far show that quality of life and self-esteem have an impact on thinking about the disease, on emotions related to the disease and on behaviour in social interactions. It seems important to identify effective interventions that would improve functioning of patients and increase their involvement in everyday life activities during treatment.

AIM

The aim of the study was to indicate the influence of cognitive-behaviour therapy on self-esteem and quality of life in women suffering from breast cancer.

MATERIALS AND METHODS

Subjects and design

The study comprised 67 women after mastectomy and undergoing chemotherapy or chemo- and ra-

diotherapy. Evaluation of the therapeutic impact was carried out in a two-group design, with double measurements carried out at the beginning (baseline) and after the intervention (post-test), which made it possible to attain outcomes.

Group cognitive-behaviour therapy based on Simonton's Program was introduced in the experimental group (n=35). The control group (n=32) consisted of women awaiting psychotherapy. Both groups participated in the support group (Stowarzyszenie Amazonek, Eng. the Association of Amazons). Participation in the therapy was voluntary and a patient was included in the examinations only after she expressed her consent. Other criteria that a patient had to meet in order to participate were: lack of significant disturbances of cognitive function and lack of active psychotic disorders. None of the patients included in the examinations had any history of mental disease and none used professional psychotherapeutic help.

Method of intervention – description of the therapy

Cognitive-behaviour therapy (CBT) is a kind of short-term psychotherapy aimed at addressing problems reported by the patient [19]. It is based on the assumption that chronic disorders of mental status and recurring dysfunctional and nonadaptive behaviour indicate unhealthy thinking habits, which are contained within the structure of self-esteem and acquired by patients during their lives. Common examples of dysfunctional belief related to cancer disease and its treatment are thoughts such as: 'I will soon die in agony' or 'Chemotherapy poisons me'. The end result of therapy is to identify negative automatic thoughts, change them and then instil in a patient more adaptive beliefs. Once the way a patient thinks begins to evolve, changes also affect behaviour and emotional patterns related to negative thinking automatisms [19,20].

The therapy given to the subjects in this study was of a group type and included eight weekly two-hour therapeutic sessions, held at the Public Hospital in Ruda Śląska. The 10–12-patient groups consisted of patients and their support partners (spouses, friends or children). The presence of a support person was not considered a requirement and 9 women went into therapy without a supporting partner. The cognitive-behaviour scheme of Simonton's Program [21,22], which aims to bring about changes in the

cognitive, emotional and social spheres of participants, was applied. The session focused on: elements of Rational Behaviour Therapy [20] aimed at changing dysfunctional beliefs, work on imagination (visualization), training of coping with the disease and stress, improvement of the support system and interpersonal communication, work on fear of death and sense of life.

Tools

The Quality of Life Questionnaire EORTC QLQ-C30 is a tool commonly applied worldwide to examine the quality of life of cancer patients [23,24]. It consists of 30 items, of which 24 are grouped in nine scales referring to three dimensions of life quality evaluation. The first dimension, comprising five scales, reflects functioning of the patient at the physical, emotional, cognitive and social levels and their ability to perform their life roles. The second dimension, comprising three scales, is connected with symptoms most commonly experienced by cancer patients: fatigue, pain, nausea and vomiting. The third dimension, comprising just one scale, is used for global evaluation of life quality and a patient's health status. The remaining questions are independent (additional symptoms and material situation) and were not included in the analysis of the results.

High results obtained in each scale concerning functioning and the global quality of life and health status indicate high (favourable) level of patients' functioning. High results obtained in the scales related to symptoms point to high (unfavourable) level of their intensification among patients.

The structure of self-esteem was examined using R. Cibor's Self-Esteem Scale [25]. Two versions of this tool were utilized in this study: 'What are you like now?' (Self-Esteem Scale No. 1) and 'What would you like to be like?' (Self-Esteem Scale No. 2). Each version consists of 18 items representing six categories – features of self-esteem (physical, mental, emotional and interpersonal features), features of action, and social position, including position among the patients related to participation of the examined women in the treatment. Each property of self-esteem is evaluated using a seven-degree Likert's scale, in which the higher the degree, the higher the intensification of a given factor or category of self-esteem. The total of the raw results of version 1 ('What are you like now?') constitutes the indi-

cator of real self; the total of raw results of version 2 ('What would you like to be like?') is the indicator of ideal self. The difference between these totals is an indicator of self-esteem, which means that the lower the difference, the higher the self-esteem. The Self-Esteem Scale received satisfactory internal consistency in the research of women after mastectomy [26].

The applied tools are susceptible to changes occurring over time, which makes them useful for repeated measurements.

RESULTS

The examined groups of women were homogeneous as regards marital status, education and age (the youngest subject was 32, the oldest 66). Most of the patients lived with partners and had a vocational education (Table 1). Age was not included in further analysis due to the lack of its correlation with psychological variables.

Analysis of variance (ANOVA) with repeated measures (the Type III sum-of-squares method) was used to indicate differences resulting from participation in the cognitive-behaviour therapy.

The analysis of effects of interaction resulting from participation in the therapy and the evaluation of the global functioning of cancer patients and general self-esteem indicated that the applied therapy was effective in relation to both of the examined variables. A statistically significant increase in quality of life was observed after eight weeks from the baseline and an increase in self-acceptance among the women from the experimental group in comparison with the group of women not participating in the therapy (Table 2).

The analysis of the results concerning the real self and the ideal self made it possible to explain the causes of changes of self-esteem in the examined women. There were statistically significant differences observed between the CBT group and the control group as regards the level of real self in the post-test (t=2.25; df=65; p<0.05); no such difference was observed in relation to the ideal self. The analysis of these dependences indicates that the source of the higher self-esteem in the group of women participating in the therapy was preserving the assessment of the ideal self at a constant level and the increase of real self during the therapy (Table 3). This means that the

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Table 1. Demographic characteristics of the study sample.

Characteristic		Group				Total	
		CBT		Control			
Marital status	Single	3	(8.6%)	2	(6.3%)	5	(7.6%)
	Married or living together	24	(68.5%)	24	(74.9%)	48	(71.6%)
	Widowed	3	(8.6%)	4	(12.5%)	7	(10.4%)
	Divorced	5	(14.3%)	2	(6.3%)	7	(10.4%)
Level of education	Elementary	2	(5.7%)	1	(3.1%)	3	(4.5%)
	Vocational	13	(37.1%)	20	(62.5%)	33	(49.3%)
	Middle	13	(37.1%)	9	(28.1%)	22	(32.8%)
	High	7	(20.1%)	2	(6.3%)	9	(13.4%)
Total		35	(100.0%)	32	(100.0%)	67	(100.0%)
Age	M	53.31		52.56		52.96	
	SD	7.51		6.53		7.02	
	t (df=65)		NS			–	

CBT – cognitive-behaviour therapy; NS – not significant.

Table 2. Effects of interaction resulting from participation in therapy and evaluation of the general functioning of cancer patients and their general self-esteem.

Group	Evaluation of general functioning			
	QLQ functioning of the patient		General self-esteem	
	Baseline	Post-test	Baseline	Post-test
CBT	57.58	64.76	30.80	27.06
Control	57.29	54.86	32.31	32.91
N=67	F=6.33*; df=1;65		F=4.46*; df=1;65	

* $p<0.05$; CBT – cognitive-behaviour therapy.

Table 3. Within group comparisons on the real and ideal self means between baseline and post-test.

Group	Self-esteem			
	Real self		Ideal self	
	Baseline	Post-test	Baseline	Post-test
CBT (N = 35)	88.23	92.60	119.03	119.66
t (df = 34)	−3.74***		NS	
Control (N = 32)	88.63	86.69	120.94	119.59
t (df = 31)	2.16*		t=3.05**	

* $p<0.05$; ** $p<0.01$; *** $p<0.001$. CBT – cognitive-behaviour therapy; NS – not significant.

women set themselves realistic requirements and were able to identify the areas in which they functioned better in comparison with the period before the therapy.

Further statistical analyses were aimed at indicating alterations in the physical, emotional, cognitive and social dimensions of functioning in women suffering from breast cancer.

Table 4. Effects of interaction resulting from participation in therapy and the evaluation of physical functioning.

Group	Evaluation of physical functioning							
	QLQ physical level		QLQ symptoms		QLQ health status		Self-esteem physical features	
	Baseline	Post-test	Baseline	Post-test	Baseline	Post-test	Baseline	Post-test
CBT	67.24	63.64	38.73	35.56	50.00	55.71	7.23	7.23
Control	64.79	61.88	42.01	50.26	48.96	47.14	7.72	7.75
N=67	NS		F=22.37***; df=1;65		F=9.16**; df=1;65		NS	

** p<0.01; *** p<0.001. CBT – cognitive-behaviour therapy; NS – not significant.

Table 5. Effects of interaction resulting from participation in therapy and the evaluation of emotional functioning.

Group	Evaluation of emotional functioning			
	QLQ emotional level		Self-esteem emotional features	
	Baseline	Post-test	Baseline	Post-test
CBT	45.95	55.24	7.63	5.89
Control	48.43	46.61	7.22	7.19
N=67	F=6.68*; df=1;65		F=8.43**; df=1;65	

* p<0.05; ** p<0.01. CBT – cognitive-behaviour therapy.

Table 6. Effects of interaction resulting from participation in therapy and the evaluation of cognitive functioning.

Group	Evaluation of cognitive functioning			
	QLQ cognitive level		Self-esteem mental features	
	Baseline	Post-test	Baseline	Post-test
CBT	58.10	72.38	6.03	3.21
Control	54.17	51.56	5.28	3.49
N=67	F=12.61***; df=1;65		F=21.86***; df=1;65	

*** p<0.001. CBT – cognitive-behaviour therapy.

The applied therapy had a positive impact on the change of assessment of symptoms in the cancer disease and the global assessment of quality of life and health status (Table 4). Despite this fact, however, there were no differences between the examined groups in relation to physical functioning (evaluation of fatigability, independence in undertaking everyday life activities and the necessity of remaining in bed) and evaluation of physical features of self-esteem (physical efficiency, attractiveness and sexual efficiency). This may mean that perceiving a lower number of symptoms is not sufficient for a patient to have a higher assessment of her physical capabilities.

The lack of cohesion of results in this dimension may also be related to the stage of treatment in which a given patient found herself when this study was carried out.

In the sphere of emotional functioning, however, positive changes were observed, resulting from all of the explored areas – the women receiving the therapy considered their level of functioning and emotional features of self-esteem to be higher in comparison with the women from the control group (Table 5). In the context of everyday life this means that the patients were filled with a positive frame of mind and inner peace,

maintained composure and felt cheerful. This may constitute a mechanism diminishing the risk of occurrence of depression and anxiety in cancer patients.

The CBT group patients also had a higher opinion concerning their ability to remember things, concentrate on a given course of action and to demonstrate intelligence in comparison with the women who did not undergo therapy (Table 6).

No differences were observed, however, between the examined groups as regards social functioning despite the fact that therapeutic techniques aimed at improvement of interpersonal relationships were used. The analysis looked into life quality in this field and two categories of features of self-esteem: interpersonal skills and position in the group. Similar evaluation of possibilities in both of the examined groups may indicate the fact that changes in this area remain beyond patients' control on account of the two-sided nature of social interactions. It is possible to make a hypothesis that changes in the social dimension require longer to take place than in the other spheres of functioning.

DISCUSSION

The obtained results confirm the positive influence of cognitive-behaviour therapy on quality of life and self-esteem, which complies with the findings of other researchers [6,17]. The results also indicate that these factors cannot be evaluated only globally since the observed changes occur irregularly in each dimension. As regards self-esteem, changes were observed only in the cognitive and emotional dimensions, while in the sphere of quality of life changes also occurred in the physical dimension. Changes in the physical dimension were less noticeable, however, than in other dimensions. This results from the fact that CBT aims at the cognitive and emotional spheres while the changes in the physical dimension take place directly through diminishing mental influence on the magnitude of somatic complaints [27,28]. The final aspect is the biological source of these symptoms, depending on the advancement of the disease and the type of pharmacological treatment administered. A mere experiencing of lower number and/or lower intensification of the symptoms, even though it may be essential to improve quality of life, does not significantly impact the level of self-esteem. A conclusion may then be drawn that the course of disease is more significant in the assessment of the physical dimension than the psychological influence.

It is worth noting, however, that the observed reduction of somatic symptoms and the improvement of cognitive and emotional functioning allow patients to regain a sense of control over their disease. This leads to seeking constructive solutions to various problems and has a positive impact on cooperation during the treatment. In practice this means that patients follow their physicians' recommendations (as was proven in the study on compliance in patients suffering from diabetes [29]). Guidelines concerning possibilities of alleviating suffering may significantly contribute to further improvement of patients' frame of mind.

Increased sense of control over the symptoms of the disease and one's own emotions fully accords with S. Taylor's theory of cognitive adaptation to cancer disease [30]. According to this concept, regaining a sense of being able to control events and a belief in the possibility for the patient to control the disease are related to better adaptation to the disease. Improved functioning was also observed if the sense of control was illusory [30,31]. For an ill patient, even though unrealistic, positive self-esteem may constitute protection against fear and personal disintegration [32].

The lack of changes in the social dimension in the examined women – as regards both quality of life and self-esteem – may result from the dissimilarity of this dimension in relation to other dimensions. This is the only dimension that does not concern an individual only, but comprises her whole environment and the interaction between the patient and her surroundings. The empirical data [11,33] indicate that the beliefs of women suffering from breast cancer on the subject of stigmatization, diminished social value or intentions of partners and friends may lead to such behaviour as hiding the disease, withdrawal from social interaction or to provoking reactions in accordance with the negative beliefs of the patients. Berterö [11] indicates that even positive reactions of partners may be interpreted by women patients as an expression of mercy or deception intended to save them from negative emotions.

Improvement in social functioning requires changes in the surroundings as well, and this does not only apply to a patient's immediate family

and circles of friends but also to social awareness in general. Cancer disease continues to be surrounded by myths and is often considered a taboo subject. This is why it is necessary to initiate wide-scale interventions in order to increase social awareness as regards this disease, available treatment methods and non-medical help such as support groups and psychological help.

CONCLUSIONS

On the basis of the presented results a conclusion can be drawn that psychotherapy may become a valuable addition to standard oncological treatment. It seems especially significant when a patient awaits medical procedures or when causal treatment is not possible. By reducing the intensification of somatic and psychic symptoms, psychotherapy may also contribute to diminishing the number of medications used by a patient and eventually to lowering costs of pharmacological treatment. The most essential aspect of cognitive-behaviour therapy is that it includes the patients in the treatment process, which increases the women's sense of their own value and the sense of control while suffering from cancer disease.

In view of the above it seems proper that psychotherapeutic groups should be formed at oncological centres and that first of all physicians should inform their patients about the possibility and usefulness of cognitive-behaviour therapy even when symptoms of mental disorders have not been observed.

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