Cardiovascular nursing research / Kardiyovasküler hemşirelik araştırması

Adaptation of Myocardial Infarction Dimensional Assessment Scale to Turkish: a validity and reliability study

Miyokart Enfarktüsü Boyutsal Değerlendirme Ölçeği'nin Türkçeye uyarlanması: Geçerlik ve güvenirlik çalışması

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Objectives: It is well known that myocardial infarction (MI) adversely affects health-related quality of life. This study was designed to investigate the validity and reliability of the Turkish adaptation of the Myocardial Infarction Dimensional Assessment Scale (MIDAS) in patients admitted to hospital following their first MI.

Study design: The study included 81 patients (13 women, 68 men; age ≤70 years) who were treated for their first MI, with recovery from the acute period without chest pain. Data were collected using a questionnaire on sociodemographic features and the Turkish version of the MIDAS. Validity studies included language and content validity. For reliability analyses, Cronbach's alpha coefficients were calculated and, for test-retest reliability, the scale was re-administered after a two-week interval.

Results: The participants fell within the following age brackets: 30-44 years (9.9%), 45-54 years (40.7%), 55-64 years (27.2%), and 65-70 years (22.2%). Content validity index of the scale was 0.95. The overall Cronbach's alpha coefficient was calculated as 0.83, ranging from 0.31 to 0.91 for seven subscales. Item-total correlations were between 0.31 and 0.91. The overall test-retest reliability was 0.45 (p=0.00), ranging from 0.27 to 0.74 for seven subscales.

Conclusion: This has been the third study evaluating the MIDAS in MI patients. Our results demonstrate that the Turkish version of the MIDAS can be used as a valid and reliable tool in the evaluation of disease-specific quality of life of Turkish patients sustaining their first MI.

Key words: Activities of daily living; health status indicators; myocardial infarction/psychology; quality of life/psychology; questionnaires; validation studies as topic.

Amaç: Miyokart enfarktüsünün (ME) sağlığa bağlı yaşam kalitesinin bozulmasında etkili olduğu bilinmektedir. Bu çalışmada, Türkçeye uyarladığımız Miyokart Enfarktüsü Boyutsal Değerlendirme Ölçeği'nin (TR-MIDAS) ülkemizde ilk kez ME geçiren hastalar için geçerliği ve güvenirliği araştırıldı.

Çalışma planı: Araştırma ilk kez ME geçiren, akut dönemi geçirmiş, en fazla 70 yaşında olan, göğüs ağrısı şikayeti olmayan 81 hasta (13 kadın, 68 erkek) ile gerçekleştirildi. Veriler, sosyo-demografik veri formu ve TR-MIDAS kullanılarak toplandı. Ölçeğin geçerliği dil ve kapsam geçerliği ölçümleri ile yapıldı. Güvenirlik analizi için Cronbach alfa değerleri hesaplandı ve test-tekrar test güvenirlik ölçümleri için ölçek hastalara iki hafta sonra tekrar uygulandı. Bul gu lar: Katılımcıların %9.9'u 30-44, %40.7'si 45-54, %27.2'si 55-64, %22.2'si 65-70 yaş grubundaydı.

Ölçeğin kapsam geçerliği indeksi 0.95 bulundu. Cronbach alfa değeri toplam ölçek için 0.83 bulunurken, yedi altboyut için bu değerler 0.38-0.78 arasında değişmekteydi. Toplam madde korelasyonlarının 0.31-0.91 arasında değiştiği görüldü. Toplam test-tekrar test güvenirlik değeri 0.45 (p=0.00), altboyutlarının test-tekrar test değerleri 0.27-0.74 arasında bulundu.

Sonuç: Miyokart Enfarktüsü Boyutsal Değerlendirme Ölçeği ile bugüne kadar yapılmış üçüncü çalışma olma özelliği taşıyan çalışmamızın verileri, TR-MIDAS'ın ülkemizde ilk kez ME geçiren hastalarda hastalığa özgül yaşam kalitesini ölçmede geçerli ve güvenilir bir araç olarak kullanılabileceğini göstermektedir.

Anahtar sözcükler: Günlük yaşam etkinlikleri; sağlık durumu göstergeleri; miyokart enfarktüsü/psikoloji; yaşam kalitesi/psikoloji; anket; geçerlik çalışması.

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Cardiovascular diseases (CVD) are the leading cause of death among all races and both genders. Coronary artery diseases (CAD), which present as decreased blood flow and the development of intimal fibrous plaques is the most common cause of CVD.[1,2] Approximately two million individuals are reported to be suffering from CAD according to the 10-year (1990-2000) data of the Turkish Adult Risk Factor (TARF) sponsored by the Turkish Society of Cardiology (TSC). Coronary morbidity and mortality are thought to increase by 5% every year.[3] Reports from the TARF study demonstrate that apart from sudden death, 80 thousand people in Turkey suffer from myocardial infarction (MI) every year.[4] On the other hand, the American Heart Association (AHA) reports a 1.9-5.2% incidence of MI among the America people.[5]

Physical, social, psychological and professional limitations are known to affect a person's quality of life following MI.[6,7] As a result, the treatment strategy in patients with MI should not only involve prolongation of life but also alleviation of symptoms and improvement of functions. Evaluation of physical results has been suggested to be inadequate in the care and treatment of individuals. It is also important to evaluate well being and health-related quality of life.[8]

Existing quality of life measurements tools in patients with MI are have been reported to be inadequate due to continuous developments in the treatment and interventions concerning MI. As a result, there has been a recent need to develop disease-specific and more sensitive instruments for use in the evaluation of the quality of life of cardiac patients.[9] The Myocardial Infarction Dimensional Assessment Scale (MIDAS) is a disease-specific measurement developed for this purpose.[7]

This study was designed to investigate the validity and reliability of MIDAS in patients admitted in Turkey following their first MI.

PATIENTS AND METHOD

This study was conducted on patients who were undergoing treatment for their first MI between 2007 and 2008 at the Cardiology Institute and Cardiology Department of Cerrahpaşa Faculty of Medicine, of Istanbul University. Patients with a history of acute phase of myocardial infarction (7th – 10th day after diagnosis), ?70 years of age, patients with no complaints of chest pain and no sever morbidity preventing participation in the study, those who could read and write Turkish, and patients who had no serious mental abnormalities were included in the study. All patients who were undergoing treatment at the hospital units during the days scheduled for investigation and who fulfilled all inclusion criteria were included in the study sample. Patients who fulfilled the inclusion criteria were briefed about the study and those who accepted the underlined conditions were enrolled. A study sample including approximately 30-40 patients was reported as being adequate for the test-retest in similar measurement studies.[10,11] Our study sample was made up of 81 patients, about twice the proposed number, in order to obtained better results. Collection of data was terminated when the required number of patients was achieved.

Primarily, permission was obtained from Thompson[7], one of the authors involved in the development of MIDAS which is used in the study, in order to produce a Turkish adaption of the scale. Approval from the Local Ethics Committee and permission from the department where the study was to be performed was then obtained. Patients participating in the study were informed according to the Helsinki declaration and they were enrolled in the study after provision of verbal consent.[12,13]

Data collection instruments. The MIDAS developed by Thompson et al.[7], has been suggested to be a beneficial and highly safe instrument for the measurement disease-specific quality of life and health status, and for the evaluation of the effects of treatment on the functional status and well being of patient with MI. MIDAS has been developed as a short, simple and understandable instrument in order to broadly apply health care systems. In the study conducted by Thompson et al.[7] and Wang et al.[14], MIDAS suggested to have a high internal consistency and constructive validity in MI patients.

The original MIDAS consists of 35 items which measure the health status following MI, under seven subscales. These include: physical activity (12 items), insecurity (9 items), emotional reaction (4 items), dependency (3 items), nutrition (3 items), concern over drugs (2 items), and side effects of drugs (2 items). The original measurement starts with the question, "How often do you experience the following conditions in the last week after experiencing MI?" The patient is advised to respond appropriately to the questions by "never", "seldom", "sometimes", "frequently", and "always". Scores from 0 to 100 were assigned for every question, with "0" indicating the best health status and 100 the poorest health status. The scale is completed by the patient or by face-to-face for approximately 10-15 minutes.[7]

The Turkish version of MIDAS (TR-MIDAS) was

performed twice by the investigator on those who were admitted in the cardiology unit, through face-to-face (test) and 15 minutes later through a telephone conversation method (retest). In the test-retest method the ability to provide similar scores to various time periods of the instrument's repeatable scale was assessed. Similar results were anticipated for measurements performed at two separate times. The Likert-type scale was used in this study. It is recommended to use the test-retest method within a two-week interval to the same group, for measurements of this type.[10-12,15]

With the test-retest, patients were given the TR-MIDAS scale during discharge from the hospital. The date stipulated for re-completion of the forms 15 days later was written on the forms. Answers indicated on the forms were obtained verbally from the patients themselves.

For a scale to be of standard and have the capability of producing suitable knowledge, it should be reliable and valid.[15] In this study, a two-staged process was used to test the validity and reliability of adapting MIDAS in Turkish and to the Turkish culture. The first stage involved measurement of the validity of language and content of MIDAS, while the second involved internal consistency (Cronbach alfa) and reliability of the test-retest.

Stages of validity and reliability of MIDAS. The first stage involved provision of language equivalence of the Turkish translation of MIDAS and the original English version, and translation from English to Turkish by an investigator and two qualified translators who were independent of each other, for adaptation to the Turkish society. After selection of appropriate statements for items of the scale, it was back translated from Turkish to English by two qualified native Turkish translators who were blinded to the original English version of the scale and who were well versed in both languages and cultures. Both translations were then compared with the original English version and finalized.[16-18]

The TR-MIDAS was then presented for specialist evaluation with respect to content validity.[12] Consultation of thus obtained from a total of 12 specialist had knowledge about the method and technique of preparing scales, including five cardiologists, five lecturers in nursing, a psychologist and a liaison psychiatric nurse.[10] The content validity index (CVI) was used to accurately evaluate the opinions of specialists. The consistency of every item of the scale was evaluated by the specialists through allocation point scales from 1-4 (1:not appropriate; 2:slightly appropriate/requires revision; 3:appropriate, but requires few changes; 4:very appropriate). About 80% of the items were required to have scores of at least 3 or 4 from the evaluation.[10,19] Items with scores less than 3 or 4 were re-evaluated and the necessary changes made. Finally, opinions and recommendations of the specialists were evaluated and a pilot project was implemented with 10 patients who satisfied the inclusion criteria, in order to test the validity of language and content. The language and content validity was then approved.

During the second stage involving reliability analyses, the test-retest and internal consistency of the scale were evaluated. The quality of providing similar values of scores was evaluated 15 days apart using the test-retest method for the repeatability scale during different periods of the scale. A sample size of approximately 30-40 individuals was reported to be adequate for test-retest.[10,11] A sample size of twice the recommended number (n=81) was targeted in order to increased the reliability of the study.

The first visits were conducted after patients left the coronary intensive care unit and between day 7 and day 10 before being discharged. The second visit was conducted 15 days later. Correlation of the scores obtained from the two applications was performed using the Pearson's correlation technique in order to test the validity of the test-retest method.

Internal consistency (Cronbach alfa coefficient) and item-total correlation analyses were performed for TR-MIDAS. The higher the Cronbach alfa coefficient (>0.06), the more likely the items in the scale were considered to be inter-consistent for that scale.[10,12] Although the item-total correlation coefficient was not of a certain standard and although values ≤0.05 were considered to be significant, correlations are expected not to be negative and should be above 0.20, so that the ability of summing up the scales is not damaged on most occasions.[10]

Nonparametric tests were preferred for data analysis, since the Likert-type scale was used. The CVI was used for content validity. The reliability and validity analyses were performed with the help of the internal consistency analysis (Cronbach alfa analysis), item-total correlation and the test-retest reliability scores. Descriptive characteristics of patient data were expressed as numbers and percentages. Data were analyzed using the SPSS version 11.5 statistical software program.

RESULTS

Sociodemographic data of those who participated in the study are shown in Table 1. Of the participants

16.6% were women, while 84% were men. 40.7% were in the 45-54 age group, 27.2% in the 55-64 age-group, whereas 22.2% were in the 65-70 age group. On the other hand, 51.9% of the patients were secondary school graduates. Investigation of the drugs used during the study period demonstrated that most of the patients used aspirin (98.8%), plavix (79%), and statins (88.9%). A portion used angiotensin converting enzyme inhibitors (ACE-I), while very few patients used diuretics (1.2%) and oral antidiabetics (2.5%) (Table 1).

Content validity. The CVI was used for content validity and the result was found to be 0.95. MIDAS was adapted to the Turkish culture according to recommendation by specialists and the statements for items 20, 29, 30 and 34 were restructured for easy understanding by MI patients in Turkey, also through similar recommendations.

- The items 20 statements was changed from the original scale "Have you had any worries about death?" to "Have you ever experienced the fear of death?", since it was more appropriate for MI patients to be "afraid" of dying instead of being "worried" about "death".

- "Have you ever been worried about your diet?" from item 29 of the original scale was changed to "Have you ever paid attention to your feeding?"

- "Have you ever been worried about your cholesterol?" from item 30 of the original scale was changed to "Have you ever paid attention to your cholesterol?"

- "Did you feel cold?" from item 34 of the original scale was changed to "Have you ever felt colder after taking your medication?", since it involved the drug instead of the temperature of the weather.

Internal consistency and test-retest reliability. The reliability of TR-MIDAS, Cronbach alfa internal consistency coefficient, item-total correlation and the test-retest reliability analysis were measured. The Cronbach alfa value was found to be 0.83 for the total scale and ranging from 0.38 to 0.78 for the subscales (Table 2).

Table 1. Sociodemographic characteristics of participants

	Number	Percentage
Sex		
Female	13	16.1
Male	68	84.0
Age group		
30-44	8	9.9
45-54	33	40.7
55-64	22	27.2
65-70	18	22.2
Profession		
Employee	5	6.2
Civil servant	16	19.8
Retired	15	18.5
Housewife	12	14.8
Freelance	32	39.5
Unemployed	1	1.2
Educational status		
Primary school	24	29.6
Secondary school	42	51.9
Higher education	15	18.5
Previous medication*		
Aspirin	4	4.9
Plavix	-	
ACE-I	1	1.2
Beta-blockers	-	
Diuretics	-	
Statin	2	2.5
Oral antidiabetics	2	2.5
Current medication		
Aspirin	80	98.8
Plavix	64	79.0
ACE-I	30	37.0
Beta-blockers	64	79.0
Diuretics	1	1.2
Statin	72	88.9
Oral antidiabetics	2	2.5

*Drugs treatment of study participants was investigated during the test-retest performed 15 later and no changes were observed in the treatment. As a result, drug treatment for the second visit has not been indicated in the table.

Table 2. Cronbach alfa coefficients of the Myocardial Infarction Dimensional Evaluation Scale (MIDAS) of three different studies

	Original MIDAS (n=348) (2002)[7]	Chinese-Mandarin MIDAS (n=180) (2006)[14]	Turkish-MIDAS (n=81)
1.Physical activity	0.95	0.94	0.78
2. Insecurity	0.93	0.90	0.78
3.Emotional reaction	0.88	0.86	0.66
4.Dependency	0.74	0.74	0.38
5.Nutrition	0.76	0.79	0.76
6.Concerned about drug	0.85	0.84	0.75
7.Drug side effects	0.75	0.71	0.64
Total score	-	0.93	0.83

Table 3. The Turkish version of the Myocardial Infarction Dimensional Assessment Scale's item-total and test-retest correlations, and the mean and median values of first and second visits

Items	Item-total correlation	Test-retest correlation	P	First visit Mean±SD (Median)	Second visit Mean±SD (Median)
Physical activity		**0.74**	**0.000**		
1. Did you think twice before starting physical activity (e.g., home chores or shopping)?	0.50	0.60	0.000	1.2±1.0 (1.0)	1.4±1.0 (1.0)
2. Have you experienced chest pain or tightness in the chest?	0.65	0.74	0.000	1.0±0.8 (1.0)	1.0±0.8 (1.0)
3. Have you experienced chest pain or tightness in the chest which affects your daily life?	0.73	0.75	0.000	0.9±0.7 (1.0)	0.9±0.8 (1.0)
4. Have you had any feeling of malaise?	0.63	0.71	0.000	1.7±0.9 (2.0)	1.8±0.8 (2.0)
5. Have you had any feeling of lack of strength?	0.62	0.79	0.000	1.8±1.1 (2.0)	1.8±1.0 (2.0)
6. Have you had any feeling of breathlessness?	0.50	0.48	0.000	0.6±0.8 (0.0)	0.6±0.7 (1.0)
7. Have you experienced chest pain or tightness in the chest during physical exercise?	0.64	0.83	0.000	1.1±0.9 (1.0)	1.2±0.8 (1.0)
8. Have you felt bad due to limitations?	0.31	0.44	0.000	1.1±1.0 (1.0)	1.2±1.0 (1.0)
9. Do you have the feeling of a need for more rest?	0.56	0.35	0.001	1.6±0.8 (2.0)	1.6±0.9 (2.0)
10. Do you feel there is a decrease/change in your social life?	0.62	0.36	0.001	1.2±0.8 (1.0)	1.6±0.8 (2.0)
11. Have you felt incapable of performing your house chores?	0.48	0.50	0.000	1.5±0.9 (2.0)	1.5±0.9 (2.0)
12. Has the weather changes caused any pain in your chest?	0.70	0.56	0.000	1.0±1.0 (1.0)	1.1±0.8 (1.0)
Insecurity		**0.41**	**0.000**		
13. Have had the fear of experiencing a second heart attack?	0.58	0.42	0.000	1.7±1.1 (2.0)	2.0±1.1 (2.0)
14. Do you feel like haven distanced yourself from everything?	0.54	0.43	0.000	1.0±1.0 (1.0)	1.1±1.1 (1.0)
15. Have you ever felt lonely?	0.43	0.38	0.000	0.5±0.8 (0.0)	0.6±0.9 (0.0)
16. Have you ever been worried about traveling?	0.61	0.59	0.000	1.0±0.9 (1.0)	1.1±0.8 (1.0)
17. Have you ever felt desperate?	0.59	0.52	0.000	0.5±1.0 (0.0)	0.5±1.0 (0.0)
18. Have you felt insecure?	0.40	0.40	0.000	0.3±0.7 (0.0)	0.4±1.0 (0.0)
19. Has there been any change in your self confidence?	0.44	0.23	0.036	0.3±0.7 (0.0)	0.4±0.9 (0.0)
20. Have you ever experienced the fear of death?	0.73	0.60	0.000	1.2±1.0 (1.0)	1.3±1.1 (1.0)
21. Have you had any worries about your future?	0.60	0.42	0.000	1.6±1.0 (2.0)	1.7±0.9 (2.0)
Emotional reaction		**0.78**	**0.000**		
22. Have you ever felt quick tempered?	0.76	0.61	0.000	1.6±1.1 (1.0)	1.5±1.0 (2.0)
23. Have you ever felt unhappy or depressed?	0.64	0.59	0.000	1.3±0.9 (1.0)	1.3±0.9 (1.0)
24. Have you ever felt bad spirited?	0.61	0.36	0.001	0.5±0.8 (0.0)	0.5±0.7 (0.0)
25. Have you felt stressful/uneasy?	0.55	0.40	0.000	1.4±0.9 (1.0)	1.4±1.0 (1.0)
Dependency		**0.52**	**0.000**		
26. Have you ever felt that your relatives or friends are very protective?	0.64	0.34	0.002	1.7±1.0 (2.0)	2.0±1.0 (2.0)
27. Have you ever felt that you have lost your freedom/independence?	0.58	0.60	0.000	1.1±1.0 (1.0)	1.0±1.0 (1.0)
28. Have you ever felt obliged to trust others?	0.47	0.34	0.002	0.4±0.8 (0.0)	0.5±0.8 (0.0)
Nutrition		**0.29**	**0.010**		
29. Have you ever paid attention to your feeding?	0.87	0.38	0.000	2.0±1.1 (2.0)	2.6±1.1 (3.0)
30. Have you ever paid attention to your cholesterol?	0.87	0.23	0.037	1.7±1.1 (2.0)	2.2±1.1 (2.0)
31. Have you ever been worried about your weight?	0.65	0.28	0.010	0.8±0.9 (1.0)	1.1±1.1 (1.0)
Concern about medication		0.44	0.000		
32. Have you been worried about using drugs?	0.81	0.50	0.000	0.5±0.7 (0.0)	0.5±0.7 (0.0)
33. Have you been worried about the side effects of the drugs you use?	0.90	0.39	0.000	0.6±0.8 (0.0)	0.8±0.8 (1.0)
Side effects of drugs		**0.27**	**0.014**		
34. Have you ever felt colder after taking your medication?	0.68	0.45	0.000	0.3±0.5 (0.0)	0.4±0.7 (0.0)
35. Have you had side effect (e.g., cold hands or feet, visiting the toilet at night, and other similar complaints) since you started using your medication?	0.91	0.06	0.609	0.8±0.7 (1.0)	1.0±0.9 (1.0)
Total score		**0.45**	**0.000**		

The TR-MIDAS item-total correlations were seen to range from 0.31 to 0.91 (Table 3).

The item-total correlations values were within the limits mentioned in literature studies.[17]

The Pearson correlation coefficient (r) and the degree of intervariable relationship were determined for

test-retest reliability analysis. The overall test-retest score of TR-MIDAS was found to be 0.45 (p=0.00), while the test-retest correlation subscales ranged from 0.27 to 0.74 (Table 3). The mean, median and standard deviation values of the first and second visits for TR-MIDAS are shown in Table 3.

DISCUSSION

Although the widely used quality of life measurements are less reliable than conventional clinical evaluations or physiologic measurements, they are beneficial in the predetermination of clinical changes especially in heart diseases, both as general and as disease-specific instruments for quality of life measurement.[20]

In a study evaluating the quality of life of patients with coronary artery disease using general quality of life scales, evaluation using general quality of life scales for these assessments was recommended.[21] However, Smith et al.[22] reported that general quality of life scales were less sensitive in the evaluation of heart diseases and suggested that development of more sensitive instruments was necessary.

In a study conducted on patients with angina, MI and heart failure using the Chinese Mandarin-MIDAS (CM-MIDAS) versions, strengthening of future studies with results obtained was recommended.[23] Current studies suggest that there is a need for further testing and development of disease-specific quality of life instruments such as MIDAS. Adaptation of MIDAS to Turkish was aimed at presenting the quality of life evaluation instrument to be used in Turkish patients with MI.

MIDAS was adapted to Turkish according to recommendation by specialists by restructuring statements for items 20, 29, 30 and 34 for easy understanding by MI patients in Turkey. Changes were made to the statements for items 16 and 34 by Wang et al.[14] for adaptation of CM-MIDAS to the Chinese culture and for easy understanding by Chinese patients; "Have you ever been worried about traveling?" of item 16 was replaced by "Have you ever been worried about walking for longer distances?" while the statement for item 34 was changed to "Have you ever felt cold after taking your medication?", similar to the changes in our study.

The CVI of every items of the TR-MIDAS was found to be 0.95 in this study. This value was found to be higher than the value indicated in the CM-MIDAS version (0.89).[15] These results demonstrate that there was a consensus among specialists with regards to statements for items of the scale. This consensus demonstrates that the scale as a whole and the particular items reflected the area concerned, provided and also reflected a high content validity.[12,16] This scale was considered to be suitable for evaluation since it was unanimously approved by specialists.

A Cronbach alfa value of $0.40 \leq \alpha < 0.60$ was considered to have a low reliability, $0.60 \leq \alpha < 0.80$ to be reliable, whereas a value of $0.80 \leq \alpha < 1.00$ was considered as very reliable.[24] The 35-item MIDAS was considered to be highly reliable with a Cronbach alfa coefficient of 0.83. All subscales of the Cronbach alfa value were demonstrated to be reliable, apart from the dependency subscale (Table 2). The values of the dependency subscale was found to be borderline with a value of 0.38; however, it was included in the scale since the item-total correlation values were considerably high (0.31-0.91) (Table 3).

The Cronbach alfa values of the study conducted on MI patients using MIDAS are shown in Table 2.[7,14] Similar results of Cronbach alfa values in studies using MIDAS were also obtained in our study, apart from dependency (0.38), emotional reaction (0.66), and side effects of drugs (0.64). This difference in results may be attributed to the low level of reliability of the disease-specific quality of life and health status measurements in MI patients from different cultural backgrounds. However, the small sample size of our study (81 patients) in respect of the other studies may have affected the results. Nevertheless, the results demonstrated that the internal consistency of TR-MIDAS was satisfactory.

Another factor which acts as a predictor of internal consistency of the TR-MIDAS is the item-total correlation coefficient. The overall item-total correlation coefficient of the TR-MIDAS was in the range of 0.31 to 0.91 (Table 3). This result shows that the 35 items of the scale were consistent with each other. The stronger the relationship between the items in the item-total correlation, the more it indicates that the various items of the scale measure the same characteristics.[10,15] Gozum and Aksayan[11] reported that a non-negative item-total correlation and a value of ?0.20 was an acceptable limit.

The TR-MIDAS total score of the test-retest reliability coefficient (0.45) was found to be different from CM-MIDAS score (0.85) (p=0.00). The test-retest correlations of the TR-MIDAS subscales vary between 0.27 and 0.74 (Table 3). On the other hand, the test-retest correlation of the CM-MIDAS was in the range of 0.84-0.94.[14] The test-retest reliability coefficients of the "nutrition" subscale (0.29) and the "drug

side effects" subscale (0.27) were found to be very low when compared to CM-MIDAS (0.74 and 0.85, respectively). The condition was attributed to the differences in responses given by the patients between the first and second visits based on their improved health status. Presence of items whose responses are expected to change demonstrates that MIDAS is not a suitable scale for the evaluation of rest-retest. As a result, the scale was evaluated using the item-total score correlation and Cronbach alfa scores.

In conclusion, quality of life measurements have been suggested to act as an important guideline in planning nursing care and also important in researches on nursing since it provides the integrated approach which is very important in nursing. In light of these studies, quality of life measurements are reported to contribute to researches on the effect of treatment and the disease process on the patient's daily life and evaluation of these effects in terms of the patient, to contribute to the development of appropriate maintenance programs for determining individual requirements by determining the social, emotional and physical needs of the patient.

Recent increases in quality of life studies in Turkey has influenced health policies, leading to an increase in patient-oriented services and the use of other concepts for patient-evaluation in addition to the degree of disease (morbidity) and death (mortality). Our study has demonstrated that the Turkish version can be used in the evaluation of patients with MI in our community, by testing the required quality of life measurements. Limitations caused by some items of the scale and the small number of items of certain subscales can be used in future studies for factor analysis, leading to increase in the reliability of TR-MIDAS.

Reliable and practical evaluation instruments are necessary for the development of training programs within the limit period of time. MIDAS is an instrument, which is necessary for the development of post-MI training programs, provides the necessary simplified information, and which can measure the quality of life of MI patients especially due to its high content validity and reliable internal consistency. Despite limitations of the study, data obtained and previous studies have demonstrate that TR-MIDAS can be used as a valid and reliable instrument for the measurement of disease-specific quality of life in patients sustaining their first MI.

Limitations of the study. Very few studies have been conducted using MIDAS since it is a novel scale. This condition acts as a limitation for the discussion of results. Further studies will enable different dimensions of MIDAS to be clearly understood and discussed.

Studies aimed at comparing MIDAS with other quality of life evaluation scales similar to MIDAS would boost its vitality and validity.

Changes in the general health status of the patients, associated with the anticipated normal progression of the health condition and administered treatment modalities is inevitable due to the acute nature of the disease in our study. These changes in the health status were a limitation for the test-retest performed 15 days apart.

Further studies with larger sample sizes, aimed at eliminating limitations mentioned here would strengthen the validity and reliability of TR-MIDAS.

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