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Adaptation to cancer among patients with colon cancer hospitalized in the Department of Oncological Surgery

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Abstract

Introduction. Each year, approximately 18,000 new cases of colorectal cancer—primarily colon cancer—are diagnosed in Poland, and nearly 2 million worldwide. The risk of developing the disease increases with age, and it often progresses asymptotically.

Objective. The aim of this study was to assess coping with cancer among patients with colon cancer.

Materials and Methods. The study included 100 patients hospitalized in the Department of Surgical Oncology in Bielsko-Biała. The Mini-MAC Psychological Coping Scale and a proprietary questionnaire were used.

Results. Women exhibited a higher level of positive reappraisal than men. With increasing age, a lower level of fighting spirit was observed, while levels of helplessness, hopelessness, and positive reappraisal increased. Patients with higher education and those who were employed exhibited a constructive coping style. Patients living alone or with a spouse exhibited lower levels of helplessness and hopelessness, and living with a spouse was associated with a lower level of positive reappraisal than living with children. A longer duration since the onset of symptoms increased anxiety-related preoccupation and reduced fighting spirit. Atherosclerosis, chronic obstructive pulmonary disease, and renal failure were associated with an increase in the destructive coping style.

Conclusions. Coping with cancer is influenced by sociodemographic, social, and clinical factors, which necessitates an individualized approach and psychological support for patients.

Keywords: coping with illness, sense of coherence, colorectal cancer

1. Introduction

Colorectal cancer is one of the most common malignant tumors worldwide. In terms of incidence, it ranks third among men and second among women, accounting for over 10% of all cancer cases [1]. Based on available data, colorectal cancer is diagnosed in approximately 18,000 Poles each year, and about 33 patients die from this disease every day [2].

Compared to other European Union countries, the incidence rate in Poland remains below the European average; however, the mortality rate remains higher than in most European countries [3,4]. The term “colorectal cancer” refers to cancers developing in various parts of the colon—the cecum, colon, and rectum. These conditions are considered collectively as a single clinical problem, although the individual segments of the bowel differ in terms of anatomical structure, functions, and pathophysiological mechanisms [3,5]. Colon cancer accounts for a significant proportion of all colorectal cancers. The focus on this segment is justified by both anatomical and functional differences, as well as the specific nature of the disease’s course, its treatment, and its impact on the patient’s adaptation to cancer [5]. Projections by the World Health Organization (WHO) indicate a gradual, systematic increase in the number of cases of this disease. Compared to 2018, when approximately 13,300 new cases were reported, the number is projected to rise to nearly 17,900 cases by 2040, which represents an increase of approximately 35%. In men, colorectal cancer accounts for about 7% of all malignant tumors, and in women, nearly 6% [3,6]. The likelihood of developing the disease increases significantly after the age of 50 [7,8]. The most common of a precancerous nature are adenomatous polyps, from which colorectal cancer develops in approximately 80% of patients [9]. The disease progresses slowly and involves a prolonged

preclinical phase. It most often begins with a polyp, which changes its structure over time, progressing through successive stages of development from benign lesions, through a precancerous state, to a malignant form. This period can last up to 10 years or longer. In the initial phase, the tumor spreads locally within the wall of the large intestine and then, via blood and/or lymph vessels, may metastasize to regional lymph nodes and to distant organs, most commonly the liver and lungs [10]. Survival rates for patients with cancer depend not only on the type and stage of the cancer, but also, to a large extent, on how early it is detected [2]. Environmental and behavioral factors, especially those related to lifestyle, play a significant role in the development of colorectal cancer. The disease may remain asymptomatic for a long time, which is why early detection is so important—it significantly increases the chances of a cure. For this reason, screening programs have been introduced to enable the detection of asymptomatic forms of the cancer. The poor treatment outcomes observed in Poland may be a consequence of the public’s limited knowledge about prevention and risk factors. Additionally, many patients downplay the initial symptoms of the disease, which leads to a delayed start of diagnosis and poorer prognoses [3]. Coping with illness is the process by which an individual adapts to a stressful health situation. It encompasses emotional and cognitive reactions, as well as strategies for managing stress and the accompanying changes in quality of life [11,12,13,14]. This adaptation is not a one-time state but a dynamic process that may change depending on the stage of the disease, the effectiveness of treatment, and the perception of the prognosis. The goal of this process is to achieve a balance between the limitations resulting from the disease and the need for a sense of meaning in life [15,16]. Successful adaptation to the disease promotes active engagement in the treatment process, reduces anxiety and depressive symptoms,

and helps maintain a sense of control over one's own situation and independence [17,18]. The manner of adaptation is influenced by numerous personality, social, and health-related factors. The most important of these include: personality traits, Antonovsky's sense of coherence (SOC), social support, belief systems, spirituality, and the level of knowledge about the disease [19,20].

The aim of this study was to assess adaptation to cancer among patients with colorectal cancer admitted to the Department of Surgical Oncology.

2. Research Methodology

This study employed a diagnostic survey method, which enabled the achievement of the research objective by collecting data on patients' adjustment to cancer. The following research tools were used: an original questionnaire and the validated Mini-MAC Questionnaire on Psychological Adjustment to Cancer. The original questionnaire consisted of 16 questions, including 6 questions regarding sociodemographic data, 7 questions relating to clinical information about the participants' health status, 2 questions regarding social support and interpersonal relationships, and 1 question regarding sources of information about the disease and the treatment process. The questionnaire included closed-ended questions and semi-open-ended questions, allowing for more detailed responses. In contrast, the standardized, validated Mini-MAC Questionnaire on Psychological Coping with Cancer, as adapted by Z. Juczyński, contained 29 questions. Participants answered the questions according to the instrument's instructions, marking an "X" to indicate their current situation. Responses were given on a four-point scale, comprising the following categories: definitely not (1 point), rather not (2 points), rather yes (3 points), and definitely yes (4 points). Each strategy for coping with cancer is assessed independently. For each strategy, a score ranging from 7 to 28 points is possible, with a higher score indicating a greater intensity of behaviors typical of that particular coping style, whether constructive or destructive [21].

2.1. Characteristics of the Study Site

The study was conducted at the Beskid Oncology Center—John Paul II Municipal Hospital, located at 18 Wyzwolenia Street in Bielsko-Biała, which specializes in the diagnosis and treatment of cancer. It is a medical center providing comprehensive oncological care, including inpatient and outpatient treatment, as well as imaging and laboratory diagnostics. The facility includes an oncological surgery and general surgery, a radiation therapy and chemotherapy unit, as well as specialist clinics and diagnostic laboratories. The oncology surgery unit provides 24-hour medical and nursing care, as well as comprehensive postoperative care, including monitoring the patient's condition, checking the surgical wound, health education, and preparing the patient for further oncological treatment or outpatient care.

2.2. Statistical Analysis of Results

Statistical calculations were performed using the R-4.5.2 statistical package and Microsoft Excel 365. Variables measured on a quantitative scale were characterized using the arithmetic mean and standard deviation, while qualitative variables measured on a nominal scale were presented using frequencies and percentages. The significance of differences between two groups (unrelated variables model) was tested using the Mann-Whitney U test and Student's t-test, provided that the variables followed a normal distribution and had homogeneous variances, while differences among three groups were examined using the Kruskal-Wallis test and analysis of variance (ANOVA) when the variables met the assumptions of normal distribution and homogeneity of variances. Normal distribution was tested using the Shapiro-Wilk test, and homogeneity of variances was tested using Levene's test. To examine the relationships between two quantitative variables, Kendall's tau correlation coefficient and Spearman's rank correlation coefficient were used. In all calculations, a significance level of $p < 0.05$ was adopted.

3. Characteristics of the Study Group

The study was conducted between May and November 2025 among a group of 100 patients hospitalized in the surgical oncology ward at the Beskid Oncology Center in Bielsko-Biała. Prior to the start of the study, written approval was obtained from the hospital administration to conduct the research. Patient participation in the study was voluntary and preceded by obtaining their informed consent. The study was anonymous, and the collected data were used exclusively for scientific purposes. The inclusion criteria for the study were: consent to participate in the study, a diagnosis of cancer, and treatment via surgery. The exclusion criteria were: lack of patient consent to participate in the study, as well as patients who had undergone ostomy surgery, in order to limit the influence of additional factors that could affect the process of adaptation to cancer.

3.1. Characteristics of Sociodemographic and Social Factors

The study included 100 individuals who underwent surgical treatment for colon cancer, of whom 46% were women and 54% were men. The mean age of the participants was 70 years, with the youngest patient being 41 and the oldest 89 years old. Most of the participants lived in a city (67%); in terms of employment status, retirees were the largest group (76%). Forty-two percent had a high school education. Nearly half of the patients (48%) were married. Most of the participants lived with their spouse or children on a daily basis. Eighty-six percent of patients received support from their families, and their family relationships remained unchanged. Thirty percent of the participants identified family members as an important source of information. However, patients most often obtained knowledge about the disease and its treatment from doctors and nurses, accounting for 70% of the respondents. Detailed information is presented in Table I.

Table I. Characteristics of the study group of patients

Variable	Category	Total n	Total %	Female n	Female %	Male n	Male %
Gender	Female	46	46	46	100	—	—
Gender	Male	54	54	—	—	54	100
Age	< 50	5	5	1	2.2	4	7.4
Age	50–59	13	13	4	8.7	9	16.7
Age	60–69	19	19	7	15.2	12	22.2
Age	70–79	41	41	21	45.6	20	37
Age	80–89	22	22	13	28.3	9	16.7
Age	Mean $\pm$ SD	70.0 $\pm$ 11.4	—	73.2 $\pm$ 10.7	—	68.9 $\pm$ 11.6	—
Place of residence	City	67	67	30	65.2	37	68.5
Place of residence	Rural	33	33	16	34.8	17	31.5
Education	Elementary	6	6	4	8.7	2	3.7
Education	Vocational	36	36	12	26.1	24	44.4
Education	Secondary	42	42	23	50	19	35.2
Education	Higher	16	16	7	15.2	9	16.7
Employment status	Employment	21	21	6	13	15	27.8
Employment status	Unemployed	0	0	0	0	0	0
Employment status	Pensioner	3	3	0	0	3	5.6
Employment status	Retiree	76	76	40	87	36	66.7
Daily living	Alone	20	20	8	17.4	12	22.2
Daily living	With a spouse	48	48	13	28.3	35	64.8
Daily living	With children	31	31	24	52.1	7	13
Daily living	With other family	1	1	1	2.2	0	0
Impact on social relationships	More time with family	27	27	16	34.8	11	20.4
Impact on social relationships	Limited contact	34	34	14	30.4	20	37
Impact on social relationships	No change	39	39	16	34.8	23	42.6
Family support	Yes	86	86	42	91.3	44	81.5
Family support	No	2	2	1	2.2	1	1.8
Family support	Do not need support	12	12	3	6.5	9	16.7
Information sources	Doctor/nurse	70	70	29	63	41	75.9
Information sources	Television/Internet	0	0	0	0	0	0
Information sources	Family and friends	30	30	17	37	13	24.1
Information sources	Flyers/materials	0	0	0	0	0	0

Legend: n — total number; M — mean; SD — standard deviation. Source: own analysis.

In the study group of patients, strategies for coping with cancer were assessed using the Mini-MAC scale. An analysis of coping styles revealed comparable scores for constructive and destructive styles. The mean score for the constructive style was ($M = 39.8$), while for the destructive style it was ($M = 40.2$), indicating a slight predominance of destructive strategies in the study group. In the case of anxiety-based preoccupation, the mean score was ($M = 22.8$), while for the helplessness-hopelessness strategy it was ($M = 17.4$). With regard to

constructive strategies, the mean score for fighting spirit was ($M = 19.4$), and for positive reappraisal ($M = 20.4$). A detailed analysis is presented in Table II.

Table II. Descriptive statistics for the Mini-MAC questionnaire

Scale	M	SD	Min	Max	Q1	Me	Q3
MED anxiety preoccupation	22.8	3.5	9.0	28.0	22.0	23.0	25.0
WAL fighting spirit	19.4	2.6	13.0	26.0	18.0	19.0	21.0
BEZ helplessness–hopelessness	17.4	4.6	8.0	28.0	14.0	17.0	20.0
POZ positive reappraisal	20.4	2.7	13.0	26.0	19.0	20.0	22.5
DES destructive style	40.2	7.3	20.0	56.0	35.0	40.0	45.5
KON constructive style	39.8	4.2	29.0	48.0	37.0	40.0	43.0

Legend: M – mean; SD – standard deviation; Min – minimum; Max – maximum; Q1 – 25th percentile; Me – median; Q3 – 75th percentile. Source: own analysis.

3.2. The Effect of Gender on Coping with Cancer

The aim of the statistical analysis was to determine the effect of the participants' gender on psychological adaptation to cancer. The results showed statistically significant differences in the dimension of positive reappraisal based on gender. Women with colorectal cancer admitted to the surgical oncology ward have a higher level of positive reappraisal than men. The results of the comparative analysis are presented in Table III.

Table III. The effect of gender on coping with cancer

Scale	Stat	Female	Male	Z_2/t_1	p
MED	M	22.8	22.8	−0.294	0.769
	SD	3.1	3.9		
	Me (Q1–Q3)	23 (22–25)	23.5 (21–25)		
WAL	M	19.5	19.0	0.394	0.693
	SD	2.5	2.6		
	Me (Q1–Q3)	19 (18–21)	19 (18–21)		
BEZ	M	17.7	17.2	0.647	0.518
	SD	4.5	4.7		
	Me (Q1–Q3)	17.5 (14–20)	17 (14–21)		
POZ	M	21.1	19.8	2.213	0.027
	SD	2.2	3.0		
	Me (Q1–Q3)	21 (20–23)	20 (18–22)		
DES	M	40.4	40.0	0.293	0.770
	SD	6.8	7.8		
	Me (Q1–Q3)	42 (36–45)	40 (35–46)		
KON	M	40.6	39.2	1.725	0.088
	SD	3.7	4.5		
	Me (Q1–Q3)	41 (37–44)	39.5 (36–42)		

Legend: MED – anxiety preoccupation; WAL – fighting spirit; BEZ – helplessness and hopelessness; POZ – positive reappraisal; DES – destructive style; KON – constructive style; t_1 – Student's t ; Z_2 – Mann-Whitney U (normal approximation); p – significance level. Source: own analysis.

3.3. The Effect of Age on Coping with Cancer

The statistical analysis was conducted to determine the effect of the participants' age on psychological adaptation to cancer. The results showed a statistically significant relationship between age and the dimensions of fighting spirit, helplessness and hopelessness, and positive reappraisal. With increasing age, a lower level of fighting spirit is observed, while levels of helplessness, hopelessness, and positive reappraisal increase. The results of the analysis are presented in Table IV.

Table IV. The effect of age on coping with cancer

Scale	R (age)	p
MED	-0.109	0.281
WAL	-0.223	0.026
BEZ	0.236	0.018
POZ	0.220	0.028
DES	0.150	0.136
KON	-0.029	0.773

Legend: R – Spearman's rank correlation coefficient; p – significance level. Source: own analysis.

3.4. The Impact of Education on Coping with Cancer

The aim of the statistical analysis was to determine the impact of the respondents' educational level on their psychological adjustment to cancer. The results showed statistically significant correlations between educational level and the dimensions of fighting spirit, helplessness and hopelessness, as well as destructive and constructive styles. The higher the level of education, the higher the levels of fighting spirit and constructive coping style, and the lower the levels of helplessness and hopelessness, as well as destructive coping style. The results of the analysis are presented in Table V.

Table V. The impact of education on coping with cancer

Scale	τ (education)	p
MED	-0.080	0.236
WAL	0.242	0.000
BEZ	-0.249	0.000
POZ	0.057	0.403
DES	-0.203	0.003
KON	0.177	0.009

Legend: τ – Kendall's tau coefficient; p – significance level. Source: own analysis.

3.5. The Impact of Employment Status on Coping with Cancer

A statistical analysis was conducted to determine the impact of the participants' employment status on their psychological adjustment to cancer. The results revealed statistically significant differences in the dimensions of fighting spirit, helplessness and hopelessness, and constructive style based on employment status. Retired patients have lower levels of fighting spirit and constructive coping style than employed patients. In contrast, employed patients have lower levels of helplessness and hopelessness than retired patients. Detailed results of the analysis are presented in Table VI.

Table VI. The impact of employment status on coping with cancer

Scale	Stat	Employment	Retirement/disability	Z_2/t_1	p
MED	M	22.3	22.9	-0.025	0.980
	SD	5.0	3.0		
	Me (Q1–Q3)	23 (22–25)	23 (22–25)		
WAL	M	20.9	19.1	-2.657	0.008
	SD	2.7	2.4		
	Me (Q1–Q3)	20 (19–23)	19 (18–21)		
BEZ	M	15.6	17.9	2.106	0.038
	SD	3.5	4.7		
	Me (Q1–Q3)	15 (12–17)	18 (14–21)		
POZ	M	20.6	20.3	-0.300	0.764
	SD	2.3	2.8		
	Me (Q1–Q3)	20 (19–23)	20 (19–22)		

Scale	Stat	Employment	Retirement/disability	Z _z /t _t	p
DES	M	37.9	40.8	1.652	0.102
	SD	7.2	7.2		
	Me (Q1–Q3)	39 (34–42)	42 (36–46)		
KON	M	41.5	39.4	–2.112	0.037
	SD	3.7	4.2		
	Me (Q1–Q3)	41 (40–45)	40 (36–43)		

Legend: as in Table III. Source: own analysis.

3.6. The Impact of Daily Living Arrangements on Coping with Cancer

The analysis aimed to determine the impact of living arrangements on psychological adjustment to cancer. The results revealed statistically significant differences in the dimensions of helplessness and hopelessness, as well as positive reappraisal. Patients living alone or with a spouse have lower levels of helplessness and hopelessness than patients living with children. In contrast, patients living with a spouse have lower levels of positive reappraisal than patients living with children. The results are presented in Table VII.

Table VII. The effect of daily living arrangements on coping with cancer

Scale	Stat	Alone	With spouse	With children	F ₁ /H ₂	p
MED	M	22.2	22.7	23.2	0.594	0.743
	SD	4.1	3.8	2.6		
	Me	23	23.5	23		
WAL	M	19.4	19.8	18.9	1.142	0.565
	SD	2.4	2.7	2.5		
	Me	19	19	19		
BEZ	M	16.5	16.8	19.0	6.072	0.048
	SD	3.4	4.9	4.5		
	Me	17	16	19		
POZ	M	20.5	19.7	21.3	3.568	0.032
	SD	2.5	2.8	2.6		
	Me	20	20	22		
DES	M	38.7	39.5	42.2	1.898	0.155
	SD	6.3	8.2	6.3		
	Me	39.5	40	42.5		
KON	M	39.9	39.5	40.3	0.310	0.735
	SD	4.2	4.3	4.2		
	Me	40	40	40.5		

Legend: F₁ – ANOVA statistic; H₂ – Kruskal-Wallis statistic; other abbreviations as in Table III. Source: authors' own work.

3.7. Impact of Clinical Factors

The study group was evaluated with regard to selected clinical factors related to the diagnosis and course of cancer. Among the women in the study, the most commonly reported initial symptom of cancer was a change in bowel habits, which occurred in over 52%. In contrast, among men, the most common symptom was abdominal pain, reported by nearly 56% of participants. The presence of blood in the stool was significant, accounting for 32% of all cases, as were fatigue (36%) and unexplained weight loss (21%). A positive family history of cancer was reported in 22% of the study participants. The highest prevalence among comorbid conditions was hypertension (57%) and diabetes (29%). The majority of participants (66%) sought medical attention within the first month of symptom onset. Twenty percent of participants sought medical attention more than 6 months after the onset of

their first symptoms. Men constituted a larger proportion of this group, at over 24%. The analysis showed that most patients had not undergone a preventive screening such as a colonoscopy prior to their diagnosis.

In the study population, the DiLO form was most often issued by a primary care physician, indicating the significant role of primary care in initiating a rapid oncology pathway. The analysis showed that most patients did not modify their existing lifestyle despite receiving a cancer diagnosis. Men were the ones most likely to report changes, with over 31% indicating a reduction in substance use and nearly 15% reporting a change in diet. A summary of the results is presented in Table VIII.

Table VIII. Clinical factors

Variable	Category	Total n	Total %	Female n	Female %	Male n	Male %
Symptoms of cancer	Abdominal pain	51	51	21	45.6	30	55.6
Symptoms of cancer	Change in bowel habits	49	49	24	52.2	25	46.3
Symptoms of cancer	Blood in the stool	32	32	17	37	15	27.8
Symptoms of cancer	Unexplained weight loss	21	21	9	19.6	12	22.2
Symptoms of cancer	Feeling of fatigue	36	36	20	43.5	16	29.6
Symptoms of cancer	I don't remember	3	3	1	2.2	2	3.7
Family history of colon cancer	Yes	22	22	9	19.6	13	24.1
Family history of colon cancer	No	78	78	37	80.4	41	75.9
Comorbidities	Diabetes	29	29	11	23.9	18	33.3
Comorbidities	Hypertension	57	57	27	58.7	30	55.6
Comorbidities	Heart failure / AF	22	22	12	26.1	10	18.5
Comorbidities	Atherosclerosis	7	7	2	4.3	5	9.3
Comorbidities	COPD	5	5	1	2.2	4	7.4
Comorbidities	Kidney failure	5	5	2	4.3	3	5.6
Comorbidities	Other	39	39	19	41.3	20	37
Time to see a doctor	Immediately (few days)	33	33	18	39.1	15	27.8
Time to see a doctor	Within a month	33	33	15	32.6	18	33.3
Time to see a doctor	Within 3–6 months	12	12	5	10.9	7	13
Time to see a doctor	Later than 6 months	20	20	7	15.2	13	24.1
Time to see a doctor	I don't remember	2	2	1	2.2	1	1.8
Screening colonoscopy	Yes	25	25	11	23.9	14	25.9
Screening colonoscopy	No	75	75	35	76.1	40	74.1
Entity issuing DiLO card	Primary care physician	54	54	28	60.9	26	48.1
Entity issuing DiLO card	Specialist (AOS)	15	15	6	13	9	16.7
Entity issuing DiLO card	Hospital doctor	31	31	12	26.1	19	35.2
Lifestyle change	Increased physical activity	0	0	0	0	0	0
Lifestyle change	Changed diet	10	10	2	4.3	8	14.8
Lifestyle change	Reduced alcohol	6	6	1	2.2	5	9.3
Lifestyle change	Quit smoking	19	19	7	15.2	12	22.2
Lifestyle change	No changes	70	70	37	80.4	33	61.1

Legend: n — total number. Source: own analysis.

The results showed statistically significant differences in destructive and constructive coping styles based on the presence of atherosclerosis. Patients with atherosclerosis scored higher on the destructive coping scale and lower on the constructive coping scale than patients without this condition. Detailed data are presented in Table IX.

Table IX. The impact of atherosclerosis on coping with cancer

Scale	Stat	Yes	No	Z _{2/t}	p
MED	M	24.9	22.6	-1.898	0.058
	SD	1.7	3.6		
	Me (Q1–Q3)	25 (24–26)	23 (21–25)		
WAL	M	17.9	19.6	1.831	0.067

Scale	Stat	Yes	No	Z ₂ /t ₁	p
	SD	2.3	2.6		
	Me (Q1–Q3)	18 (16–19)	19 (18–21)		
BEZ	M	19.6	17.3	–1.574	0.116
	SD	4.0	4.6		
	Me (Q1–Q3)	21 (19–22)	17 (14–20)		
POZ	M	18.9	20.5	1.060	0.289
	SD	3.5	2.6		
	Me (Q1–Q3)	20 (14–21)	20 (19–23)		
DES	M	44.4	39.9	–2.047	0.041
	SD	5.2	7.4		
	Me (Q1–Q3)	46 (45–46)	40 (35–44)		
KON	M	36.7	40.1	2.107	0.035
	SD	3.0	4.2		
	Me (Q1–Q3)	38 (35–39)	41 (37–43)		

Legend: as in Table III. Source: authors' own analysis.

Statistically significant differences in the dimensions of helplessness and hopelessness due to the presence of COPD. Patients with COPD have higher levels of helplessness and hopelessness than patients without this condition. Table X presents the results of the analysis.

Table X. The impact of chronic obstructive pulmonary disease on coping with cancer

Scale	Stat	Yes	No	Z ₂ /t ₁	p
MED	M	23.6	22.7	–0.443	0.658
	SD	1.5	3.6		
	Me (Q1–Q3)	24 (24–24)	23 (22–25)		
WAL	M	18.4	19.5	1.170	0.242
	SD	2.2	2.6		
	Me (Q1–Q3)	18 (18–18)	19 (18–21)		
BEZ	M	21.8	17.2	–2.206	0.027
	SD	3.8	4.5		
	Me (Q1–Q3)	21 (20–22)	17 (13–20)		
POZ	M	18.6	20.5	1.242	0.214
	SD	3.9	2.6		
	Me (Q1–Q3)	19 (16–20)	20 (19–23)		
DES	M	45.4	39.9	–0.162	0.102
	SD	5.0	7.3		
	Me (Q1–Q3)	45 (44–46)	40 (35–45)		
KON	M	37.0	40.0	1.692	0.091
	SD	3.2	4.2		
	Me (Q1–Q3)	36 (35–38)	40 (37–43)		

Legend: as in Table III. Source: own analysis.

Significant differences were observed in the dimensions of fighting spirit, helplessness and hopelessness, as well as destructive and constructive styles, based on the presence of renal failure. Patients have higher scores on the dimensions of helplessness and hopelessness, as well as the destructive style, than patients without this condition.

Patients with renal failure have lower scores on the fighting spirit and constructive coping style dimensions, as shown in Table XI.

Table XI. The impact of renal failure on coping with cancer

Scale	Stat	Yes	No	Z_z/t_t	p
MED	M	24.8	22.7	-1.495	0.135
	SD	1.9	3.6		
	Me (Q1–Q3)	25 (24–26)	23 (21–25)		
WAL	M	16.8	19.6	2.032	0.042
	SD	2.8	2.5		
	Me (Q1–Q3)	18 (15–18)	19 (18–21)		
BEZ	M	21.8	17.2	-2.222	0.026
	SD	3.3	4.5		
	Me (Q1–Q3)	20 (20–23)	17 (13–20)		
POZ	M	19.4	20.4	0.886	0.376
	SD	2.0	2.8		
	Me (Q1–Q3)	20 (20–20)	20 (19–23)		
DES	M	46.6	39.8	-2.046	0.043
	SD	4.0	7.3		
	Me (Q1–Q3)	46 (44–49)	40 (35–45)		
KON	M	36.2	40.0	2.048	0.041
	SD	3.3	4.2		
	Me (Q1–Q3)	35 (34–38)	40 (37–43)		

Legend: as in Table III. Source: own source.

One of the factors that may influence patients' adaptation to cancer is the time elapsed between the onset of the first symptoms and seeking medical care. Diagnostic delay may constitute an additional source of psychological distress; to investigate this, an analysis was conducted of the relationship between the time of seeking medical care and adaptation to cancer. In the following correlations, "I don't remember" responses were excluded. The results showed a statistically significant correlation between the time from noticing the first symptoms and the dimensions of anxiety and fighting spirit. The longer the period since noticing the first symptoms, the higher the anxiety dimension and the lower the fighting spirit dimension. Table XII presents the results of the analysis.

Table XII. Time since noticing the first symptoms

Scale	τ (time to care)	p
MED	0.179	0.009
WAL	-0.144	0.036
BEZ	0.107	0.119
POZ	0.102	0.138
DES	0.121	0.077
KON	-0.026	0.701

Legend: τ – Kendall's tau correlation coefficient; p – significance level. Source: own analysis.

4. Discussion

Psychological adjustment to cancer is a complex process that depends on both the patient's individual characteristics and health-related and social factors. Our study analyzed psychological adaptation to colon cancer and identified sociodemographic, social, and clinical factors influencing coping strategies, as assessed using the Mini-MAC questionnaire. The results indicate the coexistence of both constructive and destructive coping strategies for cancer, which confirms the complex nature of the psychological adaptation process. The highest mean scores were recorded for anxiety preoccupation, which may indicate a significant emotional burden among the study participants and persistent stress related to diagnosis and treatment. At the same time, relatively high scores for positive reappraisal and fighting spirit indicate the presence of active adaptive mechanisms. Similar scores for destructive and constructive coping styles suggest that the patients do not exhibit a single, clearly dominant way of coping with their illness. This means that their psychological responses are complex and heterogeneous. Patients may simultaneously experience intense anxiety and a sense of threat, while also actively fighting the disease and attempting to find positive meaning in it. The process of adapting to cancer is dynamic and may involve the coexistence of both adaptive responses and emotional difficulties.

In a study by Czerw et al. [22], colorectal cancer accounted for 22.3% of the analyzed group, corresponding to approximately 265 patients out of 1,187 study participants. The study involved cancer patients receiving outpatient therapeutic care at the Maria Skłodowska-Curie Institute of Oncology in Warsaw. In the study by Czerw et al. [22], the Mini-MAC scale was used. The authors demonstrated that constructive strategies—namely, a fighting spirit and positive reappraisal—predominate among cancer patients. Significant correlations were noted between selected sociodemographic variables and adaptation to the disease. According to Czerw et al. [22], positive reappraisal depended on gender, education, and occupational status.

In our own study, we observed that psychological adaptation to cancer varied by the gender and age of the participants. Women exhibit higher levels of reframing than men, and with increasing age, lower levels of fighting spirit and higher levels of helplessness, hopelessness, and positive reframing can be observed. These findings are consistent with the reports by Czerw et al. [22], who also identified a

significant influence of gender on selected coping strategies, observing higher levels of positive reappraisal among women.

The results of our study point to the significant role of age in shaping adaptation to illness. This may suggest that one's stage of life—and the associated psychological resources, life experience, and level of emotional maturity—influence how individuals adapt to cancer.

Kapela et al. [23] conducted a study in a hospital setting involving 92 patients undergoing chemotherapy. They used standardized research instruments, including the Acceptance of Illness Scale (AIS), the Satisfaction with Life Scale (SWLS), and the Mini-MAC Scale of Psychological Adaptation to Cancer, as well as a demographic questionnaire developed by the authors. Kapela et al. [23] showed that the constructive coping style was by far the most prevalent, with a clear predominance of the fighting spirit and positive reappraisal strategies (88.4%). This means that most patients adopted an active, mobilizing attitude toward the disease, focusing on fighting it and attributing positive meaning to it.

In our own study, the level of adaptation varied. Although a relatively high level of positive reappraisal was noted, a lower level of fighting spirit was observed. The differences between the results of our own study and the observations of Kapela et al. [23] may stem from the different stages of treatment at which the patients in our study were at. In the study by Kapela et al. [23], the study analyzed individuals undergoing chemotherapy—that is, those already in the process of systematic treatment and having more time to adapt to the disease and to activate a mobilizing strategy such as fighting spirit. In our study, patients were in the first few days following surgery, which is a particularly stressful period both physically and mentally. Under such conditions, the mobilizing attitude of the fighting spirit may be further weakened, whereas cognitive adaptation to the situation and an attempt to give it new meaning—manifested in positive reappraisal—may be of greater importance.

In a study by Ruszkiewicz et al. [24], using their own demographic questionnaire, the AIS scale, and the Mini-MAC, no significant differences were found regarding the duration of the illness in relation to psychological functioning. Sixty-three patients participated in the survey.

In our own study, we found that the longer the period from the onset of the first symptoms to seeking medical care, the higher the severity of anxiety preoccupation

and the lower the level of fighting spirit. This may indicate that it is not so much the duration of the illness itself as the period of uncertainty and waiting for a diagnosis that plays a significant role in shaping coping strategies. A prolonged period of living with distressing symptoms may contribute to increased emotional tension and reduced motivation to actively fight the disease.

In the context of the findings by Shalata et al. [25], who conducted a study in Israel involving a sample of 159 cancer patients, the authors emphasized the importance of anxiety in the course of cancer. They used standardized tools for assessing depression and anxiety, as well as a questionnaire on clinical and sociodemographic data. A subjective sense of threat and a lack of control—rather than the nature of the symptoms—play a greater role in shaping patients' psychological responses. Cancer patients experience significant anxiety, particularly in situations of health uncertainty, which affects their emotional functioning even before treatment begins. The authors demonstrated an increase in anxiety-related preoccupation as the time since symptom onset lengthened, which is consistent with the results of our own research.

The results obtained are consistent with those of Ruszkiewicz et al. [25] and Smoleń et al. [14], who emphasize that the predominance of destructive coping strategies, especially helplessness-hopelessness, is associated with poorer psychological adaptation to the illness. Helplessness reflects a sense of lack of control over one's health situation and a diminished belief in the effectiveness of one's own actions.

Our own findings are consistent with the reports by Merluzzi et al. [26], who conducted a study among 483 patients in the United States using standardized research instruments. In their study, they analyzed the burden of comorbidities, including chronic diseases such as cardiovascular disease, diabetes, and respiratory diseases. However, the authors did not conduct a separate analysis of individual disease entities. Merluzzi et al. [26] demonstrated that the presence of comorbidities is associated with higher levels of emotional distress in cancer patients. This may indicate that the accumulation of health problems promotes the adoption of passive and resigned coping strategies.

Our own analyses show that higher levels of helplessness-hopelessness and a destructive coping style were more common among patients with comorbidities—such as atherosclerosis, COPD, and

renal failure—as well as among those who were not economically active. A greater health burden and limitations in social and occupational activity contribute to an increase in passive coping strategies for cancer. The results obtained are largely consistent with current literature reports, confirming that the process of adapting to cancer depends on both the patient's individual resources and health- and social-related factors.

5. Conclusions

Sociodemographic factors significantly influence adaptation to cancer. It has been demonstrated that gender, age, educational level, occupational activity, and living arrangements play a role in shaping coping strategies with the disease. Atherosclerosis, COPD, and kidney failure were associated with a higher level of the destructive coping style and a lower level of the constructive coping style. A longer time from the onset of the first symptoms of cancer was associated with an increase in anxiety-related preoccupation and a decrease in fighting spirit.

Author contributions

Conceptualization: Iwona Pasięka-Woźniak, Ewelina Bąk; Formal analysis: Iwona Pasięka-Woźniak, Ewelina Bąk; Investigation: Iwona Pasięka-Woźniak; Data curation: Iwona Pasięka-Woźniak, Ewelina Bąk; Writing—review and editing: Iwona Pasięka-Woźniak, Marzena Stanisławska, Joanna Ziemiańska; Visualization: Iwona Pasięka-Woźniak; Supervision: Ewelina Bąk; Project administration: Iwona Pasięka-Woźniak. All authors have read and agreed to the published version of the manuscript.

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