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Individual-Level Determinants of Self-Care Behaviors and Adaptation to Chronic Illness in Turkish Patients With Chronic Disease: A Single-Center Cross-Sectional Study

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Purpose: The study aimed to investigate the relationship between self-care management behaviors of individuals with chronic disease and their adaptation to chronic illness.

Methods: This cross-sectional and correlational study was conducted with 312 patients treated at a Training and Research Hospital in Turkey between December 2023 and March 2024. The data were collected using a Sociodemographic Characteristics Form, the Self-Care Management Scale in Chronic Illness (SCMP-G) and the Adaptation to Chronic Illness Scale (ACIS).

Results: Mean total scores of the participants for SCMP-G were 107.52 ± 12.51 and 77.00 ± 10.00 for ACIS. There was a low-level negative correlation between age and chronic disease adaptation (rh = −0.201; P < 0.001). Adaptation to chronic illness decreased with increasing age. There was a low-level negative correlation between BMI and physical adaptation (rh = −0.127; P = 0.026) and self-guarding (rh = −0.114; P = 0.046). As BMI increased, physical adaptation and self-guarding decreased. Regression analyses revealed that age (β = −0.115, t = −0.511, P < 0.05) and economic status (β = 2.698, t = −2.487, P < 0.05) had a significant effect on adaptation to chronic illness. Multiple regression analysis of the effect of self-guarding and social guarding variables on adaptation to chronic illness was significant (F = 3.504, P < 0.05).

Conclusion: Based on the results of the present study, self-care management behaviors have a significant effect on adaptation to chronic illness and individual characteristics affect the results. Individual assistance should be extended to the patients to develop self-care management behaviors, which can induce lifestyle changes and necessary trainings should be planned. Future research should prioritize evaluating nurse-led interdisciplinary interventions and exploring the impact of tailored strategies for specific chronic conditions to improve self-care and adaptation.

Keywords: chronic illness, self-care, adaptation, nurses

Introduction

A substantial increase has been observed in the incidence of chronic diseases causing a significant burden on healthcare systems worldwide with the ever-increasing aging of global population.[1,2] According to the World Health Organization (WHO), chronic diseases are responsible for approximately 75% of deaths globally, with cardiovascular diseases, cancers respiratory diseases, diabetes, and kidney disease leading the list.[3] Regionally, Turkey has also observed an increasing trend, with chronic diseases accounting for a significant portion of the national healthcare burden, reflecting global patterns.[4] Furthermore, concomitant chronic diseases can be associated with additional physical and psychological symptoms in affected individuals, resulting in more frequent visits to healthcare professionals, a higher medication burden, and increased number of hospitalization. Additionally, chronic illnesses can lead to various difficulties, including unfulfilled roles, reduced income due to limitations associated with the disease, change in body image, deterioration in lifestyle and social life, and increased treatment costs. All these factors have adverse effects on quality of life of

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individuals.[5] Development of self-management behaviors is considered crucial to prevent long-term complications associated with disease, reduce or decelerate the progression of chronic disease, and improve health-related quality of life.[1,6] Previous studies have used self-care and self-management terms interchangeably. Riegel's definition suggested that self-care encompassed not only disease management but also health promotion in line with the nature of chronic diseases.[7] Riegel identified the following three basic constructs of self-care in the mid-level theory of self-care in chronic diseases: self-care maintenance, self-care monitoring, and self-care management. Maintaining self-care involves physical and emotional stability maintaining behaviors, self-care monitoring requires self-observation for changes in signs and symptoms, and self-care management involves responding to signs and symptoms. Accordingly, self-management can be considered a part of the self-care process.[2,8] The common goal of self-care management interventions is to allow individuals to fulfill their responsibilities, aiming to maintain their well-being. It was also suggested that self-care management prevented disease-specific complications, reduced healthcare costs, and increased the quality of life of individuals.[9]

Adaptation is defined as the individual's ability to accept changes, internal and external, and to demonstrate appropriate attitudes and behaviors. This includes adherence to necessary treatments, following recommended diets, adopting basic lifestyle changes, and integrating the same into daily routines.[10] Although there are only a limited number of previous studies, which investigated the adherence to chronic disease in general, are limited in the literature, previous studies on medication adherence, dietary adherence, and healthy lifestyle habits suggest that patients have problems with adherence. It was reported that problems associated with adherence could lead to higher mortality rates and increased frequency of hospitalization.[11–14] Therefore, effective disease management requires promoting adaptation to chronic conditions. Socioeconomic factors, cultural influences, healthcare team, service-related factors, and patient characteristics are all considered to affect the patient's ability to adapt to the disease. In Turkey, nurses play a pivotal role in chronic disease management, often serving as the primary point of contact for patient education, counseling, and follow-up. They are instrumental in fostering self-care management behaviors by providing personalized training, monitoring adherence to treatment plans, and addressing patient concerns. This role is particularly vital in a healthcare system where nurses frequently bridge the gap between patients and other healthcare providers. Highlighting their contributions underscores the need for enhanced interdisciplinary collaboration to improve adaptation and self-care outcomes.[15,16] Thus, the present study aimed to investigate the relationship between self-care management behaviors of individuals with chronic disease and their adaptation to chronic illness. While social determinants such as education level, economic status, and cultural beliefs undeniably influence health behaviors, our study focuses on individual-level determinants like age, BMI, and specific self-care practices. For example, a patient's education level, while shaped by their social environment, directly influences their ability to understand and adhere to self-care instructions. Similarly, cultural beliefs may affect medication intake, but individual responses to these beliefs vary widely, requiring a focus on personal attitudes and behaviors.[17,18] Future research could further explore the intersection between individual and social determinants to complement our findings. In conclusion, recent research results on patients with chronic diseases indicate that a multifaceted effort should be launched to improve adherence and self-care in this patient group.[19] Unlike previous studies, which often focused on specific chronic diseases, our research investigates self-care management behaviors and adaptation to chronic illness across a diverse patient population, making the findings more generalizable. Additionally, our study examines the interplay between individual determinants, such as age, BMI, and economic status, and their impact on both self-care behaviors and adaptation, providing a unique contribution to the literature. Thus, the present study aimed to investigate the relationship between self-care management behaviors of individuals with chronic disease and their adaptation to chronic illness.

Materials and Methods
Study Design and Setting
Designed as cross-sectional and correlational research, the study population comprised individuals with chronic diseases, who were hospitalized in the inpatient wards of a Training and Research Hospital in Turkey between December 2023 and March 2024. Pursuant to the inclusion criteria, patients (i) aged 18 years or above, (ii) had a confirmed medical diagnosis

of at least one of the following chronic diseases at least 6 months prior to the study, (diabetes, hypertension, chronic obstructive pulmonary disease, asthma, cancer, heart failure, and renal failure), (iii) conscious and able to communicate, and (iv) willing to participate in the study were included in the study. These chronic diseases were identified due to their high prevalence in clinical settings, high frequency of their combinations and similar principles of self-management, including monitoring of symptoms and management of medications. Each participant was briefed about the details and aims of the study and their written informed consent was obtained.

The sample size was calculated using G*Power 3.1.9.4 software. With an α value of 0.05 and a power of 95%, the minimum required sample size was determined to be 262 individuals. A convenience sampling method was employed, and to account for potential losses during the study, data were collected from 320 participants within the specified timeframe.

Data Collection

Sociodemographic Characteristics Form, Adaptation to Chronic Illness Scale, and Self-care Management Scale in Chronic Illness were used to collect the study data. The data were collected through face-to-face interviews conducted by trained researchers in a private and confidential setting to ensure accuracy and encourage honest responses. Participants were provided with clear instructions on how to complete the scales, and sufficient time was given for them to answer the questions. This approach aimed to enhance the reliability and validity of the self-reported data while maintaining participant comfort and confidentiality.

Sociodemographic Characteristics Form

Developed by the authors, this form included a total of 12 items about the individuals' descriptive characteristics (age, sex, body mass index [BMI], educational status, etc.) and chronic diseases (type of disease, allergy status, attending to doctor visits, etc).

Adaptation to Chronic Illness Scale (ACIS)

Developed by Atik and Karatepe,[10] the scale consists of 25 items and three subdomains, including physical adjustment, social adjustment, and psychological adjustment. The scale is designed as a 5-point Likert scale (with 1 = Strongly Disagree and 5 = Completely Agree). Items 5, 6, 12, 17, 19, 20, 24, and 25 are reverse scored. Maximum score that can be obtained from the scale is 125. Higher scores from the subdomains or the entire scale are indicative of the fact that the patients' level of adaptation to the disease is also high. The Cronbach's Alpha value of the scale is 0.88 for the entire scale.

Self-Care Management Scale in Chronic Illness (SCMP-G)

This 34-item scale was originally developed by Jones,[20] and the validity and reliability for the Turkish language was investigated by Hançerlioğlu and Aykar.[21] The scale consists of two subdimensions, including self-guarding and social guarding. The 5-point Likert scale is scored as 5 (Strongly Agree) and 1 (Strongly Disagree). Items 3, 15, 19, and 28 are reverse scored. The maximum score that can be obtained from the scale is 175. As the score from the scale increases, self-care management increases. Cronbach alpha value of the scale is 0.85.

Statistical Analysis

Statistical Package for Social Sciences Version 29.0 software was used for the purposes of data analysis. Before the analyses, normal distribution hypothesis for the numerical data was tested by Kolmogorov–Smirnov, Shapiro–Wilk, skewness and kurtosis tests, histogram, and Q–Q plot graphs. As box plot analysis aimed for the detection of outlier data, data from eight participants qualified as outlier data and thus, these individuals were excluded from the analysis and the study was continued with 312 participants. Result of the analysis upon removal of outliers concluded that the data met the normal distribution hypothesis. Descriptive statistics were computed for the measured variables (means, standard deviations for continuous variables and numbers, percentages for categorical). In data analysis, the independent sample *t*-test was used for comparing two independent groups, and one-way analysis of variance (ANOVA) test was used in

cases, where there were more than two independent groups. In case of a significant difference upon ANOVA test, Tukey's test and Tamhane test was used for homogeneous and heterogeneous variances, respectively, to determine the source of the difference in the results. To explore the relationships between self-care behaviors and adaptation to chronic illness, several statistical analyses were performed. Pearson correlation analysis was conducted to assess the strength and direction of the relationship between self-care behaviors and adaptation to chronic illness. This analysis aimed to identify the extent to which self-care behaviors were associated with various aspects of adaptation, including physical, social, and psychological adjustment. Multiple regression analysis was used to examine the influence of socio-demographic factors (eg, age, gender, education level) and self-care behaviors on adaptation to chronic illness. A p value of <0.05 was considered statistically significant for all tests.

Ethical Considerations

Ethics committee approval (Date: 17.11.2022; Number: 2022/190-218) was obtained from Sinop University Human Research Ethics Committee, to which the authors were affiliated, prior to the commencement of the study. Furthermore, permission for use was obtained from the owners of the scales via e-mail for the scales to be used in the study and written permissions of the hospital, where the study would be conducted, and the affiliated Provincial Health Directorate (Date: 22.12.2023, No: E-26521195-604.02.02–232,033,817). Informed consents were obtained from all patients, who were informed that they could withdraw from the study at any time. The study was conducted according the principles of the WMA Declaration of Helsinki – Ethical Principles for Medical Research Involving Human Subjects.

Results

Sociodemographic Characteristics

A total of 312 participants aged between 20 and 82 years, with a mean age of 56.70 ± 12.48 years, were included in the study. Most participants were men (53%), married (78%), had children (89.1%), had a nuclear family structure (89.1%), and had schooling of 12 years or less (87.5%). Majority of participants lived in rural areas (64.1%) and were unemployed (70.5%). Almost two-thirds (67%) of the participants reported that monthly family income was equal to expenses. Furthermore, 82.7% of the participants reported that they did not have any allergies and regularly attended to health check-ups (74.4%). Mean BMI was 26.47 ± 5.39 (min = 15.06, max = 50.78) and the most prevalent chronic diseases were hypertension (45%), diabetes (38%), heart failure (18%), and cancer (18%) (Table 1).

Table 1 Comparison of Participants' Descriptive Characteristics, Self-Care Management Behaviors, and Adaptation to Chronic Illness Scores (n = 312)

Variables			Self-Care Management			Adaptation to Chronic Illness			
			Self-Guarding	Social Guarding	Total	Physical Adaptation	Social Adaptation	Psychological Adaptation	Total
Sex	n	%	$\bar{x} \pm SD$	$\bar{x} \pm SD$	$\bar{x} \pm SD$	$\bar{x} \pm SD$	$\bar{x} \pm SD$	$\bar{x} \pm SD$	$\bar{x} \pm SD$
Female	148	47.4	62.89±7.59	44.79±7.08	107.68±11.80	35.65±6.99	20.25±4.63	21.40±4.32	77.30±11.08
Male	164	52.6	61.90±8.22	45.47±6.99	107.38±13.15	35.02±6.42	19.88±3.81	21.84±3.69	76.74±8.94
t/F			1.101	−0.859	0.214	0.827	0.754	−0.957	0.488
P			0.272	0.391	0.830	0.409	0.451	0.339	0.626
Marital status									
Married	243	77.9	62.54±8.23	45.16±7.26	107.70±13.05	35.62±6.22	19.98±4.18	21.81±3.88	77.41±9.49
Single	69	22.1	61.77±6.77	45.10±6.21	106.87±10.45	34.26±8.11	20.33±4.35	20.98±4.38	75.58±11.60
t/F			0.715	0.061	0.488	1.487	−0.617	1.522	1.342
P			0.475	0.951	0.626	0.138	0.538	0.129	0.181

(Continued)

Table 1 (Continued).

Variables			Self-Care Management			Adaptation to Chronic Illness			
			Self-Guarding	Social Guarding	Total	Physical Adaptation	Social Adaptation	Psychological Adaptation	Total
Having children									
Yes	278	89.1	62.27±8.10	45.10±7.19	107.37±12.79	34.98±6.60	20.18±4.13	21.56±3.91	76.71±9.89
No	34	10.9	63.22±6.43	45.57±5.64	108.79±10.03	38.11±6.91	19.06±4.80	22.22±4.71	79.39±10.71
t/F			−0.657	−0.370	−0.625	−2.602	1.463	−0.910	−1.477
P			0.512	0.712	0.533	**0.010**	0.144	0.363	0.141
Family type									
Nucleus	278	89.1	62.50±7.94	45.47±7.12	107.96±12.76	35.65±6.63	19.96±4.21	21.73±4.05	77.34±9.86
Big family	34	10.9	61.36±7.85	42.54±5.64	103.90±9.61	32.62±6.70	20.81±4.25	20.85±3.55	74.28±10.88
t/F			0.785	2.308	1.793	2.513	−1.101	1.203	0.092
P			0.433	**0.022**	0.074	**0.012**	0.272	0.230	**0.012**
Educational status									
Literate[a]	90	28.8	62.30±7.83	45.47±6.66	107.78±12.46	32.85±6.50	20.35±3.79	21.23±4.32	74.43±9.00
Primary school[b]	86	27.6	61.66±8.21	44.87±6.68	106.53±12.47	34.83±6.11	19.52±4.05	20.99±3.51	75.33±8.55
High school[c]	97	31.1	62.26±6.72	44.69±6.91	106.95±11.08	35.62±5.81	19.71±4.15	21.62±3.82	76.95±9.06
Undergraduate and above[d]	39	12.5	64.39±10.03	46.13±8.83	110.53±15.70	41.34±6.82	21.43±5.33	23.98±3.98	86.75±11.77
t/F			1.089	0.495	1.089	17.129	2.234	5.782	17.545
P			0.354	0.686	0.354	<0.001*	0.084	<0.001*	<0.001*
Place of residence									
Village[a]	77	24.7	61.10±7.32	43.93±6.06	105.02±11.14	33.78±7.14	20.01±4.21	20.86±3.63	74.65±9.30
District[b]	123	39.4	61.20±7.87	45.05±7.17	106.25±13.14	34.71±5.30	19.74±3.96	21.64±3.81	76.09±8.20
Province[c]	112	35.9	64.54±8.00	46.09±7.40	110.63±12.15	37.04±7.40	20.44±4.49	22.15±4.38	79.62±11.63
t/F			6.757	2.197	5.796	6.442	0.803	2.404	6.732
P			0.001***	0.113	0.003***	0.002***	0.449	0.092	<0.001***
Occupation									
Employed	92	29.5	63.08±8.82	45.71±7.52	108.79±13.63	36.24±7.51	20.42±4.36	22.13±4.04	78.80±11.69
Unemployed	220	70.5	62.08±7.53	44.91±6.82	106.99±12.00	34.93±6.30	19.90±4.15	21.42±3.98	76.25±9.13
t/F			1.024	0.914	1.163	1.581	0.983	1.443	2.057
P			0.307	0.361	0.246	0.115	0.327	0.150	**0.041**
Income status									
Bad[a]	85	27.2	61.30±7.25	46.08±5.75	107.38±11.08	33.67±7.01	20.02±4.15	21.12±3.94	74.81±9.22
Middle[b]	209	67.0	62.52±8.05	44.58±7.31	107.09±12.69	35.71±6.50	19.85±4.15	21.75±3.96	77.30±9.88
Good[c]	18	5.8	65.78±8.89	47.40±8.51	113.18±15.80	38.62±5.75	22.62±4.69	22.63±4.66	83.87±11.83

(*Continued*)

Table 1 (Continued).

Variables			Self-Care Management			Adaptation to Chronic Illness			
			Self-Guarding	Social Guarding	Total	Physical Adaptation	Social Adaptation	Psychological Adaptation	Total
t/F			5.214	2.207	1.730	7.796	5.678	1.907	9.900
P			0.074	0.332	0.421	0.020**	0.058	0.385	0.007**
Allergy									
Yes	54	17.3	64.25±8.75	46.57±7.15	110.82±12.80	34.51±8.19	21.88±4.54	21.24±3.90	77.63±11.50
No	258	82.7	61.98±7.71	44.85±6.98	106.83±12.36	35.49±6.34	19.67±4.05	21.71±4.02	76.87±9.68
t/F			1.921	1.644	2.146	−0.972	3.565	−0.791	0.508
P			0.056	0.101	**0.033**	0.332	**<0.001**	0.429	0.612
Regular health check-ups									
Yes	232	74.4	62.40±7.67	45.12±6.86	107.52±12.06	34.95±6.45	19.94±4.13	21.36±4.07	76.26±9.70
No	80	25.6	62.29±8.69	45.23±7.54	107.53±13.81	36.37±7.30	20.39±4.48	22.41±3.70	79.17±10.58
t/F			0.106	−0.129	−0.005	−1.638	−0.812	−2.030	−2.259
P			0.619	0.898	0.996	0.201	0.417	**0.043**	**0.025**
			$\bar{x} \pm SD$	Min-max					
Age			56.70±12.48	20–82					
Height			165.72±6.51	150–180					
Weight			72.57±14.57	40–135					
BMI			26.47 ± 5.39	15.06–50.78					

Notes: * a, b, c < d **a < c ***a, b < c, Bold means significant at p < 0.05.

Comparison of Participants' Descriptive Characteristics, Self-Care Management Behaviors, and Adaptation to Chronic Illness Scores

Upon comparison of the participant demographics and respective mean score, there was a statistically significant difference by having children, family type, education level, place of residence, employment status, income level, allergy status, and regular visits to the doctor (P < 0.05). Participants with children had higher physical adaptation (P = 0.010) scores compared to participants without children. Participants with nuclear family had significantly higher mean total scores in social guarding (P = 0.022), physical adaptation (P = 0.012), and chronic disease adaptation (P = 0.012) compared to participants with extended family structure. The total scores of physical adaptation, psychological adaptation, and adaptation to chronic illness were significantly higher in participants holding a university degree and above (P < 0.001). The mean total scores of self-guarding (P < 0.001) and self-care management behaviors (P = 0.003), physical adaptation (P = 0.002), and chronic disease adaptation scale (P < 0.001) were statistically significantly higher in participants residing in urban settings. Adaptation to chronic illnesses was higher in employed participants compared non-employed participants (P = 0.041). There was a statistically significant difference between total mean scores from income level and physical adaptation (P = 0.020) and chronic disease adaptation scale (P = 0.07). Adaptation to chronic illness was higher in participants with income levels above their expenses compared to those with income levels less than expenditure and with income levels equal to expenses. The mean total scores of self-care management behaviors (P = 0.033) and mean social adaptation scores (P < 0.001) of patients with allergy were significantly higher compared to patients without allergy. Furthermore, total scores from psychological adaptation (P = 0.043) and chronic disease adaptation (P = 0.025) in patients, who attended regular health check-ups, were

significantly higher compared to patients without regular health check-ups (Table 1). There was no significant difference in scale scores by sex and marital status (P > 0.05).

Adaptation to Chronic Illness and Self-Care Management Behaviors Scale Mean Scores

Mean scores from the scales used in the study are presented in Table 2. Mean total scores of the participants' self-care management, self-guarding, and social guarding behaviors were 107.52 ± 12.51, 62.37 ± 7.93, and 45.15 ± 7.03, respectively. Mean total scores from the adaptation to chronic illness, physical adaptation, social adaptation, and psychological adaptation were 77.00 ± 10.00, 35.32 ± 6.69, 20.06 ± 4.22, and 21.63 ± 4.00, respectively (Table 2).

The Relationship Between the Scales Included in the Study and Age, Height, Weight and BMI

Table 3 presents the results of the relationship between age, height, weight, BMI, and adaptation to chronic illnesses and self-care management behaviors in chronic diseases. There was a low-level negative correlation between age and chronic disease adaptation (rh = −0.201; P < 0.001), physical adaptation (rh = −0.230; P < 0.001), and psychological adaptation (rh = −0.148; P = 0.009). Adaptation to chronic illness decreased with increasing age. There was a low-level negative correlation between weight and social adaptation (rh = −0.155; P = 0.007). As weight increases, social adaptation decreased. There was a low-level negative correlation between BMI and physical adaptation (rh = −0.127; P = 0.026) and self-guarding (rh = −0.114; P = 0.046). As BMI increased, physical adaptation and self-guarding decreased.

The Relationship Between Adaptation to Chronic Illness and Self-Care Management Behaviors

Analysis of the correlations between adaptation to chronic illness and self-care management behaviors in chronic diseases is presented in Table 4. A low-level positive correlation was observed between adaptation to chronic illness and self-guarding (r = 0.146, P < 0.05). As adaptation to chronic illness increased, self-guarding also increased. There was a low-level positive correlation between total scores from physical adaptation and self-care management in chronic diseases (r = 0.143, P < 0.05) and self-guarding (r = 0.135, P < 0.05). As physical adaptation increased, self-care and self-guarding in chronic diseases increased. There was a low-level positive correlation between social adaptation and self-guarding (r = 0.130, P < 0.05). As social cohesion increased, so did the self-guarding.

Table 2 Adaptation to Chronic Illness and Self-Care Management Behaviors Scale Mean Scores

	$\bar{x} \pm SD$	Min-Max	Skewness	Kurtosis
Adaptation to chronic illness	77.00±10.00	45.00–111.00	0.296	0.827
Physical adaptation	35.32±6.69	13.00–55.00	−0.126	1.168
Social adaptation	20.06±4.22	9.00–33.00	0.306	0.221
Psychological adaptation	21.63±4.00	10.00–35.00	0.073	0.459
Self-care management	107.52±12.51	64.00–151.76	0.368	1.770
Self-guarding	62.37±7.93	37.00–88.00	0.432	0.654
Social guarding	45.15±7.03	20.20–69.00	−0.258	1.605

Note: $\bar{x} \pm SD$ = mean ± standard deviation.

Table 3 Analysis of the Relationship Between the Scales Included in the Study and Age, Height, Weight and BMI

		Age	Height	Weight	BMI
Adaptation to chronic illness	rh	−0.201	0.076	0.000	−0.024
	P	<0.001	0.180	0.997	0.677
Physical adaptation	rh	−0.230	0.100	0.066	0.035
	P	<0.001	0.079	0.248	0.544
Social adaptation	rh	0.028	−0.078	−0.155	−0.127
	P	0.617	0.171	0.007*	0.026*
Psychological adaptation	rh	−0.148	0.105	0.054	0.018
	P	0.009*	0.065	0.348	0.755
Self-care management	rh	0.022	0.079	−0.029	−0.059
	P	0.704	0.163	0.609	0.300
Self-guarding	rh	0.047	0.040	−0.102	−0.114
	P	0.404	0.477	0.075	0.046*
Social guarding	rh	−0.015	0.096	0.062	0.022
	P	0.792	0.091	0.281	0.701

Notes: rh = Pearson Correlation Test; *Significant at p < 0.05.

Table 4 Analysis of the Relationship Between Adaptation to Chronic Illness and Self-Care Management Behaviors

		1	2	3	4	5	6	7
1- Adaptation to chronic illness	rh	1	0.777	0.486	0.687	0.109	0.146	0.029
	P		<0.001	<0.001	<0.001	0.055	0.010*	0.607
2- Physical adaptation	rh		1	−0.028	0.298	0.143	0.135	0.103
	P			0.627	<0.001	0.011*	0.017*	0.070
3- Social adaptation	rh			1	0.207	0.049	0.130	−0.059
	P				<0.001	0.387	0.022*	0.301
4- Psychological adaptation	rh				1	−0.020	0.001	−0.037
	P					0.725	0.984	0.516
5- Self-care management	rh					1	0.857	0.813
	P						<0.001	<0.001
6- Self-guarding	rh						1	0.396
	P							<0.001
7- Social guarding	rh							1
	P							

Notes: rh = Pearson Correlation Test; *Significant at p < 0.05.

Table 5 Examining the Effects of Age, Weight, Place of Residence, Economic Status, Sex and Family Type on Adaptation to Chronic Diseases

	$\hat{\beta}$	$SE^{\hat{\beta}}$	Beta	t	P
(Constant)	79.118	5.519		14.336	<0.001
Age	−0.115	0.048	−0.143	−2.393	0.017*
Weight	−0.020	0.039	−0.029	−0.511	0.609
Place of residence	1.567	0.845	0.120	1.854	0.065
Economic status	2.698	1.085	0.145	2.487	0.013*
Sex	−0.797	1.145	−0.040	−0.696	0.487
Family type	−0.953	1.914	−0.030	−0.498	0.619
	R	R²	F	P	
	0.085	0.067	4.626	<0.001	

Notes: Dependent Variable: Adaptation to Chronic Illness; *Significant at p < 0.05.

Examining the Effects of Age, Weight, Place of Residence, Economic Status, Sex and Family Type on Adaptation to Chronic Diseases

Table 5 presents the results of the multiple regression analysis of the effect of age, weight, place of residence, economic status, sex, and family type variables on adaptation to chronic illness. There was a significant effect of age, weight, place of residence, economic status, sex, and family type variables on adaptation to chronic illness (F = 4.626, P < 0.05). Individual analyses of the variables revealed that age (β = −0.115, t = −0.511, P < 0.05) and economic status (β = 2.698, t = −2.487, P < 0.05) had a significant effect on adaptation to chronic illness. Age had a negative effect on adaptation to chronic illness, whereas economic status had a positive effect. Rate of variables included in the model explaining adjustment to chronic disease was 6% (Adjust R2 = 0.067).

Examining the Effects of Self-Guarding and Social Guarding on Adaptation to Chronic Illness

Table 6 presents the results of the multiple regression analysis of the effect of self-guarding and social guarding variables on adaptation to chronic illness. Moreover, effect of self-guarding and social guarding variables on adaptation to chronic illness was significant (F = 3.504, P < 0.05). Individual analyses of the variables revealed a significant effect of self-

Table 6 Examining the Effects of Self-Guarding and Social Guarding on Adaptation to Chronic Illness

	$\hat{\beta}$	$SE^{\hat{\beta}}$	Beta	t	P
(Constant)	66.664	4.899		13.608	<0.001
Self-guarding	0.201	0.077	0.159	2.596	0.010*
Social guarding	−0.048	0.087	−0.034	−0.552	0.581
	R²	Adj. R²	F	P	
	0.022	0.016	3.504	0.031	

Notes: Dependent Variable: Adaptation to Chronic Illness; *Significant at p < 0.05.

guarding (β = 0.201. t = 2.596, P < 0.05) on adaptation to chronic illness. Nevertheless, effect of social guarding was not significant (P > 0.05). Self-guarding positively affected adaptation to chronic illness. Moreover, rate of self-guarding and social guarding explaining adaptation to chronic illness was 1% (Adjust R2 = 0.016).

Discussion

This study investigated the relationship between adaptation to illness and self-care management behaviors in individuals with chronic disease. The participants had moderate scores on ACIS and self-care management behaviors scale. A study, which investigated the relationship between fear of COVID-19 and adaptation to chronic illnesses in individuals with chronic diseases, reported that participants scored 73.75 ± 18.85 on the adaptation to chronic illnesses scale,[22] consistent with the results of the present study. A study by Arslan et al[5] investigated adaptation to chronic illness in individuals with chest diseases and reported the mean score as 82.83 ± 13.88. Another study on the relationship between health literacy level and chronic disease adaptation in individuals with chronic disease reported the mean score on the chronic disease adaptation scale as 83.64 ± 10.90.[23] Similar results were reported by other studies.[24–27] Mean self-care management scores of the patients in the present study were at moderate (107.52 ± 12.51). Self-care management scores of patients with chronic diseases in the present study were consistent with previous studies.[28,29] The findings of this study highlight the role of socio-economic factors, such as education, income, and family structure, in coping with chronic diseases. Notably, differences between rural and urban areas accentuate health inequalities. Limited access to healthcare, lower education levels, and worsening economic conditions in rural areas make it more difficult for individuals to adapt to chronic diseases. Addressing these social determinants is crucial for developing strategies to reduce health inequalities.

In the study, the physical adaptation level of the participants without children was higher compared to the participants with children. Although there is no similar data reported in relevant literature, certain studies suggested that married individuals had a higher level of adaptation to chronic illnesses.[30] Results of the present study were not consistent with other similar studies in the relevant literature considering that married women were more likely to have children in the Turkish culture. As the patients without children in our sample group generally comprised younger individuals and as younger people had a higher level of adaptation to chronic illnesses, this may account for the foregoing difference. In the present study, scale scores of participants with nuclear family were higher compared to participants with an extended family structure. In the relevant literature, no difference has been reported between self-care management and adaptation to disease and family type. The significant difference observed in the present study is an original finding. In the present study having a nuclear family increased the level of social guarding and physical adaptation. The fact that relationships are tighter and supportive behaviors are more frequent in the nuclear family, unlike the extended family, may account for the above result.

Furthermore, participants with nuclear families generally had higher levels of education and better economic conditions in the present study. These conditions might also have helped increase adaptation to the disease. This finding suggests that broader sociocultural and healthcare-related factors play a significant role in mediating adaptation and self-care in individuals with chronic diseases. To deepen our understanding, future research should explore how family dynamics, particularly within varying cultural contexts, influence chronic disease management. Additionally, stratifying results by disease type could help reveal key differences in adaptation, as different chronic conditions may require distinct management strategies. For example, individuals with diabetes often need more structured self-care routines, including regular blood glucose monitoring and dietary adjustments, while those with respiratory conditions may prioritize adherence to medication and symptom monitoring. These variations emphasize the importance of personalized interventions that are tailored to the specific needs of each chronic disease, ultimately improving outcomes and enhancing quality of life.[31,32]

In the present study, there was a statistically significant difference between education level and adaptation to chronic illness. Chronic disease adaptation scores of the participants holding a university degree and above were higher compared to other participants. Similar to other Turkish studies, participants with high school and above education had higher treatment adherence.[27,30] Similarly, in a study investigating the relationship between level of self-care of patients with type-2 diabetes and compliance with treatment in Poland, participants with higher education levels demonstrated higher self-care behavior levels and higher disease compliance. The study suggested that a systematic and multifaceted approach

was required to improve self-care and increase treatment efficacy in patients with diabetes, and healthcare professionals should prioritize achieving higher levels of therapeutic adherence. It was also noted that it was important to promote and implement novel innovative approaches as suggested by the available studies in the relevant literature.[19] Although no statistically significant difference was observed between the scores from self-care management behaviors and education level in the present study, participants holding a university degree or above had higher scores in all domains. Previous studies reported that patients with higher levels of education were also more likely to have higher levels of knowledge, and thus, were better able to understand and apply self-care behavioral rules compared those with lower levels of education.[33] According to the results of a Nepalese study, illiterate patients exhibited poor self-care behaviors three times more often compared to literate patients.[34] Considering the available data, individuals with advanced education had higher awareness and better accessibility to information and obtain a broader life perspective from different sources, which led to increased adaptation to the disease and correct responses to disease-specific symptoms. In contrast, a study of adults with diabetes reported an interesting link between educational level and ability to monitor and manage self-care. Surprisingly, the analysis found that individuals with higher levels of education (university education) tended to achieve lower scores in self-care monitoring and management. Authors suggested that the most educated patients might prioritize work tasks over healthy behaviors in their daily routine, which may have led to lower self-care performance.[35]

In the present study, there was a statistically significant difference between participants' scale scores by place of residence. For both scales, scores of the participants residing in rural areas were significantly lower compared to the participants that were urban residents. Rehman et al[36] investigated medication compliance in patients with heart failure and reported that individuals residing in rural areas and those with lower education levels had lower levels of adaptation to chronic disease. In the present study, most participants lived in rural areas, had limited education, and lower income levels. The healthcare system in Turkey has several challenges. For example, certain factors, including patient over-crowding, tendency for people to apply to tertiary hospitals in large cities, and cost of health services for the majority of the population may lead to a decrease in the frequency of seeking health services and inadequate health instructions delivered by hospital staff. In such cases, strengthening therapeutic communication can provide healthcare providers an important opportunity to identify and address the limited knowledge the patients hold about chronic diseases.[1] In contrast to the present study, there are also studies in the literature reporting no significant difference between place of residence and adaptation to chronic illness and self-care management behaviors.[37,38]

In the present study, there was a statistically significant difference between employment status and income level and chronic disease adaptation scale. Adaptation to chronic illness was higher in employed participants compared to unemployed participants. Similarly, a study reported that unemployed patients had lower chronic disease adaptation and quality of life.[39] Although certain studies reported no significant difference by the adaptation to illness between employed and unemployed participants,[40,41] a Polish study suggested that the scores of unemployed participants were higher.[19] In the present study, a statistically significant difference between economic status and chronic disease adaptation scale was observed. Based on the results of further analysis, the scores of low-income participants were significantly lower compared to high-income participants. Results of the present study are consistent with previous studies.[23,42] It can be considered that economic power leads to easier access to healthcare services without the need to allocate time for healthcare services and increases the receipt of quality services, thus increasing adaptation to chronic illnesses.

One of the original results of our study is that there was a statistically significant difference between the scores of adaptations to chronic illnesses and self-care management behaviors scale in patients with allergy. Individuals with allergies demonstrated higher adaptation levels, possibly due to their earlier experiences with long-term health conditions, which may have fostered resilience. The pre-existing health conditions, such as allergies, could significantly influence how individuals cope with chronic diseases. Future research could examine these factors in more detail, potentially stratifying by family type and health condition to identify targeted interventions. Furthermore, patients who did not have regular doctor visits had higher levels of compliance with the disease in the present study. Upon review of previous studies, patients who attended regular health check-ups generally had higher levels of adaptation to illness, unlike the present study.[24,43] The unexpected finding that patients without regular doctor visits had higher adaptation scores may be attributed to factors such as self-reliance or reliance on alternative support systems, like family or community networks. Additionally, these individuals might have milder disease profiles, reducing their need for frequent

medical consultations. Cultural factors and perceptions about disease severity may also play a role. Understanding these nuances requires further exploration, including qualitative research to capture underlying motivations and barriers.

In the present study, there was a low-level negative correlation between sociodemographic characteristics, including age, weight, BMI, and adherence to chronic illness. Previous studies suggested that as age and BMI increased, adaptation to chronic illness decreased.[9,24,25,43] Unlike the present study, certain studies reported that there was no significant difference between adaptation to the disease and age.[44] Furthermore, regression analysis revealed that age and economic status variables have a significant effect on adaptation to chronic illness. Age has an adverse effect on adaptation to chronic illnesses, whereas economic status has a positive effect. Rate of variables included in the mode, which explained adaptation to chronic illness was 6%. In the present study, there was a low-level positive correlation between adaptation to chronic illness and the subdomains of the self-care management behaviors in chronic diseases scale. In other words, results of the present study were suggestive of the fact that adaptation to chronic illness and self-care management behaviors affected each other. This result makes an important contribution to the literature in terms of increasing adaptation to chronic illnesses and reducing the risk of complications. This study can help plan nursing interventions for strengthening the self-care management behaviors in individuals.

The study's findings emphasize the critical role of social determinants in chronic disease management programs and provide practical guidance for healthcare professionals and policymakers. Future policies should prioritize improving healthcare access in rural areas, enhancing health literacy, and offering targeted support to individuals in lower socio-economic brackets to help them adapt to chronic diseases. Additionally, health systems can develop community-based programs focusing on education, self-care management, and personalized support to address these disparities. For healthcare providers, these findings highlight the importance of designing tailored interventions, such as targeted education programs and therapeutic communication strategies, to meet the diverse needs of patients. Together, these efforts can foster better adaptation to chronic illnesses and promote equity in healthcare outcomes.

Strengths and Limitations

One of the strengths of this study is the inclusion of diverse samples from both rural and urban areas, allowing for comparisons of coping behaviors across different socio-cultural contexts. However, the study's limitations include the inability to make causal inferences and reliance on self-reported data. Moreover, conducting the study in a single hospital limits the generalizability of the findings to a wider population. Larger, more diverse samples and longitudinal studies would provide more robust data on the impact of social determinants on chronic disease adaptation.

Conclusion

Based on the results of the present study, self-care management behaviors have a significant effect on adaptation to chronic illness. The higher the level of self-care management behaviors, the greater the level of adaptation. Notably, younger, employed patients with tertiary education who reside in urban areas demonstrated higher levels of adaptation to chronic illnesses. This finding is crucial for guiding the development of strategies aimed at improving adaptation to chronic illnesses, which is a key factor in reducing hospitalization frequency and minimizing the risk of complications. The study underscores the positive relationship between self-care management behaviors and chronic disease adaptation, with stronger self-care practices correlating with better adaptation outcomes. Enhancing self-care behaviors is essential for improving patient adaptation and reducing the likelihood of complications. This reinforces the need to prioritize self-care management in future chronic disease management strategies. Chronic diseases are among the leading causes of mortality globally, and effective control is vital for sustaining human health in the future. Nurses play a critical role in assessing risk factors, promoting lifestyle changes, and encouraging preventive health practices. Therefore, it is essential to support patients in developing self-care management behaviors, facilitating lifestyle changes through training and education. Additionally, interprofessional collaboration is vital for enhancing self-care management in individuals with chronic diseases. Nurses should collaborate closely with other healthcare professionals, such as physicians, social workers, and psychologists, to address broader socio-economic factors that impact disease adaptation and self-care behaviors. Increasing integration and coordination between healthcare professionals is essential for improving chronic

disease management. Further research is needed to explore these areas and strengthen the evidence base for effective interventions.

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