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Doi: 10.21020/husbfd.1694899

Özgün Araştırma

Çevrimiçi Arkadaşlık Ölçeği'nin Türkçeye Uyarlanması: Geçerlilik ve Güvenilirlik Çalışması

Gözde Önal[1], Saniye Selin Döğer Şenel[2]

Gönderim Tarihi: 7 Mayıs, 2025 **Kabul Tarihi:** 30 Temmuz, 2025 **Basım Tarihi:** 31 Aralık, 2025

Özet

Amaç: Bu çalışmanın amacı, Endonezya'da geliştirilen Çevrimiçi Arkadaşlık Ölçeği'nin Türkçeye uyarlanması ve psikometrik özelliklerinin incelenmesidir.
Gereç ve Yöntem: Çalışma, Türkiye genelinde farklı üniversitelerde öğrenim gören 404 lisans öğrencisi ile yürütülmüştür. Yapı geçerliği açımlayıcı (AFA) ve doğrulayıcı (DFA) faktör analizleriyle incelenmiştir. Güvenirlik analizlerinde Cronbach alfa (α), McDonald omega (ω), Bileşik Güvenirlik (CR) ve Test-Tekrar Test yöntemleri kullanılmıştır.
Bulgular: AFA sonucunda 19 maddelik ölçek, orijinalinde olduğu gibi dört faktörde toplandı ve toplam varyansın %74.52'sini açıkladı (KMO=0.828; Bartlett's χ^2=3027.95, p<.001). DFA sonuçları ölçeğin yapı geçerliğini doğruladı. Ölçeğin genel Cronbach alfa katsayısı 0.889; alt boyutlara ait α katsayıları 0.863 ila 0.916 arasında değişti. Test-tekrar test güvenilirliği için hesaplanan ICC değerleri tüm alt boyutlarda 0.80'in üzerindeydi.
Sonuç: Çevrimiçi Arkadaşlık Ölçeği'nin Türkçe formu geçerli ve güvenilir bulunmuştur. Türkiye'de genç bireylerin dijital ortamdaki arkadaşlık ilişkilerinin değerlendirilmesinde etkili bir araç olarak kullanılabilir.

Anahtar Kelimeler: *çevrimiçi arkadaşlık, geçerlilik, güvenilirlik, ölçek uyarlaması, üniversite öğrencileri.*

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Original Research

Turkish Adaptation of the Online Friendship Scale: A Validity and Reliability Study

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Submission Date: May 7th, 2025 **Acceptance Date:** July 30th, 2025. **Pub. Date:** December 31st, 2025

Abstract

Objectives: This study aims to adapt the Online Friendship Scale, originally developed in Indonesia, into Turkish and to examine its psychometric properties.
Materials and Methods: The study was conducted with 404 undergraduate students from various universities in Turkiye. Construct validity was tested using Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). Reliability was assessed via Cronbach's alpha (α), McDonald's omega (ω), Composite Reliability (CR), and test-retest (ICC).
Results: EFA revealed a four-factor structure explaining 74.52% of total variance (KMO=0.828; Bartlett's χ^2=3027.95, p<.001). CFA supported the model fit. Internal consistency was high (α=0.889 overall; subscales ranged from α=0.863 to 0.916). ICC values for test-retest reliability were all above 0.80, indicating strong temporal stability.
Conclusion: The Turkish version of the Online Friendship Scale is a valid and reliable tool for assessing online friendship dynamics among young adults. It may serve as a useful instrument in psychosocial and educational studies.

Keywords: *online friendship, validity, reliability, scale adaptation, university students*

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Introduction

Today, the internet and social media have led to radical changes in the way individuals maintain their social relationships. Especially among young people, online platforms offer an important area for social interactions such as making friends, communicating, and receiving support. Online friendships go beyond traditional face-to-face friendships and allow individuals to reach a wide social circle (McKenna et al., 2002). Data from the Turkish Statistical Institute (TSI, 2023) indicate a rising trend of internet and social media usage in Turkiye, with a high percentage of youths choosing to communicate socially via the internet. This increase necessitates researching the impact of online friendships on social life and individual development in Turkiye (Aydın & San, 2011).

Online friendships gain different meanings in different cultural contexts and develop based on unique norms in each society. Studies conducted in Indonesia have shown that online friendships are based on group harmony, mutual support, and social integration; individuals develop strong community ties through social media (Geertz, 1962). Similarly, in Turkish culture, friendships are based on deep emotional bonds, loyalty and mutual support (Kağıtçıbaşı, 2017). However, online platforms share some common aspects regardless of cultural context. The fact that online friendships are built on sharing, volunteering, companionship, and mutual support defines the basic structure of these relationships universally. Therefore, it can be argued that online friendships have a common structure rooted in universal values, while also reflecting cultural differences (McKenna & Bargh, 2000).

As online friendships become increasingly widespread among young people, their nature necessitates a comprehensive evaluation. In the literature, online friendships are reported to contribute positively to processes such as receiving social support, self-disclosure, and social identity formation (Chan & Cheng, 2004). However, there are also potential risks that these relationships may pose; for example, spending extensive time online can lead to neglect of face-to-face relationships or digital addiction (Rahmawati et al., 2020). Therefore, measuring online friendship plays a critical role in understanding the psychosocial health of young people and evaluating the possible effects of these relationships.

Although online friendship scales have been developed and validated in different cultural settings, there is currently no validated tool specifically tailored to the Turkish cultural and social context. In Turkiye, friendship is deeply rooted in emotional intimacy, loyalty, and reciprocal trust (Kağıtçıbaşı, 2017). These cultural values may shape the way young individuals approach and maintain online friendships. Additionally, Turkish youth use digital platforms not

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only for casual interaction but also for emotionally supportive and enduring relationships, which may not be fully captured by instruments developed in other societies. Therefore, a culturally adapted and psychometrically validated tool is needed to accurately assess the structure and dynamics of online friendships in Turkiye.

This study aims to conduct validity and reliability analyses of the Turkish adaptation of the Online Friendship Scale developed in Indonesia by Helmi et al. (2017). The Online Friendship Scale evaluates individuals' behaviors towards their online friends under four basic dimensions: sharing, volunteering, companionship, and mutual support. This scale provides a reliable and valid psychometric assessment of online friendship relationships. Given that young people tend to establish online friendships, the adaptation of this scale into Turkish culture will shed more light on the social media interactions of young people in Turkiye. As there is a lack of a validated measurement tool that can evaluate the effects of online friendships on the psychological and social development of individuals, this study seeks to address this gap.

Material and Methods

Participants

The study extended invitations to 500 students enrolled at different universities across Turkiye to take part in the research. The study was delivered to the students via Google Forms and the data were collected between 27 April 2023 and 8 November 2023. Inclusion criteria were: (1) being actively enrolled in an associate or undergraduate program, (2) having the ability to read and understand Turkish. Those with cognitive, physical, or psychiatric diseases were excluded from the study. A total of 404 students completed the assessment, and 45 of these students were reevaluated for test-retest reliability in two weeks.

In line with the common suggestion that the sample size for factor analysis should be at least ten times the number of items on the scale (Costello & Osborne, 2005), a sample of at least 190 was considered sufficient for the 19-item scale. Data from 202 participants were analyzed with Exploratory Factor Analysis, and data from another 202 participants were analyzed with Confirmatory Factor Analysis. This provided a total sample of 404, which exceeded the recommended minimum and increased the statistical reliability of the findings.

The age of the participants ranged between 18 and 21 years (M = 20.08, SD = 1.04). Most participants were female students (81.4%). In addition to age and gender, participants were asked to report their daily internet usage and preferred online platforms. The majority (89.6%) reported using the internet for more than three hours per day, primarily for

communication, entertainment, and academic purposes. The most frequently used platforms included Instagram (82.4%), WhatsApp (78.1%), and Twitter (45.6%). Moreover, 91.3% of the participants indicated that they had at least one online friend with whom they communicated regularly, and 64.7% reported that they had formed at least one close friendship exclusively through online means.

Data Collection Tools

Sociodemographic Form

A form was created by researchers to obtain descriptive information about participants, such as age, gender, class, and department.

Online Friendship Scale

The scale, originally developed by Helmi et al. (2017), was designed to assess the nature and dynamics of online social relationships. It comprises 19 items distributed across four sub-dimensions: Sharing, Volunteering, Companionship, and Mutual Support. Each item reflects a specific behavior associated with online friendship and is rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher total scores indicate a stronger perception of online friendship quality. In the original study examining its validity, confirmatory factor analysis (CFA) was conducted, and the scale demonstrated an adequate model fit, with indices such as CFI = 0.987, TLI = 0.977, and RMSEA = 0.056. Reliability analyses found the overall Cronbach's Alpha coefficient of the scale to be 0.880, with high reliability in its sub-dimensions. The scale is used to understand the effects of friendships established on digital platforms on the psychosocial health of individuals and to evaluate social support and interaction processes (Helmi et al., 2017).

Procedure

This study was approved by the Biruni University Social and Human Sciences Ethics Committee (Approval No: 2022/68-31).

Participants were recruited through a snowball sampling strategy. Initially, the survey link was distributed to university students via WhatsApp and Instagram networks, as well as student groups and online education forums. Participants who completed the form were encouraged to share the link within their own academic and social circles. This method was selected to reach a broader and more diverse sample of undergraduate students across Turkiye.

Before initiating the Turkish adaptation of the scale, formal permission was obtained via e-mail from the original developers. To maintain the structural integrity of the Online Friendship Scale and ensure its appropriateness for the Turkish cultural context, the cultural

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adaptation and translation steps were carried out in accordance with the guidelines proposed by Beaton et al. (2000). The steps followed were as follows:

Forward Translation

The scale was initially translated from English to Turkish by two native Turkish-speaking subject matter experts who worked independently. Particular attention was paid to preserving both the original meaning and the cultural appropriateness of the items.

Back Translation

To verify the accuracy and comparability of the translated scale, the Turkish version was then translated back into English by two native English-speaking examiners with no prior familiarity with the original scale. This served as a method of cross-checking the equivalence of the translation.

Expert Panel

Following the forward and back translations, the quality and semantic integrity of the scale were evaluated by an expert panel. This committee, consisting of language experts, researchers, and translators, reviewed all versions of the scale. Both linguistic accuracy and cultural appropriateness were considered, and improvements were made when necessary.

Pre-Test

Expert opinions were obtained from four specialists, including two psychologists (specialized in social psychology), a psychological counsellor, and a Turkish language expert. Each item was examined in depth in terms of linguistic suitability, cultural context, and content validity. This expert review was preferred to ensure that the scale was adapted appropriately to Turkish culture while preserving its meaning and purpose in the original language. Accordingly, comprehensive expert evaluation was considered a more suitable method than a pilot pre-test, and the main data collection process was initiated directly. This process contributed to establishing a strong foundation for the scale in terms of both validity and reliability.

Each item of the scale and the final usable Turkish version are presented in Appendix 1.

Statistical Analysis

The data were analyzed using the Statistical Package for the Social Sciences (SPSS) Version 23 and Analysis of Moment Structures (AMOS) Version 23. Normality was examined using the Shapiro–Wilk test as well as skewness and kurtosis values. Descriptive statistics, including mean, standard deviation, and minimum–maximum values, were calculated for numerical data, while frequency distributions were compiled for ordinal variables.

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Polit and Beck's Content Validity Index (CVI) was used to obtain expert opinions. According to Polit and Beck (2006), between 3 and 10 experts are sufficient for content validity assessment. Experts evaluated each item using four categories: (1) not suitable, (2) somewhat suitable, (3) fairly suitable, and (4) extremely suitable. Based on this method, the Item Content Validity Index (I-CVI) was calculated as the ratio of the number of experts rating an item 3 or 4 to the total number of experts, while the Scale Content Validity Index (S-CVI) was calculated as the ratio of the number of experts assigning a rating of 3 or 4 across items to the total number of items. When the number of experts ranged from 3 to 5, both I-CVI and S-CVI values of 1.00 were required; for 6 to 10 experts, I-CVI values of ≥0.78 and S-CVI values of ≥0.80 were recommended.

An Exploratory Factor Analysis (EFA) was conducted on a subsample of 202 participants to identify the factor structure. A Confirmatory Factor Analysis (CFA) was then conducted on a separate subsample of 202 participants to verify the structure obtained in EFA. The appropriateness of the data for factor analysis was confirmed using the Kaiser–Meyer–Olkin (KMO) Test and Bartlett's Test of Sphericity. Acceptable thresholds were KMO > 0.6 and Bartlett's Test $p < 0.05$ (Sikka Kainth & Verma, 2011). During EFA, principal axis factoring was used, and factors to retain were determined based on the following: (1) results of parallel analysis comparing actual data eigenvalues with simulated eigenvalues, (2) cumulative variance explained greater than 40%, and (3) factor loadings above 0.35 (Barış & Seren Intepeler, 2019; Chen et al., 2021). Parallel analysis was performed using Python Version 3.8. Oblique rotation was applied, and a Rotated Component Matrix was generated.

Conceptual integrity was further evaluated through CFA. Prior to EFA and CFA, data quality was checked for validity and reliability issues. Multicollinearity was examined through linear regression analysis, with tolerance values greater than 0.2 and VIF values less than 10 considered acceptable (Worthington & Whittaker, 2006). Mardia's test was used to assess multivariate normality. Missing data were examined and managed appropriately, and multivariate outliers were detected and handled without compromising analysis integrity. Covariance matrices were estimated using maximum likelihood (ML).

Model fit was evaluated using commonly recommended goodness-of-fit indices in structural equation modeling. Because no single index provides a complete assessment, multiple indices were considered. Correlations among sub-dimensions were also calculated. Additionally, a 27% upper–lower group comparison was conducted, and an Independent

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Samples t-test was applied to examine differences between the highest- and lowest-scoring participants (n=55 in each group).

Reliability was assessed using Cronbach's alpha (α), McDonald's omega (ω), and Composite Reliability (CR). Item–total correlations were calculated, and split-half reliability was assessed. For test–retest reliability, 45 participants were reassessed two weeks after the initial administration, and Intraclass Correlation Coefficients (ICC) were calculated. ICC values greater than 0.80 were considered acceptable (Lexell & Downham, 2005).

For split-half reliability, items were divided into two equivalent halves, and internal consistency for each half was evaluated using the Spearman–Brown formula based on Cronbach's alpha.

Results

Content Validity

Based on the CVI approach proposed by Polit and Beck, each item achieved an I-CVI of 1.00, and the overall scale achieved an S-CVI of 1.00, indicating complete agreement among experts.

Construct Validity

Exploratory Factor Analysis

Before analysing the factor structure, sample adequacy for factor analysis was evaluated using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity. The KMO measure was 0.828, and Bartlett's test was statistically significant ($\chi^2 = 3027.959$, $p < 0.001$), confirming that the data were suitable for factor analysis. EFA was conducted on a randomly selected subsample of 202 participants. The analysis yielded four factors with eigenvalues ranging from 1.262 to 6.705, accounting for 74.527% of the cumulative variance. Table 1 presents the factor loadings of items. The resulting factor structure closely mirrored that of the original scale developed by Helmi et al. (2017), with items aligning under the same sub-dimensions.

All 19 items from the original scale were retained in the Turkish version. No items were excluded during exploratory factor analysis, as each item met the inclusion criteria with factor loadings above 0.35 and conceptual alignment with the corresponding subdimension.

The presence of four sub-dimensions was further supported by the results of the parallel analysis (Figure 1). The parallel analysis confirmed the retention of four factors, consistent with both theoretical expectations and the original scale structure.

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Table 1. Results of the Exploratory Factor Analysis of Turkish Version of Online Friendship Scale (n=202)

	Factor loads			
Scale items	Factor 1	Factor 2	Factor 3	Factor 4
Voluntariness				
8	0.890			
7	0.854			
9	0.749			
6	0.725			
10	0.653			
Mutual Support				
17		0.945		
16		0.916		
19		0.850		
18		0.787		
Companionship				
13			0.882	
12			0.812	
11			0.796	
14			0.733	
15			0.652	
Sharing				
2				0.866
3				0.858
4				0.834
5				0.640
1				0.560
Eigenvalues	6.705	3.452	2.741	1.262
Explanation rate of variance (%)	35.287	18.171	14.426	6.643
Cumulative rate of variance (%)	35.287	53.457	67.884	74.527

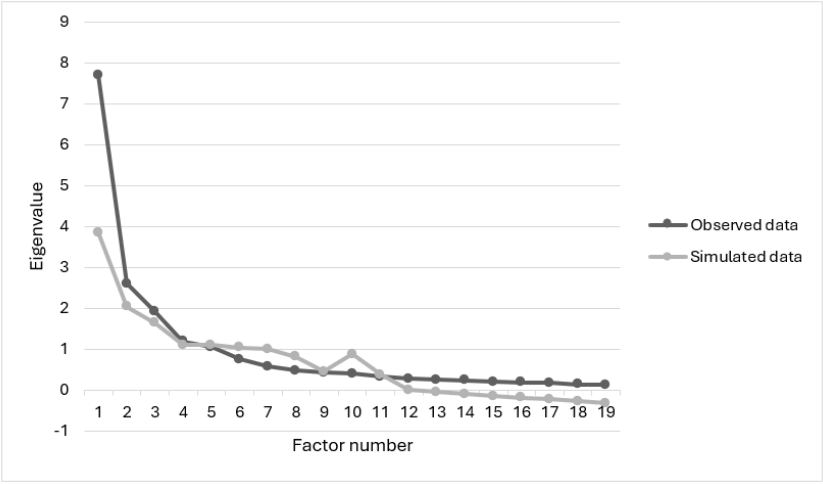


Figure 1. Parallel analysis of CFA

Confirmatory Factor Analysis

Before performing CFA, the relationships among the sub-dimensions were examined, and multicollinearity was assessed. Significant associations were observed among the sub-dimensions, while the absence of multicollinearity was confirmed with tolerance values greater

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than 0.20 and VIF values below 10. These findings indicated that the dataset was suitable for CFA (Table 2).

Table 2. Mean Scores, Confidence Intervals (CI), Tolerance, and VIF Values for the Subscales of the Scale

	Mean (SD)	Min-Max	95% CI	Tolerance	VIF
Voluntariness	20 (4.4)	5-25	18.96–20.17	0.559	1.789
Mutual Support	15.7 (4.1)	4-20	15.2–16.33	0.983	1.017
Companionship	16.5 (4.7)	5-25	15.9–17.2	0.898	1.113
Sharing	15.4 (4.5)	5-25	14.77–16.03	0.559	1.790

SD: standard deviation; Min: minimum; Max: maximum; 95% CI: 95% Confidence Interval for Mean; VIF: variance influation factor.

CFA supported the factor structure obtained through EFA (Figure 2). The mean total score of the scale was 81.9 (SD = 4.8) in the upper group (n = 55) and 52.9 (SD = 7.1) in the lower group. A statistically significant difference was observed between the two groups (F = 8.382, p = 0.005), indicating that the scale effectively differentiates between groups and demonstrates strong construct validity.

CFA was subsequently conducted on a revised dataset of 202 participants to confirm the factor structure. To improve model fit, modifications were applied based on established recommendations (Marsh et al., 2006; Schermelleh-Engel et al., 2003). The pre- and post-modification fit indices are presented in Table 3.

Overall, CFA confirmed that the model derived from EFA was suitable for the data (Figure 2). The significant difference between the upper and lower groups (F = 8.382, p = 0.005) further supported the scale's ability to discriminate effectively, thereby reinforcing its construct validity.

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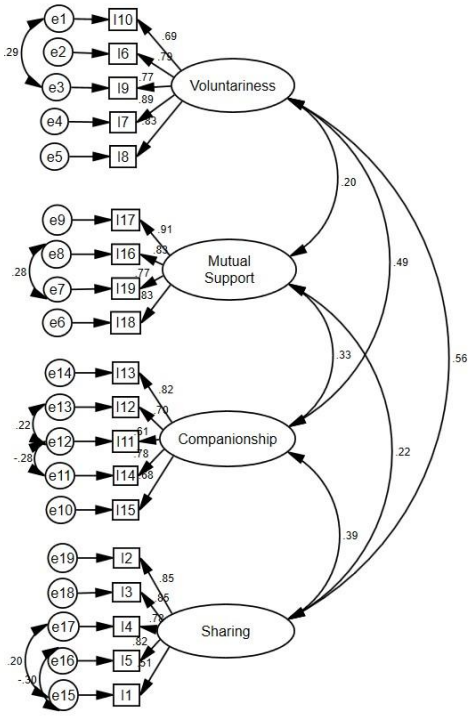


Figure 2. The 4-factor model of the scale with standardized estimates (n=202)

Table 3. Calculated fit index values of the Turkish Version of Online Friendship Scale (n=202)

Criterion	Perfect fit	Acceptable fit	Pre-modification finding	Post-modification finding
RMSEA	0≤RMSEA≤0.05	0.05<RMSEA≤0.09	0.091	0.088
GFI	0.95<GFI<1	0.90<GFI<0.95	0.913	0.943
AGFI	0.90<AGFI<1	0.85<AGFI<0.90	0.857	0.886
NNFI (TLI)	0.95≤NNFI≤1	0.90≤NNFI<0.95	0.862	0.9
CFI	0.95≤ CFI≤1	0.90≤CFI<0.95	0.882	0.909
NFI	0.95<NFI<1	0.90<NFI<0.95	0.933	0.961
IFI	0.95≤IFI≤1	0.90≤IFI<0.95	0.883	0.911
SRMR	0<SRMR≤0.05	0.05<SRMR≤0.08	0.078	0.061
CMIN/DF	2< CMIN/DF <3	3< CMIN/DF <5	2.928	2.545

RMSEA: The Root Mean Square Error of Approximation; GFI: Good Fit Index; AGFI: Adjusted Good Fit Index; NNFI: Non-normed Fit Index; CFI: Comparative Fit Index; NFI: Normed Fit Index; IFI: Incremental Fit Index; CMIN/DF: Chi-square Fit Test; SRMR: Standardized Root Mean Square Residual; TLI: Tucker Lewis Index.

Reliability

The internal consistency of the 19-item scale was high, with a Cronbach's alpha coefficient of 0.889. Item–total correlations were satisfactory, as all items exceeded the recommended threshold of 0.30 (Table 4).

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Table 4. Correlation coefficients of scale items and item-total correlation.

Item	In interacting with friends on social networks, how often do you:	Mean (SD)	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
	Sharing				
1	Encourage them	2.58 (1.01)	0.342	0.409	0.888
2	Share experience with them	3.17 (1.29)	0.582	0.670	0.881
3	Share information on activities you did with your friends	3.23 (1.15)	0.650	0.713	0.879
4	Give inspiration to them	3.05 (1.15)	0.521	0.647	0.883
5	Congratulate them	3.45 (1.18)	0.624	0.667	0.880
	Voluntariness				
6	Talk about common things with them	3.85 (1.04)	0.596	0.663	0.881
7	Send messages when you are online	3.91 (1.01)	0.604	0.709	0.881
8	Receive a chat reply from your friend	4.08 (0.97)	0.613	0.745	0.881
9	Chat casually with them on social network	3.73 (1.16)	0.588	0.665	0.881
10	Give comments to each other (with friends)	3.79 (1.13)	0.637	0.581	0.879
	Companionship				
11	Ask news on your friend on social network.	3.07 (1.13)	0.393	0.547	0.887
12	Care about the activities that your friends do	3.63 (1.09)	0.490	0.656	0.884
13	Talk about everyday activities	3.32 (1.11)	0.559	0.689	0.882
14	Make an appointment to meet	3.39 (1.19)	0.529	0.620	0.883
15	Open up about my past failings	3.04 (1.19)	0.488	0.481	0.884
	Mutual Support				
16	Like a status/ post with your friends on social network	4.09 (1.12)	0.407	0.772	0.887
17	Respond to a status/ post with your friend on social network	3.95 (1.18)	0.392	0.762	0.887
18	Like your friend's status/ post	3.64 (1.24)	0.386	0.657	0.888
19	Get respond (like/ comment) on your status/ post on social network from friends	3.84 (1.19)	0.381	0.683	0.888

For the individual sub-dimensions, Cronbach's alpha coefficients were 0.899 for voluntariness, 0.916 for mutual support, 0.863 for companionship, and 0.885 for sharing. In addition, all ICC values for the subscales exceeded 0.80, indicating strong internal consistency across items (Table 5).

Table 5. Reliability findings.

	Cronbach's α (n=204)	McDonald's ω (n=204)	CR (n=204)	ICC (n=45)
Voluntariness	0.899	0.897	0.90	0.891
Mutual support	0.916	0.916	0.90	0.873
Companionship	0.863	0.863	0.84	0.864
Sharing	0.885	0.884	0.88	0.875
Total	0.889	0.887	8.85	0.855

CR: composite reliability; ICC: interclass correlation coefficient.

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The scale items were divided into two groups based on item order: odd-numbered items (I1, I3, I5, I7, I9, I11, I13, I15, I17, I19) and even-numbered items (I2, I4, I6, I8, I10, I12, I14, I16, I18). Cronbach's α coefficient was 0.782 for the first half and 0.783 for the second half. The correlation between the two halves was 0.902, and the Spearman–Brown coefficient (for unequal-length halves) was 0.949, indicating strong internal consistency.

Additivity and Response Bias

The Tukey homogeneity test indicated nonadditivity of 0.549 (F = 0.614), demonstrating that nonadditivity was not statistically significant, thus confirming the scale's homogeneity. Results of the Hotelling T^2 test, Hotelling T^2=886.559, p=0.000, demonstrated there was no response bias in the scale.

Discussion and Conclusion

In this study, the Online Friendship Scale developed by Helmi et al. (2017) in Indonesia was adapted to Turkish and its validity and reliability studies were conducted. Four sub-dimensions (sharing, volunteering, companionship, and mutual support) for the scale make up a total of 19 items. For analyses, acceptable internal consistency and reliability coefficients were found for the Turkish scale. Our study was a big step towards bridging the gap of the lack of an evaluation tool that measures friendships on the internet in Turkiye. Based on the findings, it is possible to claim the scale is valid and reliable and can be used to measure teenagers' internet friendships.

In our study, EFA and CFA were used for validity analyses, and the model was verified with goodness-of-fit indices. In the original study, the KMO value for construct validity was reported as 0.837, and Bartlett's Test of Sphericity was significant. These values indicate that the structure of the scale is appropriate. In our Turkish validity study, construct validity was verified similarly, and goodness-of-fit indices show that the model provides a valid structure. This supports that the scale is also valid in Turkish culture and can successfully measure online friendship relationships.

In CFA, modification indices are often used to improve model fit by correlating error terms. While excessive modifications can indicate potential issues with the model, a reasonable number of modifications is considered acceptable in the literature to achieve a better model-data fit. Schreiber et al. (2006) suggest that modifications should be theory-driven and limited to a small number to avoid overfitting. Additionally, Byrne (2016) notes that modifications are a common practice in CFA to address minor model-data discrepancies and improve fit indices.

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Generally, the acceptable number of modifications ranges between 5 and 10, depending on the complexity of the model and the length of the scale. In our study, we used six modifications, which are within the acceptable range suggested by the literature. Each modification was carefully considered and implemented based on theoretical justification and the improvement of model fit indices.

The modifications primarily involved correlating error terms of items within the same sub-dimension that possessed similar wording or addressed closely related behaviors. For instance, Items 9 and 10 ("Chat casually with them on social network" and "Give comments to each other [with friends]") both reflect casual interactions on social networks, likely sharing common variance beyond the latent factor. Similarly, Items 16 and 19 ("Like a status/post with your friends on social network" and "Get respond [like/comment] on your status/post on social network from friends") are both concerned with interactions involving social media posts, suggesting shared method variance. Other modifications, such as correlating Items 1 and 5 ("Encourage them" and "Congratulate them"), also followed this rationale, as they both relate to supportive behaviors towards friends. These specific modifications were essential for enhancing the model fit while maintaining the theoretical coherence of the construct being measured. The final model exhibited improved fit indices, indicating that the modifications were appropriate and justified.

The reliability of the Turkish adaptation of the Online Friendship Scale was assessed using Cronbach's α, McDonald's ω, CR, and ICC values. While the original version of the scale reported a high overall internal consistency with a reliability coefficient of 0.880, it did not include separate reliability estimates for its sub-dimensions. In contrast, the Turkish version demonstrated strong reliability, with an overall Cronbach's α of 0.889 and a McDonald's ω of 0.887. Additionally, each subscale was examined independently, and all showed high internal consistency. These findings indicate that the Turkish version retains psychometric properties comparable to the original and can provide stable and consistent results over time.

When the scale was examined in terms of sub-dimensions, online friendship in the Turkish version, as in the original form, was evaluated on four basic sub-dimensions: sharing, volunteering, companionship and mutual support.

In the context of Indonesia, the dimension of sharing contributed the greatest variance (30.197%), as it was claimed that online friendships are meant for sharing information and feelings. In Indonesia, sharing is considered essential for online friendships since it is viewed as a sense of belonging to a group and promotes social cohesion (Helmi et al., 2017). In Turkish

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society, too, sharing is regarded as one of the fundamentals of friendship relations. The results of our study indicated high values for the reliability of the sharing dimension (Cronbach's α = 0.885), which suggests that youngsters regard affection and experience mutual sharing in virtual space. The presence of sharing as a significant dimension that cuts across both cultures is an indication that it is characteristically present in online relationships, though the nature of sharing differs across cultures.

The volunteering dimension explains the willingness and eagerness of people in Indonesia to spend time talking with people they meet online. This dimension had the highest reliability values, and due to the cultural setting in Indonesia, individuals are expected to develop close and cordial relationships with their inner circles (Helmi et al., 2017). In the Turkish adaptation, the volunteering dimension was also found to be reliable to the same extent (Cronbach's α = 0.899). As for Turkiye, especially among the younger population, online friendship poses a challenge to one's social life, as there is a need to establish very close friendships (Kaşıkcı et al., 2014). This is one of the sociocultural issues where one can see a similarity in the two cultures, though in Turkiye, there is a more emotional understanding of volunteering. The prominence of this dimension in both cultures can be explained by the fact that this activity is not a simple pleasure but rather one of the parameters that allow for sustaining the relationship between online friends.

In the Indonesian study, companionship refers to individuals' tendency to share their daily activities and spend time together with their online friends. Since harmony within a group is an important value in Indonesian culture, online companionship plays a role in reinforcing individuals' sense of community. In the adaptation study conducted among Turkish youth, the companionship dimension also emerged as an important component (Cronbach's α = 0.863). In Turkiye, companionship contributes to the establishment of strong bonds in friendships and deepens social relationships in the online environment (Demir & Özdemir, 2010). Companionship also meets the need for individuals to spend time together on digital platforms, which reveals the similarities between the two cultures. However, in Turkiye, companionship is generally prominent among close friends and contributes to the sustainability of special social ties in the digital environment.

In Indonesia, mutual support is seen as one of the most important components of online friendships and refers to individuals providing emotional and practical support to each other on social media. In Indonesian culture, social support is considered an element that promotes solidarity within a group, and this dimension was supported with high reliability values in this

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study. In the Turkish adaptation, the mutual support dimension was also supported with high reliability coefficients (Cronbach's α = 0.916), and mutual support has an important place in friendships in Turkish culture. Emotional support and solidarity are of considerable importance in friendships in Turkiye, and this has been carried over to the internet as well (Yelpaze et al., 2021). The pronounced emergence of the mutual support factor in our study suffices to illustrate the increasing tendency of online friends to support one another emotionally on social networking sites.

Across both studies, all four subscales were effectively utilized to evaluate various components of online friendships. Similar validity and reliability values were also found in the Indonesian and Turkish populations, suggesting that these traits are consistent worldwide in the description of online relationships. How the dimensions are articulated may, however, vary with cultural expectations. For instance, in Indonesia, sharing is seen as cohesion within a group, whereas in Turkiye, it is more about keeping individual members close and intimate. These cultural considerations imply that there are different variations of the scale in the two societies without altering the global aspects of friendships as practiced in the online space.

In this research, we introduce a valid and reliable instrument that evaluates online friendship relationships among Turkish adolescents. The adaptation of the Online Friendship Scale to Turkish will enhance the understanding of the sociability of youth in Turkiye who are oriented toward modern technology. The results indicated that the four sub-dimensions of the scale (sharing, volunteering, companionship, and mutual support) align with the cultural context of Turkish society. Therefore, regarding studies conducted in education and psychosocial contexts, this tool will serve as a useful instrument for assessing online friendship relationships among the youth.

Limitations

Although the study yielded strong and statistically significant results, some limitations should be acknowledged. One notable limitation is the restriction of the sample to university students, which may hinder the broader applicability of the findings to the general population. Future studies could broaden the applicability and relevance of the scale by including individuals from various age groups and socioeconomic levels. However, in the present study, the heterogeneous composition of the student sample in terms of age and gender limited opportunities to perform validity and reliability analyses based on subgroup classifications. This limitation restricts the ability to assess the scale's psychometric properties across distinct subpopulations and affects the generalizability of the findings. Using a more homogeneous

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sample or a more balanced sample based on subgroups in future studies may allow for a more comprehensive test of the consistency of the scale across different demographic groups. No correlation could be made with similar scales within the scope of the study, and no criterion validity could be examined. The reason for this was that the number of tools for measuring online friendships is still limited, and there is no directly comparable scale in Turkiye. It would be useful to conduct such analyses when similar scales are developed in future studies.

Additionally, the study relied on self-reported data, which may be subject to social desirability bias. Participants may have been inclined to present their online friendships in a more positive light, particularly in dimensions such as mutual support and sharing. This tendency could have led to the overreporting of prosocial behaviors and the underreporting of less favorable or neutral interactions. Future research may consider incorporating qualitative methods or third-party assessments to mitigate such bias and gain a more nuanced understanding of online friendship dynamics.

Financial Support

No financial support was provided for the research.

Conflict of Interest

The authors declare that they have no conflict of interest.

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