

## **The Persian Soccer Spectator Behaviour Inventory (PSSBI): Development and Psychometric Properties of the PSSBI Using Structural Equation Modelling (SEM)**

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### **ABSTRACT**

Psychometric instruments assessing spectator motives for attending professional sports have mostly been validated in a Western context. The present study describes the development of the Persian Soccer Spectator Behaviour Inventory (PSSBI). The 21-item PSSBI was completed by 1385 Iranian spectators. Exploratory factor analysis indicated that the 21 items loaded on four factors: Promotional Incentives, Game Attractiveness, Schedule Considerations, and Economic Considerations. These factors demonstrated acceptable internal consistency and explained 65.48% of the total variance. It is concluded that the resulting 20-item PSSBI is a viable tool for assessing football fans' motives for attending professional football matches in Iran.

*Keywords:* Football attendance motivation, football marketing, soccer attendance, sports spectatorship

### **INTRODUCTION**

The existence of sports enthusiasts and loyal fans who always turn out to watch a variety of different sports has demonstrated watching live sport is a popular leisure activity (Lera-López & Rapún-Gárate, 2011). Sports marketing has evolved into one of the most lucrative industries of the 21<sup>st</sup> century (Jackson, Grove, & Mark,

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2010; Miller, 2004; Wiid & Cant, 2015) and governments, nations, and organisations worldwide use sports as a means to bring people together, reduce cultural barriers, and heal rifts between people and nations (Wiid & Cant, 2015). The globalisation of sports has also encouraged professional sports clubs worldwide to develop strategies for attracting sponsors (Mirzaei, Mehdipour, & Azmsha, 2015), advertising commercial products, and selling tickets, merchandise and/or players to raise revenue and cover expenses (Williams, 2006).

In recent years, both researchers and practitioners have developed an increasing interest in studying the market demands of sports consumers. Those who run professional teams understand the importance of marketing studies for the financial wellbeing of teams. To a varying extent, the marketing departments of most professional sports teams conduct different types of surveys during the games or via mail. The results of these surveys provide the team's owners with invaluable information regarding the interests of fans (i.e., spectators), thereby helping teams with their efforts to attract and retain fans. Leading theorists in the field of sports marketing have confirmed the use of these marketing efforts and indicate the necessity of establishing a management information system for professional sports teams (Mullin, Hardy, & Sutton, 2014). Nonetheless, the information obtained from these studies is only as good as the quality of the collected data. The availability of

instruments with robust measurement properties is essential for such marketing research activities.

Consequently, researchers have investigated spectator behaviour and identified a number of factors that play a critical role in attracting spectators to sports events (Gitter & Rhoads, 2010; Kim & Trail, 2010; Kim, Trail, & Magnusen, 2013; Trail, Robinson, & Kim, 2008; Wann, Grieve, Zapalac, & Pease, 2008). Specific interest lies in identifying both the motivating factors behind the intention to attend sporting events (e.g., filling their leisure time, supporting their favorite teams, discharging their emotions, etc.) (Gau, 2013; Ghasemi, Sofla, Heidari Nejad, & Azmsha, 2015; Trail & James, 2001) and the constraints restricting such attendance (Trail et al., 2008). Other factors include attractiveness considerations (e.g., the quality of competition, the presence of star players, and the results of record-breaking competitions); encouraging factors (e.g., the colour of team clothing, entertainment, advertisements, and awards) (Pilus & Hussin, 2013); economic factors (e.g., ticket price, seating cost, transportation, parking, and fees) (Kafkas, Çoban, & Kafkas, 2012); planning factors (e.g., access to the stadiums, time of the competitions, stability of the schedules, and announced program) (Funk, Ridinger, & Moorman, 2003); emotional factors (e.g., motivation, team identification, vicarious victory, as well as mental and emotional energy depletion) (Trail & James, 2001); and demographic

factors (e.g., gender, marital status, family economic status, and educational level) (Zhang, Pease, Hui, & Michaud, 1995).

Studies focusing specifically on attendance motives within soccer fans have supported and extended these findings. For example, in an examination of Australian soccer fans, Neale and Funk (2006) found that socialisation, entertainment, and vicarious victory were positively correlated with re-attendance behaviour. Simultaneously, an interest in specific players was negatively correlated with re-attendance. In another study of attendance-related factors, Bauer, Sauer and Exler (2005) found that club branding significantly predicted spectator involvement and allegiance for German soccer fans. Among Japanese and South Korean soccer fans, factors related to spectator involvement have included team identification, family bonding, social interaction, appreciation of skilled performance, community pride, entertainment/fun, excitement/drama, interest in specific players, vicarious achievement, and escape from problems (Won & Kitamura, 2006). Findings suggest that excitement/drama, entertainment/fun, and vicarious achievement are strong spectator motives for soccer fans in both countries, and that team identification/allegiance is associated with frequency of attendance.

Existing instruments for assessing spectator motives have often been designed for generic use across a variety of sports and have mostly been validated within Western cultural contexts, e.g., Fan Attendance

Motivations (FAM) by Kahle, Kambara and Rose (1996), Motives of the Sports Consumer (MSC) by Milne and McDonald (1999), Sports Interest Inventory (SII) by Funk, Mahony, Nakazawa and Hirakawa (2001). When studies of spectator motives have been conducted in non-Western countries and cultures for sport marketing purposes, there has been a tendency to conduct single-cohort exploratory research without subsequent cross-validation in independent samples. The present study attempted to overcome these limitations by: (a) examining spectator attendance motives within a specific sport context (i.e., professional soccer) and a specific non-Western cultural context (i.e., Iran); and (b) cross-validating initial findings within an independent, hold-out sample from the initial dataset. Doing so will provide sports marketers with information that will be useful for developing effective communication strategies and maximizing soccer spectator involvement in this context.

## METHODS

### Participants

Data were collected from adolescents, adults, and older adults. More specifically, the research population included all spectators who attended one of 18 professional football matches in the ninth tournament of Iranian clubs in the Iranian Premier League (IPL). According to IPL statistics, this population comprises approximately 150,000 people. Based on Cochran sampling formula calculations and sampling error considerations,

1461 spectators were selected from this population via purposive classification and proportional allocation among all stadiums hosting the soccer matches. The participants ranged in age from 15 to 68 years (Median=30 years, M=21.72 years; SD=9.26), with approximately 26% married and 74% single. All of the respondents were men. In terms of education, 44% had not completed high school, 15% had completed high school, 28% held associate or college degree, and 11% held advanced degrees. The participants represented various occupational backgrounds, and the mean annual household income was approximately US\$6100.

**Instrument Development Procedures**

The instrument presented to the participants – the Persian Soccer Spectator Behaviour Inventory (PSSBI) – was developed specifically for the present study in a series of steps. More specifically, a preliminary item bank was developed based on published literature on spectator attendance motives across various types of sports in addition to qualitative interviews with 75 football fans. As part of this process, the range and type of item content covered by existing

observer-rated and self-reported spectator behaviour instruments were reviewed (Zhang et al., 1995). These draft items were then subjected to several iterations of review and revision by a panel of experts before deciding on a final set of draft attendance motive items that were refined further via cognitive debriefing interviews with 34 individuals (Bonner et al., 2015). Cognitive debriefing interviews are designed to determine whether respondents understand the instructions, content of items, recall period, and response scales of a self-reported instrument (Revicki et al., 2009). Based on feedback obtained from these cognitive debriefing interviews, several of the draft items were modified to increase respondent understanding. These modifications resulted in a final set of 21 items covering different types of attendance motives (see Appendix 1). Response options for the final item set comprised a five-point Likert scale, with 1 indicating “very important” and 5 indicating “not very important.” The reliability of the 21 items was assessed in an exploratory factor analysis with a Cronbach’s alpha of 0.90. Table 1 demonstrates that the reliability for the different components in this scale ranged from 0.76 to 0.88.

Table 1  
*Summary of results from the exploratory factor analyses*

<b>Factors</b>	<b>Items</b>	<b>Factor 1</b>	<b>Factor 2</b>	<b>Factor 3</b>	<b>Factor 4</b>
Promotional	Item1	0.891			
Incentives	Item2	0.717			
	Item 3	0.821			
	Item 4	0.713			
	Item 5	0.624			

Table 1 (continue)

Factors	Items	Factor 1	Factor 2	Factor 3	Factor 4
Game Attractiveness	Item 6		0.848		
	Item 7		0.825		
	Item 8		0.816		
	Item 9		0.588		
	Item 10		0.819		
	Item 11		0.623		
	Item 12		0.889		
Scheduling Considerations	Item 13			0.801	
	Item 14			0.783	
	Item 15			0.627	
	Item 16			0.896	
	Item 17			0.563	
Economic Considerations	Item 18				0.799
	Item 19				0.740
	Item 20				0.845
Cronbach's alpha		0.88	0.80	0.76	0.87
Kaiser-Meyer-Olkin Measure (KMO): 0.83					
Barlett's Test of Sphericity: < 0.001					

Note. Only factor loadings above 0.40 are shown.

### Data Analysis Procedures

The factorial structure of the final item set was examined by conducting exploratory factor analysis (EFA) and then cross-validated with confirmatory factor analysis (CFA) using the Statistical Package for the Social Sciences (SPSS), version 21.0 for Windows (SPSS Inc., Chicago, IL, USA). Independent subsamples were used for the model development (EFA) and confirmation (CFA) analyses. More specifically, the total sample ( $N=1461$ ) was randomly split into two subsamples using a random case selection procedure. EFA was then performed on data from the first subsample ( $n=731$ ) using principal components analysis (PCA) with Promax rotation and factor

loadings  $>0.40$  on each item considered to belong to the corresponding factors. Scree plot examination and eigenvalues greater than 1 were used for factor extraction, and sampling adequacy was evaluated using the Kaiser-Meyer-Olkin (KMO) measure. The construct validity of the preliminary model was then tested by conducting CFA on the second subsample ( $n=730$ ). Internal consistency of factors was assessed using Cronbach's  $\alpha$ , and the indices employed to assess how well the specified model fitted the data were the chi-square ( $\chi^2$ ) test, comparative fit index (CFI), goodness of fit index (GFI), root mean square error of approximation (RMSEA), and *normed fit index (NFI)* (Gornall et al., 2013; Hashim,

Grove, & Whipp, 2008; Yaghoobi et al., 2015). In this study, convergent validity was calculated and estimated by the size of factor loadings ( $\lambda$ ;  $\geq 0.50$ ), average variance extracted (AVE;  $\geq 0.50$ ), and composite reliability (CR;  $\geq 0.70$ ) (Fornell & Larcker, 1981; Hair, 2010).

## RESULTS

### Model Development

The EFA findings are summarised in Table 1. A KMO measure of 0.83 indicated that the data matrix was suitable for factor analysis. Four factors with eigenvalues greater than 1 emerged from the analysis, with 20 of the original 21 items exhibiting loadings above 0.40 on these factors. None of these items cross-loaded on more than one factor. Together, the four factors accounted for 66.79% of the variance in the data matrix. From a content perspective, the factors appeared to represent attendance motives related to promotional incentives (five items; factor loadings of 0.62-0.89), game attractiveness (seven items; factor loadings of 0.58-0.88), scheduling considerations (five items; factor loadings of 0.56-0.88),

and economic considerations (three items; factor loadings of 0.74-0.84). Internal consistency for the overall scale was 0.90.

### Model Confirmation

The EFA results obtained from the first subsample were subsequently evaluated by performing CFA with independent data from the second subsample. A four-factor model was analyzed using the *maximum-likelihood* estimation (MLE) method. The chi-square for the model was significant (i.e.,  $\chi^2=244.81$ ,  $df=236$ ,  $p<0.01$ ); the goodness of fit indices of the model were within tolerable ranges (e.g., RMSEA=0.06, GFI=0.85, CFI=0.89, IFI=0.88 and NFI= 0.89), indicating that the model was acceptable but failed to provide an excellent fit. Hence, to improve the model, items with the lowest  $\lambda$  values were considered for elimination. A thorough examination of these values indicated that one of the 21 items (uniform colour and design) had low  $\lambda$  values. When this one item was removed, the 20-item four-factor model provided much better results (RMSEA = 0.04, GFI =0.94, CFI =0.92, IFI= 0.94 and NFI=0.93) (Table 2).

Table 2  
The main fitting index of the Persian Soccer Spectator Behaviour Inventory

Index	Value via 20 items	Interpretation
Lewis-Tuker (Non-normed fit index, NNFI)	0.92	High fit ( $\geq 0.9$ )
Bentler-Bontt's (normed fit index, BBNFI)	0.94	High fit ( $\geq 0.9$ )
Hoelter	0.91	High fit ( $\geq 0.9$ )
Goodness-of-Fit Index (GFI)	0.94	High fit ( $\geq 0.9$ )
Comparative Fit Index (CFI)	0.92	High fit ( $\geq 0.9$ )
Normed Fit Index (NFI)	0.93	High fit ( $\geq 0.9$ )
Incremental Fit Index (IFI)	0.94	High fit ( $\geq 0.9$ )
Root Mean square Error (RMSEA)	0.043	High fit ( $\leq 0.08$ )

As shown in Table 3, all constructs met the CR (0.70) and AVE (0.50) criterion, supporting convergent validity. A Pearson correlation analysis was conducted to assess the correlation among factors. Correlation coefficients among factors ranged from 0.36 to 0.72. The mean scores of each of the factors ranged from 3.80 (SD =0.41) to 2.94 (SD =0.33) (Table 4).

Table 3  
Measurement model of the Persian Soccer Spectator Behaviour Inventory

Construct	Items	Number of Items	Loadings	AVE <sup>a</sup>	CR <sup>b</sup>
Promotional Incentives	Item1	5	0.56	0.595	0.878
	Item2		0.82		
	Item 3		0.86		
	Item 4		0.82		
	Item 5		0.76		
Game Attractiveness	Item 6	7	0.68	0.598	0.912
	Item 7		0.73		
	Item 8		0.80		
	Item 9		0.75		
	Item 10		0.82		
	Item 11		0.84		
	Item 12		0.78		
Scheduling Considerations	Item 13	5	0.92	0.628	0.892
	Item 14		0.81		
	Item 15		0.51		
	Item 16		0.86		
	Item 17		0.74		
Economic Considerations	Item 18	3	0.74	0.672	0.859
	Item 19		0.80		
	Item 20		0.91		

Note: <sup>a</sup>AVE was calculated based on formula given by Fornell and Larcker (1981).

$$AVE = \frac{\sum_{i=1}^n \lambda_i^2}{n}$$

. AVE= $\sum_{i=1}^n \lambda_i^2 / n$ ;  $\lambda$ = standardised factor loading n= number of item.

<sup>b</sup>CR was calculated based on formula given by Fornell and Larcker (1981).

$$CR = \frac{(\sum_{i=1}^n \lambda_i)^2}{(\sum_{i=1}^n \lambda_i^2) + (\sum_{i=1}^n \delta_i)}$$

CR= $(\sum_{i=1}^n \lambda_i)^2 / (\sum_{i=1}^n \lambda_i^2 + \sum_{i=1}^n \delta_i)$ ;  $\lambda$ = standardised factor loading n,  $\delta$ = error variance



Table 4  
*Inter-correlations among the Persian Soccer Spectator Behaviour Inventory*

Scales	Mean (SD)	Incentives	Attractiveness	Scheduling	Economics
Promotional Incentive	3.22 (0.34)	1.00			
Game Attractiveness	3.80 (0.41)	0.44	1.00		
Scheduling Considerations	3.36 (0.50)	0.61	0.38	1.00	
Economic Considerations	2.94(0.33)	0.36	0.72	0.55	1.00

## DISCUSSION

Football is the most popular sport in the world as well as in Iran. The sport attract the largest number of athletes and spectators when compared to other sports. Going to the stadium is one of many options available for spectators to watch football matches in Iran. The factors that determine the motivation of spectators to attend sporting events can influence the marketing strategy in Iran or even other countries (Fallahi, Asadi, & Khabiri, 2011). The present study aimed to add to existing literature on sports spectators' motivations to attend football game events by developing an assessment instrument – the **Persian Soccer Spectator Behaviour Inventory (PSSBI)** – to evaluate sports spectators' motivations to attend football games in Iran. Reviewing previous psychometric instruments that assessed spectators' motivations to attend sporting events served as the basis for developing a scale to use with Iranian spectators. The theoretical foundations for the present study were highly similar to those reported in earlier research (Lee, 2001; Zhang et al., 1995). Application of extant theory and

existing scales provided items that could be translated and rewritten in the Persian language.

After interpreting items and factors, the authors presented a four-factor model. The internal consistency of the subscales was very good, with alpha values for all but one factor exceeding the 0.70 cut-off. The EFA determined that a four-factor model appears adequate to begin explaining the motivations for Iranian football spectatorship (Figure 1). The original scale contains 21 items under four dimensions, namely, Promotional Incentives (five items), Game Attractiveness (seven items), Scheduling Considerations (six items), and Economic Considerations (three items).

In the modified PSSBI, one item was eliminated. The PSSBI exhibited good construct validity as indicated by the close fit of the model to the data. The results show that the PSSBI demonstrated very good psychometric properties to assess sports spectators' attendance consumption behaviour accurately and reliably. Previous instruments assessing spectator motivation (Zhang et al., 1995) did not report the



psychometric properties. Future use if the PSSBI will be useful in allowing researchers to improve their understanding on the effects of motives to attend sporting events (in this case football matches). The PSSBI can assist researchers in contributing to a more advanced understanding of the reasons that

a fan commits to a specific sport or team. The development of the scale is timely and may enhance marketing studies involving the professional football league in Iran. The scale also contributes significantly to the study of football spectators by utilizing it validly with the desired target group.

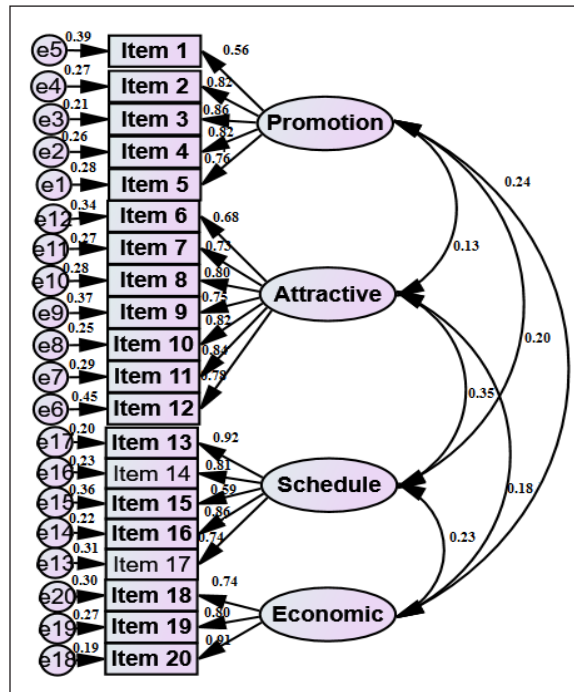


Figure 1. A four-factor Model for the Persian Soccer Spectator Behaviour Inventory obtained using confirmatory factor analysis

The overall psychometric performance of the SSBI may be considered a highly reliable scale, but room for improvement still exists. Future studies should be conducted to replicate the findings of the present study and to continue developing the SSBI. Additional work is necessary to refine and strengthen scale items. Even when the current model fits the data well,

one should not ignore the presence of other alternative models (Mccallum, 1995), As emphasised by Loehlin (2004, p. 200), “there is always more than one way to account for a particular set of interrelations among variables” According to Baumgartner and Jackson (1999), apart from examining the factor validity of an instrument, other forms of construct validity, such as discriminant

validity, convergent validity, and divergent validity, should be evaluated whenever possible in future studies. Revalidation will be beneficial if the inventory is adopted by football teams located in other countries. Given the many similarities in terms of organisational management, team marketing, and game operations among teams of different sports at different competition levels, the PSSBI may be adopted further by professional teams of other sports at major or minor league levels. Variables related to the uniqueness of a sporting event must also be included in such revisions.

The study is not without limitations. All the data were self-report (and possibly subject to memory biases and social desirability biases) and the sample was self-selecting and not necessarily representative of all Iranian football spectators. The sample was male only but this is because it is rare that Iranian women attend football matches in Iran. Gender differences may be present and future studies in other countries will need to assess the gender invariance of the scale items.

## CONCLUSION

The present study developed and validated the psychometric properties of a new comprehensive instrument to assess motivations in attending live football games, namely the Persian Soccer Spectator Behaviour Inventory (PSSBI). The study identified four factors that are important in assessing spectator behaviour and these subscales exhibited very good internal consistency and reliability. The PSSBI is

therefore a valid and reliable instrument for assessing the motivations of football spectator behaviour in Persian contexts. In summary the resulting 20-item PSSBI is a viable tool for assessing football fans' motives for attending professional football matches and improve the sport marketing in Iran. This inventory will be a good idea for future research in the field of other sport matches in Iran.

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