

Original article

## The quality of life, general health, and pain sensations after treatment in the assessment of breast cancer patients

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### ABSTRACT

**Introduction:** General quality of life, health, and sensation of pain caused by cancer are connected with the physical, mental and social state of a human being.

**Aim of the study:** The aim of the study is self-assessment of life quality, general health, and pain sensations in breast cancer patients after adjuvant therapy with chemo- and radiotherapy.

**Material and methods:** The study was carried out in 2016 at the Professor Franciszek Łukaszczyk Oncology Clinic in Bydgoszcz. 56 women with breast cancer were qualified for the study, upon completion of treatment. Socio-demographic and clinical data was used, questions 29 and 30 from the QLQ C30 questionnaire, and the Memorial Pain Assessment Card.

**Results:** Generally, the average self-assessment of health and life quality was 4.98 and 5.18 points, respectively. Age, education, marital status and the place of residence did not have any influence on the self-assessment of health and life quality ( $p > 0.05$ ). 46 women (82.1%) did not take analgesics. Those patients who did not take analgesics assessed their health and life quality better, with the average scores of 5.3 and 5.63 points, respectively. The average for pain intensity was 2.05 on a 0–11 scale. Most women – 14 (25%) – assessed their mood as very good. The mood average was 2.91 points. Only the administration of analgesics influenced the mood score ( $p = 0.001$ ).

**Conclusions:** Women with breast cancer after radical treatment assess their health and life quality as good. Those not taking analgesics assess their health and life quality better and are decidedly in a better mood than those taking such medications. Socio-demographic factors do not influence self-assessment of health, life quality, or pain intensity.

**Key words:** breast cancer, life quality, health, pain

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## INTRODUCTION

Breast cancer is the most frequently diagnosed malignancy and the most common cause of death due to cancer in women across the world. Each breast cancer therapy is individually tailored and usually requires strictly specified methods of combination therapy, including surgery, chemotherapy, radiotherapy, physiotherapy and psychotherapy. Studies have confirmed positive effects of such procedures [1].

Unfortunately, even the most effective methods of combatting cancer, such as surgery, chemotherapy and radiotherapy, may bear negative effects and, additionally, cause malaise in the patient, resulting from a number of symptoms, e.g. drowsiness, hair loss, nausea and pain.

Presently, the issue of life quality assessment is being addressed more and more often. The problem is inseparably linked with general health, as people very often assess the value of their lives on the basis of their general well-being, body functioning or mental state. Considerations and attempts at examining that issue have become one of the main problems of medicine, because self-satisfaction, happiness, lack of pain, and satisfaction with life are undoubtedly amongst the most important aspects of human life [2].

Life quality is also influenced by unpleasant side effects of long-term oncological treatment, and some patients who have been cured from malignancy may still suffer from pain, which reduces their quality of life for a long time. Life quality assessment dependent on health and on the suffering caused by cancer in oncological patients is extremely important due to the need of constantly improving it at each stage of malignancy [3].

Thorough assessment of life quality with the use of complex questionnaires requires much time in order to collect appropriate data. Thanks to standardized questions, those questionnaires allow to objectively assess physical, mental, and social functioning of the patients. On the other hand, short questions concerning self-assessment of life quality, general health and sensation of pain in patients with breast cancer are little valued, yet, they can provide initial assessment of life quality during and after the treatment. Medical staff often forget about a holistic approach to the patient, whereas life quality and well-being are no less important than recovery from the disease for a patient after invasive treatment.

## AIM OF THE STUDY

The aim of the study is self-assessment of life quality, general health, and sensation of pain in breast cancer patients after adjuvant chemo- and radiotherapy.

## MATERIAL AND RESEARCH METHODS

The study was carried out in 2016 at the Professor Franciszek Łukaszczyk Oncology Clinic in Bydgoszcz. 56 women above the age of 40 were qualified for the study, at least 3 months after being treated with adjuvant chemo- and radiotherapy, who had previously undergone amputation. The patients were progression free and without serious concomitant diseases.

The questionnaire used: socio-demographic data, the QLQ C30 questionnaire – questions 29 and 30, and the Memorial Pain Assessment Card (MPAC) validated in Poland (used with the Author's consent) [4]. The socio-demographic and clinical data consists of questions about sex, age, education, marital status, place of residence, and taking analgesics. The QLQ C30 questionnaire is a multi-dimensional method of measuring life quality in cancer patients. Questions 29 and 30 concern the patients' assessment of their health conditions and life quality during last week. The patient provides answers on a scale from 1 to 7, where 1 means "poor" and 7 – "perfect". MPAC enables the assessment of the psychological conditions involved in the experience of pain, its intensity, and analgesia. It consists of 4 questions on pain intensity, pain relief, and mental state, as well as tasks in which the patient chooses the term best describing the pain intensity.

In the descriptive analysis of the obtained data, we used tables in which we presented the population size and percentage. We also calculated the average with the standard deviation. Correlation between the two variables was calculated with the use of Spearman's rank correlation coefficient. We also applied the Mann-Whitney U test to assess the differences pertaining to one feature between two groups, and the Kruskal-Wallis rank test was used to compare many independent samples. The value of  $p \leq 0.05$  was assumed to be statistically significant. All the calculations were made with the use of Microsoft Excel and Statistica 10.0 spreadsheets. The Bioethics Commission gave their consent to carry out the research.

## RESULTS

### Socio-demographic data of the patients

The largest group – 36 (64.3%) women – were patients aged 56–70, the smallest – 7 (12.5%) – those aged > 70. The most and

the fewest women had secondary and higher education background – 25 (44.6%) and 15 (26.8%), respectively. The majority of women were married – 44 (78.6%), and lived in a town or city – 47 (83.9%) (tab. 1).

TABLE 1.  
Socio-demographic data.

Variable		Number	%
Age	40–55 years	13	23.2
	56–70 years	36	64.3
	above 70 years	7	12.5
Education	primary/vocational	16	28.6
	secondary	25	44.6
	higher	15	26.8
Marital status	unmarried	6	10.7
	married	44	78.6
	widow	6	10.7
Place of residence	country	9	16.1
	town	47	83.9

### Self-assessment of health condition and life quality over the past week before the examination depending on the selected variables

The average scores for self-assessment of the perceived health condition and life quality during the week before the examination were 4.98 and 5.21 points, respectively (the 7-point scale).

Patients aged 40–55 assessed their health and life quality the highest, with the average scores of 5.46 and 5.77, respectively, while the worst assessment of health condition was reported for patients aged 56–70 – 4.83 on average, and the lowest score of life quality – 4.86 – was provided by patients aged > 70. Age was not statistically significant for the self-assessment of health or life quality ( $p = 0.239$ , and  $p = 0.179$ ). Patients with higher education assessed their health (average score of 5.2) and life quality (average score of 5.67) the best. The worst scores, 4.63 and 4.88, respectively, were reported by the patients with primary/vocational education. However, education was not statistically significant for the self-assessment of health or life quality ( $p = 0.411$ , and  $p = 0.270$ ). The unmarried patients assessed their health condition (average score of 5.17) and life quality (average score of 5.33) slightly better (smaller standard deviation). The lowest score – 4.93 and 5.18, respectively – was given by the married women. Marital status was not statistically significant in the self-assessment of health and life quality, though ( $p = 0.929$ , and  $p = 0.979$ ). Patients who lived in the countryside assessed their health (average score of 5.56) and life quality (average score: 5.67) higher. The place of residence was not statistically significant in the self-assessment of health or life quality ( $p = 0.157$ , and  $p = 0.436$ ). Patients who did not receive analgesics assessed their health condition and life quality higher – the average scores were 5.3 and 5.63, respectively. Taking analgesics was found to be statistically significant for the self-assessment of health and life quality ( $p = 0.001$ ) (tab. 2).

TABLE 2.  
Average self-assessment of health and life quality depending on the selected variables.

Variable	Assessment Specification	Self-assessment of health		Self-assessment of life quality	
		Average	SD	Average	SD
Age	40–55 years	5.46	1.13	5.77	1.17
	56–70 years	4.83	1.23	5.08	1.38
	above 70 years	4.86	1.77	4.86	2.19
	p	0.239		0.179	
Education	primary/vocational	4.63	1.54	4.88	1.78
	secondary	5.08	1.35	5.16	1.52
	higher	5.20	0.77	5.67	0.82
	p	0.411		0.270	
Marital status	unmarried	5.17	0.75	5.33	1.21
	married	4.93	1.35	5.18	1.53
	widow	5.17	1.33	5.33	1.37
	p	0.929		0.979	
Place of residence	country	5.56	0.73	5.67	1.00
	town	4.87	1.35	5.13	1.53
	p	0.157		0.436	
Taking analgesics	yes	3.5	1.51	3.30	1.34
	no	5.3	0.99	5.63	1.12
	p	0.001		0.001	

### Pain assessment

46 (82.1%) women did not take analgesics. Among those taking painkillers, the majority received non-opioid analgesics (6 persons), 3 women took mild opioids, and 1 patient was on strong opioids. Based on the 0–5 descriptive scale of pain intensity, 27 (48.2%) women reported no pain, 15 (26.8%) reported mild pain, and 1 person (1.8%) complained about a very severe pain (tab. 3). Most of the patients – 19 (33.9%) – reported no pain on the 0–11 scale. Pain intensity at the level of 1 was reported by 11 (19.6%) persons, and at the level of 2 and 3 – by 8 (14.3%) for each level; the fewest patients assessed their pain as levels 5 and 9 – 1 (1.8%) person for each level (tab. 4).

TABLE 3.  
Self-assessment of pain intensity on a 0–5 descriptive scale.

Pain intensity	Number	%
No pain	27	48.2
Mild	15	26.8
Moderate	9	16.1
Severe	4	7.1
Very severe	1	1.8
Overall	56	100

TABLE 4.  
Self-assessment of pain intensity on a 0–10 numerical scale.

Pain intensity	0 /no pain/	1	2	3	4	5	6	7	8	9	10 /the most severe pain/
Number	19	11	8	8	2	1	2	2	2	1	0
%	33.9	19.6	14.3	14.3	3.6	1.8	3.6	3.6	3.6	1.8	0.0

### Pain intensity depending on the selected variables

The average assessment of pain intensity was 2.05 points on the 0–10 scale.

Pain intensity was assessed as the highest (average score: 2.86) by patients aged > 70, and as the lowest (average score of 1.54) by those aged 40–55. Age did not influence the self-assessment of pain intensity ( $p = 0.228$ ). Patients with primary/vocational education assessed their pain intensity as the highest (average score of 2.94), and those with higher education as the lowest (average score of 1.33). Still, education was not statistically significant for pain intensity ( $p = 0.1$ ).

Widows assessed their pain intensity as the highest (average score of 2.5), and the unmarried women as the lowest (average score of 1.17). Marital status was not statistically significant for pain intensity ( $p = 0.568$ ). Pain intensity was assessed higher – average score of 2.21 – by those women who lived in a town or city. However, the place of residence was not statistically significant for pain intensity ( $p = 0.158$ ). Pain intensity was assessed decidedly higher – average score of 5.0 – by patients receiving analgesics. Taking analgesics was indeed statistically significant for pain intensity ( $p = 0.001$ ) (tab. 5).

TABLE 5.  
Average self-assessments of pain intensity depending on selected variables.

Variable	Specification	Average	SD	p
Age	40–55 years	1.54	2.22	0.228
	56–70 years	2.08	2.3	
	above 70 years	2.86	3.24	
Education	primary/vocational	2.94	2.93	0.100
	secondary	1.92	2.29	
	higher	1.33	1.68	
Marital status	unmarried	1.17	1.17	0.568
	married	2.11	2.53	
	widow	2.5	2.35	
Place of residence	country	1.22	1.99	0.158
	town	2.21	2.45	
Analgesics	yes	5.0	2.91	0.001
	no	1.41	1.72	

### Patients who experienced pain relief upon completion of treatment, depending on the selected variables

Age ( $p = 0.144$ ), education ( $p = 0.299$ ), marital status ( $p = 0.313$ ), or place of residence ( $p = 0.323$ ) did not influence the number of patients experiencing pain relief. Only the administration of analgesics had impact on the number of patients feeling relief ( $p = 0.001$ ).

Most of the women – 18 (32.1%) – experienced complete pain relief after the end of treatment, 90- and 80-percent relief was reported by 14 (25.0%) and 11 (19.6%) of the patients, respectively. No pain relief was experienced by 2 (3.6%) persons. On average, the patients reported 78.57% of relief in pain (tab. 6).

### Self-assessment of the patients' mood, depending on the selected variables

Age ( $p = 0.152$ ), education ( $p = 0.058$ ), marital status ( $p = 0.76$ ) or place of residence ( $p = 0.342$ ) did not influence the patients' mood, and only taking analgesics was significant in that respect ( $p = 0.001$ ).

Most of the patients – 14 (25%) – assessed their mood as the highest (1), 9 (16.1%) assessed it at 3, and 1 person (1.8%) – at 6. The average self-assessment of mood was 2.91 points (tab. 7).

## DISCUSSION

In the study, we analyzed the self-assessment of general health, life quality, and pain intensity in breast cancer patients after treatment. Self-assessment of general health and life quality does not always

TABLE 6.  
 Patients experiencing pain relief in percentage after treatment.

Relief in pain	0% /no relief/	10%	20%	30%	40%	50%	60%	70%	80%	90%	100% /complete relief/
Number of patients	2	1	2	1	1	3	2	1	11	14	18
%	3.6	1.8	3.6	1.8	1.8	5.4	3.6	1.8	19.6	25.0	32.1

TABLE 7.  
 Mood self-assessment.

Mood*	0 /the best/	1	2	3	4	5	6	7	8	9	10 /the worst/
Number of patients	7	14	7	9	6	6	1	2	2	2	0
%	12.5	25.0	12.5	16.1	10.7	10.7	1.8	3.6	3.6	3.6	0.0

\* higher number signifies worse mood

have to overlap with life quality in terms of physical, mental, and social functioning, measured with standardized questionnaires.

Other authors, carrying out studies involving smaller groups of women with breast cancer who received breast-conserving surgery and pulse brachytherapy, obtained similar results to ours with the use of a standardized questionnaire on self-assessment. Life quality self-assessment was checked before surgery, after brachytherapy, and 6 months later. Generally, those patients reported good life quality before the operation and after radiotherapy, and the treatment did not worsen their functioning. However, the research did not take into consideration, whether sex, age, education, marital status, or place of residence influenced the self-assessment of health and life quality [5]. Studies on breast cancer present various results concerning health and life quality, depending on the amount of time that has elapsed from the end of treatment. One example might be a study involving a large group of patients assessed with the use of the Ladder of Life questionnaire. The breast cancer patients treated with adjuvant chemotherapy, operated on up to one year or more than three years earlier, assess their life quality much worse than those who did not receive chemotherapy.

However, no significant differences were observed between the patients who received chemotherapy, and those who did not receive chemotherapy, whose post-operation period was 1–3 years [6]. Breast cancer patients during chemotherapy in hospital conditions assess their life quality as lowered, mainly due to anxiety, sadness, fear of treatment, and financial problems. Therapy complications, such as vomiting, pain, or weakness, add to the problem. Yet, many patients admit that the support of family and friends motivates them to cope with the disease [7]. In another study, 3 months after being operated on, women assessed their general health condition as moderate, and it was worsened mainly by tiredness and dyspnea [8]. In a different study, a similar group of patients in the same

period after mastectomy assessed their life quality as poor. No influence of age on life quality was found, but a correlation between life quality and general health was observed. Self-assessment of life quality was lowered alongside a deteriorating health condition [9]. Nevertheless, other authors proved it on a larger group of women 12–60 months after breast cancer surgeries that time did not influence the general life quality, contrary to age, education, financial situation and professional activity. It should be emphasized that a general questionnaire for the assessment of life quality was used in that case, and not one dedicated to a particular disease [10].

Having applied the numeric scale for pain assessment in our study, we found out that almost half of the women reported no pain, while the other half described it as mild, and only a few reported it as moderate or severe. Sex, age, education or marital status did not influence the self-assessment of pain intensity, but town and city dwellers experienced a slightly stronger pain. Other studies compared life quality and pain intensity 3 months after the treatment, and one year after. Worsening of life quality and intensification of pain was observed over time. The influence of sex, age, education, marital status, or place of residence on pain intensity was not examined [11]. In studies on large groups of women with breast cancer, 6 months after surgery and adjuvant treatment, according to the Numeric Rating Scale (NRS), it was found that every third patient did not feel pain, more than a half described the pain as mild, and every tenth reported moderate to severe pain [12]. The Numeric Rating Scale was applied in women 12 months after breast cancer surgery (most of whom received radiotherapy and chemotherapy), and it was proven that more than 1/3 did not feel pain, and a half reported mild pain [13]. An analysis of the pain after radical surgical treatment and chemotherapy in women with breast cancer, who received the last cycle of chemotherapy, was carried out. In general, the patients described their pain intensity as average (3.0 in NRS). Almost half of the patients admitted to taking non-opioid an-

analgesics,  $\frac{1}{3}$  took weak opioids, and every sixth patient took strong opioids [14]. Similarly to our study, no connection between pain intensity and such demographic variables as age, education, marital status, or place of residence was observed. The general mean score of pain intensity was average in our study. Among those taking analgesics (every fifth woman), more than a half used non-opioid analgesics, and only one woman received strong opioids. Studies concerning breast cancer patients present various results of self-assessment of life quality, general health and pain intensity, depending on the time that has elapsed since the completion of treatment. Generally speaking, the higher life quality in the group of patients not taking opioids might stem from the very fact that they do not take them. Patients who require such analgesic management usually present more serious ailments and worse performance *a priori*. Chronic pain is often the reason why many of them need to take opioids. Opioid use is not neutral to the human body, as they cause a number of undesirable effects (problems with the digestive tract – opioid-induced bowel dysfunction, OIBD; or excessive drowsiness). Life quality of the patients who need to receive opioids has to be, by definition, worse. Each patient is different and might perceive his life quality, general health, and pain intensity differently.

The results connected with the perception of general health, life quality, or sensation of pain are personalized and difficult to be unambiguously defined for particular groups of patients.

The influence of socio-demographic factors is most frequently insignificant in such assessment, and if it is, the significance is limited. Our results generally confirm other authors' reports concerning a relatively good self-assessment of health and life quality, despite long-lasting pain experienced by some patients following anti-cancer treatment. The small number of study subjects is a limiting factor, though, rendering further research to confirm those observations desirable.

## CONCLUSIONS

1. Women with breast cancer after radical treatment assess their health and life quality as good.
2. Patients who do not receive analgesics assess their health and life quality better, and are decidedly in a better mood.
3. Socio-demographic factors do not influence the assessment of health, life quality, or pain intensity.

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