KONTAKT / **Journal of nursing and social sciences related to health and illness**

Original research article

The relationship between illness acceptance, psychological well-being, and anxiety in individuals with chronic diseases: a cross-sectional study

Hamza Sığırcı [1] * (iD) , Şerife Güzel [2] (iD)

[1] *Karamanoğlu Mehmetbey University, Faculty of Health Sciences, Department of Health Management, Karaman, Turkey*
[2] *Selçuk University, Faculty of Health Sciences, Department of Health Management, Konya, Turkey*

Abstract
The study aims to examine the relationship between illness acceptance, psychological well-being, and anxiety in individuals with chronic diseases. Data were collected from 510 participants through face-to-face surveys. The data collection instruments included a personal information form, the Illness Acceptance Scale, the Anxiety Scale, and the Psychological Well-Being Scale. Analyses were conducted using SPSS 26 software. Since the data showed a normal distribution, parametric tests were employed. The majority of participants were female, under 45 years of age, had completed primary education, and were married. Circulatory system diseases were the most common, and most patients had been diagnosed for 13 years or longer. Significant differences were observed between the scales based on variables such as disease diagnosis and gender. A weak negative correlation was found between illness acceptance and psychological well-being, while a weak positive correlation was observed between illness acceptance and anxiety. The results highlight the complex and multidimensional nature of the relationship between illness acceptance, psychological well-being, and anxiety. They emphasize the importance of individuals' adaptation to illness in this context, and indicate that factors such as disease stage, symptoms, and treatment should be considered to achieve clearer results.

Keywords: Anxiety; Chronic diseases; Health care; Non-communicable diseases; Psychological well-being

Introduction

The concept of health has expanded to encompass not only the physical body, but also the social, physical, spiritual, and mental dimensions of human well-being (WHO, 2025). The holistic perspective implies that the concept of health is multidimensional. A review of health from its psychological dimension reveals several key concepts, including anxiety, psychological well-being, and acceptance of illness (Jankowiak et al., 2021). Each of these represents a different aspect of the health experience and is especially critical in the context of chronic diseases, which involve long-term health challenges.

Chronic diseases are defined as conditions rooted in psychological factors and resulting in functional limitations over an extended period of at least 12 months (CDC, 2024). Examples such as cancer, diabetes, and cardiovascular diseases go beyond physical symptoms to profoundly impact patients' psychological and social lives. Long-term treatment needs, uncertainty, and functional limitations can lead to feelings of stress, fear, and loneliness. Therefore, understanding the psychological adjustment processes in people living with chronic diseases – particularly the relationships among illness acceptance, psychological well-being, and anxiety levels – is essential (Carver et al., 1989). In general, psychological well-being in the context of chronic illness can serve as a buffer that reduces negative emotions caused by the disease and enhances adaptation. For example, individuals with high levels of self-acceptance, positive social relationships, and a clear sense of purpose may demonstrate greater resilience when facing chronic illness. Strong psychological well-being helps maintain life satisfaction and increases motivation to cope with the disease (Büssing et al., 2008). This is one of the fundamental assumptions of the proposed study: individuals with higher illness acceptance and psychological well-being may experience less anxiety and develop more effective coping strategies during the chronic illness process (Kołtuniuk and Rosińczuk, 2021; Purc-Stephenson and Edwards, 2024). Although existing literature addresses illness acceptance, psychological well-being, and anxiety separately, there is a clear lack of an integrated theoretical model that explains how these three concepts interact.

The concept of illness acceptance can be defined as the state of adaptation and preparedness in the face of the chal-

lenges posed by the presence of a disease in one's life (Casier et al., 2008; Zalewska et al., 2007). In broader terms, acceptance can be seen as a compromise between the patient and the illness (Cipora et al., 2018). It is crucial to understand that acceptance of the illness requires active involvement in the treatment process, rather than passive acquiescence. Thus, active engagement as a consequence of acceptance can yield beneficial outcomes (Kiropoulos et al., 2021). Studies have also shown that acceptance of illness is associated with improved quality of life and lower levels of depression and hopelessness (van Laarhoven et al., 2011).

Psychological well-being is understood as an individual's ability to manage existential challenges encountered in life (Kılınç, 2017). Although illness is likely to engender negative emotional states in individuals, psychological well-being provides a framework for leading a meaningful life, being productive, and establishing close relationships (Bulut and Dilmaç, 2018; Özen, 2017). In social sciences, Ryff's model highlights psychological well-being as comprising dimensions such as self-acceptance (being at peace with oneself and reconciling with one's past), positive relations (forming deep, empathic bonds with others), autonomy (acting independently according to personal values), environmental mastery (the ability to influence and manage one's surroundings), purpose in life (having meaningful goals), and personal growth (a continuous desire to learn and develop) (Ryff and Keyes, 1995). In the absence of well-being and acceptance, patients may perceive their illness as a threat. The physical, behavioral, or cognitive reactions that patients exhibit as a consequence of fear resulting from the perceived threat and the uncertain nature of the illness are referred to as anxiety (Šrol et al., 2021; Yığman and Fidan, 2021). Reactions occurring in individuals not facing a tangible threat and recurring with regularity are indicative of anxiety. Worry is an essential component that contributes to the onset of anxiety (Borkovec et al., 1998). In chronic diseases, uncertainty, negative predictions about the near future, and the burden of ongoing treatment can create a persistent state of anxiety in patients. At this point, it should be considered that psychological support may indirectly reduce the severity of disease-related anxiety (Kulpa et al., 2014). In this context, the objective of the study is to elucidate the interrelationship between illness acceptance, psychological well-being, and anxiety levels in individuals with chronic illness.

Materials and methods

Research type
The growing prevalence of chronic diseases demonstrates the limitations of a purely physiological approach in understanding and addressing these conditions. In this context, the significance of examining the psychological aspects of the disease was underscored, and the study was conducted using a descriptive and cross-sectional design.

Population and sample
In determining the research population, the public hospital in Karaman province, situated in Western Anatolia (and classified accordingly in the statistical regional system), was selected as a reference point. In order to ascertain the population size, the ICD diagnosis codes were reviewed retrospectively via the hospital management information system of the public hospital. Consequently, the total number of patients with chronic conditions registered in the system between 1 January 2021 and 1 January 2022 was determined. In the preceding 12-month period, a total of 44,259 individuals with chronic conditions submitted applications to the pertinent institution. In order to ascertain which diseases are considered chronic, the Turkish Ministry of Health's "Turkey Chronic Diseases and Risk Factors Prevalence Study" was used as a reference.

In establishing the research sample, the table created by Yazıcıoğlu and Erdoğan (2004) was consulted as a point of reference, and the convenience sampling method was employed. The sample size of the research population was determined to be 381 individuals, which is considered sufficient given a sampling error of 5%. This sample size was selected from a total population of 44,259 individuals (Yazıcıoğlu and Erdoğan, 2004). A total of 510 individuals were surveyed during the research process, and 505 of them were determined to be eligible for inclusion in the study. Five participants were excluded from the study on the grounds of incomplete questionnaire responses.

Participants were voluntarily selected in hospital outpatient clinics. The researchers included individuals who submitted applications to the hospital within the specified time frame and had a diagnosis of chronic disease for a minimum of one year. To reduce potential confounding, individuals with severe psychiatric comorbidities, cognitive impairments, or acute medical conditions were excluded, as these factors could significantly affect psychological assessments and the validity of self-reported data. After providing information to the individuals, data were collected through the acquisition of written informed consent from those who agreed to participate in the study. The process of informing and obtaining consent from volunteers was carried out in accordance with established ethical guidelines.

Data collection tools
The data were collected using a questionnaire technique through face-to-face interviews. To participate, individuals had to meet specific criteria: a chronic disease diagnosis for at least 12 months, a minimum age of 18, effective communication skills, the ability to read and write, and receipt of outpatient services. A personal information form was developed by the researchers to gather participant details. Additionally, the Acceptance of Illness Scale, Worry and Anxiety Scale, and Psychological Well-Being Scale were utilized in the study.

Acceptance of Illness Scale (AIS)
The Acceptance of Illness Scale (AIS), developed by Felton and Revenson in 1984 (and later adapted into Turkish by Büyükkaya Besen in 2009), includes eight items on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree) with no reverse items (Büyükkaya Besen, 2009; Felton and Revenson, 1984). The Cronbach's Alpha reliability coefficients for the original scale, Turkish version, and this study were 0.83, 0.79, and 0.65, respectively. This unidimensional scale has a range from 8 to 40, with higher scores indicating greater acceptance of the disease. It assesses the limitations imposed by the disease, including feelings of dependency, loss of self-esteem, and lack of self-efficacy.

Psychological Well-Being Scale (PWBS)
The Psychological Well-Being Scale (PWBS), developed by Diener et al. in 2009 and adapted into Turkish by Telef in 2013, aims to complement existing well-being measures by assessing socio-psychological well-being (Diener et al., 2009; Telef, 2013). The scale consists of eight items rated on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree) and includes no reverse items. The reliability coefficient was report-

ed as 0.87 in the original study, 0.80 in the adaptation study, and 0.81 in the present study. This unidimensional scale yields scores ranging from 8 (indicating strong disagreement with all items) to 56 (indicating strong agreement). Higher scores reflect greater psychological resources and strengths.

Worry and Anxiety Scale (WAS)

The Worry and Anxiety Scale (WAS), developed by Dugas et al. in 2001, was adapted into Turkish by Akyay in 2016 (Akyay, 2016; Dugas et al., 2001). This 11-item scale uses an 8-point Likert-type format (1 = not at all, 4 = moderately, 8 = seriously) and does not include reverse items. While Akyay's study reported a reliability coefficient of 0.89, the present study found it to be 0.79. The unidimensional scale has a scoring range from 0 to 80. The WAS is a psychometric tool designed to evaluate various aspects of anxiety disorders. It measures anxiety-related concerns, excessive and uncontrollable worry, the duration and frequency of symptoms, associated physical manifestations, feelings of helplessness due to anxiety, and the overall impact of these factors on daily life.

Data analysis

Before data analysis, incomplete or randomly filled questionnaires were excluded. The remaining data were digitized for analysis using the SPSS 26 software (Statistical Program for Social Sciences). Several statistical techniques were applied, including the calculation of minimum and maximum values, standard deviation, and percentage distributions. Normality was assessed using skewness and kurtosis coefficients, with values falling within the range of +1.5 to –1.5 indicating normal distribution of the data. Parametric tests, including the Independent Groups t-test, One-way ANOVA, and Pearson Correlation, were applied. The accepted level of statistical significance was set at 0.05. A p-value less than 0.05 was considered statistically significant, while a p-value greater than 0.05 indicated no significant difference.

Ethical aspects of the research

This section has been incorporated into the title page in order to guarantee anonymity.

Limitations

The present study is limited to individuals who have been admitted to a public hospital in Karaman province. Consequently, the findings are not representative of all chronic patients in Turkey. Due to the use of a simple random sampling method, the representativeness of the sample is limited, necessitating a careful evaluation of the generalizability of the results. Furthermore, since the data were obtained through self-report, the possibility of cognitive biases or recall issues in the participants' responses should be considered a potential limiting factor.

Results

Demographic information of the participants

Table 1 presents the demographic information of the participants. It shows that the gender distribution of the participants is relatively balanced. Regarding the age variable, the highest distribution is observed in the group aged 45 years and younger (28.5%), while the lowest distribution is seen in the group aged 65 years and older (23%). In terms of educational level, the majority of participants (58.2%) have completed primary

education. Furthermore, the highest distribution in terms of total monthly income is below the minimum wage (49.1%). In patients with chronic diseases, those with circulatory system diseases have the highest prevalence (31.5%), while those with respiratory system diseases have the lowest prevalence (13.5%). A review of the diagnosis status of chronic diseases revealed that 38.6% of the participants had been diagnosed for a period of 13 years or more.

Table 1. Distribution of demographic data of the participants

	Number (*n*)	Percentage (%)
Gender		
Female	267	52.9
Male	238	47.1
Age		
Aged 45 and below	144	28.5
46–55	132	26.1
56–65	113	22.4
Aged 65 and above	116	23.0
Chronic disease groups		
Nervous system diseases	80	15.8
Circulatory system diseases	159	31.5
Respiratory system diseases	68	13.5
Immune system diseases	103	20.4
Other chronic diseases	95	18.8
Educational status		
Literacy	44	8.7
Primary education (5 years)	294	58.2
High school	90	17.8
Associate degree and above	77	15.2
Marital status		
Married	441	87.3
Single	64	12.7
Total monthly income		
Below minimum wage	248	49.1
Minimum wage	167	33.1
Twice the minimum wage or more	90	17.8
Disease diagnosis status		
1–6 years	153	30.3
7–12 years	157	31.1
13 years and above	195	38.6

T-test findings for scale scores

The results of the t-test analysis for gender are given in the Table 2.

The analysis yielded no statistically significant differences between the acceptance of illness ($t = -0.605$; $p > 0.05$), psychological well-being ($t = -0.488$; $p > 0.05$) and worry-anxiety ($t = 1.838$; $p > 0.05$) scales and gender ($p > 0.05$).

Table 2. Results of *t*-test by scales based on gender variable

	Gender	*n*	Mean	SD	*t*	*p*
Acceptance of illness	Female	267	2.72	0.70	–0.605	0.545
	Male	238	2.76	0.78		
Worry and anxiety	Female	267	4.20	1.42	1.838	0.067
	Male	238	3.98	1.32		
Psychological well-being	Female	267	5.39	0.97	0.488	0.626
	Male	238	5.34	0.96		

ANOVA test findings

The results of the one-way variance analyses and *post hoc* tests (Scheffe Test and Tamhane Test) conducted on independent groups between research variables and scales are presented in Table 3.

Table 3. Results of ANOVA analysis

	Groups	N	Acceptance of illness scale Mean (SD)	F	P	Post hoc	Psychological well-being scale Mean (SD)	F	P	Post hoc	Worry and anxiety scale Mean (SD)	F	P	Post hoc
Age	Aged 45 and below[1]	144	2.39 (0.60)	24.853	<0.001	2, 3, 4>1[a]	5.74 (0.77)	18.411	<0.001	1>2, 3, 4[b]	3.72 (1.42)	8.244	<0.001	4>1[a]
	46–55[2]	132	2.71 (0.77)			2>1[a], 4>2[a]	5.41 (0.89)			1>2[b], 2>4b	4.07 (1.28)			4>2[a]
	56–65[3]	113	2.86 (0.73)			3>1a	5.34 (0.93)			1>3[b], 3>4[b]	4.13 (1.39)			
	Aged 65 and above[4]	116	3.11 (0.65)			4>1, 2[a]	4.89 (1.08)			1, 2, 3>4[b]	4.56 (1.30)			4>1, 2[a]
Total monthly income	Below minimum wage[1]	248	2.90 (0.69)	14.002	<0.001	1>2,3	5.11 (1.01)	18.608	<0.001	3>1[b], 2>1[b]	4.28 (1.42)	5.699	0.004	1>3[b]
	Minimum wage[2]	167	2.66 (0.70)			1>2[a]	5.58 (0.86)			2>1[b]	4.03 (1.21)			
	Twice the minimum wage or more[3]	90	2.46 (0.82)			1>3[a]	5.68 (0.80)			3>1[b]	3.73 (1.49)			1>3[b]
Educational status	Literacy[1]	44	3.18 (0.78)	9.489	<0.001	1>2, 4[a]	4.91 (1.33)	5.822	0.001	4>1[b]	4.29 (1.30)	2.367	0.070	
	Primary education (5 years)[2]	294	2.71 (0.68)			1>2[a]	5.34 (0.95)			4>2[b]	4.11 (1.35)			
	High school[3]	90	2.86 (0.83)			3>4[a]	5.42 (0.83)				4.26 (1.31)			
	Associate degree and above[4]	77	2.49 (0.68)			1>4[a], 3>4[a]	5.65 (0.84)			4>1, 2[b]	3.75 (1.54)			
Chronic disease groups	Nervous system diseases[1]	80	2.75 (0.84)	1.437	0.221		5.40 (1.00)	0.186	0.946		4.19 (1.44)	0.784	0.536	
	Circulatory system diseases[2]	159	2.64 (0.66)				5.38 (0.97)				3.97 (1.30)			
	Respiratory system diseases[3]	68	2.80 (0.74)				5.31 (0.97)				4.30 (1.33)			
	Immune system diseases[4]	103	2.76 (0.71)				5.32 (1.04)				4.10 (1.48)			
	Other chronic diseases[5]	95	2.86 (0.77)				5.41 (0.84)				4.09 (1.39)			
Disease diagnosis status	1–6 years[1]	153	2.64 (0.77)	2.989	0.051		5.49 (0.98)	5.693	0.004	1>3[a]	4.00 (1.44)	1.159	0.315	
	7–12 years[2]	157	2.73 (0.76)				5.47 (0.85)			2>3[a]	4.04 (1.29)			
	13 years and above[3]	195	2.84 (0.69)				5.19 (1.01)			1, 2>3[a]	4.21 (1.40)			

Note: [a] Scheffe Test, [b] Tamhane Test; the numbers 1 to 5 represent the categorizations of the groups

Table 3 highlights significant correlations among age, income, education level, and various scales of illness acceptance, worry, and psychological well-being.

Illness Acceptance Scale: A significant age-related difference was observed ($F = 24,853$; $p < 0.05$). Participants aged 46–55 years ($\bar{x} = 2.71$), 56–65 years ($\bar{x} = 2.86$), and over 65 years ($\bar{x} = 3.11$) scored higher than those aged 45 and under ($\bar{x} = 2.29$). The over-65 group also significantly outscored the 46–55 group. Monthly income significantly influenced scores ($F = 14.002$; $p < 0.05$), with participants earning below the minimum wage ($\bar{x} = 2.90$) scoring higher than those earning the minimum wage ($\bar{x} = 2.66$) or twice the minimum wage and above ($\bar{x} = 2.46$). Education level also showed significant differences ($F = 9.489$; $p < 0.05$); participants with literacy ($\bar{x} = 3.18$) scored higher than those with primary education ($\bar{x} = 2.71$) or higher education ($\bar{x} = 2.49$). High school graduates ($\bar{x} = 2.86$) also outperformed those with higher education. No significant differences were found for chronic disease groups ($F = 1.437$; $p > 0.05$) or diagnosis status ($F = 2.989$; $p > 0.05$).

Worry and Anxiety Scale: Significant age-related differences were identified ($F = 8.244$; $p < 0.05$), with participants over 65 years ($\bar{x} = 4.56$) scoring higher than those under 45 years ($\bar{x} = 3.72$) and aged 46–55 years ($\bar{x} = 4.07$). Income differences were also significant ($F = 5.699$; $p < 0.05$); participants earning below the minimum wage ($\bar{x} = 4.28$) scored higher than those earning twice the minimum wage or more ($\bar{x} = 3.73$). No significant differences were observed for education ($F = 2.367$; $p > 0.05$), chronic disease groups ($F = 0.784$; $p > 0.05$), or diagnosis status ($F = 1.159$; $p > 0.05$).

Psychological Well-Being Scale: Age significantly impacted scores ($F = 18.411$; $p < 0.05$). Participants under 45 years ($\bar{x} = 5.74$) scored higher than those aged 46–55 ($\bar{x} = 5.41$), 56–65 ($\bar{x} = 5.34$), and over 65 ($\bar{x} = 4.89$). Income was also significant ($F = 18.608$; $p < 0.05$). Participants earning twice the minimum wage and above ($\bar{x} = 5.68$) scored higher than those below the minimum wage ($\bar{x} = 5.11$) or at the minimum wage ($\bar{x} = 5.58$). Educational attainment showed significant differences ($F = 5.822$; $p < 0.05$), with those holding an associate degree or higher ($\bar{x} = 5.65$) outperforming participants with primary education ($\bar{x} = 5.34$) or no formal education ($\bar{x} = 4.91$). Diagnosis duration influenced scores ($F = 5.693$; $p < 0.05$), with participants diagnosed for 1–6 years ($\bar{x} = 5.49$) or 7–12 years ($\bar{x} = 5.47$) scoring higher than those diagnosed for 13 years or more ($\bar{x} = 5.19$). Chronic disease groups did not yield significant differences ($F = 0.186$; $p > 0.05$).

Correlation analysis

Table 4 presents the Pearson correlation analysis between the mean scores of acceptance of illness, psychological well-being and worry-anxiety of participants with chronic illness. The results of the analyses indicate the presence of relationships between the variables.

Table 4. Correlation analysis between the scales			
Pearson correlation	Acceptance of illness	Psychological well-being	Worry and anxiety
Acceptance of illness	1		
Psychological well-being	−0.464**	1	
Worry and anxiety	0.413**	−0.435**	1

Note: ** The correlation is significant at the 0.01 level; $p < 0.001$

Upon analysis of the data, a negative, weakly significant correlation was observed between acceptance of illness and psychological well-being ($p < 0.001$; $r = -0.464$). Furthermore, a positive, weakly significant correlation was identified between acceptance of illness and levels of worry and anxiety ($p < 0.001$; $r = 0.413$). The results demonstrate that an increase in acceptance of the illness is associated with a decline in psychological well-being, while a rise in worry and anxiety levels is observed. Additionally, a negative, weakly significant correlation was observed between psychological well-being and worry-anxiety levels ($p < 0.001$; $r = -0.435$). The results indicate that elevated levels of psychological well-being are associated with a reduction in worry and anxiety. In terms of value interpretation, a score of 0.00–0.25 is indicative of a very weak outcome, 0.26–0.49 is weak, 0.50–0.69 is medium, 0.70–0.89 is high, and 0.90–1.00 is very high.

Discussion

In this study, no significant difference was identified regarding illness acceptance based on gender. This result is consistent with the findings reported by Rogon et al. (2017). In contrast, a significant difference was observed between age groups: participants under the age of 45 had lower levels of illness acceptance compared to the group aged 45 and above. This suggests that age may influence the process of accepting illness. Similarly, the literature also shows that younger patients have lower levels of acceptance (Majchrowicz et al., 2025). It is thought that younger individuals – who have less experience with illness – may face greater challenges in the acceptance process. The accumulated life experience of older individuals, and particularly the presence of familial and societal support in Turkey's collectivist culture, may serve as a factor facilitating illness acceptance.

Another interesting finding is that participants in the low-income group had higher levels of illness acceptance. This finding contradicts what has been reported in the literature (Czerw et al., 2022; Piotrkowska et al., 2023). The high level of acceptance among low-income individuals may be explained by them developing survival strategies and benefitting from a culture of social solidarity. Especially in societies like Turkey, where family solidarity is strong, low-income patients may adapt to the illness process through support from family and neighborhood relations. In this context, it is important to evaluate the results by considering geographical and socioeconomic differences.

Educational level significantly affects illness acceptance. In our study, participants with only primary school education had significantly lower levels of illness acceptance compared to those with higher education. This result parallels the findings reported by İlaslan et al. (2021). Individuals with higher levels of education may have greater awareness of health-related issues, more appropriate coping strategies, and access to resources, enabling them to accept their illnesses more easily. In the literature, higher education is shown as a factor that strengthens individuals' sense of control and enhances their coping skills in managing stress (Czerw et al., 2022; Niemeyer et al., 2019).

No significant differences were found between groups in terms of illness type or duration of diagnosis. However, a recent study conducted with patients diagnosed with type 2 diabetes revealed a noteworthy correlation between duration of diagnosis and acceptance levels. Individuals with the disease who had been diagnosed for five years or less exhibited

a notably higher level of acceptance, with acceptance scores decreasing as the duration of the disease increased (Türen et al., 2021). This difference may stem from the sample structure, methodological approaches, or cultural differences in the studies. Our findings suggest that illness acceptance is more closely related to the individual's internal psychological resources than to external factors such as the type or duration of the illness. For example, the capacity to cope with chronic illness may vary from person to person and can be shaped by factors such as age, personality traits, or the level of social support.

No significant differences were found between gender and income groups in terms of psychological well-being. On the other hand, significant differences were observed in the variables of age, educational level, and duration of diagnosis. The psychological well-being scores of participants under the age of 45 were significantly higher than those in the 65 and older group. This result suggests that advancing age may negatively affect psychological well-being due to health problems and living conditions (WHO, 2023). Additionally, participants with higher education levels reported significantly higher psychological well-being. Higher education may be a factor that enhances quality of life by increasing individuals' coping skills and social resources. Furthermore, participants with shorter diagnosis durations (1–6 years and 7–12 years) had higher psychological well-being scores compared to those in the group with a diagnosis of 13 years or more. The prolonged period of living with a chronic illness may increase the psychosocial burden due to lifestyle restrictions and emotional changes, thereby negatively impacting well-being.

No significant difference was found in terms of anxiety levels based on gender and education status. This result is consistent with the study by Dayılar et al. (2017); however, there is no consensus in the literature on this matter (Chlapecka et al., 2023; McLean et al., 2011). On the other hand, distinct differences in anxiety levels were observed with respect to age and income status. It was found that individuals aged 65 and older had higher anxiety levels. This may be explained by the increase in concerns related to health, financial security, and loneliness with aging (Thornton and Bowers, 2024; WHO, 2023). The high level of anxiety among low-income individuals may reflect the stress of economic uncertainty. In our study, no significant effect of education level or type of illness on anxiety levels was identified. This suggests that anxiety is more related to individual perceptions, illness expectations, and sense of control.

When analyzing the relationships between the scales, a weak, negative, and significant correlation was found between illness acceptance and psychological well-being ($p < 0.001$; $r = -0.464$). This result indicates that as the level of illness acceptance increases, psychological well-being decreases. The literature contains conflicting findings on this matter: while Juzwiszyn et al. (2020) and Religioni et al. (2015) reported a significant positive relationship between these variables, Bień et al. (2015), Van Damme-Ostapowicz et al. (2014), Karademas et al. (2009), Kostyła et al. (2013), and Pompey et al. (2019) reported no significant relationship between the two concepts. For example, Casier et al. (2013) reported that individuals' daily well-being increased as illness acceptance increased. These conflicting findings may result from cultural and demographic factors, as well as differences in perspectives and measurement. In the Turkish context, family and social support systems may affect the relationship between illness acceptance and well-being; in some cases, increased acceptance may also imply an acknowledgment of the severity of the illness, which may lead to increased anxiety and stress.

Similarly, a positive, weak, and significant correlation was found between illness acceptance and anxiety ($p < 0.001$; $r = 0.413$). That is, as the level of illness acceptance increased, anxiety levels also increased. However, some studies such as Jaltuszewska et al. (2023) reported that better understanding of the illness reduced anxiety. These differences may arise from variations in research methods and sample characteristics. The inclusion of various chronic disease groups in our study may have complicated the effect of disease types on acceptance and anxiety processes.

The relationship between anxiety and psychological well-being was also found to be weak, negative, and significant ($p < 0.001$; $r = -0.435$). This result shows that as the level of anxiety increases, psychological well-being decreases. Similarly, Jalmsell et al. (2010) and Hamama-Raz et al. (2018) reported that increased anxiety negatively affects psychological well-being.

The findings reveal the multidimensional and complex relationships among illness acceptance, psychological well-being, and anxiety. Demographic and cultural factors such as age, educational level, income, and duration of diagnosis shape these relationships. The results highlight the importance of individuals' capacity to cope with illness and the availability of support systems.

Conclusion

This study investigated illness acceptance, psychological well-being, and anxiety among individuals with chronic illness, with particular emphasis on the role of demographic factors in shaping these psychosocial experiences. The findings underscore the necessity for nursing practices to address not only the physical but also the emotional and psychological dimensions of chronic illness care. In this context, providing patient education and counseling is essential to foster illness understanding, alleviate anxiety, and promote adherence to treatment. Furthermore, integrating stress management strategies and psychosocial support into care plans is crucial for enhancing patients' overall adjustment and well-being.

Based on the findings, the following are recommended:
- Psychosocial support and group therapy programs to foster illness acceptance.
- Targeted health education and individual counseling for patients with low education.
- Holistic care approaches addressing psychological needs in clinical settings.
- Further qualitative research in diverse sociocultural contexts to explore illness acceptance.

In summary, the study offers valuable insights for clinical practice and education. Incorporating patient psychology, stress management, and illness acceptance into nursing curricula may improve patient outcomes and overall quality of life.

Statements and declarations

This research is based on Hamza Sığırcı's master's thesis, which was accepted by Selçuk University Health Sciences Faculty.

Ethical considerations

Prior to the commencement of the study, ethical approval was obtained from the Selçuk University Faculty of Health Sciences Non-Interventional Clinical Research Ethics Committee on 27 November 2021 (reference number 1809). Subsequently, the requisite institutional permission, dated 17/01/2022 and bearing the code number EY.FR.07, was obtained from the public hospital where the research would be conducted. Additionally, ethics committee permission, dated 03/03/2022 and bearing the number 3, was obtained from the Karaman Provincial Health Directorate. In accordance with the aforementioned permissions, the research data were subsequently gathered. The participants were duly informed of the nature of the study and provided their consent during the data collection process. The principles set forth in the Declaration of Helsinki were adhered to throughout the study.

Data availability statement

The data supporting this study are not publicly available due to confidentiality and ethical considerations. Sharing the data could compromise participant privacy and is therefore restricted.

Consent to participate

The participants were duly informed and provided with written and verbal consent throughout the data collection process.

Conflict of interest

The authors have no potential conflicts of interest to declare with respect to the research, authorship, and/or publication of this article.

References

1. Akyay A (2016). Endişe ve anksiyete ölçeği, problemlere karşı olumsuz tutum ölçeği ve bilişsel kaçınma ölçeği'nin Türkçeye uyarlanması, geçerliliği ve güvenirliliği [Validity and Reliability Study for the Turkish Adaptation of the Worry and Anxiety Questionnaire, Negative Problem Orientation Questionnaire and Cognitive Avoidance Questionnaire]. (Master Thesis). Üsküdar Üniversitesi Sosyal Bilimler Enstitüsü.

2. Bień A, Rzońca E, Kańczugowska A, Iwanowicz-Palus G (2015). Factors affecting the quality of life and the illness acceptance of pregnant women with diabetes. Int J Environ Res Public Health 13(1): 68. DOI: 10.3390/ijerph13010068.

3. Borkovec TD, Ray WJ, Stober J (1998). Worry: A Cognitive Phenomenon Intimately Linked to Affective, Physiological, and Interpersonal Behavioral Processes. Cognit Ther Res 22: 561–576. DOI: 10.1023/A:1018790003416

4. Bulut S, Dilmaç B (2018). Üniversite öğrencilerinin sahip olduğu değerler psikolojik iyi oluş ve mutluluk düzeyleri arasındaki yordayıcı ilişkiler. OPUS Int J Soc Res 9(16): 349–374. DOI: 10.26466/opus.472450.

5. Büssing A, Matthiessen PF, Mundle G (2008). Emotional and rational disease acceptance in patients with depression and alcohol addiction. Health Qual Life Outcomes 6: 4. DOI: 10.1186/1477-7525-6-4.

6. Büyükkaya Besen D (2009). Hastalığı kabul ölçeği'nin Türk toplumundaki diyabetik bireylere uyarlanması ve etkileyen faktörlerin belirlenmesi [The adaptation of the acceptance of illness scale to the diabetic patients in Turkish society and the determination of the affecting factors]. (Doctoral Thesis). Dokuz Eylül Üniversitesi Sağlık Bilimleri Enstitüsü.

7. Carver CS, Scheier MF, Weintraub JK (1989). Assessing coping strategies: A theoretically based approach. J Pers Soc Psychol 56(2): 267–283. DOI: 10.1037/0022-3514.56.2.267

8. Casier A, Goubert L, Gebhardt WA, Baets FD, Aken SV, Matthys D, Crombez G (2013). Acceptance, well-being and goals in adolescents with chronic illness: A daily process analysis. Psychol Health 28(11): 1337–1351. DOI: 10.1080/08870446.2013.809083.

9. Casier A, Goubert L, Huse D, Theunis M, Franckx H, Robberecht E, et al. (2008). The role of acceptance in psychological functioning in adolescents with cystic fibrosis: A preliminary study. Psychol Health 23(5): 629–638. DOI: 10.1080/08870440802040269.

10. CDC (2024). About Chronic Diseases. Chronic Disease. [online] [cit. 2025-01-22]. Available from: https://www.cdc.gov/chronic-disease/about/index.html

11. Chlapecka A, Wolfová K, Fryčová B, Cermakova P (2023). Educational attainment and anxiety in middle-aged and older Europeans. Sci Rep 13(1): 13314. DOI: 10.1038/s41598-023-40196-4.

12. Cipora E, Konieczny M, Sobieszczański J (2018). Acceptance of illness by women with breast cancer. Ann Agric Environ Med 25(1): 167–171. DOI: 10.26444/aaem/75876.

13. Czerw A, Religioni U, Szumilas P, Sygit K, Partyka O, Mękal D, et al. (2022). Normalization of the AIS (Acceptance of Illness Scale) questionnaire and the possibility of its use among cancer patients. Ann Agric Environ Med 29(2): 269–273. DOI: 10.26444/aaem/144197.

14. Dayılar H, Oyur G, Kamer E, Sarıçiçek A, Cengiz F, Hacıyanlı M (2017). Kolon ameliyatı öncesi hastaların anksiyete düzeylerinin değerlendirilmesi [Evaluation of anxiety levels of patients before colon surgery]. Turk J Colorectal Dis 27(1): 6–10. DOI: 10.4274/tjcd.26122.

15. Diener E, Wirtz D, Biswas-Diener R, Tov W, Kim-Prieto C, Choi D, Oishi S (2009). New Measures of Well-Being. In: Diener E (Ed.). Assessing Well-Being. Dordrecht: Springer 39: 247–266. DOI: 10.1007/978-90-481-2354-4_12.

16. Dugas MJ, Freeston MH, Provencher MD, Lachance S, Ladouceur R, Gosselin P (2001). Le Questionnaire sur l'Inquiétude et l'Anxiété. Validation dans des échantillons non cliniques et cliniques [The Worry and Anxiety Questionnaire: Validation in non-clinical and clinical samples]. Journal de Thérapie Comportementale et Cognitive 11(1): 31–36.

17. Felton BJ, Revenson TA (1984). Coping with chronic illness: A study of illness controllability and the influence of coping strategies on psychological adjustment. J Consult Clin Psychol 52(3): 343–353. DOI: 10.1037/0022-006X.52.3.343

18. Hamama-Raz Y, Bergman YS, Ben-Ezra M, Tirosh Y, Baruch R, Nakache R (2018). Attachment patterns moderate the relation between coping flexibility and illness acceptance among kidney transplant recipients. Anxiety Stress Coping 31(5): 571–579. DOI: 10.1080/10615806.2018.1498667.

19. İlaslan E, Dalkıran Ş, Canlı Özer Z, Balcı MK (2021). Tip 2 diyabetli bireylerin hastalığı kabul düzeyi ve bakım verenlerin bakım verme yükü. Sürekli Tıp Eğitimi Dergisi 30(2): 84–95. DOI: 10.17942/sted.803667.

20. Jalmsell L, Kreicbergs U, Onelöv E, Steineck G, Henter JI (2010). Anxiety is contagious – Symptoms of anxiety in the terminally ill child affect long-term psychological well-being in bereaved parents. Pediatr Blood Cancer 54(5): 751–757. DOI: 10.1002/pbc.22418.

21. Jaltuszewska S, Chojnacka-Szawlowska G, Majkowicz M, Zdonczyk S, Homenda W, Hebel K (2023). Illness perception and the severity of depression and anxiety symptoms in patients with multimorbidity: observational cohort studies. J Clin Med 13(1): 69. DOI: 10.3390/jcm13010069.

22. Jankowiak B, Kowalewska B, Krajewska-Kułak E, Milewski R, Turosz MA (2021). Illness acceptance as the measure of the quality of life in moderate psoriasis. Clin Cosmet Investig Dermatol 14: 1139–1147. DOI: 10.2147/CCID.S318603.

23. Juzwiszyn J, Dolczewska A, Chabowski M (2020). Quality of life and acceptance of illness in patients who underwent total thyroidectomy. Ann Ital Chir 91: 352–358.

24. Karademas EC, Tsagaraki A, Lambrou N (2009). Illness acceptance, hospitalization stress and subjective health in a sample of chronic patients admitted to hospital. J Health Psychol 14(8): 1243–1250. DOI: 10.1177/1359105309345169.

25. Kılınç M (2017). Psikolojik iyi oluşun yordayıcıları olarak öz-yeterlik ve etkileşim kaygısı. Uluslararası Eğitim Bilimleri Dergisi 13: 207–216.

26. Kiropoulos L, Ward N, Rozenblat V (2021). Self-concept, illness acceptance and depressive and anxiety symptoms in people with multiple sclerosis. J Health Psychol 26(8): 1197–1206. DOI: 10.1177/1359105319871639.

27. Kołtuniuk A, Rosińczuk J (2021). The levels of depression, anxiety, acceptance of illness, and medication adherence in patients with multiple sclerosis – Descriptive and correlational study. Int J Med Sci 18(1): 216–225. DOI: 10.7150/ijms.51172.

28. Kostyła M, Tabała K, Kocur J (2013). Illness acceptance degree versus intensity of psychopathological symptoms in patients with psoriasis. Postępy Dermatol Alergol 30(3): 134–139. DOI: 10.5114/pdia.2013.35613.

29. Kulpa M, Kosowicz M, Stypuła-Ciuba BJ, Kazalska D (2014). Anxiety and depression, cognitive coping strategies, and health locus of control in patients with digestive system cancer. Prz Gastroenterol 9(6): 329–335. DOI: 10.5114/pg.2014.47895.

30. Majchrowicz B, Kowalczuk K, Tomaszewska K (2025). Acceptance of illness and quality of life of patients under long-term home nursing care. Front Public Health 13: 1505164. DOI: 10.3389/fpubh.2025.1505164.

31. McLean CP, Asnaani A, Litz BT, Hofmann SG (2011). Gender differences in anxiety disorders: Prevalence, course of illness, comorbidity and burden of illness. J Psychiatr Res 45(8): 1027–1035. DOI: 10.1016/j.jpsychires.2011.03.006

32. Niemeyer H, Bieda A, Michalak J, Schneider S, Margraf J (2019). Education and mental health: Do psychosocial resources matter? SSM Popul Health 7: 100392. DOI: 10.1016/j.ssmph.2019.100392.

33. Özen Y (2017). Farkında mıyız? bilişsel farkındalık ile psikolojik iyi oluşun içrelleşmesi. Kesit Akademi Dergisi 7: 167–189.

34. Piotrkowska R, Kruk A, Krzemińska A, Mędrzycka-Dąbrowska W, Kwiecień-Jaguś K (2023). Factors determining the level of acceptance of illness and satisfaction with life in patients with cancer. Healthcare 11(8): 1168. DOI: 10.3390/healthcare11081168.

35. Pompey CS, Ridwan MN, Zahra AN, Yona S (2019). Illness acceptance and quality of life among end stage renal disease patients undergoing hemodialysis. Enferm Clin 29: 128–133. DOI: 10.1016/j.enfcli.2019.04.020.

36. Purc-Stephenson RJ, Edwards R (2024). Finding meaning in chronic illness and its relationship to psychological well-being:

A mixed-methods study. PLOS Mental Health 1(4): e0000121. DOI: 10.1371/journal.pmen.0000121

37. Religioni U, Czerw A, Deptała A (2015). Acceptance of cancer in patients diagnosed with lung, breast, colorectal and prostate carcinoma. Iran J Public Health 44(8): 1135.

38. Rogon I, Kasprzak Z, Szcześniak Ł (2017). Perceived quality of life and acceptance of illness in people with type 2 diabetes mellitus. Prz Menopauzalny 16(3): 79–85. DOI: 10.5114/pm.2017.70583.

39. Ryff CD, Keyes CLM (1995). The structure of psychological well-being revisited. J Pers Soc Psychol 69(4): 719–727. DOI: 10.1037//0022-3514.69.4.719.

40. Šrol J, Ballová Mikušková E, Čavojová V (2021). When we are worried, what are we thinking? Anxiety, lack of control, and conspiracy beliefs amidst the COVID-19 pandemic. Appl Cogn Psychol 35(3): 720–729. DOI: 10.1002/acp.3798.

41. Telef BB (2013). Psikolojik İyi Oluş Ölçeği: Türkçeye uyarlama, geçerlik ve güvenirlik çalışması. Hacett Üniv Eğit Fak Derg 28(3): 374–384.

42. Thornton M, Bowers K (2024). Poverty in older adulthood: A health and social crisis. Online J Issues Nurs 29(1). DOI: 10.3912/ojin.vol29no01man03.

43. Türen S, Atakoğlu Yılmaz R, Gündoğdu Ş (2021). The relationship with acceptance of illness and medication adherence in type 2 diabetes mellitus patients. Int J Caring Sci 14(3): 1824.

44. Van Damme-Ostapowicz K, Krajewska-Kułak E, Nwosu PJ, Kułak W, Sobolewski M, Olszański R (2014). Acceptance of illness and satisfaction with life among malaria patients in rivers state, Nigeria. BMC Health Serv Res 14: 202. DOI: 10.1186/1472-6963-14-202.

45. van Laarhoven HW, Schilderman J, Bleijenberg G, Donders R, Vissers KC, Verhagen CA, Prins JB (2011). Coping, quality of life, depression, and hopelessness in cancer patients in a curative and palliative, end-of-life care setting. Cancer Nurs 34(4): 302–314. DOI: 10.1097/NCC.0b013e3181f9a040.

46. WHO (2023). Mental health of older adults. [online] [cit. 2025-01-22]. Available from: https://www.who.int/news-room/fact-sheets/detail/mental-health-of-older-adults

47. WHO (2025). Constitution of the World Health Organization. [online] [cit. 2025-01-22]. Available from: https://www.who.int/about/governance/constitution

48. Yazıcıoğlu Y, Erdoğan S (2004). SPSS Uygulamalı Bilimsel Araştırma Yöntemleri. Ankara: Detay Yayıncılık, 267 p.

49. Yığman F, Fidan S (2021). Transdiagnostik faktör olarak belirsizliğe tahammülsüzlük. Psikiyatr Güncel Yaklaşımlar 13(3): 573–587. DOI: 10.18863/pgy.827416

50. Zalewska A, Miniszewska J, Chodkiewicz J, Narbutt J (2007). Acceptance of chronic illness in psoriasis vulgaris patients. J Eur Acad Dermatol Venereol 21(2): 235–242. DOI: 10.1111/j.1468-3083.2006.01912.x.