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Athlete Identification Level Scale (Ails): Validity and Reliability Study

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ABSTRACT

This study aims to develop a valid and reliable measurement tool to determine the level of athlete-athlete identification by determining which features athletes consider when identifying with other athletes they bond with. Within the scope of "qualitative steps", focus group interviews and essay writing; within the scope of "quantitative steps", assumption analyses and validity and reliability analyses were included for the form organized by the Lawshe technique and the test form of the scale. After the expert opinions, the 68-item item pool was reduced to 66 items and applied to 930 active athletes with a 5-point Likert scale (5=Very important, 1=Not important at all) with a trial form. Exploratory factor analysis (EFA) was conducted with the observations obtained, data were collected again with the 4-factor 26-item structure and Confirmatory factor analysis (CFA) was conducted with 813 observations. After factor naming with rational criteria, Cronbach alpha internal consistency coefficients were calculated as .94 for the sub-dimension of "Athletic Identity" (n=12), .82 for the sub-dimension of "Image and Career Maturity" (n=6), .85 for the sub-dimension of "Social Values" (n=4), .70 for the sub-dimension of "Communication Skills" (n=4) and .90 for the whole scale. The explained variance rate is 56.95%. While the motivation of the study is that the scales in the literature are at the fan-athlete or fan-team level and the determination of athlete-athlete identification is seen as a deficiency, the goal of closing this gap reveals the importance of the study. This study, conducted to determine the athlete- athlete identification levels of active athletes, revealed that the Athlete Identification Level Scale (AISL) is a valid and reliable scale according to results obtained.

Keywords: Identification, Idolization, Validity, Reliability, Athlete

INTRODUCTION

People acquire an identity as an output of their experiences. The concept of identity, which can be obtained in different ways and is seen as the guide of human behaviors, is thought to be formed mostly by people comparing themselves with other individuals or groups (Hogg & Adelman, 2013). It has always been a curious research topic on the reasons why individuals take the behaviour patterns of other individuals as an example. Individuals, who are in search of an identity by nature, feel the need to belong to other individuals or groups (Antonsich, M. 2010).This need for belonging can also affect the behavioral patterns of individuals. In this way, the individual seeks to acquire a social identity. Tajfel (1982) refers to an individual's feelings of attachment to a person or membership to a group as identification and interprets this concept as a part of one's social life. Identification is "the individual's behavior of conforming to the ideas of a person or a group to be similar to them" (Kağıtçıbaşı& Cemalcılar, 2014). On the other hand, Freud defines identification as an emotional bond with other people in his theory of psychoanalysis and states that identification can include both love and hate (Freud, 2013). In addition to having these opposite emotions, the individual must internalize and identify with the

objects and identities that satisfy his/her motives to first create and then maintain his/her identity (Köknel, 1985). Identification is the acceptance of the values that one takes as an example and incorporating them into one's life (TDK, 2024). Erkal and his colleagues (1998) define identification as the individual's modelling of those whom he considers important, while Acet (2005) interprets identification as an effort to gain a place in society. While the individual creates his/her own identity through identification, he/she also gains a place in the society. People establish this kind of effort through invisible bonds and want to resemble others (Usal & Kuşluvan, 2006). On the other hand, the sense of belonging that enables identification contains emotional bonds (Tokgöz 2013). To fully grasp the stages of identification, the physical and psychological developmental periods of the individual should be analyzed properly. In this context, identification is a process that starts with the construction of sexual identity in infancy (Mangır & Baran, 1990), continues with the Oedipus and Electra complex (Göka et al., 2006) and maintains its dynamism throughout life.

The identification established with parents during childhood continues in later periods to protect and increase one's self-worth (Geçtan, 2004) by trying to resemble the thoughts and behaviors of friends, artists, teachers, or well-known athletes. Identified individuals provide the individual with the necessary social,

psychological and personal characteristics to create his/her image. In late childhood and adolescence, individuals who take an athlete as a role model try to structure their thoughts, actions, attitudes, movements, and behaviours through this athlete. During this process, individuals attribute importance to every feature of the athlete they identify with (Kılıç, 2020). Individuals generally try to identify themselves with teams or individuals who are successful, colorful, visible and constantly in the spotlight (Zelyurt, 2019). In this process, individuals tend to find fulcrum points that will form the basis of resemblance and conformity behaviours that will ensure identification. In a sense, people tend to resemble and conform to other people throughout their lives. Athlete identification is based on individual characteristics (Yang et al., 2024).

Since the sports environment offers suitable environmental conditions for identification, it is a quality in which people identify with each other by taking each other as an example and continuing to do so throughout their careers. Athletes take other athletes as examples for various reasons and construct their identities through their behavioral patterns. An athlete wearing the numbered jersey symbolizing another athlete, running like him/her, striding, watching his/her sportive/non-sportive flashy movements on the field, hanging posters on the wall, emulating football players, etc. are examples of identification behaviors (Zelyurt, 2019). The idolization, in a sense identification of athletes with other athletes, is a phenomenon with deep roots in society, where individuals see professional athletes as role models and sources of inspiration. The idolization of athletes may stem from various motivations and needs, with individuals showing admiration and attachment to these sports figures (Thomson, 2006). Athletes generally want to increase intrinsic motivation (Amoroso, 2024) and experience excitement (Aftab et al., 2022) by socialising with their peers (Sakalidis et al., 2023). With these methods, they try to connect with successful athletes that they feel close to themselves (Zaker & Parnabas, 2018). The realization that one shares the same interests and tastes as the idolized athlete can increase feelings of involvement in the athlete's life (Frederick et al., 2012). Athletes, especially those who exhibit exceptional personal characteristics, have become popular choices for idolization among young adults, influencing their preferences and behavioural intentions (Belasen & Belasen, 2019). As society continues to idolize professional athletes, the drive to achieve elite-level status becomes an important incentive (Bush et al., 2021). Watching athletes perform can inspire individuals to participate in sporting activities and lead to a more active lifestyle (Richelieu, 2018). Moreover, the influence of sport idols goes beyond only a sport participation; they can also influence career choices and personal values (Richelieu, 2018). Furthermore, the influence of family and social environment on sport idolization should not be discounted. Although parents, siblings and physical education teachers have some influence on a child's decision to join a sports club, the desire to become a professional athlete or to idolize sports figures plays a more important role in this decision (Piech et al., 2016). This emphasizes the importance of role models in helping to shape the aspirations and behaviours of young athletes.

The concept of identification can occur within the framework of the team or athletes that fans support, as well as in the orientation of individual athletes towards the team those active athletes' support. In this context, athletes can form a bond with individual athletes or the team. At this point, the concept of athlete identification is a common situation where individuals, especially young and low-level athletes, see elite athletes as idols and role models (Pettersson et al., 2013). Especially idolization of professional athletes has been identified as an important factor (Adeyemo, 2023). This idolization may lead young athletes to form emotional bonds with elite athletes and further reinforce their idol status (Heintz et al., 2020). Athletes, especially successful male athletes, are often idolized as heroes in society, receiving significant recognition and rewards for their achievements (Cheever & Eisenberg, 2020). The influence of athletes as idols extends to various aspects such as social media interactions; athletes use platforms such as Twitter to engage with their fans, creating opportunities for followers to feel more connected to their idols (Coche & Haught, 2018). However, the pressure of idolization can be burdensome for athletes, especially given that they are still in the process of identity formation (Guest & Cox, 2009).

Accordingly, athlete identification is a multifaceted phenomenon influenced by various factors such as communication skills, social values, athlete image, and athletic identity. Athletes often function as role models for their fans, especially young individuals who look up to them for inspiration and guidance (O'Brien et al., 2021). Athletes' image, including their athletic expertise, physical attractiveness, and their life stories, plays an important role in shaping their influence on their fans (Vaatainen & Dickenson, 2018).

Effective communication is crucial in the athlete-idol relationship. Open communication fosters trust and respect, leading to harmonious relationships between coaches and athletes (Choi & Kim, 2019). The International Olympic Committee emphasizes that elite child athletes have unique physical, social, and emotional needs that change with their developmental stage (Subotnik et al., 2011). These needs highlight the importance of understanding and addressing the challenges that young athletes face in various aspects of their lives. In the field of competence development, Epstein and Hundert emphasize the importance of communication skills as part of professional competence (Frenk et al., 2010). Competence is defined as the consistent and attentive use of communication, knowledge, technical skills, clinical judgement, emotions, values and thought in daily practice. This underlines the fundamental role that effective communication plays in the overall competence of professionals, including athletes and those involved in their development. Communication skills include the level of harmony of the idolized athlete with his/her club, his/her recognition through the media, his/her positioning in a reputable status by his/her competitors and media interactions.

Research on social values, which may be expressed as another dimension in athlete identification, suggests that individuals integrate their social identities into their self-concept, which in turn affects their adaptation and social activities (Yampolsky et al., 2016). This concept can be extended to how young athletes which are identified with elite athletes and how they influence their behaviour and level of idolization. This concept may also apply in the context of athlete idolization, where athletes may maintain their social values while appreciating and idolizing athletes from other cultures. More precisely, it is possible to express the entire set of social values that are effective in identification as the framework of respect for cultural structure, interest in social events, caring about spiritual values and displaying exemplary behaviours.

Athletes are often seen as icons of success, determination, and excellence in their sport, which leads people to imitate their

behavior, lifestyle, achievements, and image (McCormick, 2018). This behavior occurs as young athletes trying to emulate their favorite athletes in the hope of associating themselves with the perceived image characteristics of these athletes (McCormick, 2018). In this context, in terms of athlete identification, in the dimension of image and career maturity; the idolized athlete's hair and clothing style, charisma, aesthetic movements in the game, and awards such as trophies and medals as well as being praised by others stand out.

As the last dimension, athlete-athlete identification can be expressed as a multifaceted phenomenon that is closely linked to an individual's athletic identity. Because athlete identity refers to the degree to which an individual associates himself/herself with the role of an athlete (Moazami-Goodarzi et al., 2020). This identity can have a significant impact on an athlete's individual and psychological development (Huang et al., 2016). Research has shown that elite athletes generally exhibit high levels of athlete identity (Park et al., 2015). However, it is important to recognize that a strong identification with the athlete role can have both positive and negative consequences. When the positive consequences are examined, both cognitive and physical characteristics of the athlete such as being energetic, contributing to the development of athletes other than himself/herself, an effective understanding of the game and competitive nature, sense of responsibility and team spirit, leadership qualities and knowledge of the sport branch are important in identifying with his/her athletic identity.

When the relevant literature was examined, it was observed that the bonds established by athletes or fans with their sports clubs were selected as a research topic under the title of identification in sports. However, it has been determined that the level of identification of athletes with successful or well-known athletes in their branches is not the subject of research in existing studies. Filling the gap identified in the field constitutes the motivation of this study. In this context, this study aims to develop a valid and reliable measurement tool to determine the level of person-person or, in other words, athlete-athlete identification that athletes establish with the athletes they idolize.

2. METHOD

2.1. Type of Research

The aim of this study is to develop a measurement tool to determine the psychological link and belonging levels of active athletes, who are the subjects of sport, towards other athletes in their branches. The study, conducted as basic research, utilized the scaling approach through ordered sums, an approach based on subject responses. This approach allows inferences to be made based on the responses of the individuals in the study. In addition, in the study, the respondent-centered scaling approach (Crocker, 2012; Torgerson, 1958) was taken as a criterion through graded sums based on respondent responses.

2.2. Working Group

This study, aimed to measure the level of identification of active athletes, has two separate study groups. Exploratory factor analysis (EFA) was applied with the first group of 930 observations to clarify and determine the measurement model. For the CFA, observations were composed from volunteer athlete participants in January and February 2024. Among the volunteer

athletes, 360 were female and 570 were male; 541 were individual athletes and 389 were team athletes; 147 had at least one international experience and 783 had no international experience; 723 were amateur athletes and 207 were professional athletes; 109 were national athletes and 821 were non-national athletes. In addition, in terms of the most recent school graduation of the participants; 88 of them are pre-high school graduates, 439 of them are high school graduates, 58 of them are preliminary bachelors, 310 of them are bachelors, and 35 of them are postgraduate graduates.

The sampling type plays a critical role in the population and sample. In the literature, the sample group representing the population for scaling studies (Karakoç & Dönmez, 2014) is also formed by simple random sampling method (Şahin & Öztürk, 2018). However, for the current study, the scale items represent the population of the study group consisting of active athletes. As a matter of fact, the items constitute the universe in scale development studies because scaling studies are not hypothesis testing studies but studies that try to reveal the structure (Erkuş, 2012).

Confirmatory factor analysis (CFA) was conducted to provide additional evidence regarding the construct validity, convergent validity, and divergent validity of the scale with the CFA conducted to obtain the final form. For CFA, data collection was also conducted in March and April 2024 and data were obtained by reaching 813 active athletes who voluntarily participated in the study.

2.3. Stages of Forming the Scale Form

In this section, the phases of the experimental and final form of the scale are detailed.

1.Focus Group Interviews: By applying the convenience sampling method of qualitative research, focus group interviews were conducted with 6 expert academicians and 12 national athletes who have scale development studies. Group interviews were held 4 times in December 2023 and possible criticisms and suggestions were discussed. Ideas were exchanged about how the item pool should be created.

2. Obtaining Athletes' Opinions through Essays: An item pool was firstly created to ensure that the scale items serve the purpose more reliably and validly. In this context, an essay study was conducted with 120 non-national and 40 national athletes competing in their own branches. A total of 160 athletes competing in individual and team categories were asked to express which criteria they were based on considering the athletes they identified with. The statements forming their own belonging were collected and made into a whole.

3.Literature Review: Within the framework of the literature review, studies in the literature that may support the study or aim to measure similar qualities were examined. In this direction, the "Sport Spectator Identification Scale" developed by Wann and Branscombe (1993) and adapted to Turkish culture by Günay and Tiryaki (2003) was utilized. In addition, other studies on identification in the literature were also examined and contributed to the item pool. The item pool created within the scope of qualitative steps was then evaluated by the target group and the researchers and turned into sentences that could measure the levels of athlete-athlete identification.

4. Testing the Content Validity Ratio (CVR): The items belonging to the candidate scale form were determined with the

item pool. Then, an expert evaluation form was created and read aloud to 20 active athletes and feedback was obtained. Then, a 68-item form was created. The form was delivered online and in written form to 15 academicians working in the field of sport sciences and 5 experts working outside the field of sport sciences but with scale development studies. The experts were asked to indicate their suggestions and opinions by marking 3: Good - 2: Should be improved - 1: Bad, separately for the criteria of "Representativeness", which aims to reveal the strength of the relationship with the theoretical structure, and "Understandability", which questions the comprehensibility of the scale items by the target audience. The expert evaluation form was organized according to the Lawshe technique and the CVR takes a value between -1, i.e. absolute rejection and +1, i.e. absolute acceptance. The calculation of the content validity rate is given in Equation 1. In this scope;

$$KGO = \frac{Nu}{N/2} - 1 \quad (Equation.1)$$

Nu: Represents the number of experts who rated the item as good, while N: Represents the total number of experts who gave an opinion on the item. When all experts give a good response to the item, the CSR=1, whereas when half of the experts give a good response to the item, the CSR=0. In addition, if all the experts rate the item as bad, the CSR is calculated as CSR=-1. If the result of the calculation reveals that the item has a CSR=O or a negative value, the item does not have a CSR and must be removed from the scale (Ayre & Scally, 2014; Lawshe, 1975; Wilson, et al., 2012). Within the scope of the current study, the critical value of CVR=CVR for 20 experts at α=0.05 significance level was 0.701 (Lawshe, 1975), therefore, it was understood that 10 items did not reach the content validity criterion and 5 items should be removed from the experimental form upon the experts' recommendation. As a result, after the expert evaluation and content validity study, 15 items were removed from the initial form of 66 items, 13 items were added and a trial form of 66 items was obtained. In addition, the experts were consulted about the appropriate Likert type and rating names.

5. Implementation of the Trial Form: As a result of expert feedback, content validity was tested and a trial form with 66 items in a 5-point Likert structure (5: Very Important, 4: Important, 3: Slightly Important, 2: Not Important, 1: Not Important at All) was created. The trial form was delivered online to 930 active athletes, the target group.

6. Factor Analyses (CFA-DFA): Before conducting the Exploratory Factor Analysis, the 930 observations were adjusted to the desired form for factor analysis in terms of missing data, size of the participants, multicollinearity problem, outliers, linearity and normality as well as testing the factorability of R. In addition, factor analysis assumptions were tested separately for CFA and CFA.

2.4. Data Analysis Techniques

In this study, which was conducted to determine the level of identification, CFA and CFA were performed quantitatively, while Cronbach alpha internal consistency and convergent reliability were calculated for reliability. As a result of the analyses, hypothetical analyses were conducted before CFA to determine how many items and how many factors the scale would result in. In this context, firstly, the number of factors and the loading values of the factors were analyzed. CFA was conducted after the hypothesis, sample size and missing data analyses. Guadagnoli &

Velicer (1988) emphasized the importance of aligning the sample size with the complexity of the analysis; Novak & Marques (2019) stated that a sample size of 180 observations may be sufficient; Chekol et al. (2016) suggested that a sample size of more than 100 is generally considered sufficient for factor analysis and that a sample to variable ratio of 10:1 is a useful guideline; Tabachnick and Fidell (2015) emphasized that the minimum number should be 300. Considering that Comrey and Lee (2013) state that 100 is a poor sample size, 300 is a good sample size, 500 is a very good sample size, and 1000 is an excellent sample size, it can be stated that the 930 observations of the current study are very close to excellent.

When the comparisons of the positions of the measures of central tendency for the scale items were analyzed, it was revealed that the distribution was normal because the square, mode and arithmetic mean values were very close to each other. On the other hand, when the Mahalanobis distances and Z values were analyzed to determine the outliers of the study, it can be stated that all Z values were between -2.012 and 2.013 and no single outlier was found in the observation set considering Tabachnick criteria (-4, +4). Vannatta (2005) stated that in studies with more than 100 samples, the Z score range can be extended to values between -4 and +4. In addition, Mahalanobis distances were analyzed to determine whether there were multiple outliers, and the Chi-squared distribution was taken as a criterion (χ2 66;0.001=112.317) and 137 observation values above this value were excluded from the analysis because they did not meet the Mahalanobis values, and the analysis continued with the remaining 793 observation results.

Since it can be very difficult to achieve linearity in the relationships between two variables (Kara et al., 2023), the analyses were continued under the assumption that the relationships were linear. Within the scope of the normality assumption, the items were examined separately, and the measures of central tendency and skewness and kurtosis coefficients were examined. Univariate normality was ensured on the grounds that these values were very close to each other (Can, 2018). In this context, it was revealed that the skewness values of the 66 items in the scale were between .129 and -2.274 and kurtosis values were between 0.256 and 2.705. As a result of the analysis indicators, considering that the values of the skewness coefficient between -3.3 and +3.3 and the kurtosis coefficient between -7 and +7 are sufficient for normality conditions (Bernstein, 2000),), it can be stated that normality conditions are met. In addition, Tolerance and VIF values were examined for the analysis of the multicollinearity problem, and it was found that the Tolerance values of the 66 items in the scale produced values between 0.678 and 0.272 and VIF values produced values between 1.510 and 3.178. Accordingly, it was found that all Tolerance values were >0.20 and all VIF values were <5, and for this reason, none of the items in the observation set had multicollinearity problems.

The Durbin-Watson (D-W) value for all items regarding the autocorrelation of errors was calculated as 1.973, and for this reason, errors can be said to be independent of one another (Kalaycı, 2010). On the other hand, when the observations were examined within the scope of factorability of R, which is another necessary assumption for the analyses, it was revealed that the KMO (Kaiser-Meyer-Olkin) value was KMO=.956 in terms of "Measurement of Sampling Adequacy Test" and Bartlett's Test of Sphericity" and the significance of the relationships between the items was different from 0. In terms of criterion evaluation, Hutcheson and Sofroniou (1999) state that the results of KMO

values between (0.5<KMO<0.7) are normal; between (0.7<KMO<0.8) are good; between (0.8<KMO<0.9) are very good; and 0.9 and above are excellent (Dağlı, 2015). According to the criteria, it can be stated that the value reached is perfectly good. In this direction, the fact that the results are significant (p<0.05) proves that the matrix created for the variables is significant and the structure is suitable for factor analysis (Bayık &Gürbüz, 2016). In addition, the factorability of the correlation matrix to be formed

with the data belonging to the study group was questioned, and the KMO statistic was obtained as 0.956 and it was concluded that the matrix was well factorable. Again, according to the results of Bartlett's Sphericity Test, which tests whether the relationships between the items in this matrix are different from 0, the null hypothesis was rejected ($\chi 2 = 28323.027$, p < 0.05) and the related analysis was concluded

Table 1. Descriptive information about active athletes in terms of gender, sport category, international experience, level of sportsmanship, level of education and nationality status

		N	%
Gender	**Woman**	**360**	**38.7**
	Male	**570**	**61.3**
Sport Category	Individual	541	58.2
	Team	389	41.8
International Experience	Yes	147	15.8
	No.	783	84.2
Sportsmanship Level	Amateur	723	77.7
	Professional	207	22.3
Education Level	Before High School	88	9.5
	High School	439	47.2
	Preliminary bachelor	58	6.2
	Bachelor	310	33.3
	Postgraduate	35	3.8
National Team Appearance	Yes	109	11.7
	No	821	88.3
Total		930	100.0

Table 1 presents the descriptive statistics of the participant active athletes. Among the observations reached; 360 are female and 570 are male; 541 are individual sports athletes while 389 are team sports athletes; 147 have at least one international experience while 783 have no international experience; 723 are amateur athletes while 207 are professional athletes; 109 are national team athletes while 821 are not national team athletes. In addition, in terms of the most recent school graduation of the participants; 88 of them are pre-high school graduates, 439 of them are high school graduates, 58 of them are preliminary bachelors, 310 of them are bachelors, and 35 of them are postgraduate graduates.

To determine the psychological construct validity of the Athlete Identification Level Scale, data were collected again, and observations were obtained from 813 active athletes. For CFA, the estimated error variances standardized loading values and goodness of fit criteria for the factors of the scale were analyzed. In addition, cronbach alpha reliability analysis coefficients showing the internal consistency of the scale were calculated. In this context, the scale, which was reduced to 26 items before the CFA, was applied to the target group again and observations were obtained. Firstly, assumption analyses were performed for 813 observations and missing data analysis, linearity, normality, sample size and multicollinearity problems were analyzed.

In the analyses conducted for missing data, no missing data was found due to the online collection of the data. Accordingly, mode, median and arithmetic mean values were analyzed separately for normality assumption, and it was found that univariate normality was achieved. In addition, when the skewness

and kurtosis values were analyzed, it was concluded that these values were generally close to negatively skewed values and took values between -1.271 and 0.230, while kurtosis values took values between -0.757 and 0.765. According to Bernstein's (2000) criteria, the skewness coefficient taking values between -3.3 and +3.3 meets the normality criterion, the results obtained indicate the conformity of the assumptions. Mahalanobis distances for multiple outliers and Z values for single outliers were analyzed to examine the outliers of the observations.

According to the analysis based on chi-square, Mahalanobis values of the items; multiple variable outliers of .001 and smaller ($\chi 2$ 26;0,001=54.052), 34 observations producing values above this value were excluded from the analysis and 1 observation was excluded from the analysis due to Z values between 2.784 and -3.050, and the analysis continued with the remaining 778 observations.

To determine the multicollinearity problem, VIF and Tolerance values were analyzed. Inter-item VIF values were found to be between 3.141 and 1.336, while Tolerance values were found to be between 0.745 and 0.328. Since all Tolerance values were >0.20 and all VIF values were <5, it was found that there was no multicollinearity problem. As a result of these hypothesis analyses, 778 observations were obtained, and considering Tabachnick's criteria, it was decided that the observation set obtained was of appropriate size for CFA analyses (Tabachnick & Fidell, 2015). After the completion of the hypothesis analyses, the CFA application was run with the data set of 778 observations and the 26-item scale form.

3.FINDINGS

3.1. Validity Findings

CFA Findings

For the exploratory factor analysis, 930 observations were obtained, but the number of observations was reduced to 793after the analysis of the assumptions. As a result of the applied CFA, it was concluded that the explained variance ratio, which reveals the rate of representation of the variables in the data set of the scale by the sub-dimensions(Kara et al., 2023), produced values between .453 and .857. Considering the existence of a situation that may cause a problem if this indicator of the items takes a value lower than .10, it would be correct to state that the range of values produced is appropriate. On the other hand, it would be appropriate to obtain more information about whether the items work or not, with the assumption that it would not be sufficient to decide only according to the table values (Çokluk et al., 2012). In this context, in addition to these values, which can also be interpreted as the coefficient of determination, which is thought to explain most of the variance (Onyutha, 2020), to clarify the factors: "Slope-Slope Graph", "Percentage of Total Variance Method", "Kaiser Method" and "Explained Variance Criterion" methods were also employed.

While the slope graph, which is one of the preferred techniques to determine the factors of the scale, expresses the distance between two points as a factor (Kara et al., 2023), the plateaus reached can be expressed as the formation centers of a new factor. In this direction, according to the slope graph obtained according to the analysis and presented in Figure 1; the clear presence of a plateau after the 5th point is obvious.

In the light of the information expressed, it is seen that the scale has a 4-factor structure. According to Kaiser's method, when the eigenvalue is greater than 1, the presence of a factor is indicated, and when Figure 1 is analyzed, there are 4 values with eigenvalues greater than 1. The results of the two analyses are consistent and the existence of a four-factor structure is clear. However, when Figure 1 is analyzed in more detail, the eigenvalues have a decreasing momentum since the beginning, but the acceptance of a 4 or 5-factor structure may require personal criticism and interpretation. For this reason, to avoid any criticism and to present the main breaking points of the scale more objectively, the total explained variance table is presented for reference.
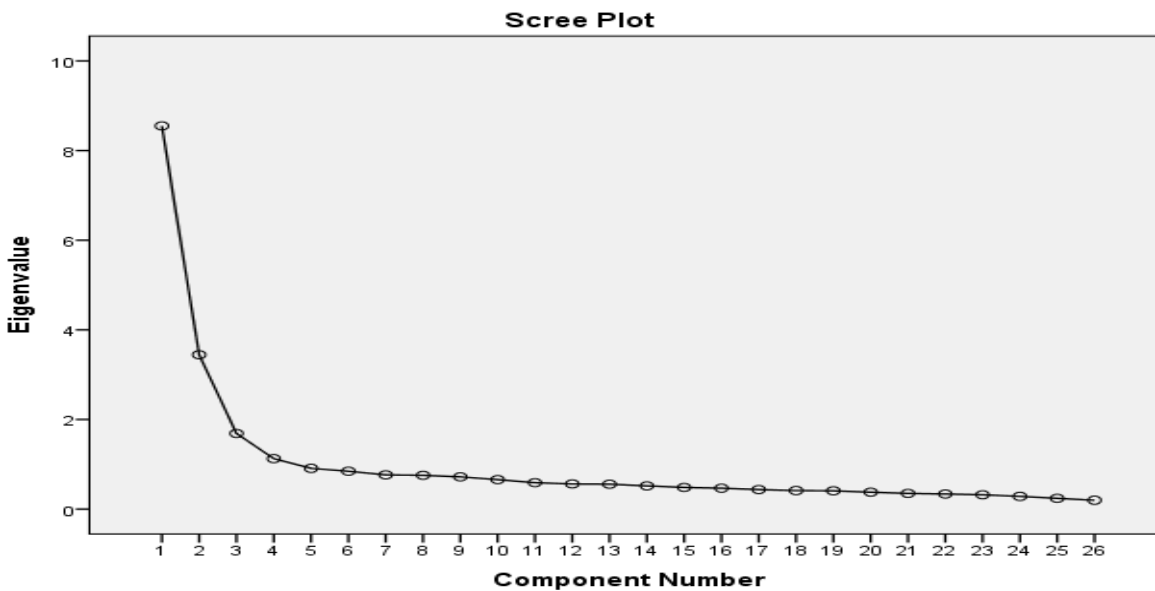

Table 2 Slope Graph

The Percentage of Total Variance method can be expressed as a statistical criterion used in various fields to understand the contribution of different factors to the overall variability in a data set. According to this technique, which helps to identify the main factors, the fact that the additional contribution falls below 5% is an indicator of the maximum number of factors that can be reached (Kalaycı, 2010). In this direction, the existence of a four-factor structure was determined in Table 3.

Table 3. Total Variance Explained

Component	Initial Eigenvalues			Total subtraction of squared loads		
	Total	Variance %	Cumulative%	Total	Variance %	Cumulative%
1	8,550	32,885	32,885	6,573	25,281	25,281
2	3,444	13,248	46,133	3,266	12,560	37,841
3	1,688	6,491	52,624	2,666	10,255	48,096
4	1,126	4,331	56,955	2,303	8,859	56,955
26	,198	,761	100,000			

Within the scope of the explained variance criteria; Chen et al. (2014) emphasized that the percentage of variance explained may fall below the recommended threshold of 30%, Büyüköztürk (2018) suggested that the ratio of variance explained for unidimensional scales should ideally be 30% or higher, but considering that the general acceptance in social studies should take a value between distinctly, a 4-factor structure is obtained. On the other hand, when the randomly distributed experimental indicators are compared with the eigenvalues and evaluated

according to the total variance explained table with Horn's (1965) parallel analysis, a 4-factor structure with eigenvalues greater than 1 and explaining approximately 57% of the total structure is revealed. 40% and 60%, it can be stated that the 56.955% obtained within the scope of the research is quite good.In this context, when all criteria are considered. When Table 3 is analyzed, it is seenthat factor 1 explains 25.281% of the variance, factor 2 explains 12.560% of the variance, factor 3 explains 10.255% and factor 4 explains 8.859%. In addition, the items not included in the analysis and their reasons are detailed in Table 4.

Table 4. Exploratory Factor Analysis Item Inferences

Communalities<0.30 (Articles)	Factor Loadings above 0.45 Substances Underneath	Binary Substances Items with less than 0.10 difference between them	Rational Reasons (Factor Nomenclature, Language and Expression)
35-36-39	2-13-38	1-3-4-7-9-10-12-22-24-25-27-28-31-32-33-34-37-40-41-42-43-44-48-50-51-52-53-62-63-64-65-66	20-21

According to the analyses performed, items 20 and 21 were excluded from the analysis because the two items could not form a factor. Items 35-36-39 were excluded because their commonalities were less than 0.30. On the other hand, items 2-13-38 with factor loadings below 0.45 were found appropriate for

exclusion. The other items (1-3-4-7-9-10-10-12-22-24-25-25-27-28-31-32-33-34-34-37-40-41-42-43-44-44-48-50-51-52-52-53-62-63-64-65-66) were considered as overlapping due to the difference between them being less than 0.10 and were excluded from the analysis. In this context, the 66-item form before CFA was obtained as a structure with 26 items and 4 factors explaining 57% of the variance.

Table 5. Common Variances, Factor Loadings And Aggregated Factors Of The Items

No	Article	Factor 4	Factor 3	Factor 2	Factor 1	Common Factor Variance (h2)
M5	Harmony with club	,526				,368
M6	Positive media appearance	,724				,603
M8	Being respected by competitors	,453				,337
M11	Positive interactions on social media	,680				,610
M14	Respect for cultural values		,766			,647
M15	Demonstrating exemplary behavior in social life		,753			,709
M23	Sensitivity to social issues		,596			,733
M26	Care for spiritual values		,716			,780
M16	Clothing style			,805		,581
M17	Hairstyle image			,857		,655
M18	Compliments I've heard about			,631		,585
M19	Charisma			,808		,615
M29	Aesthetic movements			,472		,411
M30	Trophies and medals			,471		,449
M45	Energy during the performance				,675	,539
M46	Interest in the improvement of young athletes				,561	,478
M47	Competitive attitude				,754	,582
M49	Game mentality and strategy				,745	,577
M54	Demonstrating that sport is not only a physical activity				,626	,478
M55	Ability to sustain performance under pressure				,791	,627
M56	Taking responsibility at critical moments in competitions				,805	,657
M57	Commitment to profession				,762	,636
M58	Encouraging young people to play sports				,686	,568
M59	Contributing to team spirit				,689	,573
M60	Leadership qualities				,626	,484
M61	High level of knowledge about branch				,700	,525
	Explained Variance Values	8,859	10,255	12,560	25,281	
	Cronbach's Alpha Values	,70	,85	,82	,94	

In Table 5, item definitions and total variance values for the items are presented. When the obtained values were analyzed, it

was found that the total variance explained was approximately 57% and the Cronbach alpha internal consistency reliability coefficients of the items

Were .94 for factor 1, 82 for factor 2, .85 for factor 3 and .70 for factor 4. Table 6 shows the items' naming, number of items and

reliability values considering the relationship status, language and expression features of the items and in consideration of the literature.

Table 6. Factor Names and Reliability Coefficients

Number of Factors	Factor Names	Number of Items	Cronbach's Alpha
1. Factor	Athletic Identity	12	,94
2. Factor	Image and Career Maturity	6	,82
3. Factor	Social Values	4	,85
4. Factor	Communication Skills	4	,70
For the whole scale			,90

According to Table 6, factor 1 was named "Athletic Identity", factor 2 was named "Image and Career Maturity", factor 3 was named "Social Values" and factor 4 was named "Communication Skills". It was revealed that all factors were above (>0.60), which is expressed as the acceptance critical point for the reliability coefficient, and the measurement tool produced reliable measurements.

CFA Findings

As a result of the CFA, the standardized loadings of the 1st sub-dimension named "Athletic Identity" produced values between .79 and .65 and items 56 and 57 explained the factor at its best. The standardized loadings of the 2nd factor named "Image and Career Maturity" produced values between .88 and .37 and item 17 explained the factor best. The standardized loading values of the 3rd factor named "Social Values" produced values between .82 and .62 and item 15 explained the factor at the best level, while

the standardized loading values of the 4th factor named "Communication Skills" produced values between .68 and .45 and item 11 explained this factor at the best level.

Considering that the values of the observations included in the analysis, that is, the T values obtained to reveal the differences of the participants who are at the extremes in terms of responding positively or negatively to the items and to determine the item discrimination properties, are suitable for the scale (Kara et al., 2023), it is clear that all the values of the study meet the condition. It was also revealed that the T values, which are additional evidence for this study, provide evidence for all 26 items to be included in the final scale form. In this context, standardized values are given in Table 7 and t values are given in Table 8.

Table 7. Standardized Values of the Tested Model

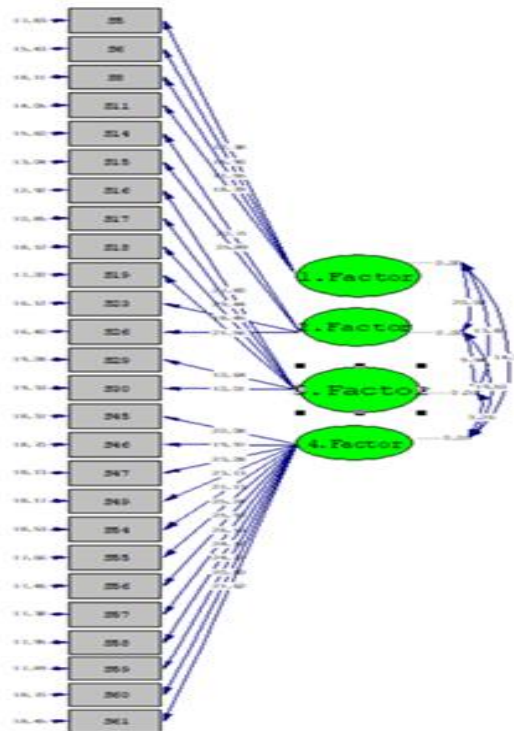*Table 8. Significance levels of t values (p<=.05)*
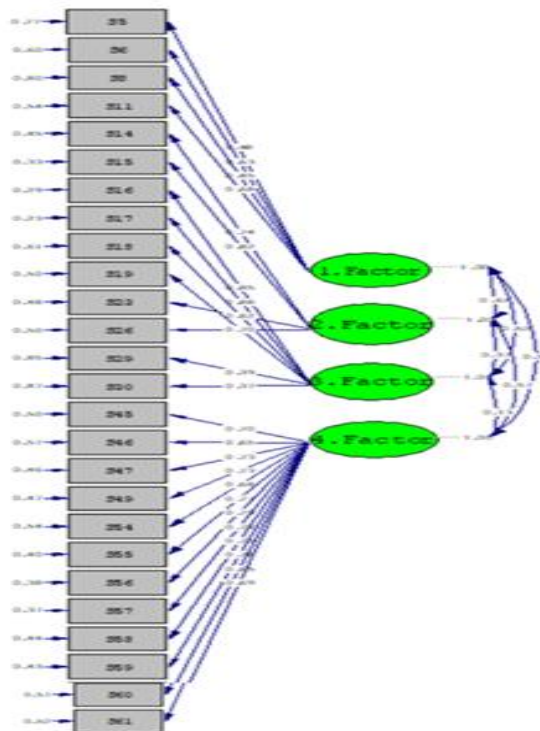
It was found that all the standardized relationship coefficients obtained after the CFA and given in Table 7 produced high values and all t values obtained for the items given in Table 8 were significant. In addition to these indicators, when the model

goodness criteria are taken into consideration, it would not be wrong to state that the model fit was achieved in the study group (Çokluk et al., 2012).

Table 9. Goodness of Fit Criteria and Generated Values

Compliance Measurement	Perfect Fit	Good-Acceptable Fit	Value Obtained
χ2/sd	<2	<5	4.69
RMSEA	0≤RMSEA≤ .05	.05≤ RMSEA≤ .08	.05≤ .078 ≤ .08
SRMR	0 ≤ SRMR ≤ .05	.05≤ SRMR ≤ .10	.05≤ .077 ≤ .08
NFI	.95 ≤ NFI ≤ 1.00	.90 ≤ NFI ≤ .95	.95 ≤ .95≤ 1.00
NNFI	.97 ≤ NNFI ≤ 1.00	.95 ≤ NNFI ≤.97	.95 ≤ .95 ≤ .97
CFI	.97 ≤ CFI ≤ 1.00	.95 ≤ CFI ≤ .97	.95 ≤ .95 ≤ .97
GFI	.95 ≤ GFI ≤ 1.00	.90 ≤ GFI ≤ .95	.90 ≤ .90 ≤.95
AGFI	.90 ≤ AGFI ≤ 1.00	.85 ≤ AGFI ≤ .90	.85 ≤ .85≤ .90

Sources: (Munro, 2005; Schreiber et al., 2006; Şimşek, 2020; Hooper and Mullen 2008; Schumacker and Lomax, 2004; Lenz et al., 2010; Wang and Wang, 2019).

Within the framework of the findings obtained to analyze the results of model fit, it was revealed that the (χ2/sd) indicator (χ2:1377 and sd:5.72) was 4.69. Considering that a low value indicates a good model fit (Kline, 2014; Sumer, 2000), it can be stated that the value obtained in the study is at an acceptable level. Other values obtained within the scope of model fit are as follows; RMSEA=.078, SRMR=.077, NFI=.95, NNFI=.95, CFI=.95, GFI=.90, AGFI=.85. The fact that the values produced are between perfect and acceptable critical points is an indication that the model will serve the purpose as desired (Jöreskog et al.,2016). In this direction, the model fit of the 4-factor 26-item structure of the Identification in Sport Scale was confirmed.

Following the validated psychological construct validity of the Identification in Sport Scale, which is planned to serve the field as a valid and reliable measurement tool, the factor values of the scale; the square of the maximum shared variance (MSV), the average variance explained (AVE), the average of the square of the maximum shared variance (ASV) and the convergent reliability values (CR) are given in Table 10 below. Since it is aimed that the 4 dimensions of the scale converge to each other and explain at least half of the relevant factor, AVE values in all 4 sub-dimensions should be greater than 0.5 (AVE>0.5) and all CR values should be above AVE values in line with convergent validity evidence (Yaşlıoğlu, 2017), all CR values are above AVE values, but AVE values of the 1st and 3rd sub-dimensions produced values above .50. Accordingly, the condition that the CR values, which are considered as the basic criterion for convergent validity, should be greater than the AVE values, which are the average of the variance explained, was also clarified (CR>AVE).

In addition, within the scope of the study, the scope of divergent validity, which is expressed as the possible relationships between factors being lower than the relationships within factors in multi-factor structures, was also targeted. In other words, this situation can be explained as the divergence of separate factors. Based on this definition, the MSV values of the study are larger than the ASV values. On the other hand, the condition within the framework of the goal of AVE values being greater than MSV values as required by the divergent validity evidence was met for the 1st and 3rd sub-dimensions. Within the scope of the values obtained, it can be stated that the criteria for divergent validity are largely met.

In addition, when the combinatorial reliability values (CR), which are expressed as another form of evidence for the study, are analyzed, it is seen that all the values obtained meet the requirement of .70. Accordingly, the criteria and values are given in Table 10 below.

Table 10. Convergent and Divergent Validities and Combining Reliability Values of the Scale

Factors	AVE	MSV	ASV	CR
1	0,53	0,50	0,185	0,93
2	0,44	0,50	0,185	0,81
3	0,56	0,50	0,185	0,83
4	0,40	0,50	0,185	0,70
Criteria	AVE>,50 CR>AVE	MSV<AVE	ASV<MSV	CR>,70

Cronbach alpha for the whole scale: ,90

Cronbach alpha reliability analysis coefficients obtained from 778 observations included in the analyses within the scope of the scale applied to the target group consisting of active athletes and the 26-item final scale form; for the factors respectively for the 1st sub-dimension: .94, for sub-dimension 2: .82, for sub-dimension 3: .85, for the 4th sub-dimension: .70 and for the whole scale: .90. In the light of the data obtained in this context, the Identification in Sport Scale should be stated to be a measurement tool with high reliability.

4. CONCLUSION AND RECOMMENDATIONS

4.1. Conclusion

The concept of identification in sports is a multifaceted concept with a wide range from fan behavior to sports marketing, from the sports industry to athlete identity. Understanding and benefiting from identification is as important for sports organizations and marketers as it is for determining the tendencies of athletes.

The dynamic and competitive spirit of sports always creates a bond between athletes. The level of this bond between athletes depends on some characteristics that can be influenced voluntarily or unwittingly by the athlete. The characteristics of athletes such as the geography they live in, available opportunities, etc. can create a selective situation in their perceptions and mediate a psychological bond between athletes

and other athletes. Starting from this point, it was aimed to examine what these bonds might be and at what level the athletes have these bonds with the athlete-athlete identification level scale.

Within the scope of the study, various process steps were applied. In this direction, research steps such as focus group interviews with experts and target group athletes, writing essays expressing their feelings, and how identification evolved in the literature were followed. In the first stage, the opinions of the experts were evaluated for the item pool and Likert type obtained. Then CFA and CFA were applied. For CFA, 930 observations were reached, and 813 observations were reached for CFA. The 4-factor 26-item structure obtained as a result of CFA with 930 observations was confirmed by CFA with 813 observations. According to the final form, "Athletic Identity", "Image and Career Maturity", "Social Values" and "Communication Skills", which are compatible with the items, were named.

In the items belonging to the Athletic Identity sub-dimension, it was concluded that the idolized athlete's mental and physical characteristics such as his/her understanding of the game strategy, energy, responsibility-taking skills and being a team player were important for identification. Within the scope of the second factor, Image and Career Maturity, it can be stated that the characteristics of the idolized athlete such as charismatic features, hairstyle, image and experiences are influential. On the other hand, within the scope of Social Values, characteristics such as knowing and acting according to the values of the society in which the idolized athlete lives and being a caring person are important. Finally, it was found that in the Communication Skills factor, elements such as the idolized athlete having a positive perception by other individuals, being successful in communication-related aspects and being appreciated by his/her rivals are determinative.

As a result of the analyses performed, the cronbach alpha internal consistency coefficients examined in the quantitative context were calculated as .94 for Athletic Identity consisting of 12 items, .82 for Image and Career Maturity consisting of 6 items, .85 for Social Values sub-dimension consisting of 4 items, .70 for Communication Skills sub-dimension consisting of 4 items, and .90 for the whole scale. In addition, as a result of CFA, the variance ratio explained by the 4-factor 26-item structure is 56.95. When the results were analyzed according to the model goodness of fit criteria after CFA; $\chi^2/sd=4.69$, RMSEA=.078, SRMR=.077, NFI=.95, NNFI=.95, CFI=.95, GFI=.90, AGFI=.85. It was revealed that all values produced had excellent or acceptable fit.

There are, naturally, some limitations of the study. In addition to cronbach alpha and composite reliability coefficients applied for reliability and validity evidence, criteria such as similar scale validity could have been used for additional evidence. However, the absence of a measurement tool for detecting athlete-athlete identification in the literature eliminated this possibility. On the other hand, applying a test-retest technique to determine the consistency of the scale over time would undoubtedly have provided additional evidence. However, due to the changing dynamics and the fact that the target group is not fixed, this technique was not preferred as well.

4.2. Recommendations

Determining the identification levels of athletes provides information to researchers and coaches about the identity of athletes. In this direction, determining the information about identification in talent screenings or active athletes, determining the level of identification of the individuals concerned, and determining the level of identification with which characteristics they are connected, provides an idea for the right guidance. If an athlete does not have an idol or has a low level of identification, he/she may not find sufficient motivation. Because every athlete, whether a child or a young person, tends to reflect and identify with objects and people who satisfy his/her motives, and taking parts from the person he/she identifies with motivates him/her (Köknel, 1985). Wearing the numbered jersey symbolizing the athlete, running like him/her, carefully watching his/her sportive or non-sportive but noticeable movements on the field, and hanging posters of athletes on the wall are exemplary identification behaviors (Zelyurt, 2019).

In addition, with the help of the present scale, researchers can determine the differences between athletes at the individual or team level, at the level of branch differences, and in terms of gender. In addition, identification levels can be examined in terms of different sports activities such as shooting, target field games, net or racket sports, water sports, extreme sports, hitting and catching games, and defence sports and the reasons for athletes' preferences related to the sports they are involved in can be linked.

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