Chapter

Assessment of Pain, Acceptance of Illness, Adjustment to Life and Strategies of Coping with the Illness in Patients with Pancreatic Cancer

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Abstract

Pancreatic cancer is the fourth most common cancer causing death in the world. The prognosis of patients with pancreatic cancer is relatively low, which may be reflected in the patients' lack of acceptance of the illness and passive attitudes towards the illness. The aim of the study was to evaluate the strategy of coping with pain and its control, acceptance of the illness and adjustment to life with cancer in patients suffering from pancreatic cancer. Forty-six patients with pancreatic cancer were included in the study. They were treated as outpatients at the Center of Oncology at Maria Skłodowska-Curie's Institute in Warsaw between 2017 and 2018. The questionnaire included four psychometric tests: BPCQ, CSQ, AIS and MiniMAC. In the BPCQ test the highest average test result was obtained by "internal factors" (M = 16.85; SD = 5.64). The most frequently chosen strategies for coping with pain are praying/hoping (M = 22.33; SD = 7.85). The average illness acceptance score was 23.13 (SD = 7.84). The most common methods of psychological adjustment to cancer for the studied group are the strategies of positive re-evaluation (M = 20.07, SD = 3.67). Patients with pancreatic cancer have a low level of acceptance of their illness.

Keywords: pancreatic cancer, pain control, coping with pain, acceptance of illness

1. Introduction

According to data available in the National Cancer Registry, the number of pancreatic cancers in Poland in 2016 was over 3,486 (standardized ratio 5.5/100,000). In 2016, pancreatic cancer in the illness mortality structure in Poland took eighth place in men (2.1%) and eleventh in women (2.1%). Most pancreatic cancers are diagnosed in Poland after the age of 50 [1, 2].

In Poland, pancreatic cancer occurs less frequently than in most European Union countries. Pancreatic cancer is much more common in developed countries (North

America, Central and Northern Europe, Australia) than in African or Indian countries. The American statistical data from 2018 provided the number of 56,770 new cases, including 29,940 in men and 26,830 in women (fourth place in the mortality structure in men and women) [3].

Pancreatic cancer is the fourth most common cancer causing death in the world [4]. In Poland, it is the sixth most common cause of deaths for men (4.3% in the mortality structure) and five women (5.6% in the mortality structure) due to cancer. In 2016, a total of 4,908 Poles died due to pancreatic cancer (standardized ratio 6.2/100,000), and this ratio is comparable to the average of the European Union countries and other countries in the world. The 5-year survival rate in patients with pancreatic cancer in Poland is 9.0% [1, 2].

Risk factors for pancreatic cancer include genetic factors, smoking, obesity, diet rich in red meat and animal fats, and chronic pancreatitis. Surgical treatment is the only method that allows complete cure of pancreatic cancer, provided there is no metastasis at the time of diagnosis, however, due to significant illness severity, only 15–20% of patients can be optimally treated surgically [5].

Due to the very low survival rate of patients with pancreatic cancer (on average 3–7 months from diagnosis and 10–15% one year), it is important that the treatment of patients takes into account the achievement of the highest quality of life [6, 7]. The subjectively assessed quality of life of patients with cancer largely depends on the acceptance of cancer and coping with pain and illness. In the case of pancreatic cancer, patients, having knowledge that survival with this type of illness is very low, may have a tendency to choose destructive behaviors in coping with the illness, which may affect the quality of life they assess, increase pain, and affect the effects of treatment.

The aim of the study was to assess the level of acceptance of the illness, strategies for coping with pain, locating pain control, as well as adapting to life with cancer in patients with pancreatic cancer. The study looked for relationships between socio-economic factors (sex, age, education, professional status, income, place of residence) and treatment with chemotherapy, and results obtained in psychometric tests.

2. Material and methods

The study was conducted between 2017 and mid-2018 among 46 patients diagnosed with pancreatic cancer in stage II-IV according to the AJCC 2017, 8th ed. The outpatients were treated with chemotherapy with gemcitabine at the Center of Oncology at Maria Sklodowska-Curie's Institute in Warsaw. The study tool was a questionnaire with metric questions and four psychometric tests:

1. The Beliefs about Pain Control Questionnaire (BPCQ), designed to examine people suffering from pain.

2. The Pain Coping Strategies Questionnaire (CSQ), used to examine people who complain about pain.

3. Approval Illness Scale (AIS), measuring the level of adjustment to the illness.

4. Mental Adjustment to Cancer Scale (Mini-MAC), measuring the level of mental adjustment to cancer.

The PAPI (Paper and Pencil Interview) technique was used in the study. All patients included in the study gave consented to carry it out.

The study findings were then statistically analyzed with the use of Student's t-test for independent samples, one-way analysis of variance and Pearson's r correlation (in the case of age variable). The adopted statistical significance was at $p < 0.05$.

The scores of the tests were correlated with socioeconomic characteristics of the respondents: sex, age, education, professional status, place of residence, net income-per-household-member, and with chemotherapy treatment in the past year.

3. Results

The study involved patients aged 30–84 years (M = 60.46, SD = 12.28), including 24 (52.2%) women aged 43–84 (M = 63.71, SD = 12.08) and 22 (47.8%) men aged 30–74 (M = 56.91, SD = 11.74).

Among the studied group of patients, 16 (34.8%) have primary/vocational education, 14 (30.4%) have secondary, and 16 (34.8%) have higher education. Over half of the patients - 26 (56.5%) live in towns with a population of up to 100,000, and 20 (43.5%) live in cities with a population of over 100,000. Half of the patients have a monthly net income of up to PLN 1,500 (23 patients, 50.0%), thereby 50% patients indicated that they achieved income over PLN 1,500.00. There were 20 people (43.5%) working in the examined group, and 26 patients (56.5%) were pensioners (56.5%).

In 23 patients (50.0%) metastases were diagnosed. Among the studied group of patients, 25 (54.3%) were undergoing chemotherapy treatment, 15 (32.6%) were undergoing radiotherapy and 10 subjects (21.7%) were undergoing targeted treatment.

3.1 Pain control

In the assessment of pain control in patients with pancreatic cancer S. Skevington's BPCQ (The Beliefs about Pain Control Questionnaire), consisting of 13 statements, was used. In accordance with the assumptions of the BPCQ, the statements used in the questionnaire constitute a part of three factors that measure the strength of individual beliefs about controlling pain personally (internal factors), influence of physicians (other forces), or by random events [8].

In the case of patients with pancreatic cancer, the highest average score in the BPCQ questionnaire was obtained by "internal factors" (M = 16.85; SD = 5.64), and the lowest – "random events" (M = 14.85; SD = 4.11) (**Table 1**), which means that patients believe that these factors contribute to pain control.

Socio-economic variables that differentiate results in patients with pancreatic cancer are gender and net income per household member. In the case of gender, there was a statistically significant difference in the internal locus of pain control ($p = 0.024$). The mean value obtained in the group of women (M = 18.63) was higher than in the group of men (M = 14.91).

The level of income in the studied group of patients influenced the difference in the locus of pain control in random events ($p = 0.027$). The mean value of the severity of the locus of pain control in random events was higher in the group of people with higher income above PLN 1,500 (M = 16.17) than in those in the case of whom in the household the income per family member does not exceed PLN 1,500 (M = 13.52).

Other variables (age, education, place of residence, professional status and chemotherapy) did not affect the results of the pain control questionnaire.

3.2 Pain coping strategies

The Pain Coping Strategies Questionnaire developed by A.K. Rosenstiel and F.J. Keefe (CSQ) is used to examine people who complain about pain. The questionnaire consists of 42 statements and is intended to assess the pain coping strategies that patients use, as well as to verify the effectiveness of these strategies in reducing or managing pain. The ways of dealing with pain assessed in the questionnaire reflect six cognitive and one behavioral strategy, which in turn constitute a part of three factors: cognitive coping, distracting and taking substitute actions, and catastrophizing and seeking hope [9].

In the BPCQ the highest average score for respondents suffering from pancreatic cancer was obtained by praying/hoping (M = 22.33; SD = 7.85), then declaring coping (M = 19.83; SD = 8.06) and increased behavioral activity (M = 19.67; SD = 8.59). According to patients, these factors have the greatest impact on the fight against cancer. The smallest values are visible in the case of re-evaluation of pain (M = 13.35; SD = 9.24) and ignoring sensations (M = 14.93; SD = 9.36) (**Figure 1**).

The assessment that was particularly differentiated by the socio-economic variables under study is praying/hoping. The results in this assessment are differentiated by gender, age, occupational status and the fact that patients have undergone chemotherapeutic treatment in the last year.

In the case of gender, it was noticed that the average value of the praying/hoping assessment was significantly higher in the group of women than men (p = 0.030), and the average values of this assessment were 24.71 for women and 19.73 for men respectively.

In the assessment of praying/hoping, statistically significant positive correlations were obtained in the case of the age of the respondents (r = 0.367). In addition, the age of patients positively correlated with the assessment of increased behavioral activity (r = 0.387).

The average value of the praying/hoping dimension was also higher in the group of pensioners than in the group of working patients (p = 0.044), amounting to 24.48 for pensioners and 19.75 for working people.

Patients who have not been subjected to chemotherapy in the last year also had a higher average value of praying/hoping in the BPCQ (M = 25.52) than patients who were subjected to chemotherapy (M = 19.64) (p = 0.010).

Patients' education, place of residence and income per family member did not affect the pain coping strategies adopted by patients.

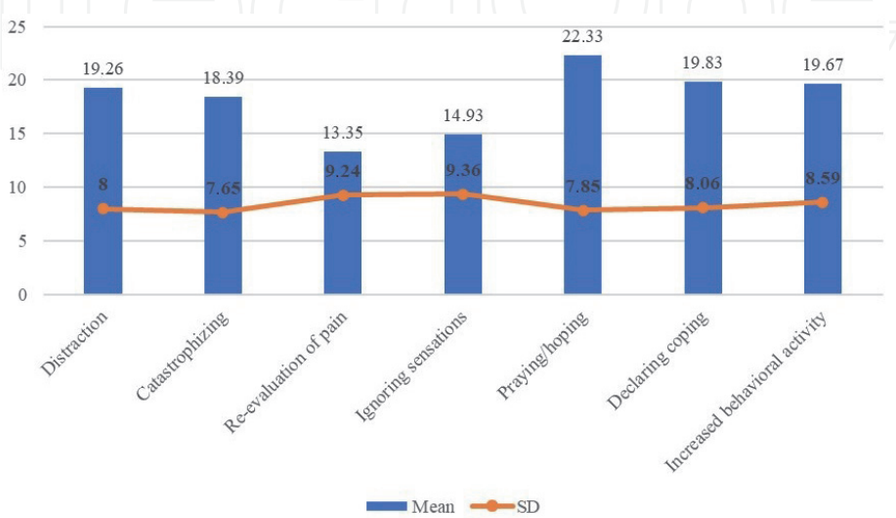

Figure 1.
Results of the CSQ for patients with pancreatic cancer.

3.3 Acceptance of illness

The Approval Illness Scale (AIS) consists of eight statements, based on which the results obtainable for each respondent in the level of acceptance of the illness are within the range from 8 to 40. The higher the score, the better adjustment to the illness and the lesser the sense of mental discomfort. The lower the score, the greater the severity of negative emotions associated with the illness, and thus its lower acceptance [10].

The mean score (disease acceptance level) obtained by patients suffering from pancreatic cancer in the AIS scale was 23.13 with a standard deviation of 7.84. None of the socio-economic variables studied determines differences in the level of illness acceptance between groups.

The average value of acceptance of the illness in the group of women was 22.54 and was close to the average value obtained in the group of men, which was 23.77. The average value of acceptance of the illness in the group of people with primary or vocational education was 22.08, in the group of people with secondary education was 23.43, and in the group of people with higher education was 23.13.

The average disease acceptance was similar in the group of people living in towns with a population of up to 100,000, and in towns with a population above 100,000 (23.1 and 23.15, respectively).Income also did not differentiate the obtained results. The average value of acceptance of the illness in the group of people with net income of up to PLN 1,500 per person in the family was 23.61 and was also close to the average value obtained in the group of people who achieved income above PLN 1,500 (M = 22.65).

The average value of acceptance of the illness in the working group was 24.85, and in the group of pensioners - 21.52, but these differences were also not statistically significant.

The average value of acceptance of the illness in the group of patients who underwent the chemotherapeutic treatment last year was 22.84 and similarly to other variables it was close to the average value obtained in the group of people who did not undergo chemotherapy treatment which was 23.48.

3.4 Mental adjustment to the illness

The Mini-Mac (Mental Adjustment to Cancer) questionnaire measures four methods of mental adjustment to the illness: anxiety, fighting spirit, helplessness - hopelessness and positive reevaluation. According to the assumptions of the questionnaire, anxiety and helplessness-hopelessness are part of a passive (destructive) style of coping with the illness, and the other two dimensions refer to the active (constructive) style of coping with the illness [11].

Respondents suffering from pancreatic cancer obtained the highest result of the Mini-Mac test in terms of positive re-evaluation (M = 20.07, SD = 3.67) and fighting spirit (M = 19.80, SD = 3.89) and these are the main disease adaptation methods used by patients, and the lowest - in terms of helplessness-hopelessness (M = 15.87, SD = 4.56) (**Table 2**).

The strategy of positive re-evaluation was differentiated by the gender of patients (p = 0.002). The average value of positive re-evaluation obtained in the group of women was higher than in the group of men (respectively M = 21.63 and M = 18.36). Similarly, the average in positive re-evaluation was dependent on the age of patients - the higher the age, the higher the values obtained by patients in this assessment (r = 0.550). The age of the patients also positively correlated with fighting spirit (r = 0.429).

The average value of positive re-evaluation was statistically significantly lower in the group of patients with higher education (M = 17.50) than in the group with

basic or vocational education (M = 21.00) and in the group of people with secondary education (M = 21.93) (p = 0.001).

Income also conditioned the value of positive re-evaluation (p = 0.004). The average value of positive re-evaluation was higher in the group of people with lower income up to PLN 1,500 per person in the family (M = 21.57) in comparison with people whose income per family member exceeded PLN 1,500 (M = 18.57).

Positive re-evaluation was also conditioned by the professional status of patients (p = 0.001). The average value of this assessment was higher in the group of pensioners (M = 21.83) than in the group of working patients (M = 17.70).

4. Discussion

Chronic illness forces patients to make many changes in their life to be able to adapt to the new situation. In this area, accepting the losses caused by the illness seems to be the most difficult for patients, coping with the limitations and measuring the risks that may arise in connection with cancer [12].

Pancreatic cancer is usually diagnosed at an advanced stage, which results from the fact that the patient feels the symptoms only when the illness is fully developed and the metastases are already distant. At the same time, late diagnosis of the illness is associated with rapidly developing, difficult to treat symptoms, which in the case of pancreatic cancer include quick destruction of the body, lack of appetite, pain, pruritus, nausea and vomiting, deep vein thrombosis. Many patients with pancreatic cancer do not survive the first year after the diagnosis, and with severe pain and high severity of cancer symptoms it seems reasonable to implement palliative care in the first months after the diagnosis [13]. Furthermore, patients themselves are aware that the survival rate with pancreatic cancer is one of the lowest of all cancers, which is additionally a stress factor for patients.

A study to assess the level of stress and depression among patients with various cancers indicates that patients with pancreatic cancer are most affected by anxiety and are characterized by the highest rate of depression [14, 15]. Similar results are indicated by Clark K.L. et al. [16].

Many studies indicate that subjective feelings, attitudes and behaviors influence pain. Pain as a physical and psychological phenomenon is felt with the participation of consciousness, therefore the state of the psyche and psychological factors play a fundamental role in experiencing pain, especially chronic pain. Particularly important element affecting the experience of pain is the control locus (locus of control is the degree to which people believe they control the situations they experience in lives; control can be internal or external) which also directly affects the behavior of the patient in a situation of pain [17–19].

Our study, including 46 patients with pancreatic cancer, indicates that patients control pain mainly through internal factors (M = 16.85, SD = 5.64). A similar result is obtained by patients with cancer of the digestive system - colorectal cancer (N = 238; M = 17.36; SD = 5.48) [20]. Studies conducted by Basińska M.A. et al. also using the BPCQ questionnaire in patients with colorectal cancer and lung cancer indicate that in both groups the patients attribute the greatest role in the control of pain to the influence of physicians (for patients with lung cancer M = 17.08, SD 4.97, and for patients with colorectal cancer M = 16.98, SD = 4.32) (**Table 3**). Patients attribute the lowest role of pain control to random events (for patients with lung cancer M = 15.18, SD = 3.80, and for patients with colorectal cancer M = 15.00, SD = 3.46), and these values are very similar to the sense of control through internal factors. The study conducted by Basińska M.A. et al. at the

same time, indicated that patients with external control locus use methods of passively struggling with the illness and vice versa - patients with high internal control locus are characterized by high activity and better psychological well-being. The external health control locus is associated with chronic negative emotions such as depression, anxiety or hostility, as well as an increase in pain symptoms in patients [17].

According to our study, the most common way to cope with pain in the case of patients with pancreatic cancer is praying/hoping (M = 22.33, SD = 7.85), typical primarily for women, the elderly, and pensioners. These groups obtained by far the highest values in the assessment of praying/hoping. Patients with colorectal cancer in the study conducted by Czerw A. et al. most often use coping strategies and increased behavioral activity [20] also typical for prostate cancer [21], lung cancer [22] and breast cancer [23] (**Figure 2**). Interestingly, among patients with colorectal cancer, it was noticed that the strategy of praying/hoping is particularly often chosen by women and the group of pensioners [20], as in the case of patients with pancreatic cancer according to our study.

The strategies of praying/hoping and declaring coping typical for patients with pancreatic cancer are the most commonly used in the group of patients chronically ill with back pain in the studies conducted by A.K. Rosenstiel and F.J. Keefe. Similarly, the most rarely used strategy for patients was the re-evaluation of pain [9], and this assessment was also poorly assessed by patients in our study. Although, Religioni U. et al. [24] in the study conducted on cancer patients indicates that socio-economic variables, which most often differentiate the selection of strategies for coping with cancer pain, are education and income, in the case of patients with pancreatic cancer, this relationship was not noticed.

However, it should be noted that many studies indicate that the strategies of catastrophizing or praying/hoping significantly affect the severity of pain symptoms in chronic illnesses and deterioration of the general health condition [25, 26].

The level of acceptance of the illness among patients with pancreatic cancer in our study was 23.13 (SD = 7.84). The acceptance of the illness in the studied group is lower than in the group of patients with other cancers (among patients with breast cancer the average disease acceptance score in the AIS test was 28.46, among patients with lung cancer M = 23.17, among patients with cancer of the large intestine M = 27.74, among prostate cancer patients M = 30.39) [27]. Similarly,

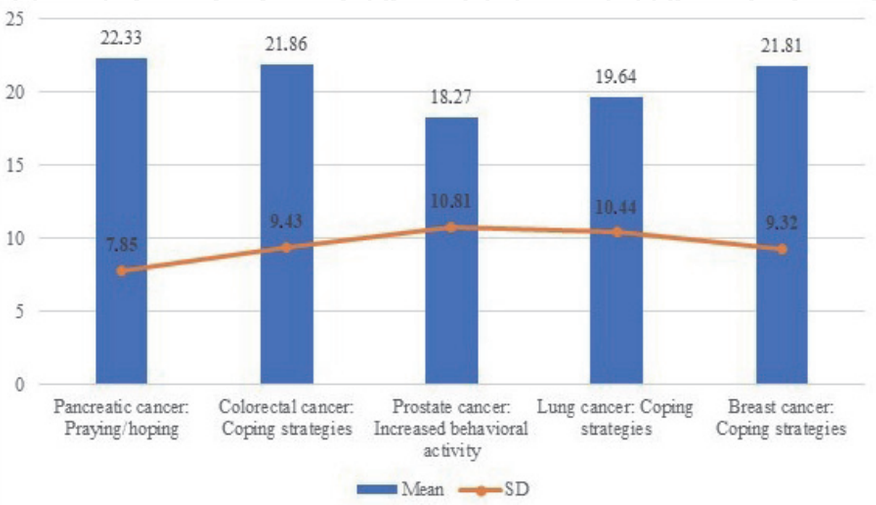

Figure 2.
The most common way to cope with pain in cancer patients [20–23].

Kapela I. et al. indicate that among patients with colorectal cancer, the level of acceptance of the disease according to the AIS scale reaches values slightly higher than the average (M = 28.4) and close to the values obtained in the studies conducted by Religioni U. et al. [28].

Significantly lower results in the AIS test were obtained by Kozak G. Among the oncological patients subject to palliative care, the highest level of acceptance of the illness was observed in women with cancer of the reproductive organs (M = 21.93, SD = 6.00) compared to patients with colorectal cancer (M = 16.58, SD = 7.42), gastric cancer (M = 16.87, SD = 5.59) and pancreatic cancer (M = 18.23, SD = 9.13) [29]. The level of acceptance of the illness in patients with various cancers, including pancreatic cancer, examined by Kołpa M. et al. was on average M = 25.35; SD = 9.25. This study indicates that age diversifies the level of adjustment to the illness, but other variables, such as education or gender, do not affect the results [30]. In the study of patients with pancreatic cancer none of the variables affected the level of acceptance of the illness.

The study conducted on other groups of patients indicates that such patients get higher results in the AIS test than patients with pancreatic cancer, e.g. patients with diabetes M = 25.76; SD = 10.34, patients with cardiovascular disease M = 27.78; SD = 9.86, patients with diseases of the nervous system M = 27.02; SD = 8.92 [12].

Among the available studies only few groups achieve lower values in the AIS test compared to patients with pancreatic cancer in our study: men after myocardial infarction (M = 22.14), men with chronic pain (M = 18.44), men with back pain (M = 20.51) [31].

The level of disease acceptance among patients with various types of cancer is presented in **Table 4**.

Pancreatic cancer is a specific type of cancer. The coping process is dynamic and involves various strategies, the use of which depends on the duration of the illness [32]. Among the methods of coping with cancer by patients with pancreatic cancer, positive re-evaluation (M = 20.07, SD = 3.67) and fighting spirit (M = 19,8; SD = 3,89) dominate. In patients with colorectal cancer in the study conducted by Kapela I. et al. the constructive style dominates as well, with a predominance of fighting spirit (M = 23.9) and positive re-evaluation (M = 22.5) [28]. Similar results were obtained by Czerw A. et al. among patients with colorectal cancer (fighting spirit M = 23.42, positive re-evaluation M = 22.31) [20].

The average results for anxiety and hopelessness/hopelessness in our study were respectively M = 18.30;SD = 4.72 and M = 15.87; SD = 4.56, which is a much higher result than in the case of other most common cancers (lung, breast, colon and prostate cancer) [33]. Similar, although higher results for these assessments are indicated by Kozak G. In his studies, men with prostate cancer have the highest intensity of anxiety among all cancer patients. Anxiety is also significantly higher in the case of patients with stomach cancer (M = 22.84; SD = 5.52), pancreas cancer (M = 22.43; SD = 6.30) and colorectal cancer (M = 21.72; SD = 6.55) in comparison to women with cancer of the reproductive organs (M = 18.34; SD = 4.26). In the case of these patients, the highest level of fighting spirit is observed (M = 23.95; SD = 4.35). In the studies conducted by Kozak G. a significantly higher level of fighting spirit was observed in patients with stomach cancer (M = 19.62; SD = 5.82) and colorectal cancer (M = 19.37; SD = 5.32) in comparison to patients with pancreatic cancer M = 15.43; SD = 5.01) or prostate cancer (M = 15.68; SD = 5.06). Patients with stomach cancer (M = 20.98; SD = 5.68), pancreatic cancer (M = 21.22; SD = 5.10) and colorectal cancer (M = 19.16; SD = 7.41) are characterized by greater severity of helplessness/hopelessness compared to women with cancer of the reproductive organs (M = 13.70; SD = 5.36) (**Table 5**) [29].

The analysis of the level of acceptance of the illness in relation to the adopted way of adjustment to the illness indicated that the higher the level of acceptance on the AIS scale, the higher the level of fighting spirit and the level on the scale of the constructive style (Mini-MAC) [30]. In this context, the implementation of activities aimed at helping to accept the disease is particularly important. These actions should be taken by medical personnel. Health policy programs can also play an important role in this respect. These programs may include specialist trainings for medical personnel as well as implementation of activities directed directly to patients [34].

Similarly, in the study conducted on 220 patients with various cancers: stomach cancer, cancer of reproductive organs, pancreatic cancer, colorectal cancer and prostate cancer, similar dependencies were indicated – the higher the acceptance of the illness, the higher the intensity of fighting spirit and the lower the intensity of anxiety and helplessness/hopelessness [29]. In the study conducted on patients with colorectal patients, education significantly affects the results obtained in terms of anxiety, helplessness/hopelessness and the destructive style [28]. In our study conducted on patients with pancreatic cancer, education positively correlated with the strategy of positive re-evaluation. Among patients with pancreatic cancer in the study conducted by Kozak G., it was also observed that the older the patients, the lower the intensity of anxiety and helplessness/hopelessness [29]. A similar relationship in this group of patients was also described by Juczyński Z., although our study does not confirm this dependency. Numerous studies indicate that a typical method to cope with the illness among patients with pancreatic cancer is the application of defense mechanisms – repression and denial. According to Bahnson C. et al., repression and denial play a key role in the development of cancer, including pancreatic cancer [35, 36].

As authors, we are aware of the imitations of our research. First of all, we know that our sample of patients is small. The study took place in an outpatient clinic, and we recruited as many patients as possible. However, we know that extending the study to include hospitalized patients would bring more accurate results. We believe that this is the direction of further research. Additionally, despite identifying the benefits of some psychological strategies, we recognize that our research only shows the course of action. It is not possible to force a patient to adopt any disease strategy. This attitude must result from their internal needs and beliefs. However, the skillful help of a psychologist can help patients fight the disease so that the patient experiences the highest possible quality of life.

5. Conclusions

1. Patients with pancreatic cancer assign the greatest role in the locus of pain control to internal factors.

2. Dominant strategies for coping with pain by the studied patients involve praying/hoping and declaring coping, especially in the group of women, the elderly, and pensioners and people who have not undergone chemotherapy in the last year.

3. Patients suffering from pancreatic cancer have a relatively low level of acceptance of their illness, and this result is not dependent on the socio-economic variables studied.

4. Patients with pancreatic cancer usually have a constructive style of coping with the illness, although anxiety and helplessness/hopelessness in the case of these patients also obtain rather high values.

5. The study of patients' quality of life, including the level of acceptance of the illness or styles of coping with the illness is particularly important among people with pancreatic cancer. These studies should become one of the elements of comprehensive oncological care, in which the process of treating patients should also include psychological care.

Conflict of interest

None declared.

Declarations

Ethics approval and consent to participate

Ethics Committee of the Medical University of Warsaw approved this study. Due to the scope of the data, we obtained verbal informed consent.

A. Appendix

A.1 Statistical analysis of the results

A.1.1 Descriptive statistics

Table 1 presents descriptive statistics for the analyzed variables, i.e. mean values, standard deviations as well as minimum and maximum results. The list was also supplemented with the values of the Kolmogorov-Smirnov test verifying the assumption about the normality of the distribution of the analyzed variables and the values of skewness and kurtosis measures.

No statistically significant deviations from the normal distribution were obtained.

	Variable	*M.*	*SD*	*min*	*max*	*WITH*	*p*	*S.*	*K.*
Strategies	Distraction	19.26	8.00	2	36	0.65	0.794	4.00	−0.12
counseling	Re-evaluation of pain sensations	13.35	9.24	0	36	1.01	0.257	0.02	−0.39
myself	Catastrophizing	18.39	7.65	2	33	0.64	0.804	−0.09	−0.31
with pain	Ignoring sensations	14.93	9.36	0	36	0.61	0.844	−0.05	−0.65
	Praying/Hope	22.33	7.85	9	36	0.72	0.673	0.09	−1.04
	Declaring coping	19.83	8.06	7	36	0.91	0.374	0.20	−0.99
	Increased behavioral activity	19.67	8.59	2	36	0.63	0.819	0.14	−0.61
Adaptation	Anxiety preoccupation	18.30	4.72	8	28	0.60	0.865	0.04	−0.52
mental	Fighting spirit	19.80	3.89	9	28	0.59	0.882	0.04	0.55
to disease	Helplessness-hopelessness	15.87	4.56	7	26	0.66	0.776	0.11	−0.65

	Variable	*M.*	*SD*	*min*	*max*	*WITH*	*p*	*S.*	*K.*
cancerous	Positive reevaluation	20.07	3.67	12	28	0.78	0.584	−0.28	−0.34
	Acceptance of the disease	23.13	7.84	8	38	0.61	0.857	−0.18	−0.84
Control	Inside	16.85	5.64	6	thirty	0.78	0.581	0.16	0.04
pain	The influence of doctors	16.54	4.21	5	24	0.59	0.875	−0.04	0.15
	Random events	14.85	4.11	7	24	0.58	0.892	0.03	−0.25

M.- average value; SD - standard deviation; min - minimum value; max - maximum value; Z - value of the Kolmogorov–Smirnov test; p - statistical significance; S - skewness measure; K - measure of kurtosis.

Table 1.
Descriptive statistics for the analyzed variables.

A.1.2 Results

A.1.2.1 Pain coping strategies

Based on the results of the analysis of variance with repeated measures, it was found that there were statistically significant differences between the intensity of individual pain coping strategies, $F\ (3.71; 166.97) = 9.33$, $p < 0.001$, $\eta^2 = 0.17$. **Figure 3** shows the mean values of the intensity of the analyzed strategies along with the confidence intervals determined based on the Bonferroni correction.

It was found that praying/hoping was a strategy used more often than reevaluating pain sensations and ignoring sensations. Re-evaluation of pain sensations was a less frequently used strategy than distraction and catastrophizing.

Table 2 presents the mean values of the intensity of coping strategies in the group of women and men. The list was supplemented with the values of the Student's two-sided t-test for independent samples.

There was a statistically significant difference in the prayer/hope strategy.

Table 3 shows the Pearson r correlation coefficients between the age of the respondents and the coping strategies. Statistically significant correlations were marked.

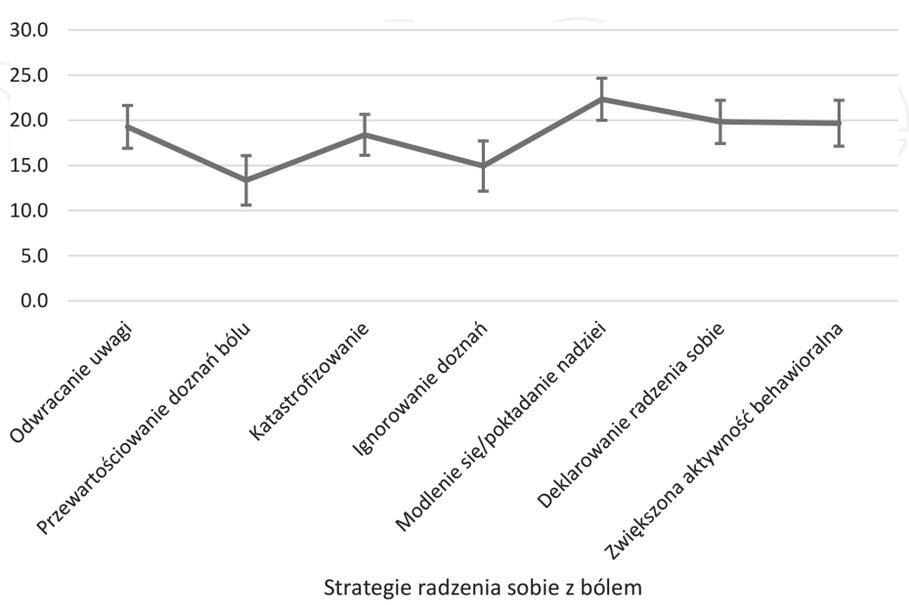

Figure 3.
The mean values of the intensity of the analyzed strategies with confidence intervals determined based on the Bonferroni correction.

	Women		Men				
Variable	***M.***	***SD***	***M.***	***SD***	***vol***	***df***	***p***
Distraction	20.71	8.72	17.68	7.01	1.29	44	0.204
Re-evaluation of pain sensations	13.33	9.67	13.36	8.97	−0.01	44	0.991
Catastrophizing	18.13	6.91	18.68	8.54	−0.24	44	0.808
Ignoring sensations	15.63	9.44	14.18	9.44	0.52	44	0.607
Praying/Hope	**24.71**	**7.90**	**19.73**	**7.09**	**2.24**	**44**	**0.030**
Declaring coping	19.88	8.78	19.77	7.40	0.04	44	0.966
Increased behavioral activity	20.79	9.78	18.45	7.10	0.92	44	0.363

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 2.
Mean values of the intensity of coping with pain in the group of women and in the group of men.

Variables	**Age**
Distraction	0.276
Re-evaluation of pain sensations	0.092
Catastrophizing	−0.229
Ignoring sensations	0.089
Praying/Hope	0.369*
Declaring coping	0.207
Increased behavioral activity	0.387**

*p < 0.05.
**p < 0.01.

Table 3.
Pearson's r correlation coefficients between the age of the respondents and the strategies of coping with pain.

Statistically significant positive correlations were found between the age of the respondents and praying/hoping and increased behavioral activity.

Table 4 shows the mean values of the strategies of coping with pain in the group of people with primary or vocational education, in the group of people with secondary education and in the group of people with higher education. The summary was supplemented with the values of one-way analysis of variance.

No statistically significant differences were obtained.

Table 5 shows the average values of pain coping strategies in the group of people living in towns with a population of up to 100,000 and in the group of people living in towns with more than 100,000 inhabitants. The list was supplemented with the values of the Student's two-sided t-test for independent samples.

There were no statistically significant differences.

Table 6 shows the average values of the pain coping strategies in the group of people with the average monthly net income per family member up to PLN 1,500 and in the group of people with the average monthly net income per family member above PLN 1,500. The list was supplemented with the values of the Student's two-sided t-test for independent samples.

There were no statistically significant differences.

	Education							
	basic/valve		**medium**		**higher**			
Variable	*M.*	*SD*	*M.*	*SD*	*M.*	*SD*	*F.*	*p*
Distraction	22.69	6.84	18.00	9.82	16.94	6.49	2.46	0.097
Re-evaluation of pain sensations	16.44	9.70	10.21	9.78	13.00	7.72	1.77	0.183
Catastrophizing	17.81	9.52	17.43	8.44	19.81	4.46	0.42	0.659
Ignoring sensations	16.81	9.74	12.93	10.13	14.81	8.46	0.63	0.535
Praying/Hope	21.06	8.93	26.36	6.99	20.06	6.38	2.95	0.063
Declaring coping	20.63	7.71	19.93	8.22	18.94	8.68	0.17	0.844
Increased behavioral activity	22.31	6.67	18.14	11.29	18.38	7.43	1.17	0.321

M.- average value; SD - standard deviation; F - value of the one-way analysis of variance; p - statistical significance.

Table 4.
Average values of the strategies of coping with pain in the group of people with primary or vocational education, in the group of people with secondary education and in the group of people with higher education.

	The number of residents						
	up to 100,000		**over 100 thousand**				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Distraction	18.92	7.66	19.70	8.61	−0.32	44	0.748
Re-evaluation of pain sensations	14.00	10.61	12.50	7.26	0.54	44	0.591
Catastrophizing	19.12	7.95	17.45	7.33	0.73	44	0.470
Ignoring sensations	15.15	9.85	14.65	8.94	0.18	44	0.859
Praying/Hope	23.50	7.38	20.80	8.37	1.16	44	0.252
Declaring coping	19.73	7.86	19.95	8.52	−0.09	44	0.928
Increased behavioral activity	20.42	7.96	18.70	9.48	0.67	44	0.506

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 5.
Average values of the pain coping strategy in the group of people living in towns with a population of up to 100,000 and in the group of people living in towns with more than 100,000 inhabitants.

Table 7 presents the mean values of the strategies of coping with pain in the group of working people and in the group of retirees and pensioners. The list was supplemented with the values of Student's two-sided t-test for independent samples.

A statistically significant difference was obtained in terms of praying/hoping.

Table 8 shows the mean values of the strategies of coping with pain in the group of patients with diagnosed metastases and in the group of patients without metastases. The list was supplemented with the values of the Student's two-sided t-test for independent samples.

Statistically significant intergroup differences in catastrophizing and declaring coping were obtained.

Table 9 shows the mean values of the pain coping strategies in the group of people who were undergoing chemotherapy and those who were not undergoing chemotherapy. The list was supplemented with the values of the Student's two-sided t-test for independent samples.

	Average monthly net income						
	up to PLN 1,500		over 1500 zlotys				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Distraction	19.09	8.84	19.43	7.27	−0.15	44	0.885
Re-evaluation of pain sensations	12.83	8.89	13.87	9.75	−0.38	44	0.706
Catastrophizing	18.22	8.13	18.57	7.32	−0.15	44	0.879
Ignoring sensations	12.91	8.33	16.96	10.07	−1.48	44	0.145
Praying/Hope	24.17	7.99	20.48	7.43	1.62	44	0.111
Declaring coping	18.87	6.88	20.78	9.15	−0.80	44	0.427
Increased behavioral activity	18.83	8.32	20.52	8.96	−0.66	44	0.510

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 6.
Average values of the pain coping strategy in the group of people with an average monthly net income per family member up to PLN 1,500 and in the group of people with an average monthly net income per family member above PLN 1,500.

	Professional status						
	working		retirees/pensioners				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Distraction	17.50	7.69	20.96	7.92	−1.45	41	0.155
Re-evaluation of pain sensations	12.80	8.32	12.96	10.35	−0.05	41	0.957
Catastrophizing	17.65	6.12	18.43	8.76	−0.34	41	0.739
Ignoring sensations	15.20	7.70	14.43	10.94	0.26	41	0.795
Praying/Hope	**19.75**	**6.46**	**24.48**	**8.21**	**−2.07**	**41**	**0.044**
Declaring coping	20.30	7.44	19.87	8.95	0.17	41	0.866
Increased behavioral activity	17.20	6.69	21.65	9.45	−1.76	41	0.086

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 7.
Average values of strategies for coping with pain in the group of working people and in the group of retirees and pensioners.

The mean value of the level of praying/hoping was statistically significantly lower in the group of people who were undergoing chemotherapy treatment than in the group of people who were not undergoing chemotherapy.

Table 10 presents the mean values of the pain coping strategies in the group of people who were treated with radiotherapy and in the group of people who were not treated with radiotherapy. The list was supplemented with the values of the Student's two-sided t-test for independent samples.

A statistically significant difference was obtained in the level of ignoring sensations.

Table 11 shows the mean values of the strategies of coping with pain in the group of people who were undergoing targeted therapy and in the group of people

	Known metastases						
	Yes		no				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Distraction	18.35	7.24	21.43	8.09	−1.33	42	0.190
Re-evaluation of pain sensations	12.04	8.17	15.71	10.00	−1.34	42	0.188
Catastrophizing	**20.96**	**6.65**	**15.38**	**7.51**	**2.61**	**42**	**0.012**
Ignoring sensations	15.04	9.25	15.67	9.64	−0.22	42	0.828
Praying/Hope	20.87	7.14	24.76	8.02	−1.70	42	0.096
Declaring coping	**17.09**	**6.97**	**23.71**	**7.67**	**−3.00**	**42**	**0.004**
Increased behavioral activity	18.96	7.97	21.48	8.99	−0.99	42	0.330

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 8.
Mean values of strategies of coping with pain in the group of people with diagnosed metastases and in the group of people without metastases.

	Chemotherapeutic treatment						
	Yes		no				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Distraction	18.96	6.43	19.62	9.71	−0.28	44	0.784
Re-evaluation of pain sensations	12.08	8.16	14.86	10.38	−1.02	44	0.315
Catastrophizing	19.72	8.12	16.81	6.90	1.30	44	0.202
Ignoring sensations	14.40	9.10	15.57	9.86	−0.42	44	0.677
Praying/Hope	**19.64**	**6.39**	**25.52**	**8.37**	**−2.70**	**44**	**0.010**
Declaring coping	18.32	6.43	21.62	9.51	−1.35	34.12	0.185
Increased behavioral activity	18.64	7.07	20.90	10.16	−0.89	44	0.379

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 9.
Average values of the strategies of coping with pain in the group of people who were undergoing chemotherapy treatment and in the group of people who were not undergoing chemotherapy.

who were not undergoing targeted therapy. The list was supplemented with the values of the Student's two-sided t-test for independent samples.

Statistically significant differences between groups were obtained in terms of re-evaluation of pain sensations and of ignoring sensations.

A.1.3 Mental adjustment to neoplastic disease

Based on the results of the analysis of variance with repeated measurements, it was found that there were also statistically significant differences between the intensity of individual indicators of mental adaptation to cancer, $F(1.54; 69.45) = 9.37$, $p < 0.01$, $\eta^2 = 0.17$. **Figure 4** shows the mean values of the intensity of the analyzed fitness indices together with the confidence intervals determined based on the Bonferroni correction.

	Treatment with radiation therapy						
	Yes		no				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Distraction	20.07	7.41	18.87	8.37	0.47	44	0.640
Re-evaluation of pain sensations	15.87	5.63	12.13	10.42	1.58	43.33	0.122
Catastrophizing	18.07	6.84	18.55	8.12	−0.20	44	0.844
Ignoring sensations	**19.07**	**6.40**	**12.94**	**9.99**	**2.51**	**40.32**	**0.016**
Praying/Hope	21.80	6.14	22.58	8.64	−0.35	37.58	0.727
Declaring coping	21.27	5.87	19.13	8.93	0.97	39.68	0.339
Increased behavioral activity	20.80	6.35	19.13	9.54	0.70	39.37	0.485

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 10.
Average values of the strategies of coping with pain in the group of people who were treated with radiotherapy and in the group of people who were not treated with radiotherapy.

	Targeted treatment						
	Yes		no				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Distraction	19.50	4.30	19.19	8.81	0.15	31.27	0.880
Re-evaluation of pain sensations	**19.00**	**4.40**	**11.78**	**9.65**	**3.40**	**33.69**	**0.002**
Catastrophizing	20.30	4.27	17.86	8.32	0.89	44	0.378
Ignoring sensations	**21.60**	**4.09**	**13.08**	**9.60**	**4.14**	**35.99**	**0.001**
Praying/Hope	21.60	6.10	22.53	8.34	−0.33	44	0.745
Declaring coping	24.20	6.76	18.61	8.05	2.00	44	0.051
Increased behavioral activity	21.70	3.43	19.11	9.51	1.35	40.70	0.185

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 11.
Mean values of the strategies of coping with pain in the group of people who were undergoing targeted therapy and in the group of people who were not undergoing targeted therapy.

It was found that the mean values of the fighting spirit and positive re-evaluation were statistically significantly higher than the mean value of the helplessness-hopelessness index.

Table 12 presents the mean values of the mental adjustment indices in the group of women and in the group of men. The list was supplemented with the values of the Student's two-sided t-test for independent samples.

There was a statistically significant difference in terms of the positive re-evaluation strategy.

Table 13 shows the Pearson r correlation coefficients between the age of the respondents and the psychological adjustment indices. Statistically significant correlations were marked.

Statistically significant positive correlations were obtained between the age of the respondents and the fighting spirit index and a positive re-evaluation.

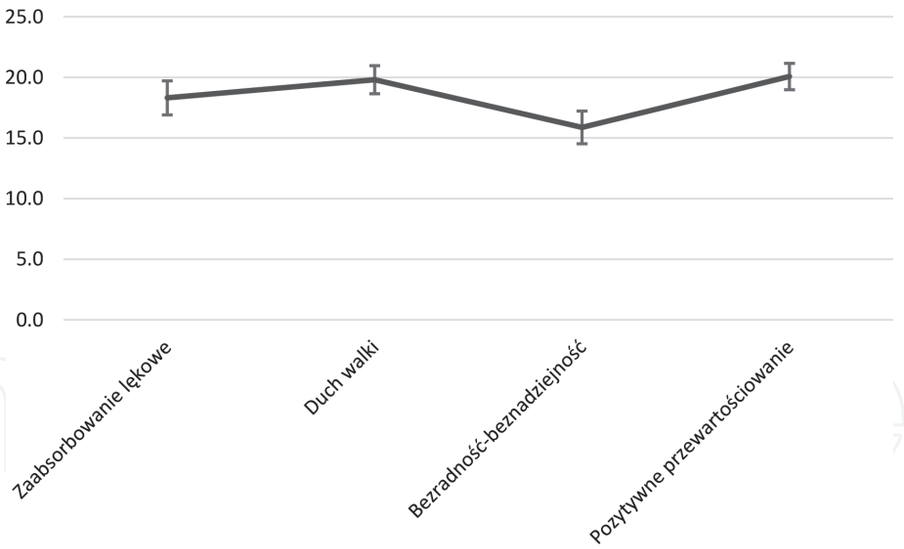

Figure 4.
The mean values of the indicators of mental adaptation to neoplastic disease with confidence intervals determined based on the Bonferroni correction.

	Women		Men				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Anxiety preoccupation	18.88	3.72	17.68	5.64	0.84	35.88	0.407
Fighting spirit	19.96	4.53	19.64	3.13	0.28	44	0.782
Helplessness-hopelessness	16.08	3.89	15.64	5.28	0.33	44	0.744
Positive reevaluation	**21.63**	**3.05**	**18.36**	**3.58**	**3.34**	**44**	**0.002**

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 12.
Average values of mental adjustment indicators in the group of women and in the group of men.

Variables	**Age**
Anxiety preoccupation	−0.022
Fighting spirit	0.429*
Helplessness-hopelessness	−0.195
Positive reevaluation	0.550*

*$^{*}p < 0.01$.

Table 13.
Pearson's r correlation coefficients between the age of the respondents and the indicators of mental adjustment.

Table 14 shows the average values of the adaptation rates in the group of people with primary or vocational education, in the group of people with secondary education and in the group of people with higher education. The summary was supplemented with the values of one-way analysis of variance.

Statistically significant differences were obtained in terms of a positive re-evaluation. On the basis of Gabriel's post-hoc test, it was found that statistically significant differences existed between people with higher education and people

	Education							
	basic/valve		medium		higher			
Variable	*M.*	*SD*	*M.*	*SD*	*M.*	*SD*	*F.*	*p*
Anxiety preoccupation	18.31	4.39	18.71	5.50	17.94	4.60	0.10	0.908
Fighting spirit	21.50	3.33	18.86	4.88	18.94	2.98	2.49	0.095
Helplessness-hopelessness	15.50	4.75	15.71	5.04	16.38	4.16	0.15	0.859
Positive reevaluation	21.00	2.58	21.93	3.20	17.50	3.69	8.26	0.001

M.- average value; SD - standard deviation; F - value of the one-way analysis of variance; p - statistical significance.

Table 14.
Average values of the adaptation indicators in the group of people with primary or vocational education, in the group of people with secondary education and in the group of people with higher education.

with primary or vocational education, $p < 0.05$, and people with secondary education, $p < 0.01$.

Table 15 shows the average values of the adaptation indicators in the group of people living in towns with a population of up to 100,000 and in the group of people living in towns with more than 100,000 inhabitants. The list was supplemented with the values of Student's two-sided t-test for independent samples.

There were no statistically significant differences.

Table 16 shows the average values of the adaptation rates in the group of people with an average monthly net income per family member of up to PLN 1,500 and in the group of people with an average monthly net income per family member above PLN 1,500. The list was supplemented with the values of Student's two-sided t-test for independent samples.

A statistically significant difference was obtained in terms of a positive re-evaluation.

Table 17 shows the average values of the adaptation indicators in the group of working people and in the group of retirees and pensioners. The list was supplemented with the values of Student's two-sided t-test for independent samples.

A statistically significant difference was obtained in terms of a positive re-evaluation.

	The number of residents						
	up to 100,000		over 100 thousand				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Anxiety preoccupation	17.81	4.70	18.95	4.80	−0.81	44	0.422
Fighting spirit	19.96	3.75	19.60	4.15	0.31	44	0.758
Helplessness-hopelessness	14.81	4.20	17.25	4.74	−1.85	44	0.071
Positive reevaluation	20.81	3.07	19.10	4.20	1.59	44	0.118

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 15.
Average values of adaptation indicators in the group of people living in towns with a population of up to 100,000 and in the group of people living in towns with more than 100,000 inhabitants.

	Average monthly net income						
	up to PLN 1,500		over 1500 zlotys				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Anxiety preoccupation	17.70	4.77	18.91	4.70	−0.87	44	0.388
Fighting spirit	20.13	3.42	19.48	4.36	0.56	44	0.575
Helplessness-hopelessness	15.17	4.75	16.57	4.35	−1.04	44	0.306
Positive reevaluation	**21.57**	**2.52**	**18.57**	**4.05**	**3.01**	**44**	**0.004**

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 16.
Average values of adaptation indicators in the group of people with an average monthly net income per family member up to PLN 1,500 and in the group of people with an average monthly net income per family member above PLN 1,500.

	Professional status						
	working		retirees/pensioners				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Anxiety preoccupation	17.95	5.17	18.57	4.67	−0.41	41	0.684
Fighting spirit	19.30	2.79	20.65	4.65	−1.13	41	0.263
Helplessness-hopelessness	16.45	4.84	15.39	4.42	0.75	41	0.458
Positive reevaluation	**17.70**	**3.69**	**21.83**	**2.52**	**−4.33**	**41**	**0.001**

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 17.
Average values of adaptation indicators in the group of working people and in the group of retirees and disability pensioners.

Table 18 presents the mean values of the adaptation indices in the group of people with diagnosed metastases and in the group of people with no diagnosis of metastases. The list was supplemented with the values of Student's two-sided t-test for independent samples.

A statistically significant difference was obtained in terms of the fighting spirit index.

	Known metastases						
	Yes		no				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Anxiety preoccupation	18.52	4.10	17.67	5.14	0.61	42	0.543
Fighting spirit	**18.70**	**3.85**	**21.10**	**3.58**	**−2.13**	**42**	**0.039**
Helplessness-hopelessness	16.57	3.95	14.76	4.71	1.38	42	0.175
Positive reevaluation	19.39	3.30	21.33	3.51	−1.89	42	0.066

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 18.
Average values of the adaptation indices in the group of people with diagnosed metastases and in the group of people without metastases.

Table 19 shows the mean values of the adaptation indices in the group of people who were undergoing chemotherapeutic treatment and in the group of people who were not undergoing chemotherapy. The list was supplemented with the values of Student's two-sided t-test for independent samples.

No statistically significant differences were found.

Table 20 shows the mean values of the adaptation indices in the group of people who were undergoing chemotherapy treatment and in the group of people who were not undergoing chemotherapy. The list was supplemented with the values of Student's two-sided t-test for independent samples.

There were no statistically significant differences.

Table 21 presents the mean values of the adaptation indices in the group of people who were treated with radiotherapy and in the group of people who were not treated with radiotherapy. The list was supplemented with the values of Student's two-sided t-test for independent samples.

A statistically significant difference was obtained in terms of a positive re-evaluation.

Table 22 presents the mean values of the adaptation indices in the group of people who were under targeted treatment and in the group of people who were not under targeted therapy. The list was supplemented with the values of Student's two-sided t-test for independent samples.

No statistically significant intergroup differences were obtained.

	Chemotherapeutic treatment						
	Yes		**no**				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Anxiety preoccupation	18.44	4.62	18.14	4.95	0.21	44	0.834
Fighting spirit	18.96	3.22	20.81	4.42	−1.64	44	0.109
Helplessness-hopelessness	16.44	4.41	15.19	4.75	0.92	44	0.360
Positive reevaluation	19.16	3.25	21.14	3.92	−1.88	44	0.067

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 19.
Average values of adaptation indices in the group of people who were undergoing chemotherapy treatment and in the group of people who were not undergoing chemotherapeutic treatment.

	Chemotherapeutic treatment						
	Yes		**no**				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Anxiety preoccupation	18.44	4.62	18.14	4.95	0.21	44	0.834
Fighting spirit	18.96	3.22	20.81	4.42	−1.64	44	0.109
Helplessness-hopelessness	16.44	4.41	15.19	4.75	0.92	44	0.360
Positive reevaluation	19.16	3.25	21.14	3.92	−1.88	44	0.067

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 20.
Average values of adaptation indices in the group of people who were undergoing chemotherapy treatment and in the group of people who were not undergoing chemotherapeutic treatment.

	Treatment with radiation therapy						
	Yes		no				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Anxiety preoccupation	17.73	4.62	18.58	4.82	−0.57	44	0.574
Fighting spirit	18.80	4.31	20.29	3.63	−1.23	44	0.227
Helplessness-hopelessness	15.33	3.68	16.13	4.96	−0.61	36.38	0.545
Positive reevaluation	**18.53**	**4.07**	**20.81**	**3.27**	**−2.04**	**44**	**0.047**

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 21.
Average values of adaptation indicators in the group of people who were treated with radiotherapy and in the group of people who were not treated with radiotherapy.

	Targeted treatment						
	Yes		no				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Anxiety preoccupation	18.00	3.16	18.39	5.11	−0.23	44	0.821
Fighting spirit	19.60	3.37	19.86	4.06	−0.19	44	0.853
Helplessness-hopelessness	17.20	2.66	15.50	4.93	1.45	27.84	0.159
Positive reevaluation	18.10	3.31	20.61	3.61	−1.98	44	0.054

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 22.
Average values of adaptation indices in the group of people who were under targeted treatment and in the group of people who were not under targeted treatment.

A.1.4 Acceptance of the disease

The mean value of disease acceptance in the group of women was 22.54 with the standard deviation of 7.39, which was close to the mean value in the group of men, which was 23.77 with the standard deviation of 8.43. Based on the value of the Student's t-test for independent samples, it was found that the difference obtained was statistically insignificant, $t\ (44) = -0.53$, $p > 0.05$.

The disease acceptance did not correlate statistically with the age of the patients, $r\ (44) = 0.03$, $p > 0.05$.

The mean value of disease acceptance in the group of people with primary or vocational education was 22.08 with the standard deviation equal to 8.07, in the group with secondary education it was 23.43 with the standard deviation equal to 10.00, and in the group with higher education it was 23, 13 with a standard deviation of 5.69. Based on the value of the one-way analysis of variance, it was found that the obtained differences were statistically insignificant, $F\ (2.43) = 0.02$, $p > 0.05$.

The mean value of disease acceptance in the group of people living in towns with a population of up to 100,000 was 23.12 with a standard deviation of 7.45 and was close to the average value obtained in the group of people who lived in towns with more than 100,000 inhabitants, 23, 15 with a standard deviation of 8.51. Based on the value of the Student's t-test for independent samples, it was found that the obtained difference was statistically insignificant, $t\ (44) = -0.01$, $p > 0.05$.

The mean value of disease acceptance in the group of people with a net income of up to PLN 1,500 was 23.61 with a standard deviation of 8.65 and was close to the average value obtained in the group of people with income above PLN 1,500, which was 22.65 with a standard deviation of 7, 09. Based on the value of the Student's t-test for independent samples, it was found that the obtained difference was statistically insignificant, $t(44) = -0.41$, $p > 0.05$.

The mean value of disease acceptance in the working group was 24.85 with a standard deviation of 7.05 and was close to the mean value in the group of retirees and disability pensioners of 21.52 with a standard deviation of 8.70. Based on the value of the Student's t-test for independent samples, it was found that the obtained difference was statistically insignificant, $t(41) = 1.37$, $p > 0.05$.

The mean value of disease acceptance in the group of people diagnosed with metastases was 21.70 with a standard deviation of 6.00 and was close to the mean value of 25.05 in the group of non-metastatic patients with a standard deviation of 8.83. Based on the value of the Student's t-test for independent samples, it was found that the obtained difference was statistically insignificant, $t(34.78) = -1.46$, $p > 0.05$.

The mean disease acceptance value in the group of people who were on chemotherapy treatment was 22.84 with a standard deviation of 7.98, which was close to the mean value for the group of people who were not on chemotherapy treatment of 23.48 with a standard deviation of 7, 85. Based on the value of the Student's t-test for independent samples, it was found that the obtained difference was statistically insignificant, $t(44) = -0.27$, $p > 0.05$.

The mean disease acceptance value in the group of people who received radiotherapy was 24.87 with a standard deviation of 5.68 and was close to the mean value in the group of people who did not receive radiotherapy was 22.29 with a standard deviation of 8, 65. Based on the value of the Student's t-test for independent samples, it was found that the obtained difference was not statistically significant, $t(39.27) = 1.21$, $p > 0.05$.

The mean disease acceptance value in the group of people who were on targeted treatment was 25.70 with a standard deviation of 3.86 and was close to the mean value in the group of people who did not receive targeted therapy was 22.42 with a standard deviation of 8, 53. Based on the value of the Student's t-test for independent samples, it was found that the obtained difference was statistically insignificant, $t(33.93) = 1.75$, $p > 0.05$.

A.1.5 Pain control

Table 23 shows the mean values of pain control dimensions in the men and women groups. The list was supplemented with the values of Student's two-sided t-test for independent samples.

There was a statistically significant difference in the internal locus of pain control.

Table 24 shows the Pearson r correlation coefficients between the age of the subjects and the dimensions of pain control.

No statistically significant correlations were obtained.

Table 25 shows the mean values of pain control dimensions in the group of people with primary or vocational education, in the group of people with secondary education, and in the group of people with higher education. The summary was supplemented with the values of one-way analysis of variance.

No statistically significant differences were obtained.

Table 26 shows the mean values of pain control dimensions in the group of people living in towns with a population of up to 100,000 and in the group of people living in towns with more than 100,000 inhabitants. The list was supplemented with the values of Student's two-sided t-test for independent samples.

	Women		Men				
Variable	***M.***	***SD***	***M.***	***SD***	***vol***	***df***	***p***
Inside	**18.63**	**6.29**	**14.91**	**4.15**	**2.34**	**44**	**0.024**
The influence of doctors	17.21	3.82	15.82	4.57	1.12	44	0.268
Random events	15.63	4.25	14.00	3.87	1.35	44	0.183

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 23.
Mean values of pain control dimensions in the group of women and the group of men.

The site of pain control	**Age**
Inside	−0.009
The influence of doctors	−0.022
Random events	0.186

Table 24.
Pearson's r correlation coefficients between the age of the subjects and the dimensions of pain control.

	Education							
	basic/valve		**medium**		**higher**			
Variable	*M.*	*SD*	*M.*	*SD*	*M.*	*SD*	*F.*	*p*
Inside	16.13	5.49	17.71	6.65	16.81	5.06	0.29	0.751
The influence of doctors	14.81	5.47	17.57	3.39	17.38	2.90	2.19	0.124
Random events	14.63	4.51	14.36	4.48	15.50	3.48	0.31	0.732

M.- average value; SD - standard deviation; F - value of the one-way analysis of variance; p - statistical significance.

Table 25.
Mean values of pain control dimensions in the group of people with primary or vocational education, in the group of people with secondary education and in the group of people with higher education.

	The number of residents						
	up to 100,000		**over 100 thousand**				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Inside	17.15	5.45	16.45	6.00	0.42	44	0.679
The influence of doctors	16.27	4.61	16.90	3.71	−0.50	44	0.620
Random events	15.19	4.68	14.40	3.28	0.64	44	0.523

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 26.
Average values of pain control dimensions in the group of people living in towns with a population of up to 100,000 and in the group of people living in towns with more than 100,000 inhabitants.

There were no statistically significant differences.

Table 27 shows the mean values of pain control dimensions in the group of people with an average monthly net income per family member of up to PLN 1,500 and in the group of people with an average monthly net income per family member

	Average monthly net income						
	up to PLN 1,500		over 1500 zlotys				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Inside	16.43	5.86	17.26	5.50	−0.49	44	0.625
The influence of doctors	16.30	4.12	16.78	4.38	−0.38	44	0.705
Random events	**13.52**	**4.08**	**16.17**	**3.77**	**−2.29**	**44**	**0.027**

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 27.
Average values of pain control dimensions in the group of people with an average monthly net income per family member up to PLN 1,500 and in the group of people with an average monthly net income per family member above PLN 1,500.

above PLN 1,500. The list was supplemented with the values of Student's two-sided t-test for independent samples.

A statistically significant difference was found in the location of pain control in random events.

Table 28 shows the mean values of pain control dimensions in the working group and in the group of retirees and pensioners. The list was supplemented with the values of Student's two-sided t-test for independent samples.

No statistically significant differences were obtained.

Table 29 shows the mean values of the dimensions of pain control in the group of patients with diagnosed metastases and in the group of individuals without diagnosis. The list was supplemented with the values of Student's two-sided t-test for independent samples.

	Professional status						
	working		retirees/pensioners				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Inside	15.95	4.47	17.04	6.58	−0.63	41	0.534
The influence of doctors	16.65	3.59	16.61	4.93	0.03	41	0.975
Random events	14.30	3.76	15.39	4.44	−0.86	41	0.393

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 28.
Mean values of pain control dimensions in the working group and in the group of retirees and pensioners.

	Known metastases						
	Yes		no				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Inside	16.39	5.19	17.38	5.84	−0.60	42	0.555
The influence of doctors	16.52	4.28	16.14	4.17	0.30	42	0.768
Random events	14.87	3.51	14.90	4.85	−0.03	42	0.978

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 29.
Mean values of pain control dimensions in the group of people who have not been diagnosed with metastases.

No statistically significant differences were obtained.

Table 30 shows the mean values of the dimensions of pain control in the group of subjects who received chemotherapy and the group of subjects who were not receiving chemotherapy. The list was supplemented with the values of Student's two-sided t-test for independent samples.

No statistically significant differences were obtained.

Table 31 shows the mean values of the dimensions of pain control in the group of people who were treated with radiotherapy and in the group who were not

	Chemotherapeutic treatment						
	Yes		**no**				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Inside	17.24	4.85	16.38	6.55	0.51	44	0.612
The influence of doctors	15.92	4.21	17.29	4.19	−1.10	44	0.278
Random events	13.80	2.50	16.10	5.24	−1.84	27.532	0.077

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 30.
Mean values of pain control dimensions in the group of people who were undergoing chemotherapy treatment and in the group of people who were not undergoing chemotherapy treatment.

	Treatment with radiation therapy						
	Yes		**no**				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Inside	16.53	3.78	17.00	6.40	−0.26	44	0.796
The influence of doctors	**14.60**	**3.36**	**17.48**	**4.30**	**−2.28**	**44**	**0.028**
Random events	14.20	2.76	15.16	4.63	−0.88	41.90	0.385

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 31.
Mean values of the dimensions of pain control in the group of people who were treated with radiotherapy and in the group of people who were not treated with radiotherapy.

	Targeted treatment						
	Yes		**no**				
Variable	*M.*	*SD*	*M.*	*SD*	*vol*	*df*	*p*
Inside	16.80	4.44	16.86	5.98	−0.03	44	0.976
The influence of doctors	15.00	2.36	16.97	4.53	−1.86	29.04	0.073
Random events	14.60	3.81	14.92	4.24	−0.21	44	0.832

M.- average value; SD - standard deviation; t - value of the Student's t-test; df - the number of degrees of freedom; p - statistical significance.

Table 32.
Mean values of pain control dimensions in the group of people who were undergoing targeted treatment and in the group of people who were not undergoing targeted therapy.

treated with radiation therapy. The list was supplemented with the values of Student's two-sided t-test for independent samples.

A statistically significant intergroup difference was obtained in the location of pain control in the influence of doctors.

Table 32 shows the mean values of the dimensions of pain control in the group of people who were on targeted therapy and in the group of people who were not on targeted therapy. The list was supplemented with the values of Student's two-sided t-test for independent samples.

No statistically significant differences were obtained.

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