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## Examination of the psychometric properties of the sport interest inventory in a sample of Turkish football spectators

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### ABSTRACT

**Purpose/Rationale:** It is important for sport marketers and academicians to understand spectators' motivation for attending football games. Although football is the most popular sport in Turkey, there is not enough study for understanding their behavior. The aim of this study is to examine the validity and reliability of the Sport Interest Inventory (SII) in a group of Turkish football spectators.

**Methodology:** This research comprises two separate studies, where 259 football spectators participated in the first study, to whose data Explanatory Factor Analysis (EFA) was applied, and Confirmatory Factor Analysis (CFA) was applied to the data of 280 football spectators in the second study. Content validity was tested with EFA and CFA, and Pearson's correlation coefficients among the variables were used to indicate convergent and predictive validities, while reliability was tested by Cronbach's alpha internal consistency and composite reliability coefficients.

**Findings:** The results support the appropriateness of the proposed 11-factor model for Turkish football spectators, indicating that the Turkish version of the SII can be used to measure the motivational orientations of Turkish sports fans toward participating in sports competitions.

**Research contribution:** The research contributes to our knowledge in the area of sports marketing research by developing the measurement tool for determining football spectators' preference.

**Practical implications:** Practitioners in sports marketing will be able to collect data through this measurement tool to examine football spectators' behaviors.

### ARTICLE HISTORY

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motivation; validity; reliability

## Introduction

Sports spectators, who are indispensable for sporting events, are individuals who spend time watching sports in their free time (Trail, James, & Fink, 2000). Sports' consumers are people who watch sports live on television, or the internet, or follow it on the radio (Smith, 2008). To define the behaviors of sports consumers' in the field of sports marketing and to determine the motivational orientations of the

individuals watching sports matches are also very important for increasing the income of professional sports clubs (Funk & James, 2006; Won & Kitamura, 2006). Research on the concept of the sports consumer has sought to determine why people consume sport products and events (Funk, Alexandris, & McDonald, 2008). Motivation, an important concept in explaining consumer behavior, is defined as an evoked need by pointing to the power that drives the

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individual for a specific purpose (Schiffman & Kanuk, 2004). Differences can occur in behaviors with changes in people's requirements (Mucuk, 1997).

Several scales have been developed to examine the spectator's attitudes and behaviors and to reveal the reasons for participation in sports events (McDonald, Milne, & Hong, 2002; Trail & James, 2001; Wann, 1995). The first study in this area was performed by Sloan, Bates, Davis, and Schwieger (1987) using "their Sports Need for Achievement and Power Scale (SNAPS)". Sloan (1989) explained motivation theories in sports under five categories: salubrious effects, stress, and stimulation seeking, catharsis and aggression, entertainment, and achievement seeking. Motivational theories related to health assert that individuals do sports or view sports activities for appreciation and to feel good psychologically, while the theory of stress and stimulation seeking asserts that individuals do so to experience eustress, the positive type of stress. The theory of catharsis and aggression assumes that individuals participate in playing or viewing sports activities from aggression. The theory of catharsis posits that individuals' aggression can be decreased when performing or viewing sports in accordance with the theory of aggression. The theory of entertainment states that individuals play or view sports to fulfill their requirement of aesthetics and entertainment, the theory of achievement that they seek to fulfill their requirement of achievement and prestige (Michener, 1976; Sloan, 1989; Wann, 1995; Leonard, 2001). These five theories constitute the infrastructure of scales developed to measure the motivation of spectators in sports (Wann, 1995; Zhang, Lam, Bennett, & Connaughton, 2003; Trail & James, 2001; Funk, Mahony, & Ridinger, 2002; Funk, Ridinger, & Moorman, 2003). In this study, the motivations of sport clients are defined as drama, escape, vicarious achievement, aesthetics, entertainment, eustress, and interest in team, interest in player, team identification, and interest in sport.

Other scales developed in this research area are the Sport Fan Motivation Scale (SFMS) of Wann (1995); the Motivation Scale For Sport Consumption (MSSC) of Trail and James (2001); the Motivation Factors For Spectators and Participants (MFSP) of McDonald et al. (2002); the J. League Spectator Scale (JLSS) of Mahony, Nakazawa, Funk, James, and Gladden (2002); the Points of Attachment Index (PAI) of Trail, Robinson, Dick, and Gillentine (2003); the Spectator Decision-Making Inventory (SDMI) of Zhang et al. (2003); the Sport-Fan Motivation Scale (SFMS) of Al-Thibiti (2004); the Sport Consumption Motives (SCM) of Pons, Mourali, and Nyeck (2006); and the Orientation Toward Sporting Event Scale (OTSES) of James and Ross (2004).

The Sport Fan Motivation Scale (SFMS), includes subscales such as eustress, self-esteem, escape, entertainment, economic, aesthetic, group affiliation, and family needs. Milne and McDonald (1999) developed a scale including subscales such as risk-taking, stress reduction, aggression, affiliation, social facilitation, self-esteem, competition, achievement, skill mastery, aesthetics, value development, and self-actualization based on Sloan's Motivation Theory (1989) and Maslow's Hierarchy of Needs (1943). All of these scales have assisted to explain the motivation of spectator; however they include some problems in the field of content validity, psychometric limitations, and applicability (Funk, Mahony, Nakazawa, & Hirakawa, 2001; Trail & James, 2001). Considering the limitations of scales developed before the 2000s, a scale called "the Motivation Scale for Sport Consumption (MSSC)" which analyses the sports audience motivations in nine sub-dimensions (achievement, acquisition, family, physical attraction, physical skill, and social interaction) has been developed by Trail and James. Even though the MSSC is regarded as a valid and reliable measurement tool in terms of psychometric characteristics, it has been determined to be insufficient in several different sports. Sloan (1989) stated that the individuals go into different sports for a variety of purposes, and therefore each sports environment may have

different motivational intentions. It is important that a consumer behavior scale, applied to individuals who consume sports matches, should be general, simple, and applicable to many sports branches.

In order to facilitate more extensive research in this field, the Sport Interest Inventory (SII) was developed by Funk et al. (2001) through a review of previous studies and theories (Trail & James, 2001; Sloan, 1989; Wann, 1995). The original SII scale, whose validity and reliability were tested with CFA and internal consistency tests, includes 10 motivational intentions such as sport interest, vicarious achievement, excitement, team interest, supporting women's opportunity in sports, aesthetics, socialization, national pride, drama, and player interest. It was found by the World Cup organization that the 6 sub-dimensions of SII (interest in sports, interest in team, excitement, support for women's opportunities, aesthetics, and vicarious achievement) predicted 35% of spectators' motives; in its final form four sub-dimensions (entertainment value, family bonding, role model, and wholesome environment) were added after further research (Funk et al., 2002, 2001), which found using regression analysis that five sub-dimensions (interest in soccer, interest in team, vicarious achievement, role model, and entertainment value) expressed 54% of spectators' motivational intentions in the study (Funk et al., 2002). Afterwards, Funk et al. (2003) added four subscales (escape, bonding with friends, sports knowledge, and customer service) to the SII and extended the scale base on focus group discussions with four different groups and taking a consideration of other studies. Confirmatory factor analysis and reliability coefficients resulted in a valid and reliable 18 sub-dimension final version of SII. Multiple regression analysis found that 10 sub-scales of the scale (interest in team, escape, role model, aesthetics, socialization, drama, interest in sport, vicarious achievement, support women's opportunity, and interest in players) estimated

the motivation of the spectators (Funk et al., 2003). Neale and Funk (2006) adopted the SII to examine the motivations of Australian Football event spectator. A scale with 33 items provided evidence that the SII constructs are unique from one another indicating that SII in 33 items with 11 factors could be used for the Australian sample. In another study, the validity and reliability of the SII were tested on a Chinese Professional Baseball League (CPBL) audience ( $n = 346$ ), and the results of confirmatory factor analysis revealed a strong psychometric property of the SII (Wang, Zhang, & Tsuji, 2011). In the Chinese sample, 54 items and 18 subscales of SII explained 72% of the total variance, and the Cronbach's alpha values of the subscales were found to be between .80 and .95. The validity and reliability of SII were also tested to compare Japanese and South Korean football spectators' motivations to participate in football matches (Won & Kitamura, 2006). They reported that the motivation scales developed in their study were valid and reliable for measuring Korean and Japanese soccer spectators' motives. According to the analyses, SII comprised 27 items on nine subscales with three items on each sub-scale. The scale used in this study explained 69.93% of the total variance and Cronbach's alpha values for the subscales were found to be between .76 and .89 (Won & Kitamura, 2006).

The validity and reliability of the scale for men and women was tested in sports organizations around the world (Funk et al., 2002, 2003; 2004; Neale & Funk, 2006) in various women's and men's team sports, yielding positive findings (Funk et al., 2001; 2002). As the SII is a measurement tool used in different sports meets for different genders whose psychometric features have yielded good results in earlier research, we aimed to test the validity and reliability of the SII for in Turkish sports spectators.

Studies of the motivational orientations of consumers have shown that consumer behaviors are affected by such factors as the sport

itself (Wann, Grieve, Zapalac, & Pease, 2008); the birthplace (Won & Kitamura, 2006), and cultural differences (Kwon & Trail, 2001). Research in the field of marketing has shown that cultural differences in buying behavior have an effect on decision-making. Examining audience motivations in different cultures is important because the economic and cultural structures of those countries will affect the purchasing behavior of customers (Won & Kitamura, 2006). There are questions about reliability of the studies of consumer motivations that ignore cultural differences of consumers (Walsh, Hennig-Thurau, Wayne-Mitchell, & Wiedmann, 2001). Studies that have sought reveal the structure of Turkish society have characterized Turkish Society either as socialists (Bierbrauer, Meyer, & Wolfradt, 1994; Diener & Diener, 1995; Schwartz, 1994) or individualist (Goregenli, 1995; Uskul, 1998); while Imamoglu (1987) and Imamoglu and Gultekin (1993) characterize Turkish society as both individualist and socialist. As Turkey constitutes a bridge between East and West, it is important to adapt the SII to Turkish to illuminate Turkish's consumers' behavior.

Although the international literature on consumer behavior in sports is representative of the diversity of number and types of sports (football, basketball, volleyball, wrestling, women's basketball and martial arts), research on consumer's behavior in sports in Turkey lags behind that in other countries. Due to the overwhelming interest in football in Turkey, a research focus on the audience of professional football team who attend the matches is indicated. In addition to this, as Sprotles and Kendall (1986) noted, different consumer motivations may exist for different product groups. Also, research on consumer behavior in sports has also shown that consumer behavior can vary across sports branches. Therefore, the motivations of sports consumers in this study were investigated in the particular form of the the football audience.

When the scale is adapted to Turkish circumstances, it will contribute theoretically to sports

marketing research, as well as, for practical applications, providing important benefits to employees in sport marketing developing content for advertising campaigns, determining how to present the activities in sport facilities, and identifying consumer profiles in sales of corporate sponsorship.

## Study 1

### Method

#### Participants

A total of 259 spectators of men's football ( $M_{age} = 35.76 \pm 8.18$ ) voluntarily participated in this research; Fifty-nine of the participants (22.8%) were female and 200 (77.2%) male. In marital status, 189 (73%) were single and 70 (27%) married. By occupation, 109 of the participants (42.1%) were students; the others were public servants (13.5%), private sector employees (22.4%), self-employed (10%), tradesmen (8.1%), housewives (1.5%), and retired (2.3%). Participants were supporters of Galatasaray, Beşiktaş, Fenerbahçe, and other teams of the Turkish Football Leagues.

#### Data collection tool

**Personal information form.** This part of the questionnaire package includes some questions to determine the demographic characteristics of the participants (e.g. age, gender, and education levels).

The Sport Interest Inventory (SII) was developed by Funk et al. (2001) and is used to assess the motives of professional football fans. The last version of SII contains 18 sport fan motives. This first scale included factors previously identified in the literature. Later, another study by Funk et al. (2003) extended and applied the SII to another context, women's professional basketball, in order to augment and validate the SII as an instrument for measuring 18 different individual motivational factors. These factors were interest in sports (BAS), interest in players (PLA), bonding with friends (BON),

drama (DRA), bonding with family (FAM), aesthetics (AES), customer service (MGT), excitement (EXC), entertainment value (ENT), sports knowledge (KNW), vicarious achievement (VIC), escape (ESC), wholesome environment (WHO), socialization (SOC), interest in team (TEM), community pride (COM), support women's opportunity (SWO), and role models (ROL). Confirmatory factor analysis (CFA) and discriminant validity tests provided support for these 18 factors (Funk et al., 2003). The last version of the SII is a 54-item scale that has been used and validated in different sport settings (e.g. professional men's and women's football, professional women's basketball). The SII showed good reliability with Cronbach's alpha for each variable ranging from 0.75 to 0.93. Confirmatory Factor Analysis showed the SII to be a valid instrument for measuring the 18 unique motives related to sports consumers' interest. Goodness-of-fit indices supported the SII measurement model's discriminant and convergent validities ( $\chi^2 = 1686.45$ ,  $df = 1.224$ ,  $RMSEA = .05$ ,  $SMRM = .005$ ). Multiple linear regression analyses revealed that the 18 motives assessed by the SII explained 48% of the variance in sports spectator's interest in professional women's basketball (Funk et al., 2003).

**Data collection.** For the validity and reliability of SII in the Turkish language, the original English scale was first translated into Turkish and then back-translated into English. The items of the original scale's two sub-dimensions (SWO and AES) were excluded from this study because of the inclusion of special items for woman's sports and the WNBA league. During the translation, the methodology of back translation suggested by Brislin (1970) was followed. The original English scale was translated independently into Turkish by three people, one a psychology expert fluent in English, the second a graduate of English Language Literature fluent in English, and the third an expert in English translation and interpreting. These three Turkish

translations were compared and the similar and different items were identified and the scale back-translated from Turkish to English and compared with the original English scale to create the Turkish form. Later, this Turkish scale was given out to 344 participants. However, scales with incorrect answers and missing data were removed. Therefore, data from a total of 259 participants were included in the analysis. Data were collected at the stadiums before the matches started. The participants were asked to participate in the research and those consenting were given the questionnaires. The data collection took approximately 10 minutes.

### **Data analysis**

Data were analyzed with IBM SPSS 17. Firstly, the factor structure of the scale was evaluated by exploratory factor analysis. Cronbach's alpha reliability coefficient was then calculated to determine the internal consistency of the scale.

### **Results**

The Kaiser–Meyer–Olkin test was conducted to determine whether the data were suitable for factor analysis. The Kaiser–Meyer–Olkin value was .716 and Bartlett's Test was significant ( $p < .05$ ) showing that the data to be suitable for exploratory factor analysis (Table 1).

### **Exploratory factor analysis**

Exploratory factor analysis yielded 11 factors with an eigenvalue greater than 1. Factor variance explanations were 7.902%, 7.821%, 7.639%, 7.464%, 7.392%, 7.341%, 7.250%, 7.025%, 6.969%, 6.616%, and 6.478% from the 1st factor to the 11th, respectively. The total explained variance was 79.899% (Table 2).

After rotation 11 factors appeared. In this analysis factor loadings above .50 were taken into consideration, and items with high factor loadings in more than one factor were removed from the scale. For these reasons, 15 items were removed from further analysis, leaving 33 items on the scale.

**Table 1.** Result of KMO and Bartlett's test.

Kaiser–Meyer–Olkin measure of sampling adequacy		.716
Bartlett's test of sphericity	Approx. Chi-square	5701.912
	df	528
	Sig.	.000

**Reliability analysis**

Reliability analysis found the sub-dimensions of SII to have cronbach's alpha values between .65 and .90 (see Table 3).

**Study 2****Participants**

A total of 280 spectators of men's football ( $M_{age} = 31.18 \pm 9.62$ ) voluntarily participated in study 2. Of the participants, 69 (24.6%) were female and 211 (75.4%) male. 189 (67.5%) reported being single and 91 (67.5%) married. Participants reported working in a variety of areas (e.g., private

**Table 2.** Factor loadings after rotation.

	Explained Variance	Factor Loading
<b>Bonding with family (FAM)</b>	7.902	
Attending games gives me a chance to bond with my family		.884
I enjoy sharing the experience of attending a game with family members.		.889
An important reason I attend games is to spend quality time with my family.		.871
<b>Socialization (SOC)</b>	7.821	
I enjoy interacting with other spectators and fans when attending games.		.844
Games have given me a chance to meet other people with similar interests to mine.		.879
I like to talk with other people sitting near me at games.		.832
<b>Entertainment value (ENT)</b>	7.634	
The games provide affordable entertainment.		.774
Games are great entertainment for the price.		.911
I attend games because it is an entertaining event for a reasonable price.		.887
<b>Role model (ROL)</b>	7.464	
Players provide inspiration for girls and boys.		.847
I think the players are good role models for young girls and boys.		.907
The players provide inspiration for young people.		.822
<b>Customer service (MGT)</b>	7.392	
The staff is always helpful and courteous to me as a fan/customer.		.879
I enjoy the games because the staff is friendly and available to me as a customer.		.875
I feel customer satisfaction is important to the game day staff.		.781
<b>Drama (DRA)</b>	7.341	
I prefer watching a close game rather than a one-sided game.		.878
I like games where the outcome is uncertain.		.887
A close game between two teams is more enjoyable than a blow-out.		.686
<b>Wholesome environment (WHO)</b>	7.250	
I like attending a game because it is good, clean fun.		.828
There is a friendly, family atmosphere at the games.		.873
The friendly environment of the games is an important reason to attend.		.856
<b>Vicarious achievement (VIC)</b>	7.025	
I feel like I have won when the team wins.		.838
I feel a sense of accomplishment when the team wins.		.871
When the team wins, I feel a personal sense of achievement.		.778
<b>Community support (COM)</b>	6.969	
My connection to the community is why I like the team.		.850
I support the team because the team enhances the status of the city.		.898
I attend games to support the city's team.		.768
<b>Escape (ESC)</b>	6.616	
I like attending games because they provide me with a distraction from my daily life for a while.		.790
The games provide me with an opportunity to escape the reality of my daily life for a while.		.843
Getting away from the routine of everyday life is an important reason why I would attend a game.		.788
<b>Excitement (EXC)</b>	6.478	
I like the excitement associated with the games.		.695
I enjoy the excitement surrounding the games.		.840
I find games very exciting.		.816
<b>Total variance</b>	79.899	



sector, public servants, students, tradesmen, housewife).

### Data collection tool

*Personal information form:* Similar questions described in study 1 to determine participants' demographic characteristics were used.

*Sport Interest Inventory (SII):* This inventory was explained in detail in the method section of study 1 above.

*The Psychological Commitment to Team Scale:* This scale was developed by Mahony, Madrigal, and Howard (2000). This is a 7-point Likert scale (1 = completely disagree, 7 = completely agree) with 14 items on three subscales: resistance to team change, loyalty to team, and questioning loyalty, where a higher score indicates higher loyalty. Its adaptation into Turkish was performed by Eskiler, Sari, and Soyer (2011).

*Purchase intention:* Participants' purchase intention for their teams licensed products was measured using the question, "I am planning to purchase my team's licenced products." Relevant literature shows that purchase intention can be measured with one question (e.g. Sa'ait, Kanyan, & Nazrin, 2016).

### Data analysis

In this study, descriptive statistics were calculated using IBM SPSS 17. Skewness and kurtosis values were checked for univariate normality by meeting the criterion of being between  $-2$  and  $+2$  (George & Mallery, 2016). The skewness and kurtosis values in this study indicated univariate normality, while multivariate normality was tested by Mardia's coefficient of multivariate kurtosis (Mardia, 1985). The relevant literature

**Table 3.** Standardized regression weights,  $t$ -values,  $R^2$  and composite reliability of SII.

Items	Factor	Std. Regression weights	$t$ -value	$R^2$	Composite reliability (CR)	Cronbach's alpha
a36	Socialization	0.86	8.57	0.74	0.86	0.86
a4		0.74	10.48	0.54		
a20		0.87	8.27	0.75		
a12	Entertainment value	0.82	9.12	0.67	0.86	0.86
a44		0.88	7.21	0.77		
a28		0.76	10.05	0.57		
a40	Role models	0.90	8.22	0.82	0.93	0.93
a8		0.88	8.99	0.78		
a24		0.91	7.78	0.83		
a42	Customer service	0.79	10.25	0.63	0.85	0.85
a26		0.85	9.29	0.72		
a10		0.78	10.37	0.61		
a37	Drama	0.87	8.66	0.75	0.89	0.89
a5		0.87	8.56	0.76		
a21		0.83	9.53	0.69		
a15	Wholesome environment	0.74	10.81	0.55	0.83	0.83
a47		0.84	9.42	0.71		
a31		0.78	10.51	0.60		
a41	Bonding with family	0.86	8.01	0.74	0.85	0.85
a9		0.71	10.48	0.50		
a25		0.86	7.96	0.74		
a30	Vicarious achievement	0.94	8.01	0.88	0.94	0.94
a14		0.93	8.48	0.86		
a46		0.89	9.85	0.79		
a23	Community support	0.89	8.19	0.72	0.86	0.86
a7		0.79	9.66	0.64		
a39		0.80	9.97	0.56		
a32	Escape	0.93	8.02	0.86	0.94	0.94
a16		0.91	8.63	0.84		
a48		0.91	9.00	0.82		
a27	Excitement	0.89	10.13	0.79	0.92	0.92
a43		0.86	10.62	0.73		
a11		0.93	8.73	0.86		

indicated that this value should be less than the recommended value calculated using the formula " $p(p + 2)$ " where  $p$  = total number of observed indicators (Raykov & Marcoulides, 2008). This formula is used among researchers from various fields (e.g. Baki, 2017; Lau & Yuen, 2014; Teo et al., 2010; Vecchione & Alessandri, 2013). In the case of this study, the value was 2400 [ $48(48 + 2) = 2400$ ], significantly greater than the Mardia's coefficient of multivariate kurtosis obtained in this study of 387.580, showing that the multivariate normality assumption was met. The factor structure of the Turkish version of the SII was examined using confirmatory factor analysis (CFA) with the maximum likelihood estimation procedure in AMOS 20. We utilized Standardized Root Mean Square Residual (SRMR), Comparative Fit Index (CFI), Root Mean Square Error Approximation (RMSEA) and Non-Normed Fit Index (NNFI) to test model fit. The result of the chi-square ( $\chi^2$ ) test was also reported. There are some threshold values for evaluating the model fit indices. A value of .05 or lower for RMSEA and SRMR shows a perfect fit, whereas a value between .05 and .08 indicate of an acceptable model fit. While NNFI and CFI values which are equal to or above .95 reveals an excellent model fit, values between .90 and .95 can be interpreted as an indication of a good model fit (Hooper, Coughlan, & Mullen, 2008; Schermelleh-Engel, Moosbrugger, & Müller, 2003; Sümer, 2000).

Convergent validity of SII was tested with Pearson's correlation coefficients between SII and the sub-dimensions of the Psychological Commitment to Team Scale. Predictive validity was tested by the correlation coefficients between the subscales of SII and the purchase behavior of participants. The level of significance was set at .05 in all analyses. Cronbach's alpha values were calculated for internal consistency and the composite reliability of the scale was also reported for the reliability of the scale.

## Results

### Construct validity

The factor structure of the Turkish form of the SII was tested for similarity to the construct obtained by EFA in study 1. CFA was then conducted and the model fit indices,  $t$ -values, and standardized regression weights were examined. The analysis found that the model fit indices were poor (SRMR = .04, CFI = .92, RMSEA = .080, NNFI = .90), with a significant  $\chi^2$  value ( $\chi^2 = 1222.729$ ,  $df = 440$ ,  $p < 0.001$ ). Only one modification was performed on the basis of modification indices, bringing the model fit indices to the desired value ranges.

In the final model, standardized regression weights of the 33 items were between .71 and .94. and the  $t$ -values were between 7.21 and 10.81. Composite reliabilities for the sub-dimensions were determined to range from .83 to .94. CFA results for SII indicated that  $\chi^2$  values were significant and the model fits the data well (SRMR = .04, CFI = .92, RMSEA = .079, NNFI = .90,  $\chi^2 = 1209.765$ ,  $df = 439$ ,  $p = .000$ ).  $\chi^2/df$  value lower than 3 indicates a good model fit (Meydan & Sesen, 2011; Sümer, 2000); our value of  $\chi^2/df$  was satisfactory. A value between .05 and .08 is an indication of an acceptable model fit for RMSEA, and a CFI value between 0.90 and 0.95 is also considered acceptable (Hooper et al., 2008). Therefore, our RMSEA and CFI values were acceptable. NNFI (TLI) should be above .90 (Schumacker & Lomax, 2004), and thus our value was acceptable. Consequently, the results of confirmatory factor analysis showed that model fit indices of the structure consisting of 33 items under 11 sub-dimensions are acceptable for the Turkish version of SII.

### Convergent validity

Convergent validity was tested by calculating Pearson's correlation coefficients of SII with the sub-dimensions of the Psychological Commitment to Team Scale (Table 4).

It can be seen in the table that almost all the correlation values among sub-dimensions of psychological commitment to team and SII were positive and significant revealing the convergent validity of the scale (Table 5).

The correlation coefficients of purchase intention with the sub-dimensions of the Sport Interest Inventory were used for predictive validity. The correlations values ranged from .435 to .649. all of which were positive and significant.

### Reliability

Composite reliability and Cronbach's alpha values were found to be between .83 and .94., as shown in Table 3.

### Discussion

This study was designed to test the validity and reliability of the Turkish version of the SII developed by Funk et al. (2001). First of all, the first study revealed the factor structure of the scale in a Turkish sample group. According to the results of EFA analysis in study 1, the subscales of the Turkish version of SII are socialisation, drama, community support, role model, bonding with family, customer service, excitement, entertainment value, wholesome

environment, vicarious achievement, and escape some of the sub-dimensions such as interest in players, aesthetics, sport knowledge, and community pride were not in the factor structure of the scale adapted in this research. This might reflect the characteristics of the sports fans in this study.

In 1999, the FIFA Women World Cup (WWC) spectators' motivational orientations were evaluated for the first time with SII (Funk et al., 2001), yielding a structure similar to that of the Turkish version of SII, with socialization, drama, excitement, and vicarious achievement subscales, with sport interest, team interest, supporting women, opportunities, national pride, and player interest subscales included. In the extended version of SII, four subscales were added (entertainment value, family bonding, role model, and wholesome environment) and these subscales were included in the Turkish version of the SII. The Australian Football version of the SII (Neale & Funk, 2006), which consists of 33 items and 11 sub-dimensions has factors of team interest, player interest, and friends bonding that do not occur in the structure of the Turkish version of the SII obtained in this research. The subscales included in the Turkish version but not in the Australian version are community support, customer service, and wholesome environment. The Chinese version of the SII, which was adapted based on the motivations of the Chinese Professional Baseball League (CPBL) spectators, included 54 items and 18 subscales.

**Table 4.** Pearson's correlation of SII with psychological commitment to team.

	Resistance to team change	Loyalty to team	Questioning loyalty
Socialization	.491**	.569**	.219**
Entertainment value	.493**	.546**	.196**
Role models	.536**	.597**	.192**
Customer service	.473**	.577**	.198**
Drama	.644**	.556**	.205**
Wholesome environment	.542**	.666**	.140*
Bonding with family	.401**	.496**	.210**
Vicarious achievement	.683**	.695**	.167**
Community support	.628**	.594**	.194**
Escape	.578**	.657**	.109
Excitement	.667**	.720**	.166**

**Table 5.** Predictive validity.

	Purchase intention
Socialization	.535**
Entertainment value	.443**
Role models	.435**
Customer service	.649**
Drama	.467**
Wholesome environment	.510**
Bonding with family	.461**
Vicarious achievement	.590**
Community support	.485**
Escape	.545**
Excitement	.569**

Unlike the 18-item original version of the SII and the Turkish version, the subscales of support of Taiwanese baseball and the CPBL images were included due to the cultural structure and branch-specific characteristics of Taiwan. Other subscales not included in the Turkish version are interest in baseball, aesthetics, bonding with friends, interest in players, interest in team, and sport knowledge. The validity and reliability of SII were also tested by comparing Japanese and South Korean football spectators' motivation to participate in watching football matches (Won & Kitamura, 2006). The Korean version of SII included 27 items on nine subscales (interest in players, community pride, entertainment, drama, escape, physical skill, social interaction, family, vicarious achievement, and team identification). Physical skill and team identification subscales are not included in the Turkish version of SII. It thus appears that cultural differences and the audience profile of the particular sport cause a diversity in SII subscales between countries.

According to the model fit indices in this research, it may be said that the fit indices of the model fall within the ranges of good model fit indices (Schermelleh-Engel et al., 2003). In other words, each factor correctly represents the items that make it up and the model fit indices and basic parameter estimations of the measurement model show that the model fits the data. For the internal consistency of the scale, Cronbach's alpha value was calculated, where values above .70 are accepted as indicating satisfactory internal consistency. Cronbach's alpha values were found to be above .70 except for the bonding with the family subscale, whose value of 0.65 is just below the threshold. The relatively low Cronbach's alpha coefficient for this sub-scale could be due to the fact that the correlation coefficients among the items of this sub-scale are low and there are only three items. Despite the value being just below the threshold, it can still be considered acceptable by psychometric standards (Kline, 1998).

Therefore we decided to retain this factor in the scale. Moreover, composite reliabilities range from .83 to .94, all above the recommended value of .70 (Hair, Black, & Babin, 2010).

In this study, a positive correlation was found between two of the subscales of the psychological commitment scale (resistance to team change and loyalty to the team) and the SII subscale, apart from the questioning the loyalty subscale. Studies investigating the relationship between psychological commitment and motivation in football spectators have found a positive correlation between these two psychological concepts (Gargone, 2016; Kim, James, & Kim, 2013), supporting the convergent validity of the Turkish version of SII. In addition, the results revealed that sub-dimensions of SII were positively and significantly correlated with purchase intention. This can be interpreted as showing the indicators' predictive validity. When the studies of this subject were examined, it was found that Korean football spectators' SII escape and drama subscales had a positive correlation with merchandise purchase, while Japanese football spectators' vicarious achievement subscale had the same effect (Won & Kitamura, 2006). In addition, studies have shown that the motivational tendencies of football spectators affect their purchase intention (Biscaia, Correia, Rosado, Ross, & Maroco, 2013; Dees, Bennett, & Villegas, 2008).

SII has been validated in different countries such as the United States, Austria, China, Japan, and South Korea, and in different sports such as football, basketball, and baseball (Nemati, Ostovar, Griffiths, Md Nor, & Thurasamy, 2018; Ting, Chien, Dhir, & Chen, 2018; Wang et al., 2011; Neale & Funk, 2006; Won & Kitamura, 2006). This scale has also been adopted in female sporting events worldwide (e.g. Funk et al., 2002, 2003). Although fan motivation is a popular topic in the literature (e.g. Brown, Assaker, & Reis, 2018; Guest & Luijten, 2018; Soygüden, 2018; Soygüden, Barut, & İmamoğlu, 2016; Yolal, Sahilli Birdir,

Karacaoğlu, & Birdir, 2014), only limited research on it has been conducted so far in Turkey. Therefore, this research will contribute to the relevant literature by helping fill the gap in this regard. In summary, the resulting 11-item SII is a viable tool for assessing football spectators' motives for attending football matches and improving sports marketing in Turkey. However, further research in different sports spectators with different characteristics can provide more information regarding the factor structure and reliability of this scale. Also, different types of reliability can be tested in Turkish samples.

### Disclosure statement

No potential conflict of interest was reported by the authors.

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