



Original Research / Orijinal Araştırma

## Adaptation of the Monkeypox Fear Scale Into Turkish: A Validity and Reliability Study Maymun Çiçeği Virüsü Korkusu Ölçeğinin Türkçeye Uyarlanması: Geçerlik ve Güvenirlik Çalışması

Gül KARAHAN ÇOBAN<sup>1</sup>, Merve Deniz PAK GÜRE<sup>2</sup>, Cengiz KILIÇ<sup>3</sup>, Mustafa KARATAŞ<sup>4</sup>,  
Metin PİŞKİN<sup>5</sup>, Veli DUYAN<sup>6</sup>

### Abstract

**Aim:** This study aims to adapt the Monkeypox Fear Scale into Turkish and to examine its validity and reliability.

**Methods:** The scale was adapted into Turkish through a forward-backward translation method, expert opinions were obtained, and a pilot application was conducted. Data were collected online from 277 university students using a sociodemographic questionnaire, the Monkeypox Fear Scale, and the Fear of COVID-19 Scale. Analyses were performed using SPSS 25.0 and LISREL 8.80. For validity, language validity, construct validity, and convergent validity were assessed; for reliability, test-retest and internal consistency analyses were conducted.

**Results:** The internal consistency of the scale was found to be high (Cronbach's  $\alpha=.910$  for Factor 1; Cronbach's  $\alpha=.897$  for Factor 2 and Cronbach's  $\alpha=.919$  for the total scale). The test-retest correlation was .827 ( $p<.001$ ), indicating temporal stability. Confirmatory factor analysis revealed a strong model-data fit ( $CFI=.99$ ,  $RMSEA=.054$ ). Additionally, a significant positive correlation was found between fear of monkeypox virus and fear of COVID-19 ( $r=.656$ ,  $p=.001$ ), supporting convergent validity.

**Conclusion:** The findings indicate that the Turkish version of the Monkeypox Fear Scale is a valid and reliable measurement tool. It is recommended that the scale be used in public health practices such as psychosocial intervention planning and mental health screenings related to monkeypox virus transmission.

**Key Words:** Monkeypox; Fear; Psychometrics

### Özet

**Amaç:** Bu çalışmanın amacı, Maymun Çiçeği Virüsü Korkusu Ölçeğinin Türkçeye uyarlanması ve geçerlik-güvenirlik çalışmasının yapılmasıdır.

**Yöntem:** Ölçek, ileri-geri çeviri yöntemiyle Türkçeye uyarlanmış, uzman görüşü alınmış ve pilot uygulama gerçekleştirilmiştir. Veriler sosyodemografik soru formu, Maymun Çiçeği Virüsü Korkusu Ölçeği ve COVID-19 Korkusu Ölçeği kullanılarak 277 üniversite öğrencisinden çevrimiçi olarak toplanmıştır. Veriler SPSS 25.0 ve LISREL 8.80 ile analiz edilmiştir. Geçerlik için dil geçerliği, yapı geçerliği ve benzer ölçek geçerliği; güvenilirlik için test-tekrar test ve iç tutarlılık analizleri yapılmıştır.

**Bulgular:** Ölçeğin iç tutarlılığı yüksek bulunmuştur (Faktör 1 için Cronbach  $\alpha=.910$ ; Faktör 2 için Cronbach  $\alpha=.897$  ve Ölçeğin Tamamı için Cronbach  $\alpha=.919$ ). Test-tekrar test korelasyonu .827 olup ( $p<.001$ ) zaman içindeki tutarlılığı göstermektedir. Doğrulayıcı faktör analizi sonucunda model-veri uyumu güçlü bulunmuştur ( $CFI=.99$ ,  $RMSEA=.054$ ). Ayrıca, Maymun Çiçeği Korkusu ile COVID-19 Korkusu arasında anlamlı bir pozitif ilişki bulunmuştur ( $r=.656$ ,  $p=.001$ ), bu durum benzer ölçek geçerliğini desteklemektedir.

**Sonuç:** Elde edilen bulgular, Maymun Çiçeği Virüsü Korkusu Ölçeğinin Türkçe formunun geçerli ve güvenilir bir ölçüm aracı olduğunu göstermektedir. Ölçeğin, maymun çiçeği virüsü bulaşına yönelik psikososyal müdahale planlaması ve ruh sağlığı taramaları gibi halk sağlığı uygulamalarında kullanılması önerilmektedir.

**Anahtar Sözcükler:** Maymun Çiçeği; Korku; Psikometrik Özellikler

Geliş tarihi / Received: 20.06.2025 Kabul tarihi / Accepted: 11.09.2025

<sup>1</sup> Bilecik Şeyh Edebali University, Faculty of Health Sciences, Department of Social Work, Bilecik, Turkey

<sup>2</sup> Başkent University, Faculty of Health Sciences, Department of Social Work, Ankara, Turkey

<sup>3</sup> Atatürk University, Open Education Faculty, Department of Sociology, Erzurum, Turkey

<sup>4</sup> Kütahya Health Sciences University, Faculty of Health Sciences, Department of Social Work, Kütahya, Turkey

<sup>5</sup> Ankara University, Faculty of Educational Sciences, Department of Guidance and Psychological Counseling, Ankara, Turkey

<sup>6</sup> Ankara University, Faculty of Health Sciences, Department of Social Work, Ankara, Turkey

Address for Correspondence / Yazışma Adresi: Veli DUYAN. Ankara University, Faculty of Health Sciences, Department of Social Work, Ankara, Turkey E-posta: vduyan@health.ankara.edu.tr Tel: +90 5333179052

Karahan Çoban G. Pak Güre MD. Kılıç C. Karataş M. Pişkin M. Duyan V. *Adaptation of the Monkeypox Fear Scale Into Turkish: A Validity and Reliability Study. TJFMPC, 2025; 19 (4) 369-377.*

DOI: 10.21763/tjfm.1723872

## Introduction

Mpox is a viral zoonotic disease caused by a virus from the *Orthopoxvirus* genus, which also includes the virus that causes smallpox. The disease was previously known as "monkeypox," but the World Health Organization recently renamed it "mpox" to use more inclusive and non-stigmatizing language.<sup>1</sup> Although like smallpox, mpox is less severe and contagious. The virus was first identified in laboratory monkeys in 1958, but is primarily found in rodents in Central and West Africa, where it is endemic.<sup>2</sup> Human cases were first recorded in the Democratic Republic of Congo in 1970, followed by sporadic outbreaks in several African countries, mostly in rural areas near tropical rainforests. Cases have also been reported outside Africa, typically linked to international travel or importation of animals from endemic regions.<sup>3</sup> Transmission occurs through direct contact with the blood, body fluids, or lesions of infected animals, and from human to human via respiratory droplets, body fluids, or contaminated materials such as bedding. Symptoms usually begin with fever, headache, muscle pain, and fatigue, followed by a progressive rash starting on the face and spreading to the rest of the body, including palms and soles. The illness typically lasts 2 to 4 weeks, with most patients recovering without a specific treatment.<sup>4</sup> However, severe cases may occur, particularly in children or immunocompromised individuals, with a mortality rate estimated between 1% and 10%. Treatment is largely symptomatic: painkillers and antipyretics can manage fever and pain, while topical creams help relieve rash discomfort and prevent secondary infections through proper hygiene. In serious cases, antivirals like tecovirimat (TPOXX), developed for smallpox, may be prescribed for emergency use in some countries<sup>5</sup>, and brincidofovir or cidofovir are used experimentally. Patient isolation is recommended until full resolution of symptoms to prevent transmission.<sup>6</sup>

Mpox virus has recently re-emerged on the global health agenda. In 2022, approximately 80,000 cases were reported worldwide, heightening interest in the disease. In 2024, following a rise in cases in Africa, the World Health Organization (WHO) declared a global emergency on 14 August, with more than 12,000 cases and at least 470 deaths reported, mainly in the Democratic Republic of Congo<sup>7</sup>. Globally, new variants have been identified, raising concerns—especially after a more contagious strain was detected in Sweden, the first such variant outside Africa.<sup>8</sup> In Türkiye, one case was reported in 2022, but no new cases occurred in 2024<sup>9</sup>. Nonetheless, WHO alerts and media coverage have heightened public concern<sup>10</sup>. Visible symptoms like skin rashes, unclear transmission routes, and widespread misinformation on social media have contributed to rising public fear<sup>11</sup>. Post-COVID-19, public sensitivity toward infectious diseases with visible symptoms, such as mpox, has increased, intensifying fear and anxiety<sup>12</sup>.

From a theoretical standpoint, fear during infectious disease events is shaped by perceived susceptibility and severity, ambiguity about transmission, the salience of visible symptoms, and the social amplification of risk through media. Health behavior and risk-perception frameworks (e.g., the Health Belief Model) posit that perceived threat influences adoption of protective behaviors; however, excessive fear may also fuel stigma, avoidance of care, and mental-health burden. Protection Motivation Theory and the Social Amplification of Risk Framework further explain how threat appraisals, coping evaluations, and media dynamics interact to shape public responses during outbreaks<sup>13</sup>. In the specific case of mpox—given its visible dermatological manifestations and intensive media attention—assessing fear is essential to inform mental-health screening, risk communication, and targeted public-health interventions<sup>14</sup>. Measuring perceived fear of mpox is crucial for guiding mental health interventions and informing public health strategies. The Monkeypox Fear Scale (MFS), originally developed by Caycho-Rodríguez et al., is a brief instrument designed to quantify mpox-related fear; the original validation reported a seven-item, two-factor structure (emotional and physiological reactions) with strong internal consistency and evidence of measurement invariance across groups<sup>3</sup>. Subsequent applications have used the MFS in different populations, supporting its utility for cross-context comparisons. Although mpox incidence in Türkiye has been limited, heightened post-COVID-19 sensitivity toward infectious diseases and widespread misinformation in digital media have likely contributed to elevated public concern and stigma toward suspected cases, underscoring the need for a culturally and linguistically appropriate tool to measure mpox-related fear in this context. This study aimed to adapt the Monkeypox Fear Scale, originally developed by Caycho-Rodríguez et al., into Turkish and to examine its validity and reliability.<sup>3</sup>

## Method

### Study design

This study was conducted using a quantitative and cross-sectional design. This approach was chosen to evaluate the psychometric properties of the Turkish version of the Monkeypox Virus Fear Scale within a defined time frame and a specific sample. A cross-sectional design enables efficient data collection and statistical analyses required for scale adaptation and validation studies<sup>15</sup>.

## Data collection instruments

Two scales were used in this study. The first was the Monkeypox Fear Scale (MFS), developed by Caycho-Rodríguez et al. in 2022 based on the Spanish version of the Fear of COVID-19 Scale (FCV-19S), previously validated in Latin America.<sup>3</sup> The MFS assesses fear related to mpox through a two-factor model covering emotional and physiological responses. It was adapted from the FCV-19S by replacing “COVID-19” with “mpox” in items (e.g., “I feel uncomfortable to think about Coronavirus” became “I feel uncomfortable thinking about mpox”). Such adaptation methods have also been used in scales addressing emotional responses to infectious diseases. The final version includes seven items rated on a 5-point Likert scale (1=strongly disagree to 5=strongly agree), with higher scores indicating greater fear. The original study reported a Cronbach’s alpha of .87. The second scale was the Fear of COVID-19 Scale, developed by Ahorsu et al. in 2020 to measure fear related to COVID-19<sup>16</sup>. It comprises a single factor with seven items rated on a 5-point Likert scale. Higher scores reflect increased fear. The Turkish version, adapted by Satici et al. in 2021, showed satisfactory psychometric properties.<sup>17</sup>

## Study group

The Turkish version of the Monkeypox Fear Scale was administered to a sample of university students who voluntarily agreed to participate in the study. Initially, 313 individuals completed the questionnaire. However, 18 responses were excluded due to missing data or outlier values, resulting in a final sample of 277 participants. The sample consisted of 61.0% students in formal education and 39.0% in distance (open) education. Nearly half of the participants (49.1%) were first-year students. The age of the participants ranged from 17 to 63 years, with a mean age of 25.10 (SD = 9.02). A majority of the sample identified as female (76.5%), single (80.9%), and not currently employed (68.2%). In terms of perceived socioeconomic status, 71.8% reported a middle level, 27.1% a lower level, and only 1.1% an upper level.

**Table 1.** Sociodemographic Characteristics of the Study Sample

	Frequency		Percent (%)	
<b>Mode of Education</b>				
Formal	169		61.0	
Open (Distance)	108		39.0	
<b>Year of Study</b>				
1st year	136		49.1	
2nd year	57		20.6	
3rd year	51		18.4	
4th year	33		11.9	
<b>Gender</b>				
Male	65		23.5	
Female	212		76.5	
<b>Marital Status</b>				
Single	224		80.9	
Married	53		19.1	
<b>Employment Status</b>				
Employed	88		31.8	
Unemployed	189		68.2	
<b>Perceived Socioeconomic Status</b>				
Low	75		27.1	
Middle	199		71.8	
High	3		1.1	
<b>Age</b>	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>SD</b>
	17	63	25.10	9.02

SD: Standard deviation

## Ethical Approval

This study complied with the Declaration of Helsinki. Prior to data collection, written permission to adapt the MFS into Turkish was obtained from Caycho-Rodríguez et al., after the study’s purpose was explained<sup>3</sup>. Ethical approval

was granted by the Atatürk University Social and Human Sciences and Arts Ethics Committee. Informed consent was obtained from all participants before completing the questionnaire.

### **Procedure**

Data were collected via an online form prepared by the researchers, accessible through Google Forms between November 15, 2024 and February 15, 2025. Participants were first shown a text explaining the purpose and scope of the study and were asked to confirm their consent before proceeding. The form included three sections: demographic questions, the Monkeypox Fear Scale, and the Fear of COVID-19 Scale. All items were mandatory, and participants could revisit previous pages during completion. The average completion time was 10 minutes. No incentives were offered. Accordingly, the Turkish adaptation of the Monkeypox Fear Scale followed a structured five-step process:

**Step 1 – Forward translation:** Two academics from Hacettepe University, two from Başkent University, and an English teacher translated the scale from English to Turkish. Discrepancies were discussed, and a harmonized version was created to preserve meaning.

**Step 2 – Expert review:** A panel of four experts in psychology, social work, educational measurement, and health sciences reviewed the draft. Items were evaluated for content validity, clarity, and cultural appropriateness. Revisions ensured natural and fluent Turkish wording while maintaining conceptual fidelity.

**Step 3 – Back translation:** A bilingual expert unfamiliar with the original scale translated the Turkish version back into English. This version was compared with the original to identify discrepancies, and necessary adjustments were made.

**Step 4 – Pilot testing:** The Turkish version was piloted with university students. Both quantitative and qualitative feedback were collected. Cognitive interviews were conducted when needed to assess item clarity and interpretation.

**Step 5 – Finalization:** Based on expert and participant feedback, the final Turkish version was established as conceptually valid, culturally appropriate, and linguistically clear. All steps were documented per international guidelines to ensure transparency.

### **Statistical analysis**

Data were analyzed using SPSS 25.0 and LISREL 8.80. To assess the reliability of the Turkish version of the Monkeypox Fear Scale, internal consistency (Cronbach's alpha) and test-retest reliability were calculated. Validity was examined through analyses of language equivalence, construct validity, and convergent validity. Normality was evaluated via skewness and kurtosis values for total and subscale scores. Values between  $-1$  and  $+1$  were considered indicative of normal distribution, though ranges up to  $\pm 1.5$  or  $\pm 2.0$  are also acceptable.<sup>18,19</sup> Based on these results, parametric tests were applied. Confirmatory Factor Analysis (CFA) was conducted using LISREL to test the original two-factor model.<sup>20,21</sup> Model fit was evaluated using  $\chi^2/df$ , RMSEA, CFI, GFI, and AGFI indices. To assess convergent validity, correlations between the Monkeypox Fear Scale and the Fear of COVID-19 Scale were examined.

### **Results**

This section presents the findings obtained from the validity and reliability analyses of the Turkish version of the Monkeypox Fear Scale.

#### **Validity**

This section presents the findings related to the evaluation of the scale in terms of language validity and construct validity.

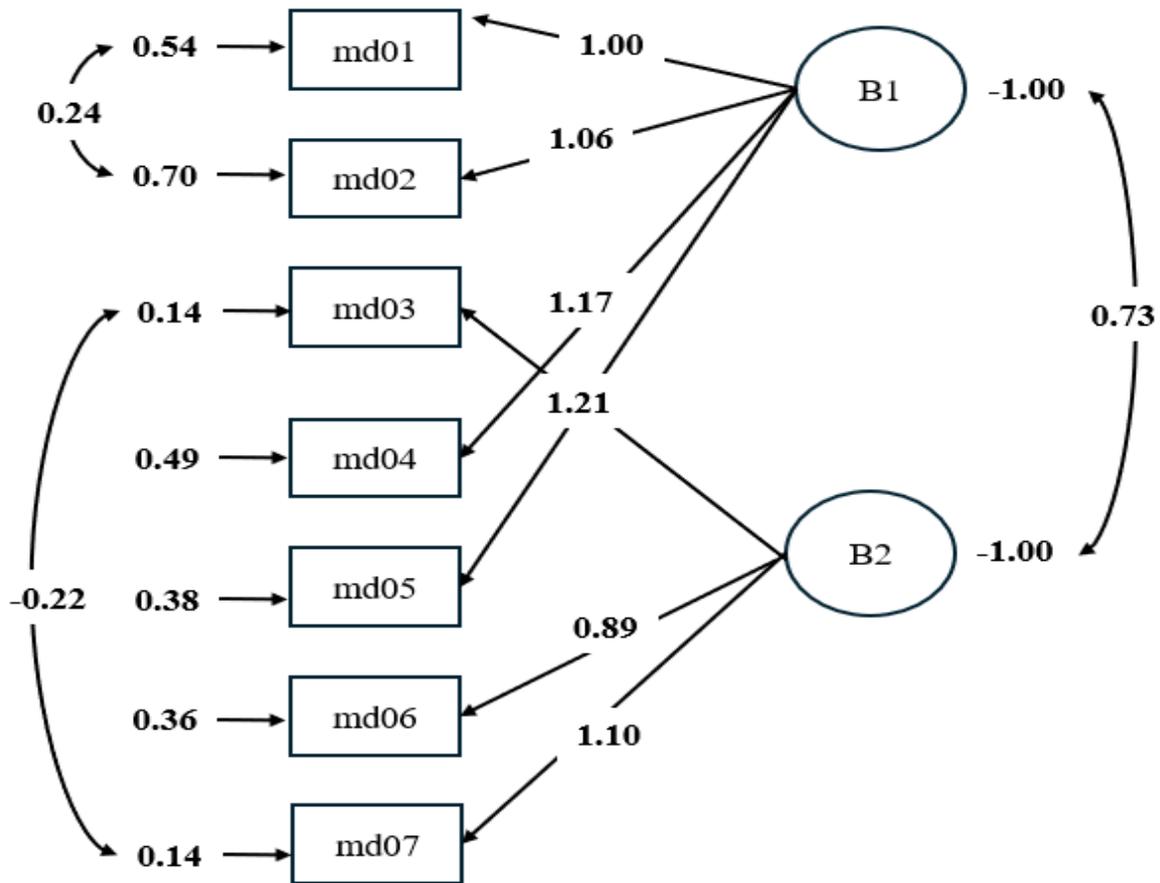
#### **Language Validity**

Language validity was assessed through forward-backward translation and statistical comparison of the Turkish and English versions. The scale was administered to nine fluent English speakers in both languages, and scores were compared using Pearson's correlation. A strong, significant correlation was found ( $r=.827$ ,  $p<.001$ ), indicating high semantic equivalence and successful preservation of the original scale's meaning.

#### **Construct Validity**

To assess construct validity, Confirmatory Factor Analysis (CFA) was conducted on the Turkish version of the Monkeypox Fear Scale. Construct validity reflects how well a scale measures the intended theoretical construct. While EFA is used for exploring factor structures, CFA is preferred when the original structure is already established, as in this case.<sup>18</sup> Accordingly, CFA was applied to confirm the two-factor model, and the resulting diagram is shown in Figure 1.

In Confirmatory Factor Analysis (CFA), key fit indices were used to evaluate how well the proposed model matched the observed data. These included Chi-square ( $\chi^2$ ),  $\chi^2/df$  ratio, RMSEA, RMR, GFI, and AGFI. According to the literature<sup>19</sup>, a  $\chi^2/df$  below 5, GFI and AGFI above 0.90, and RMSEA and RMR below 0.05 indicate acceptable model fit. Some sources suggest stricter criteria, such as GFI=1.00, AGFI=0.93, and RMSEA/RMR=0.00 as benchmarks for good fit<sup>20</sup>.



**Chi-Square=19.80, df=11, P-value=0.04811, RMSEA=0.054**

**Figure 1.** Confirmatory Factor Analysis Diagram of the Turkish Version of the Monkeypox Fear Scale

Table 2 presents the CFA results for the Monkeypox Fear Scale. As shown in Figure 1, the model demonstrated a strong fit based on multiple indices. The results of the confirmatory factor analysis (CFA) indicated an acceptable model fit. The Minimum Fit Function Chi-Square was  $\chi^2(11) = 19.56$ ,  $p = .052$ , and the Normal Theory Weighted Least Squares Chi-Square was  $\chi^2(11) = 19.80$ ,  $p = .048$ . The non-significant result for the Minimum Fit Function suggests that the model fits the data well, while the marginally significant result for the Normal Theory Chi-Square indicates a borderline fit. Taken together with additional fit indices, these results support the adequacy of the proposed measurement model. CFI, NFI, and NNFI values exceeded 0.90, with CFI and IFI reaching 1.00, indicating a strong model–data fit. The AGFI was 0.95, further supporting this conclusion. Additionally, the SRMR (0.014) and RMR (0.021) were well below the 0.08 threshold, and the RMSEA was 0.054, with its 90% confidence interval (0.049 to 0.091) including the 0.06 cutoff—suggesting an acceptable to good fit. Overall, the CFA results confirmed the construct validity of the scale, indicating that its items reliably represent the intended latent construct.<sup>22,23</sup> To improve model fit while preserving theoretical coherence, several residual covariances were permitted between item error terms based on semantic similarity and shared response tendencies. Specifically, a covariance was allowed between item 1 (*I am very afraid of monkeypox*) and item 2 (*I feel uncomfortable thinking about monkeypox*), which share nearly identical emotional and linguistic structures. In addition, item 3 (*My hands become clammy when I think about monkeypox*) and item 5 (*When I see news and stories about monkeypox on social media, I get nervous or anxious*) both reflect anxiety-related responses—physiological and emotional, respectively—justifying their residual correlation. Finally, item 5 and item 7 (*My heart races when I think about getting monkeypox*) both capture affective and physiological arousal triggered by either external information or internal thoughts related to the virus. These theoretically grounded modifications resulted in a notable improvement in model fit without compromising the unidimensional structure or construct validity of the scale.

**Table 2.** Goodness-of-Fit Indices for the Turkish Version of the Monkeypox Fear Scale

Chi-Square	DF	P-Value	CFI	NFI	AGFI	IFI	SRMR	RMSEA	90% C.I RMSEA
19.80	11	P < .05	1.00	0.99	0.95	1.00	0.036	0.054	0.0049–0.091

**Convergent Validity**

To assess convergent validity, the Fear of COVID-19 Scale—validated by Satici et al. (2020)<sup>17</sup>—was administered alongside the Monkeypox Fear Scale. This scale was chosen due to its conceptual similarity in measuring fear responses to infectious diseases. Pearson’s correlation analysis revealed a significant, moderate-to-strong negative correlation between the two scales ( $r = .656$ ,  $p = .001$ ), indicating that the Monkeypox Fear Scale is meaningfully associated with a related construct and thus demonstrates convergent validity.

**Reliability**

To evaluate the reliability of the scale, item analysis was first conducted. The correlations between each item and the total score were calculated and are presented in Table 3. The item–total correlation coefficients ranged from .692 to .803. All coefficients were statistically significant, and these values were deemed sufficient in terms of item discrimination. Two methods were used to assess reliability. First, the test–retest reliability of the scale was evaluated. For this purpose, the Monkeypox Fear Scale was administered to a subsample of 21 participants twice, with a 15-day interval. The correlation between the two sets of scores was found to be  $r = .827$  ( $p < .001$ ), indicating a high level of temporal consistency. Second, the internal consistency of the scale was examined using Cronbach’s alpha. Analysis performed using SPSS 25 revealed a total internal consistency coefficient of  $\alpha = .919$ , indicating high internal reliability of the scale. Subscale analyses showed similarly high reliability values, with Cronbach’s alpha of  $\alpha = .910$  for Factor 1 (4 items) and  $\alpha = .897$  for Factor 2 (3 items). Item–total correlations ranged from .692 to .844, suggesting that all items contributed adequately to their respective factors. Based on the results of both test–retest and internal consistency analyses, the Turkish version of the Monkeypox Fear Scale was considered a reliable instrument for measuring fear of mpox.

**Table 3.** Item–Total Correlations for the Turkish Version of the Monkeypox Fear Scale

Item Code	Factor 1 Item–Total Correlation	Factor 2 Item–Total Correlation	Item–Total Correlation
md01	,812		,774
md02	,787		,746
md03		,769	,743
md04	,774		,777
md05	,816		,803
md06		,844	,692
md07		,787	,740
Cronbach's Alpha	$\alpha = .910$ (N of Items 4)	$\alpha = .897$ (N of Items 3)	$\alpha = .919$ (N of Items 7)

**Discussion**

This study aimed to adapt the Monkeypox Fear Scale (MFS) into Turkish and evaluate its psychometric properties. Through expert consultation and pilot testing, the scale was assessed for language, construct, and convergent validity. The Turkish version showed strong internal consistency ( $\alpha = .877$ ) and test–retest reliability ( $r = .827$ ), confirming its temporal stability. CFA results supported the original two-factor model, indicating good model–data fit. These findings suggest that the Turkish MFS is a valid and reliable tool, particularly among university students. The results align with prior applications of the MFS across diverse populations. In Caycho-Rodríguez et al.’s original study<sup>3</sup>, a two-factor structure and high reliability ( $\alpha = .87$ ) were reported. Similarly, Lin et al.<sup>24</sup> stated a unidimensional structure among MSM, yet with strong reliability ( $\alpha = .911$ ). Such differences likely reflect sample-specific and contextual influences on fear perception. The Turkish Fear of COVID-19 Scale also demonstrated comparable psychometric properties, supporting the view that emotional responses to infectious disease threats show structural consistency across cultures. A U.S.-based study<sup>25</sup> also confirmed high internal consistency ( $\alpha = .89$ ), highlighting the MFS’s robustness across sociocultural settings.

The availability of a validated Turkish version of the MFS provides researchers, clinicians, and public health professionals with a reliable tool to assess psychological responses during infectious disease outbreaks. Since fear significantly influences risk perception, protective behaviors, and health decisions<sup>26</sup>, the MFS can help identify vulnerable groups needing psychosocial support. It is particularly useful for healthcare workers, individuals with chronic illnesses, and communities disproportionately impacted by health crises. Moreover, the scale can serve as a baseline for evaluating interventions aimed at reducing fear, stigma, and disengagement. Integrating the MFS into broader epidemiological research may advance culturally informed mental health strategies in epidemic contexts.

## Limitations

This study has some limitations. First, the sample was limited to university students, reducing demographic diversity and limiting generalizability to other age, occupation, or socioeconomic groups. Second, data were collected via an online self-report form, which may have introduced biases such as social desirability or response consistency. Only select psychometric properties—internal consistency, test–retest reliability, construct, and convergent validity—were assessed; analyses such as criterion validity or sensitivity were not included. Moreover, the Fear of COVID-19 Scale, which served as a foundational reference during the development of the adapted scale, was also used in the convergent validity analysis. This may have led to theoretically expected high correlations between constructs, thus partially limiting the interpretive strength of the convergent validity results. Lastly, the cross-sectional design prevents causal interpretations. Future studies should consider more diverse samples, longitudinal methods, and cross-cultural comparisons to address these limitations.

## Conclusion

This study showed that the Turkish version of the Monkeypox Fear Scale is a valid and reliable tool. The scale demonstrated a confirmed two-factor structure, strong internal consistency ( $\alpha=.877$ ), and test–retest reliability ( $r=.827$ ). Convergent validity was supported through its significant association with the Fear of COVID-19 Scale. These findings suggest that the Turkish MFS provides consistent and meaningful results among university students and can be effectively used in future research and public health efforts to monitor fear related to infectious disease outbreaks.

## Funding

There are no funding sources available.

## Conflict of Interest

The authors report no conflict of interest.

## Authors' Note

Researchers may use the Turkish Version of the Monkeypox Fear Scale in their scientific work, presented in Appendix 1, provided that they cite it as a source. Additional permission from the authors is not required.

## References

1. World Health Organization. *WHO recommends new name for monkeypox disease* [Internet]. Geneva: World Health Organization; 2022 Nov 28 [cited 2025 Aug 13]. Available from: <https://www.who.int/news/item/28-11-2022-who-recommends-new-name-for-monkeypox-disease>
2. Bunge EM, Hoet B, Chen L, Lienert F, Weidenthaler H, Baer LR, et al. The changing epidemiology of human monkeypox—A potential threat? A systematic review. *PLoS Negl Trop Dis*. 2022;16(2):e0010141. doi:10.1371/journal.pntd.0010141
3. Caycho-Rodríguez T, Vilca LW, Carbajal-León C, Gallegos M, Reyes-Bossio M, Noe-Grijalva M, et al. The Monkeypox Fear Scale: development and initial validation in a Peruvian sample. *BMC Psychol*. 2022;10(1):280. doi:10.1186/s40359-022-00997-0
4. Rizk JG, Lippi G, Henry BM, Forthal DN, Rizk Y. Prevention and treatment of monkeypox. *Drugs*. 2022;82(9):957-63. doi:10.1007/s40265-022-01742-y
5. Gessain A, Nakoune E, Yazdanpanah Y. Monkeypox. *N Engl J Med*. 2022;387(19):1783-93. doi:10.1056/NEJMra2208860
6. Harapan H, Ophinni Y, Megawati D, Frediansyah A, Mamada SS, Salampe M, et al. Monkeypox: a comprehensive review. *Viruses*. 2022;14(10):2155. doi:10.3390/v14102155
7. Sudarmaji N, Kifli N, Hermansyah A, Yeoh SF, Goh BH, Ming LC. Prevention and treatment of monkeypox: a systematic review of preclinical studies. *Viruses*. 2022;14(11):2496. doi:10.3390/v14112496
8. Masirika LM, Udaheureka JC, Schuele L, Ndishimye P, Otani S, Mbiribindi JB, et al. Ongoing monkeypox outbreak in Kamituga, South Kivu province, associated with monkeypox virus of a novel Clade I sub-lineage, Democratic Republic of the Congo, 2024. *Euro Surveill*. 2024;29(11):2400106. doi:10.2807/1560-7917.ES.2024.29.11.2400106
9. Treutiger CJ, Filén F, Rehn M, Aarum J, Jacks A, Gisslén M, et al. First case of monkeypox with monkeypox virus clade Ib outside Africa in a returning traveller, Sweden, August 2024: public health measures. *Euro Surveill*. 2024;29(48):2400740. doi:10.2807/1560-7917.ES.2024.29.48.2400740
10. Bayrak H. Monkeypox virus; epidemiology of the world and Turkey. *J Biotechnol Strateg Health Res*. 2022;6(2):75-80. doi:10.34084/bshr.1160542
11. Caycho-Rodríguez T, Ventura-León J, Carbajal-León C, Vilca LW, Gallegos M, Delgado-Campusano M, et al. Fear of monkeypox and intention to vaccinate against monkeypox: a network analysis. *Med Clin Soc*. 2024;8(2):186-97. doi:10.52379/mcs.v8i2.403
12. Sarıkaya B. Dijital çağda dezenformasyon: X'te Maymun Çiçeği Virüsü. *TRT Akademi*. 2025;10(23):304-29. doi:10.37679/trta.1564114

13. Green EC, Murphy EM, Gryboski K. The health belief model. In: Sweeny K, Robbins ML, Cohen LM, editors. *The Wiley Encyclopedia of Health Psychology*. Hoboken (NJ): John Wiley & Sons; 2020. p. 211–214. doi:10.1002/9781119057840.ch68.
14. Jaleel A, Farid G, Irfan H, Mahmood K, Baig S. A systematic review on the mental health status of patients infected with monkeypox virus. *J Korean Acad Child Adolesc Psychiatry*. 2024;35(2):107. doi:10.5765/jkacap.230064
15. Neuman WL. *Toplumsal araştırma yöntemleri: nitel ve nicel yaklaşımlar. Cilt 1*. Ankara: Yayınodası; 2009.
16. Ahorsu DK, Lin CY, Imani V, Saffari M, Griffiths MD, Pakpour AH. The Fear of COVID-19 Scale: development and initial validation. *Int J Ment Health Addict*. 2020;20:1537–1545. doi:10.1007/s11469-020-00270-8
17. Satici B, Gocet-Tekin E, Deniz ME, Satici SA. Adaptation of the Fear of COVID-19 Scale: Its association with psychological distress and life satisfaction in Turkey. *Int J Ment Health Addict*. 2021;19:1980–1988. doi:10.1007/s11469-020-00294-0
18. Hair JF, Black WC, Babin BJ, Anderson RE. *Multivariate data analysis*. Pearson Education Limited; 2013.
19. Tabachnick BG, Fidell LS, Ullman JB. *Using multivariate statistics*. 5th ed. Pearson; 2007.
20. George D, Mallery P. *IBM SPSS statistics 23 step by step: A simple guide and reference*. Routledge; 2016.
21. Jöreskog KG, Sörbom D. LISREL 8: Structural equation modeling with the SIMPLIS command language. Hillsdale, NJ: Lawrence Erlbaum Associates Publishers; 1993.
22. Anderson JC, Gerbing DW. The effect of sampling error on convergence, improper solutions, and goodness of fit indices for maximum likelihood confirmatory factor analysis. *Psychometrika*. 1984;49:155–173. doi:10.1007/BF02294170
23. Hu L, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct Equ Modeling*. 1999;6:1–55. doi:10.1080/10705519909540118
24. Lin CY, Pakpour AH, Griffiths MD, Lin CW, Yen CF. Psychometric properties of the Fear of Monkeypox Scale among men who have sex with men. *Taiwan J Psychiatry*. 2024;38(4):193–197. doi:10.4103/TPSY.TPSY\_34\_24
25. Walsh-Buhi ML, Houghton RF, Valdez D, Walsh-Buhi ER. A theory-based assessment of monkeypox: Findings from a nationally representative survey of US adults. *PLoS One*. 2024;19(3):e0299599. doi:10.1371/journal.pone.0299599
26. Anthonj C, Setty KE, Ferrero G, et al. Do health risk perceptions motivate water-and health-related behaviour? A systematic literature review. *Sci Total Environ*. 2022;819:152902. doi:10.1016/j.scitotenv.2021.152902

## Maymun Çiçeği Virüsü Korkusu Ölçeği (Turkish Version)

	Kesinlikle katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle katılıyorum
1. Maymun çiçeği virüsünden çok korkuyorum.					
2. Maymun çiçeği virüsünü düşünmek beni rahatsız ediyor.					
3. Maymun çiçeği virüsünü düşündüğümde ellerim terliyor.					
4. Maymun çiçeği virüsüne yakalanarak hayatımı kaybetmekten çok korkuyorum.					
5. Sosyal medyada maymun çiçeği virüsü ile ilgili haberleri ve hikâyeleri izlediğimde kaygılanıyor ve endişeleniyorum.					
6. Maymun çiçeği virüsüne yakalanmaktan duyduğum endişeden dolayı uykularım kaçıyor.					
7. Maymun çiçeği virüsüne yakalandığımı düşündüğümde kalp atışım hızlanıyor.					

## The Monkeypox Fear Scale (English and Spanish Version)

Eng /Esp	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. I am very afraid of monkeypox (Tengo mucho miedo a la viruela del mono).					
2. I feel uncomfortable thinking about monkeypox (Me incomoda pensar sobre la viruela del mono).					
3. My hands become clammy when I think about monkeypox (Mis manos se vuelven húmedas cuando pienso en la viruela del mono).					
4. I am afraid of losing my life to monkeypox (Tengo miedo de perder la vida por la viruela del mono).					
5. When I see news and stories about monkeypox on social media, I get nervous or anxious (Cuando veo noticias e historias sobre la viruela del mono en las redes sociales, me pongo nervioso o ansioso).					
6. I can't sleep because I worry about having monkeypox (No puedo dormir porque me preocupa tener la viruela del mono).					
7. My heart races when I think about getting monkeypox (Mi corazón se acelera cuando pienso en contraer la viruela del mono).					