THE ANALYSIS OF FACTORS DETERMINING THE ACCEPTANCE OF CANCER IN PATIENTS UNDERGOING SYSTEMIC TREATMENT

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A. Study design/planning • B. Data collection/entry • C. Data analysis/statistics • D. Data interpretation • E. Preparation of manuscript • F. Literature analysis/search • G. Funds collection

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ABSTRACT

Introduction: Every cancer disease is a huge challenge for the patient. It is associated with many changes in the personal life of each patient. The disease forces a person to change their lifestyle and reorganise their life plans. A failed diagnosis triggers many negative emotions, from anxiety through anxiety, anger, a life-threatening condition, and even depression. All these symptoms are reflected in the process of accepting the disease. Only a high level of adaptation among patients determines the growth and maintenance of high quality of life, which is an important determinant of effective oncological treatment.
Aim of the study: To assess the level of acceptance of life with cancer during systemic treatment.
Material and methods: In order to carry out the assessment of acceptance of neoplastic disease, the diagnostic survey method was used. The study included 300 patients treated in the West Pomeranian Oncology Centre in Szczecin (Poland), of which approximately 70% were women and 30% men. The average age of the respondents was 53.17 years. The research was carried out from 1 October to 25 November 2016. The research was approved by the Bioethics Commission of the Pomeranian Medical University in Szczecin (Poland).
Results: A low level of acceptance of the disease during systemic treatment was obtained by 112 patients, average by 107, and 81 respondents believed that there were no problems with their acceptance of the disease.
Conclusions: 1. Variables, i.e. age, gender, tobacco smoking, and type of treatment, have a significant impact on the acceptance of illness in the course of systemic treatment of cancer. 2. The professional activity of oncology patients has a positive impact on the acceptance of illness during systemic treatment.
Key words: acceptance of the disease, cancer, systemic treatment.

INTRODUCTION

Cancer presents a considerable challenge in the area of public health. The issues that need to be dealt with arise from the difficulty to adjust to rapid changes occurring in the modern world, starting from industrialisation, through globalisation, to the rapid changes of lifestyle, which are forced but often incompatible with human nature. Modern civilisation induces a continuous increase in the occurrence of cardiovascular diseases and cancer. Such a situation poses a great challenge to the health care system regarding planning, organisation, and providing necessary health care to society. Estimates indicate that in the coming years oncological diseases will become the main cause of death, thus overtaking cardiovascular diseases [1].

Modern oncology care needs to adopt a holistic approach to people affected by cancer. All significant spheres of functioning of a human being ought to be taken into account and analysed as regards the biological, psychological, societal, and spiritual aspects. Patients undergoing the difficult and disruptive treatment that is spread over a long period of time are exposed to many negative consequences that might affect their psychosocial functioning. Only suitable preparation to the comprehensive oncology treatment will provide patients with a high quality of life, which may result in a more positive outcome of the therapy applied.

The difficult situation that oncology patients face may induce fatigue, sleep disorders, anxiety, and depression, which, if left untreated, may provoke exacerbation of chronic conditions, negatively impact the response to the treatment, and cause an increase of mortality rates [2, 3].

One of the important and still valid tasks is monitoring the patients' condition through the scientific study of their biosocial and spiritual functioning. Continuous diagnosis of arising issues, planning suit-

able care, and the correction of actions previously taken may have a positive impact on the comfort and quality of life of those affected by cancer. The state of health, both biological and psychological, displayed by patients translates into interpersonal relations, health habits, and even the quality of care of the ill. Only a suitably high level of adaptation to cancer will determine a faster and better acceptance of illness, which in turn will contribute to physical and psychological recovery. Monitoring one's state of functioning in various spheres of life is, therefore, a crucial aspect in the assessment of quality of life during therapy and after its completion.

AIM OF THE STUDY

The purpose of the study was to assess the level of acceptance of life with cancer during systemic treatment.

Table 1. The description of the studied group

Variable	*N*	%
Gender		
Men	89	29.7
Women	211	70.3
Marital status		
Single	23	7.7
Married	200	66.7
Widower/widow	36	12.0
Divorced	33	11.0
Informal relationship	8	2.7
Age (y.o.)		
18-40	51	17.0
41-59	141	47.0
60+	108	36.0
Place of residence		
Country	32	10.7
Town up to 10,000	34	11.4
Town from 10,000 to 100,000	121	40.5
City over 100,000	112	37.5
Education		
Elementary	10	3.3
Vocational	75	25.0
Secondary	135	45.0
Higher	80	26.7
Treatment		
Primary	237	79.0
Secondary	63	21
Occurrence of metastases		
Yes	87	29.0
No	213	71.0

MATERIAL AND METHODS

The study was conducted among 300 patients undergoing systemic therapy at the Department of Clinical Oncology of the Pomeranian Oncology Centre in Szczecin between October 2016 and November 2016. The studied group consisted mainly of women (30%) and patients between 41 and 59 years of age (47%). The most frequently occurring types cancer within the studied group were: breast cancer (47.8%), genitourinary cancer (23%), gastro-intestinal cancer (12.7%), and lung cancer (7%). The participation in the research was voluntary and anonymous. The research was approved by the Bioethics Committee of the Pomeranian Medical University in Szczecin (Poland) (permission no. KB-0012/349/09/16).

For the purpose of the research an anonymous survey consisting of two parts was carried out. The first part consisted of an original questionnaire containing questions regarding sociodemographic data and medical variables. The other part consisted of a standardised Acceptance of Illness Scale (AIS) by Felton, Revenson, and Hinrichsen, adapted by Juczyński, for the purpose of objective assessment of the level of acceptance of illness among the patients. The scale includes eight items describing the consequences of poor health, which refer to the discussed aspects of life, meaning the limitations imposed by the illness, the lack of possibility to perform one's favourite activities, the embarrassment of others caused by being in the company of a person affected by the illness, and the lack of self-sufficiency, sense of dependence, and self-esteem [4].

The participants of the survey were tasked with the evaluation of their own state of wellbeing using the five-point Likert scale: from 1 – *I strongly agree* to 5 – *I strongly disagree*. The final result was achieved by adding up the points obtained. The range of the level of acceptance was between 8 and 40 points. A low result signifies the lack of acceptance of illness, which reflects mental discomfort, whereas a high score confirms substantial acceptance and lack of negative emotions regarding the disease process [4].

The characterisation of quantitative variables was performed by stating the arithmetic mean, standard deviation, as well as minimum and maximum values. Correlations between quantitative variables were evaluated using the Pearson correlation coefficient. The statistical significance level of $p \leq 0.05$ was adopted for each variable. The average age of the studied group was 53.2 years. The youngest participant was 18 years old and the oldest was 80 years old. The average duration of illness was 29.75 ±53.35 months whereas the duration of treatment was 21.78 ±35.94 months (Table 1).

RESULTS

A low level of acceptance of illness during the systemic therapy was demonstrated by 112 patients, average 107, whereas 81 of those surveyed stated that they had no problem with the acceptance of their illness (Tables 2 and 3).

Eighty-four patients (28%) stated that their current state of health prevented them from performing their favourite activities. Thirty-six per cent of patients denied being a burden to their closest ones, whereas as many as 32% of those surveyed declare lowered self-esteem. Thirty per cent of those questioned stated that their health condition restricted their self-sufficiency. Almost half of the respondents expressed an opinion that other people in their company felt uncomfortable because of their current health condition and their situation.

Table 4 shows the descriptive statistics for statements in the Acceptance of Illness Scale (AIS). The average level of acceptance in the studied group amounted to M ±SD = 23.76 ±8.411 points. The minimal level of acceptance in the studied group remained at 8 points, whereas the maximum level reached 40 points. The highest average among the components was reached for items five and six, namely regarding the sense of being a burden for the closest ones and regarding the lowered self-esteem (M ±SD = 3.42 ±1.417). Among all the questions included in the AIS, question two – inability to do favourite activities – reached the lowest result of M ±SD = 2.8 ±1.482.

Gender proved to be a statistically significant factor ($p < 0.001$). The average rate of acceptance among women was M ±SD = 24.98 ±8.38, whereas for men it was M ±SD = 20.87 ±7.80 (Table 5).

From the conducted analysis it can be concluded that the correlation between marital status and the acceptance of illness is not statistically significant ($p = 0.192$) (Table 6).

Any connection between the AIS results and the place of residence of patients was rejected. The results of post-hoc Tukey test indicate a lack of statistically significant differences ($p > 0.05$). It can therefore be assumed that the place of residence has no impact on the level of acceptance of illness (Table 7).

The results of the examination of the relationship between the level of education and the acceptance of illness show that the statistical significance coefficient ($p = 0.034$) is lower than the assumed level of

Table 2. The level of acceptance of illness according to AIS

Level of acceptance	Points	%
Low	8-19	37.0
Medium	20-30	36.0
High	31-40	27.0
Total		100.0

Source: Author's own research

Table 3. Detailed results according to AIS

AIS	1	2	3	4	5
I have problems with adjusting to the limitations imposed by the illness	18%	23%	20%	19%	20%
I'm not able to do what I enjoy the most due to my health condition	28%	20%	14%	20%	18%
The illness sometimes makes me feel unnecessary	18%	16%	15%	14%	37%
Health problems make me more dependent on others than I'd like to be	23%	22%	21%	17%	17%
The illness makes me a burden to my family and friends	15%	14%	21%	14%	36%
My health condition makes me feel inadequate	32%	18%	12%	14%	24%
I will never be self-sufficient to the degree I'd like	30%	22%	12%	17%	19%
I believe people around me often feel uncomfortable because of my illness	22%	23%	19%	21%	15%

Source: Author's own research

Table 4. Descriptive statistics for AIS

AIS	*N*	M ±SD	Min-Max
Level of acceptance of illness	300	23.76 ±8.41	8-40
Adjustment to the limitations imposed by the illness	300	3.00 ±1.39	1-5
Inability to do favourite activities	300	2.80 ±1.48	1-5
Sense of being uselessness	300	3.38 ±1.58	1-5
Sense of dependence on others	300	2.82 ±1.42	1-5
Sense of being a burden to the closest ones	300	3.42 ±1.47	1-5
Lowered self-esteem	300	3.42 ±1.47	1-5
Restricted self-sufficiency	300	2.72 ±1.50	1-5
Sense of others feeling uncomfortable due to company of an ill person	300	2.83 ±1.38	1-5

Source: Author's own research

Table 5. AIS depending on gender

Gender of the studied person	*N*	M ±SD	*p*	Test-*t*
Woman	211	24.98 ±8.38	< 0.001	4.116
Man	89	20.8 7±7.80		

Source: Author's own research

Table 6. AIS depending on marital status of the studied person

Marital status	*N*	M ±SD	ANOVA	Post-hoc Tukey test
Married	23	25.91 ±7.31	$F = 1.535$	No difference
Single	200	23.53 ±8.23	$df = 4, 295, 299$	
Widower/ Widow	36	25.33 ±7.63		
Divorced	33	21.39 ±10.11	$p = 0.192$	
Informal relationship	8	26.00 ±10.56		

F – Fisher Snedecor test, df – degree of freedom

Table 7. AIS depending on the place of residence of the studied persons

Place of residence	*N*	M ±SD	ANOVA	Post-hoc Tukey test
Countryside	32	26.28 ±8.94	$F = 1.535$	No difference
Town up to 10,000	34	26.82 ±8.73	$df = 3, 296, 299$	
Town from 10,000 to 100,000	122	23.11 ±8.18		
City over 100,000	112	22.81 ±8.16	$p = 0.022$	

F – Fisher Snedecor test, df – degree of freedom

Table 8. AIS depending on education level

Education completed	*N*	M ±SD	ANOVA	Post-hoc Tukey test
Elementary (a)	11	23.27 ±10.36	$F = 2.922$	b > d
Vocational (b)	74	21.50 ±8.58	$df = 3, 296, 299$	
Secondary (c)	135	24.07 ±8.67		
Higher (d)	80	25.40 ±7.11	$p = 0.034$	

F – Fisher Snedecor test, df – degree of freedom

significance ($\alpha = 0.05$). Therefore, it can be concluded that these factors are related. The analysis strongly suggests that patients with higher education accept their disease significantly more easily than those with elementary education. The average score for people with elementary education is M ±SD = 21.5 ±8.579 whereas for people with higher education it is M ±SD = 25.4 ±711 (Table 8).

Statistical analysis showed statistically significant differences in the level of acceptance depending on professional activity ($p = 0.005$). The results suggest that professionally active people accept their illness to a higher degree than those who do not work professionally. The average result for non-working patients the AIS score was M ±SD = 22.84 ±8.64 whereas for active ones it was M ±SD = 26.83 ±7.31 (Table 9).

Table 9. AIS depending on professional activity

Professional activity	*N*	M ±SD	ANOVA	Post-hoc Tukey test
Student (a)	6	26.83 ±7.31	$F = 5.461$	b > c
Working (b)	70	26.44 ±7.12	$df = 2, 297, 305$	
Not working (c)	224	22.84 ±8.64	$p = 0.005$	

F – Fisher Snedecor test, df – degree of freedom

Table 10. AIS depending addiction to smoking tobacco

Smoking	*N*	M ±SD	*p*	Student's test-*t*
No	211	24.55 ±8.27	0.012	2.526
Yes	89	21.89 ±8.50		

Table 11. AIS depending on the method of treatment

Method of treatment	*N*	M ±SD	ANOVA	Post-hoc Tukey test
Chemotherapy (a)	122	23.93 ±8.27	$F = 10.2$	a > b, a < c, b < c
Chemotherapy and radiotherapy (b)	113	21.12 ±7.94	$df = 3, 296, 305$	
New therapy (c)	65	27.82 ±7.96	$p < 0.001$	

F – Fisher Snedecor test, df – degree of freedom

A significant difference regarding the level of acceptance was noted based on whether or not patients smoked tobacco ($p = 0.012$). Non-smoking people accept the illness significantly better (M ±SD = 24.55 ±8.27) than smoking people (M ±SD = 21.89 ±8.50) (Table 10).

There is a distinct impact of the treatment method on the level of acceptance of illness ($p < 0.001$). The greatest issue with the acceptance could be observed in patients undergoing chemotherapy and radiotherapy (M ±SD = 21.12 ±7.94). Acceptance among those undergoing chemotherapy only was not much higher (M ±SD = 23.93 ±8.27). Patients undergoing modern therapies reached the highest average score of acceptance (M ±SD = 27.82 ±7.96). Ad-hoc tests confirmed that people after modern therapies accept their illness more easily than those after chemotherapy and radiotherapy or those after radiotherapy only. People after the therapy with cytostatic drugs accept the illness better than those after chemotherapy and radiotherapy (Table 11).

The correlation between the acceptance of illness and the age of those surveyed was examined using Pearson's linear correlation test. The compari-

son of the value $p = 0.010$ with the significance level $\alpha = 0.05$ indicates that the linear correlation exists. The correlation $R = -0.149$ is negative and of low value, but it is distinct. It can be concluded that the younger the person is the slightly more easily they accept their illness (Table 12).

Table 12. AIS depending on age

Age	*r*	*p*
AIS	–0.149	0.010

r – correlation coefficient

The correlation between the acceptance of illness and the age of the surveyed patients was examined using Pearson's linear correlation test. The comparison of the value p = 0.010 with the significance level α = 0.05 indicates that the linear correlation exists. The correlation r = –0.149 is negative and of low value, but it is distinct. It can be concluded that the younger the person is, the slightly more easily they accept their illness.

DISCUSSION

The time between diagnosing the illness and commencing the treatment is a difficult period for patients, involving an intense increase of thoughts and emotions. Their emotional responses become directed towards a speedy recovery, and new experiences are based on desires, convictions, hidden emotions, and behavioural patterns. Each patient undertaking a lengthy, difficult oncology therapy employs experiences acquired in the course their entire life. They aim their actions at reaching the acceptance of their illness as quickly as possible. All abilities to adapt pertaining to health are directed at sustaining, correcting, enhancing, and restoring balance in all aspects of human life. Only a high level of adaptation ability will guarantee quicker and better acceptance of their condition. When the rates of adaptation to the disease are low, the level of acceptance of illness is perturbed, which, if sustained for a prolonged period of time, may negatively impact the patient's quality of life.

In the modern, holistic approach, a number of researchers and practitioners involved in the daily care of a patient's life and health pay particular attention to the areas of biological, mental, social, and spiritual functioning of the human being. Such an approach sets new trends in the development of state healthcare policy, which have a direct impact on the level of service offered to prevent diseases, combat suffering, and consequently increase the quality of life of society.

The quality of life of oncology patients is influenced by various factors. The conducted study proves that the quality of life of patients undergoing systemic treatment for cancer is not high. Their condition depends not only on the process of development of cancer but also on the method of treatment selected. According to various authors, the level of perceived quality of life depends on various variables, i.e. gender, place of residence, marital status, housing status, education, age, etc.

The results achieved in the studied group of patients demonstrate a moderate level of acceptance of illness under systemic treatment. The majority of the persons studied declare a lowered level of acceptance in regard to the ability to perform their favourite activities, the sense of dependence on others, lowered self-esteem, as well as in regard to the sense of discomfort of other people in their presence. The factor that significantly improves the level of acceptance of illness is professional activity of patients in the course of the treatment (M ±SD = 26.44 ±7.12), which may indicate the need of the ill person to have contact with healthy persons, close ones with whom they may spend time. In the study by Bąk-Sosnowska *et al.* [5], who studied the psychological adaptation of adult women after mastectomy, it was noted that a factor improving the illness acceptance rate was support from the closest ones. In the study by Wiśniewska-Szumacher *et al.* [6] a positive impact of professional activity on the level of acceptance of illness was also identified. Persons working professionally in the course of the disease process demonstrated better acceptance of illness than the persons who were not active professionally. It can therefore be claimed that all social bonds, not only familial but also ones regarding the performance of professional activity, have a positive impact on the process of adjustment to the illness in the course of treatment.

The analysis of the acceptance of illness in the course of the systemic treatment of cancer demonstrated that gender, education, and professional activity during that period of time, as well as the method of therapy, all have an impact on the level of acceptance. One of the differentiating factors is the gender of the studied person. Women undergoing systemic treatment of cancer accept their illness more easily than men and display better adjustment reactions to the circumstances (M = 24.98 vs. M = 20.87). Different results were obtained by Kapela *et al.* [7], who studied the level of acceptance of illness and life satisfaction of colorectal cancer sufferers undergoing chemotherapy. Their study did not demonstrate any impact of gender on the level of acceptance of illness, which may be the consequence of too small a study group (92 individuals).

The presented results of the study demonstrate a statistically significant impact of completed education on the level of acceptance of illness under the systemic treatment (Table 6) and suggest strongly that people with higher education accept their circumstances more easily. Consequently, it may prove good adaptation abilities of patients with higher education. Interesting results were obtained by Łuczyk *et al.* [8], who studied the impact of education on the

acceptance of illness among women who underwent surgical treatment of breast cancer. Patients with elementary education also demonstrated a high level of acceptance of illness. Results of other researchers, including Pawlik and Kaczmarek-Borowska [9] and Jakubas *et al.* [10], show that the education of oncology patients is not a statistically significant factor influencing the level of acceptance of illness.

Pawlik and Kaczmarek-Borowska [9] and Łuczyk *et al.* [8] analysed the impact of age on the process of acceptance of cancer in patients after mastectomy. Their study did not demonstrate statistical significance in that regard. Similar results were obtained by Kaźmierczak *et al.* [11], who attempted to assess the level of acceptance of illness among women undergoing treatment due to pathological changes in the area of the cervix. Contrasting results were obtained by Latalski *et al.* [12] established that younger women participating in the study demonstrated a higher level of acceptance than the older ones. Based on the original study conducted (Table 12), it can be claimed that younger individuals accept their illness in the course of treatment better than older ones.

A number of scientific studies indicate that systemic treatment strongly affects the psyche, inducing insecurity and a sense of danger arising from various side-effects in the course of therapy and afterwards. The occurrence of side-effects such as hair loss, severe nausea and vomiting, diarrhoea, and chronic, recurring infections may induce negative emotions, exacerbated by the fact that this type of treatment is something new and unknown to them, often negatively portrayed by other patients. Each patient may be subject to a sense of helplessness and powerlessness in the health- and life-endangering circumstances, which may result in depression, and which may, in turn, significantly lower their quality of life. Consequently, it is paramount to undertake all and any actions in order to assess the mental condition of the patients, including the acceptance of illness, at each stage of treatment. These actions will enrich our knowledge and give a scientific basis to introduce changes aimed at increasing the quality of life and improving effects of treatment of cancer patients in the course of and after systemic treatment.

CONCLUSIONS

1. Variables, i.e. age, gender, tobacco smoking, and type of treatment, have a significant impact on the acceptance of illness in the course of systemic treatment of cancer.
2. Professional activity of oncology patients has a positive impact on the acceptance of illness during the systemic treatment.

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Disclosure

The authors declare no conflict of interest.

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