



## Adaptation of Sport Fanaticism Scale Into Turkish

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### Abstract

Sometimes positive and sometimes negative meanings can be attributed to fanaticism in sports. For sports marketers, fanatics are valued customers of the brand and form a framework of social approval in terms of social identity, relationship and self-esteem. In addition, the violent extreme behavior of fanatics is seen in a socially unacceptable framework. This study, which was carried out due to the need for a valid and reliable measurement tool to measure sports fanaticism for these different fields of study, aims to determine the validity and reliability of the Sport Fanaticism Scale developed by Dwyer, LeCrom and Greenhalgh (19) in Turkish conditions. The 5-point Likert type scale consisting of 12 items was applied to 528 participants who are supporters of Besiktas, Fenerbahce, Galatasaray and Trabzonspor clubs. Confirmatory factor analysis (CFA) was performed using the AMOS program to examine the four-factor structure of the scale. It was observed that the values of fit indices are at good or excellent level in all parameters ( $\chi^2/sd= 2.91$ ); RMSEA=.060; GFI=.96; CFI=.95; IFI=.95; AGFI =.93). The results show that the 12-item scale is consistent with the original four-factor structure and is compatible with the data. For the reliability of the scale, the internal consistency coefficients of the entire scale and its sub-dimensions were checked. In addition, Cronbach's Alpha and AVE and CR values were also calculated within the scope of the internal consistency reliability of the scale and the coefficients were found to be sufficient. Test-retest reliability analysis of the scale was also performed at three-week intervals. In the light of these findings, it was concluded that the "Sports Fanaticism Scale" is a valid and reliable measurement tool that is compatible with the Turkish cultural structure.

**Keywords:** Sport fanaticism, validity, reliability, confirmatory factor analysis, adaptation of scale

### Spor Fanatizmi Ölçeğinin Türkçe'ye Uyarlanması

#### Özet

Spor fanatikliği bazen olumlu bazen olumsuz anlamlar yüklenebilmektedir. Fanatikler spor pazarlamacıları için markanın değerli müşterileri olmakla birlikte sosyal kimlik, ilişki ve benlik saygısı açısından sosyal bir onay çerçevesi oluşturur. Bunun yanında fanatiklerin şiddet içeren aşırı davranışları sosyal olarak kabul edilemez bir çerçevede görülmektedir. Bu farklı çalışma alanları için de spor fanatizmini ölçecek geçerli ve güvenilir bir ölçme aracına ihtiyaç duyulması nedeniyle gerçekleştirilen bu çalışma, Dwyer, LeCrom ve Greenhalgh (19) tarafından geliştirilen Spor Fanatizmi Ölçeğinin (Sport Fanaticism Scale) Türkiye koşullarında geçerliliğini ve güvenilirliğini belirlemeyi amaçlamaktadır. 12 maddeden oluşan 5'li likert tipindeki ölçek, Beşiktaş, Fenerbahçe, Galatasaray ve Trabzonspor kulüplerinin taraftarı olan 528 katılımcıya uygulanmıştır. Ölçeğin dört faktörlü yapısının incelenmesi için AMOS programı kullanılarak doğrulayıcı faktör analizi (DFA) yapılmıştır. Uyum indeksleri değerlerinin tüm parametrelerde iyi veya mükemmel seviye de olduğu görülmüştür ( $\chi^2/sd= 2.91$ ); RMSEA=.060; GFI=.96; CFI=.95; IFI=.95; AGFI =.93). Elde edilen sonuçlar, 12 maddelik ölçeğin dört faktörlü özgün yapı ile tutarlı ve verilerle uyumlu olduğunu göstermektedir. Ölçeğin güvenilirliği için, ölçeğin tamamının ve alt boyutlarının iç tutarlılık katsayıları kontrol edilmiştir. Ayrıca, ölçeğin iç tutarlılık güvenilirlik kapsamında Cronbach's Alpha ve AVE ile CR değerleri de hesaplanmış ve katsayıların yeterli düzeyde olduğu bulunmuştur. Ölçeğin üç hafta ara ile test-tekrar test güvenilirlik analizi de yapılmıştır. Elde edilen bu bulgular ışığında, "Spor Fanatizmi Ölçeği"nin Türk kültür yapısıyla uyumlu, geçerli ve güvenilir bir ölçüm aracı olduğu sonucuna ulaşılmıştır.

**Anahtar Kelimeler:** Spor fanatizmi, Geçerlilik, Güvenilirlik, Doğrulayıcı faktör analizi, Ölçek uyarlama

## INTRODUCTION

Fanaticism is an attitude that can be observed in many areas such as politics, religion, entertainment, fashion and sports. In terms of attitude and behavior, although examples of fanaticism are seen frequently, the concept of fanaticism does not have an agreed definition. The Latin root of the word fanaticism is *fanum*, which means temple or sacred place. *Fanaticus*, "inspired by God, frantically excited, enthusiastic" (67), is an adjective used to describe those who are literally devoted to the temple with extreme madness (49). In English, the word *fanatic* is used to mean a person with religious madness, dreamy and irrational passions (16). Fanaticism, as the definitions suggest, is a devotion or a form of attachment. The meaning of the term fanaticism varies considerably. For this reason, being a fan of sports teams can sometimes be attributed to positive and sometimes negative meanings. On the one hand, fanaticism expresses love and commitment to a team to the death within the framework of social approval, on the other hand, it expresses extreme behavior, including violence, in a socially unacceptable framework (40). The relationship of fanatics with a brand (team) is similar to an interpersonal relationship (1) and therefore emotional fluctuations can be experienced that cause positive and negative behavioral responses (57). According to Galeano (27), fanatical individuals feel attached to their team with much greater power and this commitment can reach the point of sacrificing one's life for the team.

Currently, sports sociology provides preliminary insights that help advance our understanding of the development of fanaticism and this unique form of loyalty, the theories of social psychology adopted in fan loyalty research. For example, the concept of socialization offers information that can explain the process of individuals' acquaintance with the brand, which later became the object of fanaticism. Factors that help socialization, such as family, peers, school, and community, also attract the attention of sports scientists in order to learn to accept the values, goals, beliefs, attitudes, and norms of the fan culture (38, 65). These theories (social identity, relationship, and self-esteem theories) have also helped explain attachment theories for insights into how an individual can develop sympathy for an object and how one can become fanatical through the attachment process. Fanaticism is a unique form of loyalty characterized by strong and intense

attachment, devotion, loyalty, passion, emotional commitment, enthusiasm and engagement (11, 14, 25, 47, 48, 53). However, the frequency and severity of team-related behavior varies widely among sports fans, because the emotion and passion associated with sports team support leads to intense attachments for some and temporary relationships for others (52, 64). Pooley (51) stated that ordinary sports spectators were simple observers and that they forgot about the sports event shortly after its completion, while the feelings of the more fanatical fans towards the team increased too much, therefore, s/he continued his/her interest in the event by devoting a large part of the day to his/her own team and events in the sports environment.

Fanaticism or fanatic behavior has been studied for more than a decade (19). According to the studies, fanaticism means the character of the belief between the fans and their teams. Fanatic fans display behaviors such as higher level of knowledge, more anxiety, and higher arousal level than normal fans while watching their teams (9, 66). Interaction with the club is very valuable for fanatic fans. Fans participate in website discussions and email comments, and are willing to join fan groups. They actively follow sports bulletins through communication channels and subscribe to the printed magazines of the clubs they are a fan of. Finally, it is known that fanatics spend more time discussing with other fans or non-supporters (20).

In addition to being an important leisure activity, sports fans constitute the great majority in the sports industry and its popularity is increasing day by day (12, 44). Shank (57) stated that "if sports event is the heart of the sports industry, the sports fan is the blood that makes this heart beat", emphasizing the importance sports fans have in the sports industry and argued that the sports industry cannot survive without fans. In other words, sports fans are vital for sports organizations not only in terms of the revenues from ticket sales but also in terms of sponsorship and media revenues (46). Besides, for sports marketers, fans are unique consumers because their interest in a brand is a self-sustaining phenomenon (50). They act voluntarily to protect the brand and preserve the brand's existence and heritage (18, 23, 24, 50, 55). Fanatic consumers show deep affection for the teams they are fans of and remain loyal to them despite their poor performance (35, 36, 54, 68). Fanatics are valued customers of a brand and are attractive to marketers for a variety of reasons. For example, some fanatics

have excessive consumption tendencies, which means excessive use and purchasing (34). They act as opinion leaders to guide others and attract new fans on behalf of the club (54). Fanatics also make great personal and financial sacrifices to support the brand, such as actively participating in brand communities (26, 47). Their support is consistent, enduring, and resistant to attempts to destroy their relationship by ignoring marketing messages from competing brands (38). Hugenberg (35) explains that organizations are enriched as a result of fan loyalty. For these reasons, in terms of sports scientists, the analysis of fanaticism in studies on sports fans is always among the current issues worth researching (30, 42).

In the literature, it was seen that a single scale was used in studies on fan fanaticism in our country (21, 37, 43, 61). One of the reasons for this situation is the limitation of suitable measurement tools to determine the level of fanaticism of sports fans in this field. In addition, this mostly used scale (62) was developed for the classification of the audience, supporters and fanatic attitudes of the football audience under two factors [thought and action tendency towards violence and institutional belonging]. The lack of a valid and reliable measurement tool draws attention that can reveal the tendency of fanaticism, especially behaviors such as instigation, committed interaction, vicarious impact, and superstition, and that can be used in all sports branches. Considering this situation, it is aimed to adapt the Sport Fanaticism Scale developed by Dwyer, LeCrom and Greenhalgh (19) to Turkish with this study. It is thought that the adapted measurement tool will make significant contributions to the relevant literature. The first of these contributions will help identify fanatic fans for sports marketers, based on the fact that fanatical fans are valuable customers of sports clubs (47). Both theoretical and practical information will be presented to sports clubs and sports marketers. The second contribution is that the behavior of fanatics and hooligans, who are thought to be at the center of violent incidents that pose an important threat to the future of sports, can be examined through various studies. Accordingly, the Sports Fanaticism Scale adapted in this study is expected to help researchers by filling the gap in the literature.

## METHOD

### Study Group

The sample of this study consists of fans who follow the competitions of Beşiktaş, Fenerbahçe, Galatasaray and Trabzonspor clubs, which are called four big teams and are in different branches. While determining the sample size in the study, the rule suggested by Hair et al. (29) that the sample group should be at least 10 times the number of items/variables in the scale was taken into account. The convenience sampling method, which is one of the non-probabilistic sampling techniques, was deemed appropriate as the sampling selection in the study. This technique is based on the principle that anyone who responds to the questionnaire can be included in the sample (4).

A total of 528 club fans, 419 (79.4%) male and 109 (20.6%) female, who are supporters of Beşiktaş, Fenerbahçe, Galatasaray and Trabzonspor using Facebook and Twitter platforms, participated in the study. An online questionnaire form on the sports fanaticism of the fans was shared through Facebook and Twitter platforms. The data were collected between 15 and 22 March 2021. The mean age of the group is  $21.79 \pm 4.68$ . Of the fans participating in the study, 287 (54.4%) were fans of Galatasaray, 92 (17.4%) were Beşiktaş, 73 (13.8%) were Fenerbahçe and 76 (14.4%) were Trabzonspor club fans. The majority of the fans (89%) were determined to follow other club branches other than football.

### Data Collection Tool

#### Personal Information Form

The personal information form created by the researchers was used to obtain descriptive information on the fans about their age, gender, marital status, education level, profession, the club they are fans of, the sport they are interested in/supporters of.

#### Sport Fanaticism Scale:

The original Sport Fanaticism Scale (SFS) is a scale developed to measure the fanaticism behavior of sports audiences. The original form of the scale developed by Dwyer, LeCrom and Greenhalgh (19) consists of 12 items. SFS consists of four factors and twelve items: Instigation (3 items), Committed Interaction (3 items), Vicarious Impact (3 items) and Superstition (3 items). All items in the scale are positive. The application time of the scale varies between 15 and 20 minutes. Participants indicate

their degree of agreement with each statement in the scale, ranging from never (1) to always (5).

Dwyer, LeCrom, and Greenhalgh (19) examined the construct validity of the original scale with confirmatory and exploratory factor analysis. In explaining the scale created after qualitative interviews, an exploratory factor analysis (EFA) was performed on an independent sample. According to the results of exploratory factor analysis within the scope of the validity studies of the Sport Fanaticism Scale, which was carried out with 223 participants who graduated from Mid-Atlantic University [college athletics (36%), National Football League (33%), Baseball league (16.6%)], it was reported that the 13-item and four-factor structure explained 76% of the variance and the factor loadings varied between 0.61 and 0.95. The scale was composed of 12 items and 4 sub-dimensions by removing one item out of 13 items by taking expert opinion. The cronbach alpha values obtained for the scale items and dimensions were reported as .767 for the instigation sub-dimension, .801 for the commitment interaction sub-dimension, .797 for the vicarious impact sub-dimension, and .79 for the superstition sub-dimension.

In the study conducted to verify the created structure, 266 participants who are supporters of the Philadelphia Region College and international teams were selected as the sample. Confirmatory factor analysis showed that the four-factor structure fits well ( $\chi^2/df=1.92$ , RMSEA=0.059, CFI=0.956, TLI=0.937).

Instigation, Committed Interaction, Vicarious Impact and Superstition in SFS were translated into Turkish as “Kışkırtma”, “Adanmışlık”, “Dolaylı Etki” and “Batıl İnanç”, taking into account the opinions of experts. The Turkish form of the scale is given in (Appendix 1). Descriptions of the dimensions are given below:

**Instigation:** This factor represents antagonistic social interaction between sport fans and out-group sport fans through face-to-face and electronic communication (Item 1, 2, 3).

**Committed interaction:** This dimension embodies the determined and focused viewership by sport fans in an effort to not miss the team’s performances (Item 4, 5, 6).

**Vicarious impact:** This factor symbolizes a sport fan’s outward behavior during games and

toward the team where a direct effect and/or internal connection is believed (Item 7, 8, 9).

**Superstition:** This dimension encompasses a sport fan’s ritualistic behavior associated with team colors, jerseys, and viewership behavior (Item 10, 11, 12).

### Turkish Translation Stage of Sport Fanaticism Scale

Dwyer et al. (19) the owner of the original study, was contacted by e-mail for the adaptation of the fan sports fanaticism scale to Turkish culture, and the necessary permissions were obtained. After obtaining permission for the adaptation study, the translation study was carried out with the standard translation-back translation method proposed by Brislin (10). The English form of the scale was sent to three academicians from Selcuk University School of Foreign Languages, who have good knowledge of English in their field. A single form was created by comparing the items in the three translations obtained. Afterwards, the expert evaluation form (EEF) was obtained from the field experts in order to examine the Turkish form in terms of cultural context, linguistics, research methodology, and assessment and evaluation criteria. EEF consists of two parts. In the first part, there is a summary explanation introducing the purpose of the research and the theoretical basis of the scale. In the second part, there are Likert-type 5-point rating scale (1=this item is definitely not appropriate, 5=this item is fully appropriate) and empty areas where corrections can be made. In accordance with expert opinions, in order to decide whether it is appropriate for the items in the scale to be under the relevant factor, the criteria of having an item average score of 4.0 and above and a standard deviation of 0.7 or below were taken as basis. The Turkish form, which was shaped according to the EEF, was sent to three different linguistics experts from and two academicians, who know English well in the field of sports, sciences Selcuk University School of Foreign Languages in order to be translated from Turkish into English. Forms that came from five experts by back-translation method were compared with the original form in terms of meaning and form, and the scale was finalized. During the translation process, the original form was adhered to and no expression was added to the scale. The comprehensibility of the scale was checked by face-to-face interviews with 17 students studying at Selcuk University, Faculty of Sport Sciences, Department of Sports Management.

Necessary corrections were made after the feedback obtained from the students. After this stage, the stage of applying the scale was initiated.

### Analysis of Data: Validity and reliability studies of the Sport Fanaticism Scale

Before proceeding to the data collection phase, the required Ethics Committee report was received for the study. The data were collected through an online survey by sharing on social media platforms (Facebook and Twitter, etc.) between 15 and 22 March 2021.

Confirmatory factor analysis-CFA was used to check the appropriateness of the scores obtained from the Turkish fans with the approach to the development of the original scale. In cross-cultural scale adaptation studies, it may be suggested to start directly with CFA for the factor design of the tool in the target culture. The reason for this is that SFS's original factor design in culture was revealed by qualitative and quantitative studies, and experimental evidence regarding the construct validity of the tool was determined. In such a case, whether SFS is preserved in the target culture in factor design can be tested with CFA. In the CFA to be made, if the model related to the original factor design of the tool is not confirmed or does not give high fit indices, then explanatory factor analysis can be used to discover the factor design in the target culture (15).

A large number of fit indices are used to determine the competence of the model tested in CFA. Fit indices are used to evaluate the fit between the theoretical model and real data. It is recommended to use more than one fit index to evaluate the fit of the model because of the strengths and weaknesses of the fit indices (41). On the other hand, there are four basic fit indices that are recommended to be reported and interpreted in SEM analyzes (40). These are Chi-Square Goodness Test ( $\chi^2$ ), Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR) and Comparative Fit Index (CFI). On the other hand, Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Incremental Fit Index (IFI) and Normed Fit Index (NFI) are among the most used fit indices (5, 7, 8, 13, 39, 60). In this study, Chi-Square Goodness Test, RMSEA, GFI, CFI, IFI and AGFI indices, which are among the values of fit index listed above, are included. The enumerations of the 531 data collected for the confirmatory factor analysis and the data

collected before carrying out the CFA were evaluated. Lost data was checked on the data obtained and no lost data was detected. Later, outlier control was performed and three outliers were detected and analyzes were carried out with 528 data. Spearman correlation coefficients were calculated to determine the relationship between measurements made at two different times in linguistic equivalence and test retest studies. The Kolmogorov-Smirnov test was used to test the normality distribution of the data. In the study, the scale was examined in terms of internal consistency by using convergent validity analyzes, and in terms of reliability with the Cronbach alpha method and composite reliability analyzes. For convergent validity, all CR values for the scale are expected to be greater than the AVE values and the AVE value to be greater than 0.5. IBM SPSS 25 and AMOS 24 programs were used in the validity and reliability analysis of the data.

## FINDINGS

### Construct Validity of the Scale

For the construct validity of the Sport Fanaticism Scale, whether the factor structure in its original form was verified or not was examined by Confirmatory Factor Analysis (CFA). For DFA analysis, Chi-Square Goodness, GFI (Goodness of Fit Index), RMSEA (Root Mean Square Error of Approximation), CFI (Comparative Fit Index), RFI (Relative Fit Index), IFI (Incremental Fit Index) and AGFI (Adjusted Goodness of Fit Index) fit indices were checked for this study.

**Table1:** Fit Index Values and Acceptance Limits of Fit Indices of the Model Tested by CFA for sports fanaticism

Model Fit Index	Perfect Range	Acceptable Range	Scale Value
$\chi^2/df$	$0 < \chi^2/df < 2$	$2 < \chi^2/df < 5$	<b>2.91</b>
RMSEA	$.00 < RMSEA < .05$	$.05 < RMSEA < .08$	<b>.060</b>
GFI	$.95 < GFI < 1.00$	$.90 < GFI < .95$	<b>.96</b>
CFI	$.95 < CFI < 1.00$	$.90 < CFI < .95$	<b>.95</b>
IFI	$.95 < IFI < 1.00$	$.90 < IFI < .95$	<b>.95</b>
AGFI	$.95 < AGFI < 1.00$	$.50 < AGFI < .95$	<b>.93</b>

When Table 1 is examined, it is seen that the four-factor structure produces good fit values [ $\chi^2/df(139,875/48=2.91)$ ; RMSEA=.060; GFI=.96; CFI=.95; IFI=.95; AGFI =.93]. In addition, the correlation values between the factors were examined and the model obtained with CFA is presented in Figure 1. When Figure 1 is examined, it is seen that the instigation sub-dimension and the superstition sub-dimension have the value .46, the instigation sub-dimension and the vicarious impact

sub-dimension have the value .51, the instigation sub-dimension and the commitment interaction sub-dimension have the value .30, and that there are moderately significant positive relationships between its sub-dimensions. It is observed that commitment interaction sub-dimension and superstition have the value .57 and commitment interaction sub-dimension and vicarious impact sub-dimension have the value .89, and that there were positive medium and high-level significant relationships between them. Vicarious impact sub-dimension and superstition sub-dimension have the value .78 and there is a high level of positive relationship between them. These values reveal that the four-dimensional model of the scale fits well.

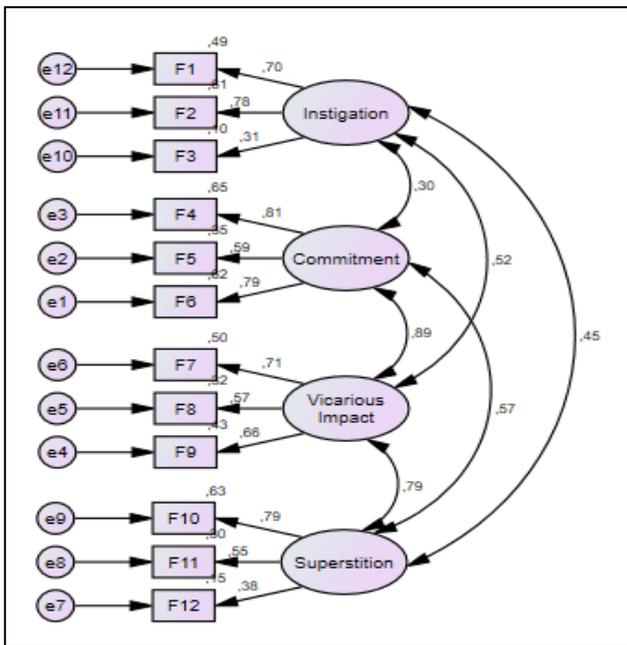


Figure 1. Sport Fanaticism Scale path diagram

**Reliability Analysis of the Scale**

Composite Reliability (CR), Average Variance Extracted (AVE) and Cronbach Alpha (CA) values were used to determine the reliability of the scale. In testing the construct validity of the measurement model, the convergent validity was checked by examining the AVE value expressing the mean variance extracted and the CR coefficient expressing the composite reliability. In order to ensure convergent validity, CR coefficients are expected to be greater than AVE values and AVE value to be greater than 0.50. When the sub-dimensions of the Sports Fanaticism Scale are examined, it is seen that there are sub-dimensions with an AVE value below .50. An AVE value below .50 is acceptable (17), because it was stated that if the CR value is greater than .60, an AVE lower than .50 is acceptable and the

construct validity is sufficient (33). In addition, the scale indicates high reliability if the Cronbach Alpha coefficient is between 0.80 and 1.00, it is quite reliable if it is between 0.80 and 0.60, values between 0.60 and 0.40 indicate that it has low reliability, and values between 0.40 and 0.00 indicate that the scale is not reliable (2).

Table 2: Composite Reliability (CR), Average Variance Extracted (AVE), Cronbach Alpha (CA) values

Variables	Composite Reliability (CR)	Average Variance Extracted (AVE)	Cronbach Alfa (CA)
Instigation	.65	.41	.61
Committed Interaction	.84	.54	.74
Vicarious Impact	.69	.43	.64
Superstitions	.65	.41	.60
Total			.80

When Table 2 is evaluated, it is seen that the AVE values of the scale are between .41 and .54, the CR values are between .65 and .84, and the CA value is .80. In this case, we can say that the reliability of the scale is ensured.

**Test-Retest Reliability:** For the test-retest reliability of the sport fanaticism scale, the scale was applied to a group of 51 participants at 21 days intervals. A moderately positive and significant relationship was found between the two different times when the scale was applied (55). Therefore, it can be said that the fan fanaticism scale has test-retest reliability ( $r(df) = .59, p < .01$ ).

**DISCUSSION, CONCLUSION AND RECOMMENDATIONS**

In this study, it was aimed to adapt the scale named Sport Fanaticism developed by Dwyer et al. (19) to Turkish Culture to determine the fanaticism behaviors of sports audiences. The 4-factor model in the original scale was tested with CFA and reliability coefficients were calculated.

The Spearman Correlation Coefficient results, which were made to examine the test-retest reliability and linguistic equivalence of the scale, were interpreted as providing linguistic equivalence and reliability. In the scale, as in the original, the 1stFactor was named as Instigation, the 2ndFactor as Commitment Interaction, the 3rdFactor as Vicarious Impact, and the 4th Factor as Superstition.

Cronbach's alpha reliability coefficients of the factors were found as 0.61, 0.74, 0.64 and 0.60, respectively, and 0.80 in total. Alpar (3) stated that

the scale has a high reliability if the cronbach alpha coefficient is between 0.80-1.00, it is quite reliable if it is between 0.60-0.79, it has low reliability if it is between 0.40-0.59, and it is not reliable if it is between 0.00-0.39. Based on this information, it is seen that the cronbach alpha coefficients are within acceptable limits. Another method used to test the construct validity was to examine the AVE and CR coefficients. In order to say that convergent validity is provided in the construct validity, all CR values of the scale must be greater than the AVE values and the AVE value must be greater than 0.50 (22, 28). However, it is stated that AVE value less than 0.50 will provide convergent validity provided that the CR coefficient is greater than 0.60 (22). The lowest AVE values found in our study belong to the sub-dimension of instigation, superstition with 0.41 and vicarious Impact with 0.43, and the AVE values of the commitment interaction dimension are above 0.50. CR coefficients are greater than 0.60 for all three scales. In this case, we can say that convergent validity is provided for all three scales. AVE and CR values verify the convergent validity of the scales. The values obtained are parallel to the values of the original scale.

The construct validity of the scale was tested by confirmatory factor analysis. As a result of CFA, fit index values were checked. The fit index values are as follows:  $\chi^2/sd$  (139,875/48 = 2.91); RMSEA=.060; GFI=.96; CFI=.95; IFI=.95; AGFI =.93. Chi-square/sd value of less than 3 in large samples and less than 2.5 in small samples indicates perfect fit (39). GFI and AGFI values greater than 0.90 indicate good fit and greater than 0.95 indicates perfect fit (31, 59). The fact that the CFI values are above 0.95 indicates that the fit of the model is perfect (62). It is stated that the model fit is good if the RMSEA values are less than 0.08 (58). In line with this information, it is seen that the values of fit indices are at a good or excellent level in almost all parameters. As a result of the confirmatory factor analysis made, it can be said that the four-factor original structure of the Sport Fanaticism Scale is a good fit for the sample of this study by looking at the values of the fit indices. Analysis results show that the measuring tool can be used.

In conclusion, the desired characteristics of the question items in the scale and the high reliability and validity of the scale show that this scale can be used by researchers in Turkey when determining the fanaticism behaviors of the fans. On the other hand, adapting a common scale of fanaticism for the

fans of different sports branches other than football will be beneficial for studies on different sports branches and fields. It is important to determine the fanatic behaviors of the fans in the fan groups in order to ensure that their behaviors are within acceptable norms. The determination, supervision and training of such fans' behaviors are of great importance in preventing fanatic behaviors and violence in sports. It is thought that the scale will contribute to the literature on this subject and will meet the deficiency in this subject.

Some limitations should be taken into account when interpreting the results of this study. First of all, the sample of the study consists of individual and team sports fans. However, in the data obtained, a comparison analysis was not conducted among these groups due to the diversity of data on which branches the fans, who also follow the branches other than football, follow. In future studies, it is thought that making comparisons for supporters of different sports branches will be useful in terms of diversifying the validity and reliability of the scales on the groups. In addition, in order to obtain stronger data regarding the validity and reliability of the Sport Fanaticism Scale that was adapted to Turkish within the scope of this research, the application of the measurement tool on the supporters involved in the violence and recorded in the police records and whether it distinguishes fanaticism in sports can be investigated in the future.

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