The Relationship Between Illness Perception and Coping Strategies in Cancer Patients Undergoing Chemotherapy

Kemoterapi Alan Kanser Hastalarında Hastalık Algısı ile Başa Çıkma Stratejileri Arasındaki İlişki

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Abstract

Objectives: This study aimed to explore the relationship between illness perception and coping strategies in cancer patients undergoing chemotherapy. Given the impact of coping strategies on psychological well-being, quality of life, and treatment adherence, we aimed to address a gap in the literature by examining how illness perceptions influence coping behavior in this population.

Materials and Methods: This cross-sectional study included 282 cancer patients undergoing chemotherapy at a single center. Illness perceptions were measured using the Brief Illness Perception Questionnaire (B-IPQ), and coping strategies were assessed using the Mental Adjustment to Cancer (MAC) scale. Multivariable linear regression analyses were performed to examine the association between the B-IPQ total score and MAC subscale scores, adjusting for demographic and clinical characteristics.

Results: Negative illness perceptions were positively associated with passive coping strategies such as helplessness/hopelessness, fatalism, and anxious preoccupation, while they were negatively associated with active coping strategies such as fighting spirit. The regression models explained 21.3% of the variance in fighting spirit, 31.3% in helplessness/hopelessness, 12.4% in fatalism, and 5.8% in anxious preoccupation.

Conclusion: Our findings support the Common-sense Model of Self-regulation, demonstrating that illness perceptions are significantly associated with coping strategies in chemotherapy patients.

Keywords: Illness perception, coping, mental adjustment, cancer

Öz

Amaç: Bu çalışmada, kemoterapi alan kanser hastalarında hastalık algısı ile başa çıkma stratejileri arasındaki ilişkinin araştırılması amaçladı. Başa çıkma stratejilerinin psikolojik iyilik hali, yaşam kalitesi ve tedavi uyumuna etkisi göz önünde bulundurularak, bu popülasyonda hastalık algısının başa çıkma yöntemlerini nasıl etkilediğini inceleyerek literatürdeki bir boşluğu doldurmayı hedefledik.

Gereç ve Yöntem: Bu tek merkezli kesitsel çalışmaya kemoterapi alan 282 kanser hastası dahil edildi. Hastalık algıları Kısa Hastalık Algısı Anketi (B-IPQ) ile, başa çıkma stratejileri ise Kansere Tepki Tarzı Ölçeği (MAC) ile değerlendirildi. Demografik ve klinik özelliklere göre çok değişkenli doğrusal regresyon analizleri yapılarak B-IPQ toplam skoru ile MAC alt ölçek skorları arasındaki ilişki incelendi.

Bulgular: Negatif hastalık algısının, çaresizlik/umutsuzluk, kadercilik ve endişeli bekleyiş gibi pasif başa çıkma stratejileri ile pozitif ilişkili, mücadeleci ruh gibi aktif başa çıkma stratejileri ile ise negatif ilişkili olduğu görüldü. Regresyon modelleri, mücadeleci ruhta varyansın %21,3'ünü, çaresizlik/umutsuzlukta %31,3'ünü, kadercilikte %12,4'ünü ve endişeli bekleyişte %5,8'ini açıklamaktaydı.

Sonuç: Bulgularımız, kemoterapi hastalarında hastalık algısının başa çıkma stratejileri ile önemli ölçüde ilişkili olduğunu göstermiştir. Bu bulgular Common-sense Model of Self-regulation modelini desteklemektedir.

Anahtar Kelimeler: Hastalık algısı, başa çıkma, zihinsel uyum, kanser

Introduction

Cancer poses significant public health problems due to its increasing global incidence and the complexity of its treatment. Approximately 20 million new cancer cases were reported in 2022, with projections suggesting that this number will reach 35 million by 2050 (1). Beyond the physical challenges of cancer treatment, the psychological and social challenges, especially the emotional burdens significantly impact patients' quality of life (2,3). Therefore, it is essential to not only consider cancer as a physical illness but also address the psychological and social aspects of patients' experiences during follow-up care.

Coping strategies refer to the cognitive and behavioral efforts individuals use to manage the stress associated with life-threatening conditions such as cancer (4). According to the stress and coping model developed by Lazarus and Folkman (5), these strategies fall into two main types: problem-focused coping and emotion-focused coping. Problem-focused coping is a constructive or active approach that involves actively confronting the illness and focusing efforts on regaining physical health and maintaining hope for recovery. In contrast, emotion-focused coping presents is a destructive or passive approach, where the illness is perceived as an overwhelming, uncontrollable threat. This leads to feelings such as anxiety, helplessness, confusion, and isolation, which ultimately results in passive surrender to the illness (6).

Leventhal's common-sense model of self-regulation explains how illness perceptions shape coping strategies. This model assumes that individuals evaluate their health status based on symptoms, beliefs, and external influences, forming cognitive and emotional representations of their illness. Shaped by personal and disease-specific factors, these representations play an important role in determining how patients cope with their illness (7).

Understanding the relationship between coping strategies and illness perceptions is critical to optimizing cancer care, as these factors can profoundly influence both treatment adherence and quality of life (8-14). Chemotherapy has significant side effects and psychological burdens, necessitating the use of active coping mechanisms to mitigate its impact on patients. However, there is a notable gap in the literature regarding the interaction between illness perceptions and coping strategies in cancer patients undergoing chemotherapy. This study aimed to address this gap by examining these dynamics and providing valuable insights that could contribute to the development of targeted and effective interventions.

Materials and Methods

Ethical approval for this study was obtained from the Ethics Committee of Ankara University Faculty of Medicine (decision no.: İ4-136-19, date: 10.10.2019). All procedures were performed in accordance with ethical standards and the principles of the Declaration of Helsinki. Signed informed consent was obtained from all patients before their inclusion in the study.

Study Design and Patients

This single-center, cross-sectional study was conducted between November 1, 2019, and April 30, 2020, at the Department of Medical Oncology of Ankara University Faculty of Medicine. The participants were informed that their decision to participate would not affect their treatment, that their personal information would be kept confidential, and that all the data would be used solely for scientific purposes.

The research team considered the potential influence of hospital environment, chemotherapy protocols, and side effects on patients' illness perceptions and coping strategies. Since cancer is a dynamic condition and coping styles may shift over time (15-17), the study focused on patients who were either undergoing chemotherapy or had completed it within the past six months. Patients undergoing salvage chemotherapy, those with cranial metastases, those with an Eastern Cooperative Oncology Group (ECOG) performance score of >2, and those with severe psychiatric disorders impairing normal communication were excluded to avoid confounding effects that could affect the analysis of coping strategies. By focusing on a more homogeneous sample of chemotherapy patients, we aimed to provide clearer insights into the relationship between illness perceptions and coping.

Data Collection

The Brief Illness Perception Questionnaire (B-IPQ) and the Mental Adjustment to Cancer (MAC) scale were used due to their importance in capturing the cognitive and emotional dimensions of illness perception and coping strategies, respectively. The researchers conducted face-to-face interviews with the patients to administer the B-IPQ and MAC scales. Special care was taken during the interviews to ensure that discussing illness perceptions and coping strategies did not exacerbate psychological distress. Immediate support was made available to any patient showing signs of distress. The demographic and clinical characteristics of the patients were also obtained from medical records.

Brief Illness Perception Questionnaire

The B-IPQ is structured to measure patients' illness perceptions and consists of several subscales that assess both cognitive and emotional representational aspects of the illness, along with the comprehensibility of the illness. For the cognitive aspects, there are five subscales: consequences (assesses the perceived effects of the illness), timeline (evaluates the patient's perception of the duration of the illness), personal control (measures the patient's

belief in their ability to control the illness), treatment control (assesses the patient's attitudes toward the effectiveness of the treatment), and identity (evaluates the perceived intensity of symptoms related to the illness). For the emotional aspects, there are two subscales: concern (gauges the level of concern the patient has about their illness) and emotions (measures the emotional impact of the illness on the patient). Additionally, the B-IPQ includes a coherence subscale that assesses the patient's sense of comprehensibility of the illness and a causal subscale where patients identify factors they believe contribute to their illness. Each subscale consists of a single question, with responses rated on an 11-point Likert-type scale ranging from 0 to 10, except for the open-ended causal subscale (18). Due to its open-ended nature, the causal subscale was not analyzed in this study. The total B-IPQ score is calculated by reversing the scores for the personal control, treatment control, and coherence subscales, and then summing them with the other subscale scores. The total score ranges from 0 to 80, with higher scores indicating a more negative illness perception. The reliability of the Turkish version of the B-IPQ was previously validated by Karataş et al. (19), with a reported Cronbach's alpha of 0.85. In the current study, the Cronbach's alpha for the B-IPQ was determined to be 0.74.

Mental Adjustment to Cancer Scale

The MAC scale is designed to measure cancer patients' coping strategies and comprises five subscales. Active coping is measured by the fighting spirit subscale (sixteen items, α=0.81), while passive coping is evaluated by the helplessness/hopelessness subscale (six items, α=0.77), anxious preoccupation subscale (nine items, α=0.54), fatalism subscale (eight items, α=0.59), and avoidance subscale (one item). The fighting spirit subscale evaluates the patient's acceptance of cancer, efforts to combat the illness, and maintenance of an optimistic perspective. The helplessness/hopelessness subscale assesses the patient's skepticism regarding their ability to control the disease, along with a pessimistic outlook and feelings of despondency. The anxious preoccupation subscale examines the patient's concerns and uncertainties about managing the disease, while the fatalism subscale assesses the patient's belief in having limited control over the progression of the disease. Lastly, the avoidance subscale evaluates the patient's inclination to deny the diagnosis. Participants respond to the questions using a four-point Likert scale (4). In a study conducted by Natan et al. (20), the reliability analysis of the Turkish version of the MAC scale showed Cronbach's alpha values ranging between 0.58 and 0.72 for the subscales. The avoidance subscale was not utilized in the current study as it consists of only one item (21).

Statistical Analysis

The normality of continuous data was assessed using the Kolmogorov-Smirnov test as well as kurtosis and skewness measures. Descriptive statistics were presented as numbers and percentages for categorical variables, and as mean ± standard deviation values for continuous variables. The reliability of the B-IPQ and MAC subscales was assessed using Cronbach's alpha. Student's t-test was used to compare continuous variables between two independent groups, and One-Way ANOVA was used for comparisons involving more than two independent groups, assuming a normal distribution. Categorical data were compared across groups using the Pearson chi-square test. Multivariable linear regression analyses were performed to assess the relationship between the total B-IPQ score and the MAC subscale scores. Each MAC subscale score was used as a dependent variable, while the B-IPQ total score was the independent variable. To control for sociodemographic and clinical characteristics, variables that were significantly associated with the MAC subscale scores were also included as independent variables in the analysis. Dummy variables were created for categorical variables such as age, sex, employment status, educational level, non-cancer comorbidities, and cancer stage. The models were checked for linearity, multicollinearity (using variance inflation factor), outliers, and normality, homoscedasticity (Breusch-Pagan test), and independence of residuals (Durbin-Watson statistic). The strength of associations between independent variables and MAC subscale scores were assessed using partial eta-squared (η^2). Eta-squared values range between 0 and 1, with $\eta^2 \sim 0.01$ indicating a small, $\eta^2 \sim 0.06$ indicating a medium, and $\eta^2 > 0.14$ indicating a large effect size (22). Statistical analyses were conducted using the IBM Statistical Package for the Social Sciences software (version 26). A p-value of <0.05 was considered statistically significant.

Results

From November 1, 2019, through April 30, 2020, a total of 395 patients at the Department of Medical Oncology of Ankara University Faculty of Medicine were invited to participate in the study. Of these patients, 46 declined to participate in the study, and 67 were excluded for the following reasons: 12 had missing responses, 12 were receiving salvage chemotherapy, five had cranial metastases, 37 had an ECOG performance score of >2, and one had severe psychiatric conditions. As a result, data from a total of 282 patients were included in the statistical analysis.

Patient Characteristics

The demographics and clinical characteristics are shown in Table 1. The mean age of the patients was 57.1±13 years. Among

the 282 patients, 96 were geriatric (34%), and 152 were male (53.9%). The most prevalent type of cancer was gastrointestinal cancer (32.3%). Male sex, non-cancer comorbidities, and metastatic disease were statistically more common in geriatric patients (age ≥65 years) compared to non-geriatric patients (p=0.01, p<0.001, and p<0.001, respectively). However, university graduation and employment rates were statistically less common in the geriatric group (p<0.001 and p=0.035, respectively). There was no significant difference in the distribution of cancer types between geriatric and non-geriatric patients. Similarly, there were no significant differences between male and female patients in terms of university graduation, employment, the presence of non-cancer chronic diseases, or metastatic disease. However, the employment rate was higher among university graduates compared to those without a university degree (p<0.001).

Scale Scores

Table 2 presents the mean scores obtained from the B-IPQ and MAC scales, and Table 3 shows the comparison of the MAC subscale scores between groups. The fighting spirit score was significantly higher in non-geriatric patients, females, and employed patients compared to their counterparts (p=0.001, p=0.026, and p=0.02, respectively). The helplessness/hopelessness score was significantly higher in geriatric patients, non-employed individuals, those without a university degree, and those with non-cancer comorbidities compared to their counterparts (p=0.001, p=0.002, p=0.003, and p=0.016, respectively). The fatalism score was significantly higher among non-employed patients, those without a university degree, and those with metastatic cancer compared to their counterparts (p=0.01, p<0.001, and p=0.036, respectively). The anxious

preoccupation score was significantly higher among females (p=0.031) compared to males. No significant relationship was found between coping strategies and cancer type, marital status, or receiving psychological support.

Associations Between Illness Perception and Coping Strategies

The results of the multivariable linear regression analyses are summarized in Table 4. In the regression analysis where the fighting spirit score was taken as the dependent variable, the independent variables accounted for 21.3% of the variance [$F_{(4,277)}$: 18.748, R^2=0.213, adjusted R^2=0.202, Durbin-Watson: 2,109, p<0.001]. The total B-IPQ score was found to have a significant negative association with the fighting spirit score (ß=-0.209, ηp^2=0.166, p<0.001). For the helplessness/hopelessness score, the independent variables explained 31.3% of the variance [$F_{(5,276)}$: 25.201, R^2=0.313, adjusted R^2=0.301, Durbin-Watson: 1,970, p<0.001]. There was a significant positive association between the total B-IPQ score and the helplessness/hopelessness score (ß=0.132, ηp^2=0.260, p<0.001). When the fatalism score was taken as the dependent variable, the independent variables explained 12.4% of the variance [$F_{(4,277)}$: 9.763, R^2=0.124, adjusted R^2=0.111, Durbin-Watson: 2,021, p<0.001]. The total B-IPQ score demonstrated a significant positive relationship with the fatalism score (ß=0.064, ηp^2=0.058, p<0.001). In the analysis of anxious preoccupation, the independent variables explained 5.8% of the variance [$F_{(2,279)}$: 8.638, R^2=0.058, adjusted R^2=0.052, Durbin-Watson: 2.134, p<0.001]. The total B-IPQ score was positively associated with the anxious preoccupation score (ß=0.052, ηp^2=0.042, p=0.001).

Table 1. Sociodemographic and clinical characteristics of patients	
Age (M ± SD)	57.1±12.9
Male sex (n, %)	152 (53.9%)
Married (n, %)	227 (80.5%)
Employed (n, %)	53 (18.8%)
University graduate (n, %)	81 (28.7%)
Non-cancer comorbidity (n, %)	79 (28%)
Psychological support (n, %)	48 (17%)
Cancer type	
Gastrointestinal (n, %)	91 (32.3%)
Genitourinary (n, %)	53 (18.8%)
Breast (n, %)	47 (16.7%)
Lung (n, %)	58 (20.6%)
Others (n, %)	33 (11.7%)
Metastatic cancer (n, %)	156 (55.3%)
M: Mean, SD: Standard deviation	

Table 2. Scale scores	
B-IPQ	
Consequences (M ± SD)	6.6±2.7
Timeline (M ± SD)	5.6±3.2
Personal control (M ± SD)	5.4±3.1
Treatment control (M ± SD)	7.9±2.2
Identity (M ± SD)	5.5±2.8
Coherence (M ± SD)	8.4±2.4
Concern (M ± SD)	6.1±3.2
Emotions (M ± SD)	6.7±3.1
Total score (M ± SD)	38.7±13.7
MAC	
Fighting spirit (M ± SD)	48.7±7
Helplessness/hopelessness (M ± SD)	11.8±3.5
Fatalism (M ± SD)	20±3.6
Anxious preoccupation (M ± SD)	23.9±3.5
B-IPQ: Brief Illness Perception Questionnaire, M: Mean, SD: Standard deviation, MAC: Mental Adjustment to Cancer Scale	

Table 3. Comparison of MAC subscales' scores between groups

Variable	FS	p–value	HH	p–value	FA	p–value	AP	p–value
Age								
<65 years	49.7±6.7	0.001	11.3±3.4	0.001	19.7±3.7	0.052	24±3.7	0.478
≥65 years	46.9±7.2		12.8±3.7		20.6±3.6		23.7±3.1	
Sex								
Male	47.9±6.7	0.026	12±3.5	0.293	20.1±3.8	0.540	23.5±3.5	0.031
Female	49.8±7.2		11.6±3.6		19.8±3.5		24.4±3.5	
Marital status								
Married	48.6±6.8	0.348	11.7±3.5	0.633	19.9±3.6	0.641	23.9±3.5	0.847
Single/divorced	49.6±7.8		12±3.7		20.2±3.8		24±3.7	
Employment status								
Employed	50.8±6.3	0.020	10.4±3.1	0.002	18.8±3.9	0.010	10.4±3.1	0.144
Not employed	48.3±7.1		12.1±3.6		20.2±3.5		12.1±3.6	
Educational level								
University	49.5±7.4	0.282	10.8±3.1	0.003	18.7±3.6	<0.001	23.5±3.4	0.146
Other	48.5±6.8		12.2±3.7		20.5±3.6		24.1±3.6	
Non-cancer comorbidities								
Present	48.1±7	0.298	12.6±3	0.016	20±3	0.886	12.6±3.1	0.496
Absent	49±7		11.5±3.7		20±3.9		11.5±3.7	
Psychological support								
Yes	47.6±8	0.215	12.3±3.7	0.329	20.5±4	0.294	24.3±3.5	0.442
No	49±6.8		11.7±3.5		19.9±3.6		23.9±3.5	
Cancer type								
Gastrointestinal	48.9±6.5	0.128	11.5±3.6	0.466	19.8±3.5	0.723	23.8±3.5	0.835
Genitourinary	47.8±7.1		12.4±3.7		20.2±3.7		24.1±3.1	
Breast	50.5±6.8		11.4±3.6		19.6±3.8		24.3±3.6	
Lung	47.4±7.4		11.9±3.2		19.9±3.5		23.6±3.7	
Others	50±7.5		12.2±3.6		20.7±3.9		24.1±3.7	
Cancer stage								
Metastatic	48±6.6	0.060	12.1±3.4	0.176	20.4±3.6	0.036	12.1±3.4	0.495
Non-metastatic	49.6±7.4		11.5±3.7		19.5±3.7		11.5±3.7	

One-way ANOVA was used to compare subscale results based on cancer type, and Student's t-test was used for other comparisons
MAC: Mental Adjustment to Cancer Scale, FS: Fighting spirit, HH: Helplessness/hopelessness, FA: Fatalism, AP: Anxious preoccupation

Discussion

A cancer diagnosis poses a serious threat to patients, extending beyond the physical dimension. It profoundly impacts patients socially, cognitively, and behaviorally. When confronted with a cancer diagnosis and its treatment, patients often experience feelings of fear, loss of control, and uncertainty about the future (23,24). Cancer diagnosis and treatment are frequently accompanied by considerable psychological distress, ranging from anxiety to depression. Studies have reported high prevalence rates of depression (17-36.6%), anxiety (19%) and distress (34.3%) among cancer patients (25-27).

The choice of coping style plays a pivotal role in shaping patients' mood, quality of life, and adherence to treatment. Patients who rely on passive coping strategies such as helplessness/hopelessness, fatalism, or anxious preoccupation experience higher levels of depression, anxiety, and stress, along with a reduced quality of life and lower treatment adherence. In contrast, those who adopt active coping styles such as fighting spirit report lower levels of psychological distress and better quality of life and adherence to treatment (8-14,17,28,29). Given these profound effects, the coping strategies that patients use are of critical importance in cancer care.

Table 4. Regression models examining the relationship between the total B-IPQ score and MAC subscale scores						
Variable	Unstandardized coefficients		Standardized coefficients	t	p-value	Collinearity statistics
	ß	SE	ß			VIF
Model for fighting spirit						
B-IPQ score	-0.209	0.028	-0.409	-7.416	<0.001	1.072
Age ≥65 years	-0.963	0.848	-0.065	-1.135	0.257	1.164
Male sex	-1.714	0.762	-0.122	-2.250	0.025	1.038
Employed	0.879	1.012	0.049	0.868	0.386	1.125
Model for helplessness/hopelessness						
B-IPQ score	0.132	0.013	0.512	9.845	<0.001	1.087
Age ≥65	0.469	0.402	0.063	1.167	0.244	1.162
Employed	-0.362	0.505	-0.040	-0.718	0.473	1.247
University graduation	-0.651	0.420	-0.083	-1.549	0.122	1.159
Metastasis	-0.013	0.366	-0.002	-0.035	0.972	1.060
Model for fatalism						
B-IPQ score	0.064	0.015	0.240	4.142	<0.001	1.060
Employed	-0.345	0.570	-0.037	-0.605	0.546	1.183
University graduation	-1.401	0.487	-0.174	-2.874	0.004	1.158
Metastasis	0.684	0.418	0.093	1.636	0.103	1.028
Model for anxious preoccupation						
B-IPQ score	0.052	0.015	0.204	3.518	0.001	1.000
Male sex	-0.917	0.408	-0.131	-2.246	0.025	1.000
Multivariate linear regression was used to examine the relationship between illness perception and coping strategies B-IPQ: Brief Illness Perception Questionnaire, MAC: Mental Adjustment to Cancer Scale, SE: Standard error, VIF: Variance inflation factor						

Although many studies have examined the relationship between factors such as depression, psychological distress, quality of life, and social support and coping strategies in cancer patients, there is limited research exploring the relationship between illness perceptions and coping strategies in this patient population. Furthermore, the existing studies tend to focus on the relationship between specific subscales of illness perception measures and various coping strategies (30-32). Despite the multidimensional nature of illness perception, patients often form a unified illness perception in their minds. To our knowledge, no study to date investigated the relationship between overall illness perception and coping strategies in cancer patients undergoing chemotherapy. This study is the first to address this gap.

In a study by Rozema et al. (32) involving patients with breast cancer, personal control was found to be positively associated with active coping strategies, while emotional representation was positively associated with passive coping strategies (32). Similarly, in a study including patients with head and neck cancer, Llewellyn et al. (31) reported that identity, timeline, consequences, and emotional representations were positively correlated with passive coping strategies. Furthermore, coherence and personal control had a positive relationship with

active coping strategies (31). In another study, Hopman et al. (30) evaluated patients with various types of cancer and determined that timeline, consequences, and emotional representations were positively associated with passive coping strategies, such as helplessness/hopelessness, anxious preoccupation, and fatalism. Additionally, coherence was negatively associated with certain passive coping strategies, specifically anxious preoccupation and fatalism. However, no significant relationship was observed between any illness perception dimensions and active coping strategies (30).

In this study, unlike previous research, we examined the relationship between illness perception and coping strategies using the total B-IPQ score. We found a stronger connection between illness perception and coping strategies than has been identified in prior studies. The effect size of the total B-IPQ score on the fighting spirit and helplessness/hopelessness scores was found to be large, while its effect size on the fatalism and anxious preoccupation scores was small. In contrast to our study, Rozema et al. (32) and Llewellyn et al. (31) did not use a cancer-specific scale, such as the MAC, to evaluate coping strategies. This may have limited their ability to accurately assess the relationship between illness perception and coping strategies. Similar to our study, Hopman et al. (30) demonstrated

a strong relationship between illness perception dimensions and passive coping strategies. However, unlike our findings, they did not observe any significant connection between illness perception dimensions and active coping strategies. It is worth noting that Hopman et al. (30) utilized the revised B-IPQ, where each dimension's influence on coping strategies was analyzed individually. In contrast, we used the total B-IPQ score, which provided a more comprehensive view of the relationship between illness perception and coping strategies. The B-IPQ is simpler, easier to understand, and quicker to complete compared to other scales. This may have led to more accurate responses from patients, allowing us to better uncover the link between illness perception and coping strategies.

Given the significant impact of coping strategies on psychological well-being, quality of life, and treatment adherence, along with the strong association between illness perception and coping strategies, our findings emphasize the importance of incorporating healthcare providers' assessments of patients' illness perceptions into comprehensive cancer care. Targeting negative illness perceptions, especially in patients exhibiting passive coping strategies, could help promote more active coping methods.

Study Limitations

There were some limitations of this study. This study included only cancer patients undergoing chemotherapy, which limited our ability to explore the relationship between illness perception and coping strategies in patients not receiving active treatment. Additionally, the cross-sectional design of the study did not allow for the assessment of the long-term relationship between illness perception and coping strategies.

Conclusion

In conclusion, this study underscores the critical relationship between illness perception and coping strategies, supporting the hypotheses of the common-sense model of self-regulation in cancer patients undergoing chemotherapy. We found that negative illness perceptions were positively associated with passive coping strategies, while they were negatively associated with active coping strategies. These findings highlight the importance of addressing patients' illness perceptions in clinical practice. By targeting and improving negative perceptions, interventions may foster more active coping strategies, which could potentially lead to better psychological well-being, improved quality of life, and greater treatment adherence in cancer care.

Ethics

Ethics Committee Approval: Ethical approval for this study was obtained from the Ankara University Faculty of Medicine Human Research Ethics Committee (decision no.: İ4-136-19, date: 10.10.2019). All procedures were performed in accordance with ethical standards and the principles of the Declaration of Helsinki.

Informed Consent: Signed informed consent was obtained from all patients before their inclusion in the study.

Footnotes

Authorship Contributions

Concept: Y.Y., F.Ç.Ş., Design: Y.Y., F.Ç.Ş., Data Collection or Processing: Y.Y., M.G., Analysis or Interpretation: Y.Y., M.G., Literature Search: Y.Y., M.G., F.Ç.Ş., Writing: Y.Y., F.Ç.Ş.

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