

Evaluation of the Perception of Illness and Quality of Life in Patients with Acute Myocardial Infarction

Akut Miyokart Enfarktüsü Geçiren Hastaların Hastalık Algısı ve Yaşam Kalitesinin Değerlendirilmesi

ABSTRACT

Objective: This study aimed to evaluate the illness perception and quality of life of patients who had an acute myocardial infarction.

Methods: This descriptive and correlational study included 301 patients diagnosed with acute myocardial infarction at the cardiology outpatient clinic of a hospital. The data were collected using Illness Perception Questionnaire-Revised and Myocardial Infarction Dimensional Assessment Scale.

Results: The mean age of the patients was 59.04 ± 5.56 years and 51% were female. The evaluation of subdimension mean scores according to the scores of the patients from the Illness Perception Questionnaire-Revised showed that the highest mean score was obtained from the consequences subscale under the Illness Representation dimension whereas the lowest mean score was from the illness coherence subscale. The overall Myocardial Infarction Dimensional Assessment Scale score (49.43 ± 11.40) of the patients was observed to be moderate. The Illness Perception Questionnaire-Revised subdimensions were observed to have a positive and significant correlation with Myocardial Infarction Dimensional Assessment Scale total score and subscales mean scores. According to the regression analysis results, treatment control, illness coherence, and emotional representations subscales under the Illness Representation dimension and immunity subscale under the Causal Representation dimension were observed to predict the quality of life, and patients obtaining higher scores from these dimensions had higher quality of life. On the other hand, the consequences subscale under Illness Representation dimension and psychological attributions under Causal Representation dimension were found to be factors decreasing the quality of life.

Conclusion: This study showed that patients thought some of the symptoms were related to their illness, the level of comprehension of the disease is low, and their quality of life was moderate. Patients should have a positive illness perception to have a higher quality of life.

Keywords: Myocardial infarction, Quality of Life, illness perception

ÖZET

Amacı: Çalışma, akut miyokart enfarktüsü tanısı olan hastaların hastalık algıları ve yaşam kalitelerinin değerlendirilmesi amacıyla yapılmıştır.

Yöntemler: Tanımlayıcı ve ilişki arayıcı biçimde olan bu çalışma, bir hastanenin kardiyoloji polikliniğinde akut miyokart enfarktüsü tanısı almış 301 hastada yapılmıştır. Verilerin toplanmasında; "Hastalık Algısı Ölçeği" ve "Miyokard Enfarktüsü Boyutsal Değerlendirme Ölçeği" kullanıldı.

Bulgular: Hastaların yaş ortalaması $59,04 \pm 5,56$ yıl ve %51'i kadındı. Araştırmadaki hastaların Miyokard Enfarktüsü Boyutsal Değerlendirme Ölçeği genel toplam puan ortalamasının ise orta düzeyde ($49,43 \pm 11,40$) olduğu görüldü. Hastaların Hastalık Algısı Ölçeği'nden aldıkları puanlara göre alt boyut puan ortalamalarına bakıldığında; Hastalık Hakkındaki Görüşleri alt boyutunda en fazla puan ortalamasının Sonuçlar maddelerinden ve en düşük puan ortalamasının Hastalığı Anlayabilme maddelerinden alındığı saptandı. Hastalık Algısı Ölçeği alt boyutları ve Miyokard Enfarktüsü Boyutsal Değerlendirme Ölçeği puan ve alt boyut puan ortalamaları arasında pozitif yönde ve anlamlı bir ilişki saptandı. Regresyon Analizi sonuçlarına göre; yaşam kalitesini yordayan hastalık hakkındaki görüşlerden tedavi kontrolü, hastalığı anlayabilme ve duygusal temsiller ve hastalık nedenlerinden bağımsızlık puanları artan kişilerin yaşam kalitesi artmaktadır. Bununla birlikte hastalık hakkındaki görüşlerden sonuçlar ve hastalık nedenlerinden psikolojik atıflar ise yaşam kalitesini düşüren etkenler olarak saptandı.

Sonuç: Bu sonuçlar; hastaların bazı hastalık belirtilerini hastalıkları ile ilgili olduğunu düşündüklerini ifade etmekle birlikte hastalığı kavrama düzeylerinin düşük olduğunu ve yaşam kalitelerinin orta düzeyde olduğunu gösterdi. Hastaların yaşam kalitelerinin iyi düzeyde olması için hastalık algılarının olumlu olması gerekir.

Anahtar Kelimeler: Miyokart enfarktüsü, yaşam kalitesi, hastalık algısı

ORIGINAL ARTICLE KLİNİK ÇALIŞMA

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Both the world's and Turkey's population is aging rapidly with the decreasing life expectancy of people and also changing lifestyle causing an increase in the prevalence of chronic diseases.¹ Cardiovascular diseases (CVDs) have an important place among chronic diseases that seriously threaten the health conditions of patients.^{1,2} The World Health Organization World Health Statistics 2020³ reported that 17% (17.9 million) of global deaths in 2016 were caused by CVDs. In the report published by the Turkish Adult Risk Factor Study,⁴ also called TEKHARF, survey initiated in 1990 with a follow-up period of 26 years (2017), it has been reported that there are approximately 3.5 million patients with coronary heart disease in Turkey and this number increases by 4% per year in the population. According to the 2012 TEKHARF⁴ survey calculations, the number of coronary events reported annually in Turkey is 420 000. Based on Causes of Death Statistics published by the Turkish Statistical Institute (TurkStat)⁵ in 2019, circulatory system diseases (36.8%) are the leading causes of death and ischemic heart disease constitutes 39.1% (62.710 people) of these deaths. Also, 44 248 people of these deaths were due to acute myocardial infarction (AMI).⁵ The high incidence of coronary syndrome and high mortality rates in Turkey show the importance of this issue.⁴ Furthermore, AMI is a serious health problem since it is more common in the productive age group, causes important problems, as well as complications that may occur after the disease and financial difficulties negatively affect the quality of life (QoL).⁶ In the treatment and care of individuals with chronic diseases, psychosocial responses as well as physical reactions should be considered.⁷ Knowing how the patient evaluates his/her illness and providing psycho-social adaptation in individuals with physical illnesses are important factors for the course of the disease.⁸ Illness perception is important in determining the patient's approach to the disease and coping skills as well as ensuring adherence to treatment. Illness perception of patients with cardiovascular problems is reported to significantly decrease the adherence to treatment, duration of cardiac rehabilitation, and the number of re-hospitalizations.⁹ Increased illness perception and adjustment are emphasized to ensure patients to (i) return to their active life after AMI, (ii) continue their lives more healthily, and (iii) have higher levels of physical, mental, and social well-being.^{10,11} Using medications after the illness, following the recommended diets, doing regular exercises, and complying with health recommendations regarding other lifestyle changes are reported to positively affect the QoL of patients suffering from AMI.¹¹ The patients' view, perception, and evaluation of illness as an individual, as well as their emotional and behavioral responses, are among the criteria predicting the QoL.¹² This study aimed to evaluate the illness perception and QoL of patients with AMI, to investigate the relationship between these 2 factors, and to identify factors affecting them.

ABBREVIATIONS

AMI	Acute myocardial infarction
IPQ-R	Illness Perception Questionnaire-Revised
MIDAS	Myocardial Infarction Dimensional Assessment Scale
QoL	Quality of life
TurkStat	Turkish Statistical Institute

Methods

Design and Participants

This study was conducted as a descriptive and correlational study to evaluate the perceptions of disease and QoL of patients with AMI. Accordingly, we sought answers to the following study questions:

- What are the individual characteristics of patients who have undergone AMI?
- What are the disease-related characteristics of patients who have undergone AMI?
- What is the level of disease perception of patients who have undergone AMI?
- What is the QoL of patients who have undergone AMI?
- Is there a relationship between the perception of disease and QoL of patients who have undergone AMI?

According to the sample size formula, it was planned to include 297 patients with 95% CI and a 5% margin of error. This descriptive and correlational study included a total of 301 consecutive patients diagnosed with AMI admitted to the cardiology outpatient clinic of a research and training hospital for receiving treatment within the period from June 2019 to September 2019.

Data Collection

Data were collected by face-to-face interview method with patients diagnosed with AMI. Prior to data collection, patients were informed about the study, and their written and verbal consents were obtained. Study inclusion criteria were being diagnosed with AMI at least 6 months ago,^{8,9} having no visual, cognitive, or auditory impairment to answer questions, and volunteering to participate in the study.

Instruments

Data were collected using the Individual Identification Form consisting of 11 questions, which were developed in accordance with the literature, Illness Perception Questionnaire-Revised (IPQ-R), and Myocardial Infarction Dimensional Assessment Scale (MIDAS).

Illness Perception Questionnaire-Revised (IPQ-R)

This questionnaire was originally developed by Weinman et al¹³ in 1996 and was revised by Moss-Morris et al¹⁴ in 2002. The IPQ-R consists of 3 dimensions: *Identity*, *Illness Representation*, and *Causal Representation*. It includes a total of 70 items.¹⁴ The Turkish adaptation study and reliability and validity study of the Turkish adaptation were carried out by Kocaman et al⁷ in 2007. *Identity Dimension*: This section contains 14 illness symptoms and patients are asked to answer the questions "whether or not they have experienced the relevant symptom since their illness" and "whether or not they believe the symptom to be related to their illness" for each symptom.⁷ Questions are answered using yes/no response format.⁷ *Illness Representation Dimension*: This section consists of 7 subscales (timeline acute/chronic, consequences, personal control, treatment control, illness coherence, timeline cyclical, and emotional representations) and a total of 38 items.⁷ The responses to each item are evaluated based on a 5-point Likert-type scale ranging from "1: strongly disagree" to "5: strongly agree". Dimension scores are calculated by summing up each subscale score and dividing this score by the number of items under that subscale.⁷ *Causal Representations Dimension*: It

consists of 18 items investigating the patients' thoughts on the possible causes of their illness.⁷ It has 4 subscales: psychological attributions, risk factors, immunity, and accident or chance.⁷ Each subdimension is answered based on a 5-point Likert-type scale ranging from "1: strongly disagree" to "5: strongly agree." In the Turkish reliability and validity study of the scale performed by Kocaman et al.⁷ Cronbach alpha coefficients were reported to be 0.89 for the *Identity* dimension, 0.69-0.77 for *Illness Representation* dimension, and 0.25-0.72 for the *Causal Representation* dimension. In the present study, Cronbach alpha coefficients were found to be 0.80 for the *Identity* dimension, 0.69-0.88 for the *Illness Representation* dimension, and 0.35-0.65 for the *Causal Representation* dimension.

Myocardial Infarction Dimensional Assessment Scale (MIDAS)

This scale, which was developed by Thompson et al.¹⁵ in 2002, is reported to be a useful and highly reliable tool to measure the disease-specific QoL and health status of patients with myocardial infarction and to evaluate the effects of the treatments applied on the functional and well-being of the patients. The Turkish validity and reliability study of the scale was conducted by Uysal et al.¹¹ with patients having myocardial infarction for the first time and the Cronbach alpha coefficient was reported to be 0.38-0.83. It consists of 35 items measuring 7 subscales of health status after myocardial infarction: physical activity (12 items), insecurity (9 items), emotional reaction (4 items), dependency (3 items), nutrition (3 items), concerns about the drug (2 items), and drug side effects (2 items).^{11,15} The patient is asked to choose the most suitable alternative through "never," "seldom," "sometimes," "frequently," and "always" for the answer to each question.^{11,15} Each question is scored from "0" to "100." A total score of "0" indicates the best health status and "100" indicates the worst health status.^{11,15} In the present study, the Cronbach alpha coefficient was found to be 0.40-0.89.

Statistical Analysis

Statistical analysis was performed using SPSS software for Windows version 22.0 (IBM Corp., Armonk, NY, USA). Descriptive data were expressed as frequency, percentage, arithmetic mean, standard deviation, minimum, and maximum. Parametric tests were used for the analysis of data. Independent samples *t*-test was used to compare the mean of 2 independent groups whereas more than 2 independent groups were compared using 1-way analysis of variance (1-way ANOVA) test. If the assumption of homogeneity of variances was met for the group differences in the ANOVA test, Tukey's honestly significant difference test was used. If the assumption of homogeneity of variances was not met, Tamhane multiple comparison test was used. Multiple regression analysis was used to predict the dependent variable with independent variables.

Ethical Considerations

Prior to starting the study, ethics committee approval was obtained from the institution where the research was conducted. Ethics committee approval was received for this study from the Ethics Committee of Republic of Turkey Ministry of Health Van Training and Research Hospital (date/May 2, 2019, and number: 2019/09).

Results

Of the individuals participating in the study, 51% (n=153) were female, 41% (n=123) were under 60 years of age, 76% (n=230) were married, 30.6% (n=92) were primary school graduates, 45.5% (n=137) were unemployed, 72% (n=216) had middle economic status, 40% (n=121) were living in the district, and the number of individuals in the household was 7 or more in 37% (n=111). Furthermore, 62% of the individuals (n=186) were found to smoke before receiving the diagnosis and 17% (n=52) of these individuals were observed to continue smoking after diagnosis, and 98% (n=295) did not use alcohol (Table 1). Findings related to the disease-specific characteristics of the

Table 1. Findings Related to Individual Characteristics (n=301)

Gender, n (%)	Female	153	51.0
Age (Mean \pm SD, range)	59.04 \pm 5.56	59.04 \pm 5.56	45-77
Marital status	Married	230	76.0
	Other	71	24.0
Educational status	Illiterate	144	47.8
	Primary school graduate	92	30.6
	Secondary school graduate	32	10.6
	High school graduate	23	7.6
	College/university graduate	8	2.7
	Master's degree	2	0.7
Occupation	Worker	33	11.0
	Civil servant	25	8.3
	Self-employment/tradesman	49	16.3
	Retired	14	4.6
	Housewife	43	14.3
	Unemployed	137	45.5
Economic status	High	63	21.0
	Moderate	216	72.0
	Low	22	7.0
Place of residence	Province	114	38.0
	District	121	40.0
	Village/town	66	22.0
Number of household members	1-4	107	35.5
	5-6	83	27.5
	7 and above	111	37.0
Pre-diagnosis smoking status	Yes	186	62.0
Post-diagnosis smoking status	No	249	83.0
Alcohol consumption	No	295	98.0

SD, standard deviation.

Table 2. Findings Related to the Disease-Specific Characteristics (n=301)

		n	%
Time of diagnosis of CAD/AMI	1 year	73	24.3
	2 years	94	31.2
	3 years	88	29.2
	4 years and above	46	15.3
Admission to the hospital with a complaint of chest pain before	No	142	47.2
	Yes	159	52.8
Family history of heart disease	No	139	46.2
	Yes	162	53.8
Comorbidity	No	78	25.9
	Yes	223	74.1

AMI, acute myocardial infarction; CAD, coronary artery disease.

patients are shown in Table 2. Diagnosis of AMI was established 1 year ago in 24.3% (n=73), 2 years ago in 31.2% (n=94), 3 years ago in 29.2% (n=88), and 4 or more years ago in 15.3% (n=46). Of the individuals, 52.8% (n=159) stated that they had previously been admitted to the hospital with the complaint of chest pain, 53.8% (n=162) had a family history of heart disease, and 74.1% (n=223) had comorbidity (Table 2). When descriptive data of IPQ-R and its dimension and subscales were evaluated, *Identity* dimension mean score was found to be 6.65 ± 1.93 , and the highest and lowest mean scores were observed to be obtained from consequences items (22.59 ± 2.65) and illness coherence items (10.92 ± 3.07) under *Illness Representation* dimension, respectively. In *Causal Representation* dimension, the highest and lowest mean scores were found to be obtained from risk factors' items (20.74 ± 2.02) and accident or chance items (4.60 ± 1.17), respectively (Table 3). When the descriptive data of the QoL scale and its subscales were evaluated, mean scores for the physical activity, insecurity, emotional reaction, dependency, nutrition, concerns about drug, and drug side effects subscales were found to be 48.52 ± 10.91 , 50.89 ± 12.88 , 45.17 ± 12.62 , 45.23 ± 15.44 , 55.19 ± 22.65 , 31.5 ± 16.52 , and 22.99 ± 8.31 , respectively. The overall mean score obtained from the scale was 49.43 ± 11.40 (Table 4).

Personal control subscale from *Illness Representation* dimension was observed to have a positive, weak, and significant relationship with QoL ($r=0.242$), physical activity ($r=0.182$), insecurity ($r=0.153$), emotional reaction ($r=0.186$), dependency ($r=0.272$), nutrition ($r=0.264$), concerns about drug ($r=0.239$), and drug side effects ($r=0.100$) subscales ($P \leq .05$). Illness coherence subscale from *Illness Representation* dimension was observed to have a positive, weak, and significant relationship with QoL ($r=0.303$), physical activity ($r=0.265$), insecurity ($r=0.211$), emotional reaction ($r=0.279$), dependency ($r=0.146$), nutrition ($r=0.315$), concerns about drug ($r=0.217$), and drug side effects ($r=0.331$) ($P \leq .05$) (Table 5).

The regression model showed that the QoL of individuals was significantly and positively predicted by the following subscales of IPQ-R: treatment control ($\beta=0.29$, $P \leq .05$), illness coherence

Table 3. IPQ-R Dimension and Subscales Mean Scores (n=301)

	n	\bar{X}	SD	Minimum	Maximum
Identity	301	6.65	1.93	3.0	29.0
Illness representation					
Timeline acute/chronic	301	14.94	1.50	9.0	21.0
Consequences	301	22.59	2.65	12.0	27.0
Personal control	301	18.72	1.83	12.0	26.0
Treatment control	301	15.98	2.22	12.0	25.0
Illness coherence	301	10.92	3.07	5.0	22.0
Timeline cyclical	301	12.49	1.56	8.0	17.0
Emotional representations	301	19.53	2.42	14.0	29.0
Causal representation					
Psychological attributions	301	15.51	3.05	8.0	28.0
Risk factors	301	20.74	2.02	15.0	27.0
Immunity	301	8.65	1.35	5.0	14.0
Accident or chance	301	4.60	1.17	2.0	9.0

IPQ-R, Illness Perception Questionnaire-Revised; SD, standard deviation; \bar{X} , mean.

($\beta=0.17$, $P \leq .05$), and emotional representations ($\beta=0.65$, $P \leq .05$) from *Illness Representation* dimension and immunity ($\beta=0.14$, $P \leq .05$) from *Causal Representation* dimension. On the other hand, consequences from *Illness Representation* dimension ($\beta=-0.10$, $P \leq .05$) and psychological attributions from *Causal Representation* dimension ($\beta=-0.16$, $P \leq .05$) were observed to significantly and negatively predict the QoL of individuals and explained 57% of the variance ($R^2 = 0.05$, $F(2-300)=5.54$, $P < .05$). Treatment control, illness coherence, and emotional representations from *Illness Representation* and immunity from *Causal Representation* had positive effects in predicting the QoL. Individuals who had higher scores from these subscales were observed to have higher QoL. On the other hand, consequences subscale from *Illness Representation* and psychological attributions subscale from causes of illness were found to be factors decreasing the QoL (Table 6).

Discussion

Determining perceptions related to the concepts of health and illness facilitates the planning of nursing interventions, which are of great importance in protecting and maintaining the health of the individual, family, and society, preventing diseases, ensuring adherence to care and treatment, and improving QoL.^{7,16} In the present study conducted for the abovementioned purposes, the mean score of the patients' *Identity* dimension was found to be 6.65 ± 1.93 . *Identity* dimension scores reported by Öksüz¹⁷ and Tekin¹⁸ were observed to be similar to the present study (5.14 ± 2.61 and 7.1 ± 5.0 , respectively). This finding of the study has shown that individuals suffering from AMI had experienced these

Table 4. MIDAS Subdimension Mean Scores and Overall Mean Score (n=301)

	n	\bar{X}	SD	Minimum	Maximum
MIDAS	301	49.43	11.40	20.0	100.0
Physical activity	301	48.52	10.91	20.0	100.0
Insecurity	301	50.89	12.88	20.0	100.0
Emotional reaction	301	45.17	12.62	20.0	100.0
Dependency	301	45.23	15.44	20.0	100.0
Nutrition	301	55.19	22.65	20.0	100.0
Concerns about drug	301	31.50	16.52	20.0	100.0
Drug side effects	301	22.99	8.31	20.0	100.0

MIDAS, Myocardial Infarction Dimensional Assessment Scale; SD, standard deviation; \bar{X} , mean.

symptoms from the onset of the disease and that they thought the symptoms were related to their disease, compatible with the national research findings. On the other hand, Qin et al¹⁹ and Alsén and Eriksson²⁰ reported the mean score for the *Identity* dimension as 3.99 ± 2.30 and 4.7 ± 2.6 , respectively. Thus, the present study was different from international studies in terms of the mean scores for *Identity* dimension. However, we believe that this difference is due to cultural differences and the study population's response to the disease. Tekin,¹⁸ Karadağ,²¹ Bağcıvan et al²² and Karabulut and Gün²³ conducted studies with a similar sample group and the mean scores obtained by the patients from the *Illness Representation* items were observed to be similar. In the study by Alsén and Eriksson²⁰ involving patients suffering from AMI, the lowest score (3.4 ± 2.7) was observed to be from the illness coherence component. Similar to the findings of the present study, Gündüz and Karabulutlu²⁴ reported that the mean scores patients obtained from illness coherence was low. The low mean scores for illness coherence indicate that the patients do not have sufficient information about their illness. This finding is compatible with the results reported by Karabulut and Gün,²³ Ciddi,⁹ and Lukoševičiūtė and Šmigelskas.²⁵ This finding showed that patients thought that their illness was mostly caused by risk factors, such as smoking, alcohol, and environmental pollution, and that accident or chance had a lower effect on the problems they were suffering from.

Considering that a total score of "0" indicates the best health status and "100" indicates the worst health status on the MIDAS scale, the mean score obtained from the MIDAS scale (49.43 ± 11.40) in the present study has shown that patients have moderate QoL. Yılmaz et al²⁶ and Akçay and Dedeli²⁷ reported overall mean scale scores to be 40.03 and 37.4, respectively. The findings of the present study are parallel to these studies in this regard. A total score was reported to be 32.12 by Thompson et al.¹⁵ In a study by Wang et al,²⁸ in which the mean age of the patients was 55.4 years, the percentage of smokers was 53.9%, educational level was high, and the mean MIDAS total score was reported to be low, representing better health status. Although this finding is similar to the results of the previous national studies, it is different from the results of other international studies. Studies conducted at the national level show that patients with AMI have moderate QoL whereas the results of international studies show higher QoL in this patient population. This finding is thought to be due to the socio-demographic characteristics (e.g., age, gender, and marital

status), smoking status, and politico-economic differences of the patients included in the national study. Furthermore, the highest and lowest subdimension mean scores were observed to be obtained from nutrition (55.19 ± 22.65) and drug side effects (22.99 ± 8.31) subscales, respectively. Unlike the present study, Akçay and Dedeli²⁷ reported that the highest mean score was obtained from the physical activity subdimension, whereas Yılmaz et al²⁶ reported that the highest mean score was from the dependence subscale. In the study by Wang et al,²⁸ the highest score was observed to be obtained from the physical activity subscale and the lowest score from the drug side effects subscale. On the other hand, there are also studies reporting the lowest mean score in the drug side effects²⁶ and dependency²⁷ subscales similar to the present study. The reason why the results of the present study are different from the literature is thought to be due to the individual characteristics of this research sample and the cultural differences in the region where the study was conducted. In the present study, the highest subscales mean scores were obtained from the nutrition subscale, indicating that patients' diet-related QoL after AMI was worse than other subscales. On the other hand, the fact that the lowest score was observed in the drug side effects subscale indicated that the side effects of the medicines/drugs used by patients after AMI negatively affected their QoL.

As summarized in Table 5, evaluation of the relationship between the IPQ-R and the QoL scales showed that among the items under *Illness Representation* dimension of IPQ-R, personal control subscale mean scores had a positive, weak, and significant relationship with QoL mean scores ($r=0.242$, $P < .05$) and the following QoL subscales: physical activity ($r=0.182$), insecurity ($r=0.153$), emotional reaction ($r=0.186$), dependency ($r=0.272$), nutrition ($r=0.264$), concerns about drug ($r=0.239$), and drug side effects ($r=0.100$) ($P < .05$). This finding was similar to the findings in the literature that personal control investigated the individual's perception of internal control over the duration, course, and treatment of the illness, and increased the effectiveness of QoL in both mental and physical domains.^{7,29} This finding suggested that all subdimensions of the QoL were improved positively in patients with a high level of personal control. Patients diagnosed with AMI may experience depression, anxiety, stress due to their illness, and their QoL is affected by many factors, including information about the disease, keeping the disease under control, and requiring social support.³⁰

Table 5. Analysis of the Relationship of IPQ-R with MIDAS Subscales Mean Scores and Overall Mean Score

IPQ-R	Identity	Timeline (Acute/ Chronic)		Personal Control	Treatment Control	Illness Coherence	Timeline (Cyclical)	Emotional Representations	Psychological Attributions	Risk Factors	Immunity	Accident or Chance
		Consequences										
MIDAS	r: 0.069 P: .230	r: 0.014 P: .811	r: 0.115* P: .046	r: 0.242** P: .000	r: 0.363** P: .000	r: 0.303** P: .000	r: -0.225** P: 0.000	r: 0.660** P: .000	r: 0.056 P: .332	r: -0.072 P: .212	r: 0.113 P: .050	r: -0.113 P: .050
Physical activity	r: 0.098 P: .089	r: -0.024 P: .682	r: -0.043 P: .456	r: 0.182** P: .002	r: 0.258** P: .000	r: 0.265** P: .000	r: -0.155** P: .007	r: 0.542** P: .000	r: 0.073 P: .208	r: -0.050 P: .384	r: 0.076 P: .191	r: -0.07 P: .092
Insecurity	r: 0.069 P: .229	r: -0.071 P: .219	r: 0.080 P: .167	r: 0.153** P: .008	r: 0.279** P: .000	r: 0.211** P: .000	r: -0.167** P: .004	r: 0.622** P: .000	r: -0.033 P: .568	r: -0.034 P: .553	r: 0.081 P: .161	r: -0.108 P: .060
Emotional reaction	r: 0.064 P: .266	r: -0.086 P: .135	r: -0.050 P: 0.389	r: 0.186** P: .001	r: 0.260** P: .000	r: 0.279** P: .000	r: -0.166** P: .004	r: 0.533** P: .000	r: 0.139* P: .016	r: -0.032 P: .585	r: 0.165** P: .004	r: -0.147* P: .011
Dependency	r: -0.010 P: .865	r: -0.186** P: .001	r: 0.205** P: .000	r: 0.272** P: .000	r: 0.337** P: .000	r: 0.146* P: .011	r: -0.175** P: .002	r: 0.534** P: .000	r: -0.006 P: .916	r: -0.015 P: .798	r: 0.105 P: .069	r: -0.039 P: .501
Nutrition	r: 0.036 P: .530	r: -0.163** P: .005	r: -0.003 P: .962	r: 0.264** P: .000	r: 0.396** P: .000	r: 0.315** P: .000	r: -0.255** P: .000	r: 0.552** P: .000	r: 0.043 P: .459	r: -0.115* P: .046	r: 0.111 P: .054	r: -0.072 P: .214
Concerns about drug	r: -0.079 P: .174	r: -0.141* P: .014	r: -0.016 P: .777	r: 0.239** P: .000	r: 0.358** P: .000	r: 0.217** P: .000	r: -0.260** P: .000	r: 0.412** P: .000	r: -0.009 P: .883	r: -0.098 P: .090	r: -0.042 P: .463	r: -0.083 P: .151
Drug side effects	r: 0.152* P: .008	r: -0.196** P: .001	r: -0.280** P: .000	r: 0.100 P: .085	r: 0.181** P: .002	r: 0.331** P: .000	r: -0.149** P: .010	r: 0.164** P: .004	r: 0.363** P: .000	r: -0.196** P: .001	r: 0.232** P: .000	r: -0.025 P: .661

* $P \leq .05$, ** $P \leq .01$.

IPQ-R, Illness Perception Questionnaire-Revised, MIDAS, Myocardial Infarction Dimensional Assessment Scale; r, Pearson's correlation.

Table 6. Regression Analysis Regarding Whether IPQ-R Subdimensions Predicted QoL

Dependent Variables	Independent Variables	B	Pg.	β	t	P
MIDAS	Constant	-36.891	12.661		-2.914	.004*
	Identity	-0.055	0.336	-0.009	-0.165	.869
	Timeline acute/chronic ^a	0.635	0.396	0.084	1.604	.110
	Consequences ^a	-0.441	0.211	-0.102	-2.091	.037**
	Personal control ^a	-0.314	0.365	-0.050	-0.861	.390
	Treatment control ^a	1.503	0.354	0.293	4.249	.000*
	Illness coherence ^a	0.629	0.186	0.170	3.374	.001*
	Timeline cyclical ^a	-0.058	0.316	-0.008	-0.183	.855
	Emotional representations ^a	3.046	0.206	0.647	14.781	.000*
	Psychological attributions ^b	-0.578	0.194	-0.155	-2.985	.003*
	Risk factors ^b	0.170	0.287	0.030	0.595	.553
	Immunity ^b	1.178	0.394	0.140	2.989	.003*
	Accident or chance ^b	-0.075	0.485	-0.008	-0.155	.877

$R=0.754$, $R^2=0.568$, $F=31.573^*$

^aIllness Representation, ^bCausal Representation, Regression analysis, * $P \leq .01$; ** $P \leq .05$.
MIDAS, Myocardial Infarction Dimensional Assessment Scale.

The multiple regression analysis results of the present study have shown that QoL increases if patients' belief about the effectiveness of the treatment (treatment control) increases, their level of understanding or comprehension of illness increases, they try to understand how they feel about their illness, and they do not associate the causes of illness with immunity. On the other hand, factors reducing the QoL have been observed to be as follows: (i) questioning the beliefs regarding the disease severity and the possible effects of the disease on their physical, social, and psychological functioning (consequences) and (ii) attributing possible causes of illness to psychological problems (psychological attributions). These findings of the present study support the literature data.^{17,22,29}

Limitations

Since the study was conducted in a single institution, the sample size is small and the results in terms of population can only be generalized to this universe. The other limitation of this study is that no one asked whether training or counseling was given after discharge and the knowledge level of the patients in the sample related to the disease was not measured. In addition, since the study was conducted on patients who came to the outpatient clinic of a university hospital in the region where the study was conducted, it should be considered that the knowledge level and general education status of the patients or their interest in the study may be higher compared to the patients who applied to the state hospital and other health institutions in the region.

Conclusion

We believe that the results obtained from this study will be a guide in evaluating the disease-specific QoL of patients with AMI by determining their illness perceptions, in the planning of nurse care, and research in nursing. It is also about the perception of illness, coping with illness, and evaluating the effects of care/treatment.^{7,9} Effective participation of patients with a good level

perception of illness in care/treatment can contribute to increasing the communication between the patient and the healthcare team members (physicians, nurses, etc.), as well as increasing the care/treatment results. The education and awareness levels of the patients about their diseases were low; training and counseling about AMI risk factors should be provided to individuals suffering from this disease and their families; nurses should conduct studies on factors affecting the QoL of patients, including physical activity, insecurity, emotional reaction, dependence, nutrition, concerns about drug, and drug side effects; factors affecting the QoL, such as patients' illness perception, in planning nursing interventions. In order to determine the relationship and quality of life, studies involving larger sample groups should be conducted.

Ethics Committee Approval: Ethics committee approval was received for this study from the Ethics Committee of Republic of Turkey Ministry of Health Van Training and Research Hospital (Approval Date: May 2, 2019; Approval Number: 2019/09).

Informed Consent: Written informed consent was obtained from all participants who participated in this study.

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