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Validity and Reliability Study of the Turkish Version of the Medication Adherence Rating Scale

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Abstract

Background: In individuals with chronic health conditions, adherence to medication therapy is the most fundamental component of self-management. Therefore, it is essential to assess patients' medication adherence using valid and reliable tools.

Aim: The purpose of this study is to test the validity and reliability of the Turkish version of the Medication Adherence Rating Scale (MARS).

Methods: Data for this descriptive and methodological study were obtained from patients with at least one chronic condition between April and June 2024. The Turkish version of the MARS was developed utilizing the translation-back translation methodology. The content validity ratio was determined through expert evaluations. The construct validity of the scale was assessed using confirmatory factor analysis. The scale's reliability was evaluated using parallel forms reliability (Medication Adherence Report Scale-5), correlations with other scales (namely the Chronic Illness Self-Management Scale – CISMS), Cronbach's alpha for internal consistency, and item-total score correlation coefficients.

Results: Confirmatory factor analysis validated the originally proposed three-factor structure of the scale. All model fit indices were within acceptable limits. A moderate and significant correlation was found with the Medication Adherence Report Scale used for parallel forms reliability ($p<0.001$). The total scale score showed significant correlations with all CISMS subscales ($p<0.05$). The Cronbach's alpha reliability coefficient for the total scale score was 0.70.

Conclusion: The Turkish version of the Medication Adherence Rating Scale, consisting of eight items (reduced from the original ten-item scale), has been shown to be a valid and reliable instrument.

Keywords: Chronic diseases, medication adherence, reliability, Turkish, validity

Introduction

Medication adherence refers to the practice of patients taking their prescription drugs at the specified dosage, intervals, and frequency, while consistently maintaining these habits.[1,2] Medication adherence is a critical issue that must be addressed to ensure the efficacy and safety of treatment. Non-adherence to drug therapy correlates directly with increased healthcare service utilization, elevated healthcare expenses, exacerbation of disease progression, diminished quality of life, and higher morbidity and mortality rates.[3,4] Consequently, adherence to medication is particularly important for individuals with chronic health conditions. Chronic illnesses necessitate prolonged treatment and care and are intrinsically linked to the patient's self-management.

In chronic illnesses, medication adherence is a crucial measure of self-management and adaptation to the condition.[5] Nevertheless, the World Health Organization (WHO) indicates that roughly fifty percent of individuals with chronic conditions fail to comply with their prescribed medical regimens.[6] Medication adherence is influenced by numerous factors, with key determinants including an individual's understanding of their medication, their attitude toward it, and their experiences with adverse effects.[2,4,7,8] Consequently, evaluating patients' medication adherence requires a multidimensional consideration of the patient.

Nurses are healthcare professionals who carefully examine medication adherence and assess patients in a multidimensional manner. They can simultaneously evaluate various elements, including the current impact of prescribed medications, potential side effects, and existing patient needs.[9] Through ongoing communication with patients and their families, nurses play a crucial role in mitigating risks and preventing errors in medication therapy. By fulfilling their educational responsibilities, they can enhance patients' correct medication use and adherence to treatment protocols.[10] Assessing medication adherence is essential for effectively maintaining the support and care provided to patients. Scales that assess medication adherence are commonly utilized for this purpose.

Although various versions of the Morisky Medication Adherence Scale (6-item and 8-item forms) are commonly used in Türkiye to assess medication adherence, these scales primarily focus on the behavioral dimension.[11,12] Although the 8-item version of the Morisky Medication Adherence Scale (MMAS-8) partially includes the attitudinal dimension, it remains inadequate in assessing critical factors influencing medication adherence, such as perceived side effects.[12] Other scales, such as the Medical Adherence Report Scale,[13] the Adherence to Refills

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and Medications Scale,[14] and the Medication Adherence Self-Efficacy Scale,[15] have also been adapted for use in chronic diseases through Turkish validity and reliability studies. However, these scales primarily assess whether patients take medications regularly, obtain timely prescriptions, forget doses, and the frequency of missed doses. In contrast, the Medication Adherence Rating Scale (MARS)[16] offers a more comprehensive framework by simultaneously evaluating three key dimensions: adherence behaviors, medication attitudes, and perceptions of side effects. This multidimensional structure addresses the limitations of existing unidimensional tools. Therefore, the aim of this study was to conduct a Turkish validity and reliability assessment of the *Medication Adherence Rating Scale* among adults with chronic health conditions. Consequently, the adaptation of instruments like MARS becomes particularly valuable for chronic disease management, where a holistic assessment of adherence determinants is clinically essential.

Research Questions

1. Is the Turkish version of the MARS scale at an acceptable level of construct validity for individuals with chronic illnesses?
2. Is the Turkish version of the MARS scale reliable for individuals with chronic illnesses?

Materials and Methods

Study Design, Setting, and Participants

The data for this descriptive and methodological study were gathered from April to June 2024. The research was carried out through in-person interviews with patients admitted to the internal medicine departments of a university hospital. Participants aged 18 and older, without communication impairments, possessing at least one chronic condition, and using a minimum of one medication were included in the study. We applied the following exclusion criteria: severe cognitive impairment, active psychiatric disorders, terminal illness, inability to complete questionnaires independently, and refusal to participate. For scale studies, it is advisable to achieve a sample size that is 5 to 10 times the number of items on the scale.[17,18] However, current publications recommend a minimum sample size of at least 200 to reduce error and bias in confirmatory factor analysis.[19–21] Taking this into consideration, the study was completed with a total of 310 patients who met the inclusion criteria and agreed to participate.

Data Collection Tools

Patient Demographic Information Form: The demographic information form, consisting of 16 questions, includes inquiries about patients' sociodemographic characteristics, such as age, gender, education level, employment status, marital status, socioeconomic status, and place of residence, as well as clinical characteristics, including diagnosis, duration of illness, frequency of health check-ups, medication adherence, exercise regularity, and smoking and alcohol consumption status.

Medication Adherence Rating Scale (MARS): The Medication Adherence Rating Scale was developed by Thompson et al.[16] in 2000 to evaluate patients' medication adherence levels. The original scale comprises 10 items divided into three subscales: medication adherence behavior (items 1–4), attitude toward taking medication (items 5–8), and negative side effects (items 9–10). Following the Turkish validity and reliability study of the scale, two items (items 7 and 8) were eliminated, resulting in a structure comprising a total of 8 items and 3 subscales. The Turkish adaptation of the 8-item scale includes the "medication adherence behavior" subscale (items 1, 2, 3, and 4), the "attitude toward taking medication" subscale (items 5 and 6), and the "negative side effects" subscale (items 7 and 8). All items on the scale are scored as "No=1" and "Yes=0." A higher score on the scale signifies greater medication adherence.[16] In the current study, the Cronbach's alpha reliability coefficient for the scale was found to be 0.70.

Medication Adherence Report Scale (MARS-5): This scale consists of 5 items and was developed by Horne et al.[22] in 1999 to assess medication adherence. The total score ranges from 5 to 25. A high score on the scale indicates strong adherence to drug therapy, whereas a low score indicates weak adherence. Temeloğlu Şen et al.[13] in 2019 conducted a Turkish validity and reliability assessment of the scale, reporting a Cronbach's alpha value of 0.78.

Chronic Illness Self-management Scale (CISMS): The original scale, developed by Ngai et al.[23] in 2020, consists of 23 items and 4 subscales: self-stigma, coping with stigma, health care efficacy, and treatment adherence. The Turkish adaptation of the scale was carried out by Öztürk et al.[24] in 2021, who determined that a 21-item version of the form was suitable for the Turkish context, with Cronbach's alpha coefficients for the subscales ranging from 0.789 to 0.876. The total score ranges from 21 to 105, with higher scores indicating better self-management. In this study, the Cronbach's alpha coefficients for the subscales were as follows: self-stigma, 0.876; coping with stigma, 0.730; health care efficacy, 0.866; and treatment adherence, 0.895.

Cross-Cultural Validation and Content Validity

The Turkish adaptation of the Medication Adherence Rating Scale (MARS) followed COSMIN (Consensus-based Standards for the Selection of Health Measurement Instruments) guidelines for cross-cultural validation,[25,26] comprising four key phases.

Forward Translation: Two bilingual translators, both native Turkish speakers fluent in English, independently translated the original MARS into Turkish. A reconciliation meeting was held to resolve discrepancies, resulting in Translation Version 1 (TV1).

Back-translation: Two other bilingual translators, blinded to the original MARS, back-translated TV1 into English. The research team compared the back-translations with the original MARS and revised TV1 to ensure conceptual equivalence, producing Translation Version 2 (TV2).

Expert Panel Review: Following Davis' methodology for instrument validation,[27] a panel of six PhD-prepared academic nurses with expertise in internal medicine nursing and nursing fundamentals (each with experience in scale validity and reliability) evaluated TV2. The panel assessed linguistic equivalence based on (1) clarity of item wording and (2) colloquial appropriateness within Turkish healthcare contexts. For content validity, each expert independently rated item relevance using Davis' 4-point Likert scale (1=not relevant to 4=highly relevant). The Item-Content Validity Index (I-CVI) was calculated as the proportion of experts rating each item as 3 or 4, and the Scale-Content Validity Index (S-CVI/Ave) was computed as the average of the I-CVIs.

Cognitive Debriefing: Cognitive interviews were conducted with 20 patients from the target population to evaluate the pre-final version (TV2). Participants rated each item's comprehensibility on a 5-point Likert scale (1=extremely unclear to 5=perfectly clear) and provided qualitative feedback on cultural relevance through open-ended questions.

Data Collection

The study employed a simple random sampling method to recruit participants from the internal medicine clinics of a university hospital. Eligible patients meeting the inclusion criteria (e.g., adults with chronic illnesses requiring long-term medication) were sequentially approached for participation. Prior to data collection, researchers consulted with the head nurse of each clinic to identify patients with special conditions, such as contact isolation, communication difficulties, or documented psychiatric diagnoses (e.g., major depressive disorder, bipolar disorder, or psychosis, as recorded in the hospital's patient registry system). These patients were excluded to avoid confounding factors in self-reported data. Following this screening, eligible patients were provided with verbal explanations about the study, and written informed consent was obtained. Participants were then asked to confirm the absence of any psychiatric diagnoses during the interview (if any psychiatric condition was reported, those patients were excluded), though no additional standardized psychiatric assessment tools were administered. Data collection was conducted through face-to-face interviews using the Patient Demographic Information Form, the Medication Adherence Rating Scale, the Medication Adherence Report Scale, and the Chronic Illness Self-Management Scale. The mean duration of data collection for each patient was 10 to 15 minutes.

Data Analysis

The data were analyzed using IBM SPSS Statistics 25.0 (IBM Corporation, Armonk, NY, USA). Frequency distributions were presented for categorical variables, and descriptive statistics were calculated for numerical variables. Validity analyses were conducted for the Turkish version of the Medication Adherence Rating Scale. The Davis technique was used to assess the scale's language and content validity, and the Content Validity Index (CVI) was computed.[27] Construct validity was examined through confirmatory factor analysis (CFA). Model fit was evaluated using χ^2/df (<3.0), the Comparative Fit Index (CFI) and Tucker–Lewis Index (TLI) (>0.90), the

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Table 1. Sociodemographic and clinical characteristics of the patients (n=310)

Characteristics	n	%	Characteristics	n	%
Age (mean±SD) (min-max)	60.31±15.69 (19–91)		Having a chronic disease*		
Sex			Cardiovascular system disease	31	10.0
Female	173	55.8	Nephrological disease	34	11.0
Male	137	44.2	Musculoskeletal system disease	6	1.9
Education			Endocrine system disease	57	18.4
Primary school	184	59.4	Respiratory system disease	35	11.3
Middle school	33	10.6	Neurological disease	27	8.7
High school	59	19.0	Gastroenterological disease	58	18.7
University and above	34	11.0	Oncological disease	62	20.0
Working status			Having comorbid disease		
Actively working	44	14.2	Yes	171	55.2
Not actively working (retired, student, etc.)	266	85.8	No	139	44.8
Marital status			Getting regular health checks		
Married	253	81.6	Yes	230	74.2
Single	57	18.4	No	80	25.8
Income			Using medications regularly		
Income is less than expenses	99	31.9	Yes	283	91.3
Income is equal to expenses	174	56.1	No	27	8.7
Income is more than expenses	37	11.9	Smoking		
Place of residence			Yes	37	11.9
Province	112	36.1	No	273	88.1
District	142	45.8	Alcohol use		
Village-town	56	18.1	Yes	11	3.5
			No	299	96.5

*: Diagnoses that caused patients to receive inpatient treatment in the hospital.

Root Mean Square Error of Approximation (RMSEA) (<0.08), and the Standardized Root Mean Square Residual (SRMR) (<0.10), as recommended in the psychometric literature.[18,28,29] Reliability analyses included parallel-forms reliability, internal consistency, and item-level analysis. Internal consistency was assessed using Cronbach's alpha, with $\alpha \geq 0.70$ considered acceptable.[30] Corrected item–total correlations were deemed adequate if $r \geq 0$.[30,31] Parallel-forms reliability was examined using the intraclass correlation coefficient (ICC, two-way random-effects model), with values interpreted as poor (<0.50), moderate (0.50–0.75), or excellent (>0.75).[32] Convergent validity was assessed using Pearson correlations between MARS and CISMS. Correlation coefficients were interpreted as weak (<0.30), moderate (0.30–0.50), or strong (>0.50), following COSMIN guidelines.[33] The significance level was set at $p<0.05$ for all statistical analyses performed in the study.

Ethical Considerations

The research was initiated after obtaining ethical approval from Ondokuz Mayis University Clinical Research Ethics Committee (Approval Number: OMU KAEK 2023/63, Date: 09.03.2023). Written permission (No: E-15374210-757.01-423436) was obtained from the university hospital where the study was to be conducted in order to collect data. In addition, written and verbal consent was obtained from all participating patients. Usage permissions for the scales employed in this study were obtained from the authors who conducted their validity studies. All stages of the research were carried out in accordance with the rules outlined in the Declaration of Helsinki.

Results

Sociodemographic and Clinical Characteristics of Patients

The mean age of the 310 patients participating in the study was 60.31 years (±15.69). Females constituted 55.8% of the sample, while 81.6% were married. A significant proportion of patients (85.8%) were unemployed, more than half (55.2%) had a comorbid condition, and one-fourth (25.8%) did not attend regular health check-ups (Table 1).

Content Validity Outcomes

The expert panel review confirmed strong content validity for the Turkish Medication Adherence Rating Scale. All items met Davis' threshold of Item-Content Validity Index (I-CVI) ≥0.83 for six raters, and the scale achieved an excellent Scale-Content Validity Index/Average (S-CVI/Ave) of 0.96. Cognitive debriefing with 20 patients from the target population showed that all items received a mean clarity score of ≥4.0 on a 5-point Likert scale, confirming linguistic accessibility and cultural appropriateness for the intended population. Based on qualitative feedback, minor revisions were made to enhance cultural relevance.

Structural Validity Outcomes

The original version of the Medication Adherence Rating Scale comprises 10 items and 3 subscales. Confirmatory factor analysis was conducted using the patients' responses to the scale items.[34] In confirmatory factor analysis, the path coefficients of the items must be statistically significant. Items 7 and 8 were removed from the scale because their path coefficients were not statistically significant. After the removal of these two items, which were originally part of the "attitude toward taking medication" subscale, the path coefficients for all remaining items reached statistical significance ($p<0.001$). The analysis corroborated the three-factor structure of the scale as initially proposed (Fig. 1).

When the model fit indices were examined, the following values were obtained: χ^2/df (24.692 /16)=1.543, Goodness of Fit Index (GFI)=0.981, Adjusted Goodness of Fit Index (AGFI)=0.956, Incremental Fit Index (IFI)=0.980, TLI=0.964, CFI=0.979, RMSEA=0.042, SRMR=0.033. All model fit indices were within acceptable limits (Table 2).

Reliability Analyses of the Scale

Parallel Forms Reliability

Parallel-forms reliability serves as an additional approach for evaluating the reliability of a scale. The Medication Adherence Report Scale (MARS-5) was utilized for

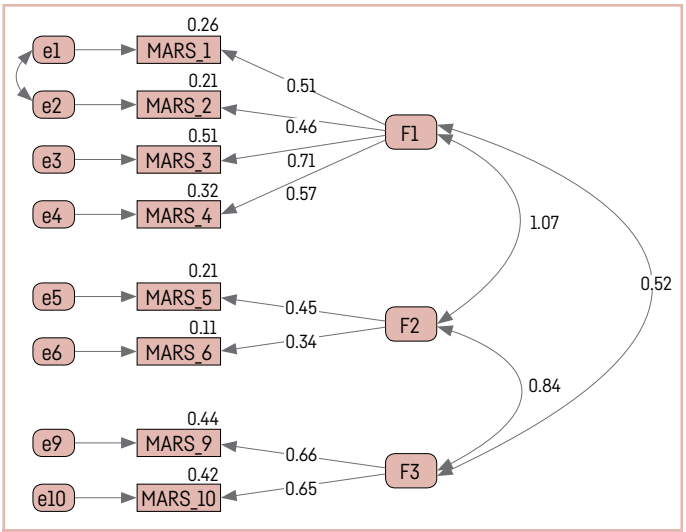

Figure 1. Path diagram with standardized path coefficients.

this purpose. It was determined that all subscales and the total score of the Medication Adherence Rating Scale, which had undergone validity and reliability testing, showed a moderate, significant correlation with the Medication Adherence Report Scale (MARS-5) (p<0.001) (Table 3).

Internal Consistency

The analysis of the relationship between scale items, subscales, and the total score revealed a significant contribution of each item to its respective subscale and to the total score (p<0.001).

The internal consistency of the Medication Adherence Rating Scale and its subscales was evaluated using the Cronbach's alpha reliability coefficient. The reliability coefficient, measured by Cronbach's alpha, for the Turkish version of the Medication Adherence Rating Scale, which was condensed to eight items following factor analysis, was determined to be 0.70 (Table 4).

Discussion

Medication adherence is a crucial aspect of adaptation to disease for individuals with chronic disorders. Non-adherence to drug therapy is significantly associated with negative health outcomes, worsening disease prognosis, and elevated healthcare expenses.[4] Consequently, assessing medication adherence in persons with chronic health conditions is essential. This study examined the validity and reliability of the Medication Adherence Rating Scale.

Following the validation of the scale's language, confirmatory factor analysis was performed. A factor loading is a coefficient that explains the relationship between an item and its corresponding factor, and such loadings should ideally approximate 1

Table 2. Goodness of fit indices of the Medication Adherence Rating Scale

	Goodness of fit indices of the model	Good fit values (acceptable values)
CMIN/DF	1.543	0–3
GFI	0.981	0.95–1.00
IFI	0.980	0.90–1.00
NFI	0.964	0.95–1.00
CFI	0.979	0.97–1.00
RMSEA	0.042	0–0.08
SRMR	0.033	0–0.06

CMIN/DF: Chi-square divided by degrees of freedom, GFI: Goodness of fit index, IFI: Incremental fit index, NFI: Normed fit index, CFI: Comparative fit index, RMSEA: Root mean square error of approximation, SRMR: Standardized root mean square residual.[28,37]

for each item.[35] In the current study, while testing the construct validity of the scale, items 7 and 8 were removed because their factor loadings were less than 0.30[36] and their test statistics were not significant. Following the removal of these items, two items remained on the "attitude toward taking medication" subscale. Despite the comparatively low factor loadings of these items (0.45 and 0.34, respectively), their contribution to the associated subscale was substantial. Furthermore, all goodness-of-fit metrics for the scale were found to be within acceptable parameters. The chi-square minimum divided by degrees of freedom (CMIN/DF) value, obtained by dividing the chi-square by the degrees of freedom, is generally considered indicative of a good fit when below 328 or 5.[37] In the present study, the CMIN/DF was 1.543, indicating a good fit. The GFI, CFI, IFI, and Normed Fit Index (NFI) values typically range from 0 to 1, where values exceeding 0.90 suggest a good fit and those above 0.95 indicate an excellent fit.[28,37] In this study, each of these values exceeded 0.95. The RMSEA evaluates the accuracy of the model's parameter estimations and its compatibility with the data. An RMSEA value of 0.05 or lower signifies a good fit, while values between 0.05 and 0.08 indicate an adequate fit.[38] In this study, the RMSEA value was below 0.05, indicating a good fit. Overall, all fit indices were within the acceptable range for a good model fit.

Cronbach's alpha serves as a reliability coefficient that assesses the internal consistency of a measurement instrument. A value nearing 1 signifies strong reliability, with a minimum threshold of 0.60 considered preferable.[39] In the current study, the Cronbach's alpha coefficient was lowest for the "attitude toward taking medication" subscale (α=0.40). This finding aligns with several studies evaluating the scale's validity. Fialko et al.[40] in 2008 reported a coefficient of 0.44 in their study, Owie et al.[41] in 2018 reported 0.50, and Zemmour et al.[42] in 2016 reported 0.47. The low validity and reliability coefficients of this subscale may be attributed to the lack of translation of attitudes toward medication-taking behaviors into adherence behaviors. Individuals may express a positive attitude toward medication adherence; however, they may still forget to take their medication and subsequently report irregular usage.[40] The similarity in meaning among certain questions in the “attitude toward taking medication” subscale and those in other subscales may have contributed to

Table 3. Correlation of MARS scores with MARS-5 and CISMS

	Factor 1		Factor 2		Factor 3		MARS_total	
	r	p	r	p	r	p	r	p
MARS-5	0.617	<0.001	0.403	<0.001	0.401	<0.001	0.653	**<0.001**
CISMS_self stigma	-0.255	<0.001	-0.050	0.382	-0.195	0.001	-0.256	**<0.001**
CISMS_coping with stigma	0.170	0.003	0.117	0.039	0.111	0.051	0.186	**0.001**
CISMS_health maintenance efficacy	0.249	<0.001	0.112	0.049	0.172	0.002	0.255	**<0.001**
CISMS_medication adherence	0.538	<0.001	0.257	<0.001	0.327	<0.001	0.523	**<0.001**

MARS-5: Medication Adherence Report Scale-5, CISMS: Chronic Illness Self-Management Scale, Factor 1: Medication Adherence Rating Scale_medication adherence behavior, Factor 2: Medication Adherence Rating Scale_ attitude toward taking medication, Factor 3: Medication Adherence Rating Scale_negative side effects.

Table 4. MARS item-total score correlation and Cronbach's alpha reliability coefficients

Items/subscales		Subscales		Total	
	Mean±SD	r	p	r	p
Factor 1	2.75±1.31		**α=0.70**		
Item 1	0.57±0.49	0.784	<0.001	0.674	<0.001
Item 2	0.65±0.47	0.752	<0.001	0.634	<0.001
Item 3	0.71±0.45	0.704	<0.001	0.651	<0.001
Item 4	0.81±0.38	0.643	<0.001	0.580	<0.001
Factor 2	1.37±0.73		**α=0.40**		
Item 5	0.71±0.45	0.726	<0.001	0.557	<0.001
Item 6	0.65±0.51	0.795	<0.001	0.523	<0.001
Factor 3	1.44±0.72		**α=60**		
Item 7	0.84±0.36	0.794	<0.001	0.550	<0.001
Item 8	0.60±0.48	0.894	<0.001	0.575	<0.001
Total	5.75±2.14		**α=0.70**		

MARS: Medication Adherence Rating Scale, α: Cronbach's α, SD: Standard deviation, Factor 1: Medication Adherence Rating Scale_medication adherence behavior, Factor 2: Medication Adherence Rating Scale_ attitude toward taking medication, Factor 3: Medication Adherence Rating Scale_negative side effects.

the low reliability coefficient. For example, the item *I take my medication only when I am sick* from the attitude toward taking medication subscale closely resembles the item *When you feel better, do you sometimes stop taking your medication*? from the medication adherence behavior subscale. The reliability coefficients for the other subscales were found to be acceptable, with medication adherence behavior at α=0.70, negative side effects at α=0.60, and the total score at α=0.70. In the original version of the scale, the Cronbach's alpha value for the total score was reported as 0.75,16 while it was reported as 0.60 in the study by Fialko et al.[40] in 2008, 0.76 in the study by Owie et al.[41] in 2018, and 0.72 in the study by Zemmour et al.[42] in 2016. It can be stated that the reliability coefficient obtained in the current study is similar to those in previous studies and is at an adequate level.

Analyzing the relationship between item scores and total scores is a method for assessing the dependability of a scale. Item-total score correlation reflects the relationship between scores derived from individual items and the overall test score. A strong and positive item-total correlation indicates that the items measure similar attributes. In the literature, an item-total correlation exceeding 0.20 is preferred.[43] The correlation coefficients for each item with its respective subscale ranged from 0.64 to 0.89, while the coefficients with the total score ranged from 0.52 to 0.67. It is evident that each item's contribution to its respective subscale and to the overall scale score is significantly high (p<0.001).

Parallel-forms reliability is a method that evaluates the consistency of results produced by two different but equivalent forms of a measurement tool when assessing the same construct.[44] In this study, the Medication Adherence Report Scale was used to assess parallel-forms reliability.[13,22] A moderate positive association was identified between the two scales. This signifies that the Medication Adherence Rating Scale is a reliable measurement instrument, affirming its consistency. Alongside the Medication Adherence Report Scale, the Morisky Medication Adherence Scale is another commonly used evaluation tool for treatment adherence that has established Turkish validity. In the current study, the MARS, which has undergone validity testing, assesses medication adherence more comprehensively. Indeed, certain sections of the MARS scale include components of the Morisky Medication Adherence Scale16. This indicates that MARS is a brief yet more comprehensive scale.

Limitation

The validity and reliability assessment of the MARS scale was performed on individuals with chronic illnesses, excluding patients with psychiatric diagnoses. The absence of psychiatric patients in this study represents a restriction, considering that the original scale was validated in such populations.

Conclusion

The Turkish version of the Medication Adherence Rating Scale, finalized as an eight-item instrument, has proven to be a valid and reliable tool for assessing medication adherence in individuals with chronic conditions. By providing a psychometrically sound measure, this scale addresses the need for a practical and culturally appropriate assessment tool in the Turkish population. Its brevity makes it particularly suitable for busy clinical settings, allowing healthcare professionals to quickly identify non-adherence behaviors without burdening the patient.

Consequently, the scale is recommended for integration into routine nursing practice and research to monitor adherence, thereby supporting effective self-management strategies and improving health outcomes in chronic disease management.

Ethics Committee Approval: The study was approved by the from Ondokuz Mayis University Clinical Research Ethics Committee (Approval Number: 2023/63, Date: 09.03.2023).

Informed Consent: Written and verbal consent was obtained from all participating patients.

Conflict of Interest: The authors have no conflicts of interest to declare.

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