

# Turkish Validation of the Gender Equality in Football Attitude Scale and Examination of its Psychometric Properties

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**Abstract:** *This research aimed to translate and adapt the Gender Equality in Football Attitude Scale into Turkish. In this context, the scale, developed initially by Ferro et al. (2023) as "Attitudes on Gender Equality in Football," was translated into Turkish and adapted as "Futbolda Cinsiyet Eşitliği Tutum Ölçeği." The study's sample was selected using a convenience sampling technique. Among the participants, 44.4% (n=119) were female, and 55.6% were male, with an average age of 11.89. Additionally, 13.4% of the participants were registered athletes. The data analysis was conducted using SPSS 25 and AMOS software. Principal component analysis and Varimax rotation techniques were employed to evaluate the construct validity of the Turkish version of the scale. The study identified a four-factor structure with eigenvalues exceeding one. The internal consistency coefficients (Cronbach's alpha) were calculated as .76 for the first factor, .81 for the second, .73 for the third, and .70 for the fourth. The KMO value was found to be .85. The overall reliability of the scale, measured by internal consistency, was calculated as .73. Results from the CFA analysis were:  $\chi^2/df = 1.755$ , RMSEA = .05, CFI = .92, GFI = .91, RMR = .09, NFI = .84, and IFI = .92. These findings indicate that the Turkish version of the "Gender Equality in Football Attitude Scale" is a reliable and valid tool.*

**Keywords:** *Football, gender equality, gender, women's football, attitudes.*

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## Introduction

Since the mid-20th century, gender equality has become a globally significant issue, impacting various sectors. While strides have been made toward gender equity in many areas, achieving it within the sports industry has proven challenging (Messner, 2002; Williams, 2003). Historically, sports have been perceived as predominantly male spaces, resulting in limited opportunities for women and reinforcing traditional gender norms (Talaghir et al., 2023a; Pfister, 2010). Football epitomizes these gender-related discussions, as it is often viewed as a "man's sport," leading to societal, cultural, and economic barriers that restrict female participation (Iconomescu et al., 2021; Clark & Paechter, 2007; Scraton et al., 1999).

The perception of football as an inherently masculine sport has perpetuated biases against women's participation (Trolan, 2013). Such prejudices extend beyond players to include coaches, officials, and spectators, influencing societal expectations and attitudes around gender roles in football. Studies have documented how these biases disadvantage women's football in media coverage, sponsorship, and resource allocation (Bruce, 2015; Sherry et al., 2016). Media portrayal and sponsorship thus become critical in framing football as a benchmark for gender equality (Fink, 2015). Prejudices also manifest within educational settings, where research indicates that girls' participation in football-related activities in physical education classes is lower, as boys are often deemed more capable (Talaghir et al., 2021a; Clark & Paechter, 2007).

Women's involvement in football exhibits distinct variations globally. Cross-cultural studies reveal that women encounter structural and cultural barriers in engaging with football (Fink, 2015). For instance, in England, where women's football has roots dating back to the 19th century, it long remained overshadowed by men's football, with female contributions frequently overlooked (Williams, 2003). Similarly, women's football gained prominence in the United States only after the 1990s, reflecting a gradual shift in societal views (Talaghir et al., 2023b; Anderson, 2008).

In Turkey, however, women's football is still developing and lags behind men's. Cultural beliefs and traditional gender roles have contributed to the slow progress of women's football by limiting opportunities for women in competitive sports (Akpınar, 2012). A prevailing view that women's involvement in competitive sports such as football conflicts with societal expectations further constrains their participation (Uluç, 2023). Yet, recent initiatives promoting women's football challenge these deep-seated biases (Yiapanas, 2025). Despite such efforts, the lack of media attention,

sponsorship limitations, and inadequate infrastructure continue to hinder the growth of women's football in Turkey (Tavşancıl, 2014).

Psychometric scales are crucial for assessing attitudes toward gender equality (Talaghir et al., 2021b; Hambleton, 2005). The current study extends the international dialogue on gender equality in football by adapting a validated psychometric scale into the Turkish context. By providing a culturally relevant and reliable tool, this research contributes to the broader understanding of societal attitudes toward gender equality in sports, offering insights that are applicable across different cultural settings. Such efforts align with global initiatives aiming to reduce gender disparities in sports and promote inclusivity. Adapting these scales to different cultures, particularly in sensitive areas like sports, is essential (Büyüköztürk, 2010). This study focuses on adapting the "Attitudes on Gender Equality in Football" scale by Ferro et al. (2023) into Turkish to evaluate attitudes towards gender equality in Turkish football. The original scale, which contains five sub-dimensions, provides a comprehensive framework for examining gender equality in football (Ferro et al., 2023).

The translation-back translation technique was utilized to ensure cultural and linguistic alignment in adapting the scale (Brislin, 1970). The scale's validity and reliability were assessed through factor analyses, and adjustments were made to fit the Turkish cultural context. Considering the evolution of women's football in Turkey and prevailing societal perceptions, this Turkish adaptation of the scale is instrumental in evaluating attitudes towards gender equality in football.

In sum, exploring gender equality within contact sports like football sheds light on personal attitudes and allows for examining broader social and cultural dynamics (Pfister, 2010). By adapting Ferro et al.'s scale, this study aims to raise awareness about gender equality in Turkish sports culture and highlight existing biases. The adapted scale holds promise for advancing research in this field and supporting the development of women's football in Turkey.

## **Materials and methods**

### ***Study Group***

The participants for this study were selected using a convenience sampling method. Convenience sampling, which is based on accessibility and practicality, is often preferred in specific research topics to enable the swift collection of data (Büyüköztürk, 2010a). The sample consisted of 268 individuals, with 44.4% (n=119) female and 55.6% (n=149) male. The

average age of the participants was 11.89 years, and 13.4% were licensed athletes.

There is no consensus on the required sample size for validity and reliability studies of scales (Osborne & Costello, 2004). Some sources suggest that a sample size of 100 is sufficient to determine the factor structure of a scale (Sapnas, 2004), while others recommend that the sample size should range between 100 and 250 (Preacher & MacCallum, 2002). Additionally, other studies propose that the sample size should be five times the number of items in the scale (Tavşancıl, 2014). In this study, the sample size met the absolute and relative criteria defined for conducting factor analyses, as Kline (1994) and Tavşancıl (2014) explained. The data were collected in October 2023 during students' physical education class hours at their schools, following the acquisition of parental consent forms.

### ***Data collection tools***

The scale used in this research was the "Attitudes on Gender Equality in Football" scale, developed by Ferro et al. (2023). The original scale comprises 19 items, measured on a five-point Likert scale. The scale is divided into five sub-factors: 'Equality in Football' (6 items, e.g., "Girls can perform equally or better than boys in football"), 'Male Superiority in Football' (4 items, e.g., "Boys are naturally more talented than girls in football"), 'Discrimination Against Women in Football' (3 items, e.g., "During PE class, boys often mistreat girls who cannot keep up"), 'Football as a Male Sport' (3 items, e.g., "Football is a male sport"), and 'Derogatory/Protective Attitudes Toward Women in Football' (3 items, e.g., "Investing in women's football is a waste of time and money"). The original version of the scale includes no reverse-scored items. According to Ferro et al. (2023), the KMO value for the original scale was .87. Cronbach's alpha for the 19 items was calculated at .73. Internal consistency reliability for the five sub-factors ranged between .74 and .86. The confirmatory factor analysis (CFA) results for the original scale were:  $\chi^2 = 277.510$ ,  $p = .00$ ,  $RMSA = .03$ ,  $CFI = .96$ , and  $TLI = .95$ .

### ***First procedure of the instrument***

Adapting the "Gender Equality in Football Attitude Scale" (FUTCET) into Turkish began with gathering detailed information about the original scale. The translation process commenced after obtaining permission via email from the developers to adapt the scale into Turkish. The FUTCET scale, which consists of 28 items, was first translated into Turkish by the researcher. Three additional field experts also translated the

scale independently. The consistency of the various translations was compared to ensure accuracy. Before finalizing, two Turkish language and literature experts reviewed the Turkish version for clarity, coherence, and structural integrity and suggested revisions were made accordingly.

Three experts proficient in both languages back-translated the Turkish version into English. The researcher and the experts worked to compare the back-translated items with the original ones, ensuring semantic equivalence. After this comparison, the final Turkish version of the scale was presented to three field experts. With their approval, the Turkish version was considered ready for further validity and reliability testing, and the process also confirmed the scale's expert validity.

### ***Data analysis***

Before the data analysis, all participants were informed about the purpose of the research. Data were analysed using SPSS 25 and AMOS software. Initially, the dataset was inspected for missing values, outliers, normality, and multicollinearity. Normality was assessed using the Shapiro-Wilk test, which indicated a normal distribution. An exploratory factor analysis (EFA) was conducted on the data to examine the factor structure, focusing on factors with eigenvalues greater than 1 (Eroğlu, 2009). Cronbach's alpha was used to measure internal consistency reliability. A confirmatory factor analysis (CFA) was also performed using AMOS to assess the fit of the factor structure identified in the EFA.

Several fit indices were used in the CFA. A chi-square/degrees of freedom ( $\chi^2/df$ ) ratio less than 5 indicates a reasonable fit, while a ratio below 2.5 suggests a good fit. An RMSEA (Root Mean Square Error of Approximation) value below .06 indicates a good model fit, with values below .10 deemed acceptable. Normed Fit Index (NFI) and Comparative Fit Index (CFI) values of .95 or higher indicate good model fit, and a Goodness of Fit Index (GFI) of .90 or above suggests a good fit. Pearson product-moment correlation coefficients were used to assess criterion validity.

### **Results**

This section presents the general characteristics of the sample group and the results of the exploratory and confirmatory factor analyses.

Table 1 shows 268 participants were involved in the study, 44.4% (n=119) female and 55.6% (n=149) male. Of the participants, 13.4% (n=36) were actively engaged in sports, while the remaining 86.6% (n=232) were not.

Table 1. General Characteristics of the Sample Group

<b>Gender</b>	<b>n</b>	<b>%</b>
Female	119	44.4
Male	149	55.6
<i>Total</i>	<i>268</i>	<i>100.0</i>
<b>Participation in Sports</b>	<b>n</b>	<b>%</b>
Yes	36	13.4
No	232	86.6
<i>Total</i>	<i>268</i>	<i>100.0</i>

### *Exploratory Factor Analysis (EFA)*

The validity and reliability findings related to the scale are presented in Table 2 below.

Table 2. EFA and Reliability Results

<b>Pre-Rotation Load Values</b>		<b>Load Values After Rotation</b>			
<b>Item</b>	<b>Factor Common Variance</b>	<b>Factor-1 (Equality in Football)</b>	<b>Factor-2 (Football as a Male Sport)</b>	<b>Factor-3 (Male Superiority in Football)</b>	<b>Factor-4 (Discrimination Against Women in Football)</b>
1	.494		.453		
2	.426		.455		
3	.420		.620		
4	.551	.718			
5	.533	.688			
6	.656	.698			
7	.581	.694			
8	.673	.785			
9	.565		.729		
10	.544		.704		
11	.472		.530		
12	.464			.554	
13	.479			.678	
14	.651			.734	
15	.635			.749	
16	.622				.772
17	.640				.719
18	.480				.642
Explained variance Total: 54.92%		17.26%	13.94%	14.38%	9.33%
Cronbach alpha Total scale: .713		.811	.764	.738	.701
KMO: .857 Bartlett's test of sphericity [ $X^2 = 1450.829$ sd =153 p=.000].					

The results of the exploratory factor analysis (EFA) demonstrated that the KMO value for the scale was .857, and Bartlett's test of sphericity was significant ( $X^2 = 1450.829$ ,  $p=.000$ ), indicating that the data were appropriate for factor analysis.

Four factors with eigenvalues greater than one were identified, explaining 54.92% of the total variance. Factor 1 accounted for 17.26% of the variance, Factor 2 for 13.94%, Factor 3 for 14.38%, and Factor 4 for 9.33%.

After factor rotation, it was noted that Item 11 did not load appropriately (factor load of .196). Consequently, this item was removed from the scale, leaving 18 items. The final factor structure consisted of five items for Factor 1 (Items 4-5-6-7-8), six items for Factor 2 (Items 1-2-3-9-10-11), four items for Factor 3 (Items 12-13-14-15), and three items for Factor 4 (Items 16-17-18).

The factor loadings for the four-factor model ranged between .453 and .785. Cronbach's alpha internal consistency coefficients were calculated as .811 for Factor 1, .764 for Factor 2, .738 for Factor 3, and .701 for Factor 4. The overall internal consistency coefficient for the scale was calculated as .713, indicating an acceptable level of reliability.

### ***Confirmatory Factor Analysis (CFA) Results***

A confirmatory factor analysis (CFA) was performed to assess the fit of the four-factor structure identified by the EFA.

Table 3. CFA Results

X2	sd	( $x^2 /$ sd)	RMSEA	CFI	GFI	AGFI	RMR	TL
226,378	129	1,755	.053	.927	.915	.887	.099	.914

The CFA results, table 3, indicate that the chi-square ( $X^2$ ) value was 226.378, with a degree of freedom (df) of 129. This results in a chi-square/degrees of freedom ratio ( $X^2/df$ ) of 1.755, suggesting a good fit. The RMSEA value was .053, the CFI was .927, the GFI was .915, the AGFI was .887, the RMR was .099, and the TLI was .914. These results indicate that the model fits the data well.

The correlation coefficients between items in the four-factor model ranged from .39 to .80, suggesting that the correlations between items were acceptable. Based on these findings, the four-factor model demonstrated a good fit for the data.

## Discussion

The primary objective of this study was to adapt the "Attitudes on Gender Equality in Soccer" scale developed by Ferro et al. (2023) into Turkish, resulting in the "Futbolda Cinsiyet Eşitliği Tutum Ölçeği" (FUTCET). This adaptation aimed to provide a valid and reliable tool for assessing attitudes toward gender equality in football within the Turkish context. The process involved a detailed psychometric evaluation, including exploratory (EFA) and confirmatory factor analysis (CFA), ensuring the scale's robustness.

Initial exploratory factor analysis revealed a four-factor structure that differed from the original scale, reflecting cultural and contextual distinctions. This is consistent with previous research highlighting the importance of cultural adaptation in psychometric assessments (Brislin, 1970; Hambleton, 2005). The factors identified in the Turkish version included "Football as a Male Sport" and "Equality in Football," emphasizing deeply embedded societal norms about gender roles in sports. Such findings align with studies that underscore the need to tailor measurement tools to account for local socio-cultural dynamics (Büyüköztürk, 2010; Çokluk et al., 2010).

The exclusion of Item 11 due to its low factor loading further highlights the nuances of cultural adaptation. Removing this item strengthened the scale's psychometric properties, as the final version achieved a high internal consistency across its four factors, with Cronbach's alpha coefficients ranging from .701 to .811. These reliability scores meet and exceed the generally accepted thresholds, confirming the scale's capacity to consistently measure attitudes in varied contexts (Hooper et al., 2008).

Confirmatory factor analysis confirmed the scale's structure, yielding indices such as an RMSEA of .053 and a CFI of .927, indicating strong model fit. These results reinforce the validity of the Turkish version and its suitability for capturing attitudes toward gender equality in football. The scale's ability to differentiate attitudes across its four dimensions offers valuable insights for further research and practical applications, particularly in settings where traditional gender norms prevail (Field, 2013; Jöreskog & Sörbom, 1993).

While the psychometric results demonstrate the scale's robustness, this study also sheds light on broader implications for gender equality in sports. Football, often perceived as a male-dominated sport, serves as a lens to examine societal attitudes toward gender. In patriarchal and male-dominated societies like Turkey, where football is widely perceived as a male sport, the development and implementation of such a scale are crucial for

future studies. This approach could highlight women's ability to participate in the sport and shed light on how societal perceptions have evolved over time. The Turkish adaptation of the FUTCET provides a vital tool for researchers and educators aiming to challenge these stereotypes. This scale can inform educational interventions and public policies promoting inclusivity in sports environments by capturing specific attitudes and biases.

Additionally, the divergence in factor structures between the Turkish and original versions underscores the critical role of cultural context in shaping perceptions. For example, the prominence of traditional gender norms in Turkey may have amplified certain factors while diminishing others, a finding that merits further investigation. Future studies could expand on this work by conducting cross-cultural comparisons or applying the scale longitudinally to observe attitude shifts over time.

While the study provides a robust adaptation of the "Attitudes on Gender Equality in Football" scale, it is important to acknowledge its limitations. The sample, primarily drawn from a specific region in Turkey, may not fully represent the diverse socio-cultural dynamics of the entire country. Additionally, the study's cross-sectional nature offers only a snapshot of attitudes at a particular point in time, limiting the ability to observe changes or trends longitudinally. These factors should be considered when interpreting the results, and future research should aim to address these limitations by incorporating more diverse and larger samples, as well as longitudinal designs.

The Turkish adaptation of the FUTCET is a methodologically sound instrument and a significant step toward understanding and addressing gender disparities in sports. Its application has the potential to guide interventions that foster equality and inclusivity, both within Turkey and beyond. As a result, this study contributes meaningfully to the ongoing dialogue on gender equality in sports while laying the groundwork for future research in this field.

## **Conclusion**

The present study successfully adapted Ferro et al.'s (2023) "Attitudes on Gender Equality in Soccer" scale into Turkish, resulting in the "Futbolda Cinsiyet Eşitliği Tutum Ölçeği" (FUTCET). The scale was validated through rigorous psychometric evaluation, including exploratory and confirmatory factor analyses, as a reliable and culturally relevant tool for assessing attitudes toward gender equality in football within the Turkish context. The adaptation process revealed significant cultural distinctions,

underscoring the importance of tailoring measurement tools to local socio-cultural dynamics.

The final version of the scale, comprising 18 items across four factors, demonstrated high internal consistency, with Cronbach's alpha coefficients exceeding acceptable thresholds. These findings affirm the scale's reliability for measuring attitudes in diverse settings. Moreover, confirmatory factor analysis supported the structural integrity of the adapted scale, with fit indices indicating a robust model fit. Such results highlight the scale's capacity to capture the nuances of societal attitudes toward gender equality in football, particularly in contexts where traditional gender norms remain influential.

This study provides a validated instrument for future research and offers practical applications for fostering gender equality in sports. The insights derived from the scale can inform educational initiatives, public awareness campaigns, and policy-making efforts aimed at challenging gender stereotypes and promoting inclusivity. Furthermore, the observed divergence between the Turkish and original scale structures emphasizes the role of cultural context in shaping perceptions, pointing to the need for continued cross-cultural validation of psychometric tools.

In conclusion, the Turkish adaptation of the FUTCET represents a meaningful contribution to studying gender equality in sports. This scale can potentially drive positive change within Turkey and broader international contexts by offering a reliable framework for assessing attitudes. However, the study's limitations must also be recognized. The geographical scope of the research, limited to specific regions in Turkey, may restrict the generalizability of the findings to other cultural or national contexts. Furthermore, the relatively small and homogeneous sample size could influence the robustness of the conclusions drawn. The research was also conducted within a specific temporal context, which may have impacted participants' attitudes and responses. Addressing these limitations in future studies could provide a more comprehensive understanding of gender equality perceptions in football and enhance the cross-cultural applicability of the findings. Future research could build on this foundation by exploring cross-cultural comparisons or examining longitudinal shifts in attitudes, enriching our understanding of gender dynamics in sports and advancing efforts toward inclusivity and equality.

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The study received no external funding.

### Competing interests

The authors declare no competing interest.

### Ethical statement

Istanbul Aydin University Review Board approved the conduct of this research after all ethical procedures in accordance with the ethical standards of the sixth revision of the Declaration of Helsinki were duly followed.

### Data availability statement

Anonymised data for the generation of the study results could be obtained from the corresponding author without any restriction.

### Authors' contribution

The authors contributed equally to this work. All authors thoroughly revised and approved the final version of the manuscript.

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