

Understanding service quality in satisfaction at Korean Ladies' Professional Golf Association Tournament: gender differences of spectators

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Published online: September 30, 2018

(Accepted for publication July 22, 2018)

DOI:10.7752/jpes.2018.03222

Abstract:

The primary purpose of this study was to examine the relationship between service quality and customer satisfaction for spectators in attendance at a Korea Ladies' Professional Golf Association Tournament event. A secondary purpose of the study was to design a measure to assess levels of service quality in terms of gender. Using convenience sampling, data were collected from a Korea Ladies' Professional Golf Association Tournament event in South Korea. In total, 247 valid questionnaires were collected, for a response rate of 89%. The result of the multiple regression analysis indicated that the factors of facility access, facility aesthetic, and game atmosphere were significant predictors of customer satisfaction. Another finding from this study is that male and female spectators had different perceptions about service factors. For female spectators, the facility employee factor had a significantly greater impact than for male spectators. The female spectators may consider helpfulness and kindness of employees as a significant factor for attending golf tournaments. The findings of this study may provide invaluable data to LPGA directors and marketers to better understand how well spectators are encountering satisfaction.

Key words: Service quality, Satisfaction, Gender differences, Golf tournament

Introduction

Today, one of the most popular leisure activities is watching professional sport in our society (Theodorakis, Alexandris, & Ko, 2011). As a result of the global social trend towards attending a growing range of sports events as spectators, the professional sport events industry is becoming more competitive (Hill & Green, 2000; Robinson, 1999; Theodorakis Kambitis, Laios, & Koustelios., 2001). As the professional sport events are developing more and more in the business field, the increased number of sport spectators plays an important role in creating profit. However, a variety of spectator sports, leisure activities, and internet media developments have transformed the sport marketing environment into a serious global competition.

In this sport market environment, it is necessary to execute customer satisfaction management to meet the wants and needs of sports spectators. Ko and Pastore (2007) highlighted "to be competitive in the saturate market environment, a sport organization needs to increase customer satisfaction by providing consistently high quality services" (p. 34). Service quality has been identified as one of main factors that affect the long-term profits of an organization (Parasuraman, Zeithaml, & Berry, 1988; Tsuji, Bennett, & Zhang, 2007). Numerous scholars have recognized the assessment of service quality as an important issue (Theodorakis et al., 2011), and they have found that service quality influence business and sports organizations (Cronin, Brady, & Hult, 2000; Greenwell, Fink, & Pastore, 2002; Howat, Murray, & Crilley, 1999; McDougall & Levesque, 2000; Zeithaml, Berry, & Parasuraman, 1996). Customer satisfaction has been related to long term success and positive business results for organizations. In service marketing research, many researchers have investigated customer satisfaction (Anderson, Fornell, & Lehmann, 1994; Anderson & Mittal, 2000; McCollough, Berry, & Yadav, 2000; Patterson, 1995; Spreng, MacKenzie, & Olshavsky, 1996). Service marketing researchers have found that the customers who are satisfied with the service are more likely to increase the use of the service and more willing to recommend the service to other people (Bernhardt, Donthu, & Kennett, 2000; Ganesh, Arnold, & Reynolds, 2000; Howat et al., 1999; Murray & Howat, 2002). Furthermore, Lambrecht, Kaefer, and Ramenofsky (2009) emphasized that "customer satisfaction is crucial in the sport industry, where sport organizations focus on understanding the needs and wants of customers while working to achieve organizational goals" (p. 165). Customer satisfaction has been considered an important predictor to decide the intention to participate in future sporting events (Cronin et al., 2000; Kwon, Trail, & Anderson, 2005; Wakefield & Blodgett, 1996; Yoshida &

James, 2010) and many researchers have analyzed customer satisfaction in spectator sports (Madrigal, 1995; Kwon et al., 2005; Trail, Anderson, & Fink, 2005; Tsuji et al., 2007).

Until recently, service companies have been applying tools for measuring service quality and customer satisfaction to understand how well they are encountering customer needs (Dabholkar, 1995). In the field of sport management, many scholars have examined service quality within the context of health and fitness centers (Chang & Chelladurai, 2003; Chelladurai, Scott, & Haywood-Farmer, 1987; Kim & Kim, 1995; Mackay & Crompton, 1990; Papadimitriou & Karaterliotis, 2000), recreational and leisure facilities (Howat, Absher, Crilley, & Milne, 1996; Ko & Pastore, 2004; Lam, Zhang, & Jensen, 2005), and spectator sport (Kelley & Turley, 2001; McDonald, Sutton, & Milne, 1995; Theodorakis et al., 2001; Wakefield & Blodgett, 1996). The concept of customer satisfaction in the spectator sport setting has received little attention from sport management researchers (Madrigal, 1995; Van Leeuwen, Quick, & Daniel, 2002; Wakefield, & Blodgett 1996). Although the above researchers have investigated the two constructs of service quality and customer satisfaction in the spectator sports as professional team sports (e.g., baseball, basketball, football, hockey, and soccer), there is little research on golf spectators in terms of service quality and customer satisfaction. In addition, although gender has been identified as one of the most significant factors that influence customer service perceptions (Afthinos, Theodorakis & Nassis, 2005), there is still a lack of research on the different perspectives of males and females on service quality. Therefore, the main purpose of this study is to examine the relationship between service quality and customer satisfaction for spectators in attendance at a Korea Ladies Professional Golf Association Tournament (KLPGA) event. This study is also designed to assess levels of service quality in terms of gender.

Theoretical Background

Service quality in sport

Since the middle of 1980s, a service quality construct has been given considerable amount of attention by service marketing researchers and practitioners in various service industry areas. In the sport industry, the evaluation of service quality is recognized as a significant issue. Many studies have examined service quality in the fields of health fitness, leisure, and recreation in various contexts, and they have proposed scales of service quality that are relevant to health fitness setting and recreational sport setting (Chang & Chelladurai, 2003; Howat et al., 1999; Kim & Kim, 1995; Ko & Pastore, 2005; Lam et al., 2005; Mackay & Crompton, 1990; Murry & Howat, 2002;). Specifically, Kim and Kim (1995) developed Quality Excellence of Sport Center (QUESC) scale, which consisted of a 33-item survey to assess service quality of fitness centers in Korea. The QUESC scale included 11 dimensions of service quality: Ambience, Employee Attitude, Reliability, Information, Programming, Personal Consideration, Privileges, Price, Ease of Mind, Stimulation, and Convenience. The authors asserted that the QUESC scale was designed to evaluate service performance of fitness centers; however, some single item factors and construct validity of scale would not be acceptable due to low reliability. In order to confirm the QUESC scale, Papadimitriou and Karaterliotis (2000) examined the QUESC in private fitness centers in Greece. The finding of this study did not support the stability of the 11 dimension QUESC structure of service quality. Thus, as results from an Exploratory Factor Analysis (EFA), they suggested four dimensions that included Instructor Quality, Facility Attraction and Operation, Program Availability and Delivery and Other services.

In the context of spectator sport, Kelley and Turley (2001) investigated the importance of service attributes in collegiate basketball games. They proposed nine sporting event service quality dimensions from an exploratory factor analysis of service attributes. The nine service quality dimensions were: (1) employees, (2) price, (3) facility access, (4) concession, (5) fan comfort, (6) game experience, (7) show time, (8) convenience, and (9) smoking. Also, the nine service factors were examined for differences across demographic characteristics: sex, age, education level, and income level. As a result of this study, the game experience was the most essential service attribute among the nine service factors. The authors pointed out that “in a sport context, a critical service quality attribute is not under the control of marketers, as is usually the case for most other services” (p. 165). The detailed review of literatures indicated that proposed scales have been used and generated based on the original SERVQUAL model (Parasuraman et al., 1988), as well as all of these scales consisted of a multidimensional service quality.

The relationship between service quality and satisfaction.

To better understand the sport consumer, sport management researchers have investigated the relationship between service quality and customer satisfaction in the context of spectator sport (Greenwell, Fink & Pastore, 2002; Tsuji, et al., 2007; Wakefield & Blodgett, 1996; Yoshida & James, 2010). For instance, Greenwell et al. (2002) examined the relationship between three components of service experience (the core product, physical facility, and service personnel) and customer satisfaction in minor league ice hockey spectators. Based on results of multiple regression analysis and hierarchical regression analysis, the authors found all three components of the sport service experience influenced the level of customer satisfaction. In a similar vein, Tsuji et al. (2007) investigated that core service quality and peripheral service quality effect on satisfaction and future intention in an action sporting event. The result of this study suggested that both core and peripheral service quality are significant predictors of customer satisfaction. However, Yoshida and James (2010) argued that a few sport

marketing researchers have examined core product and service quality simultaneously. The authors identified two types of customer satisfaction separately: game satisfaction and service satisfaction. They examined the relationship between two types of satisfaction and service quality and core product quality in spectator sport. As a result of this study, the authors indicated that the core product and services quality have influenced on both game and service satisfaction. In this sense, previous studies have suggested that service quality may essential role in increasing customer satisfaction, and services quality is considered as antecedent of customer satisfaction. Thus, this study hypothesizes as follow:

RH1: The golf spectator's perceptions of service quality have a positive impact on satisfaction.

Role of gender in sport

The impact of gender has received immense attention from researchers in the sport management, and has been extended to the context of sport consumer behaviour such as spectator motivation (Dietz-Uhler, Harrick, End, & Jacquemotte, 2000; James & Ridinger, 2002), perception of service quality (Greenwell et al., 2002; Kim, Ko & Park, 2013; Lee, Kim, Ko & Sagas, 2011) and perception of corporate social responsibility (Kim, Kwak & Babiak, 2015). In terms of perceived service quality, Lee et al. (2010) examined the influence of gender in the relationship between service quality, satisfaction and intention in private golf courses. The authors found that males and female golfers perceive different levels of two service quality factors (i.e., Empathy and Tangible). Specifically, while female golfers had significantly higher levels of Empathy dimension, male golfers indicated higher perception of Tangibles quality. The result suggested that female golfers were less sensitive to equipment and physical surroundings at the golf courses. In addition, Greenwell et al. (2002) supported that perceptions of physical facility and service personnel were not difference for male and female spectators in minor league hockey events, but female spectators showed slightly higher quality of team than male spectators. Thus, these findings lead to our research hypothesis:

RH2: There are significant differences in the mean levels of service quality in terms of gender.

Material & methods

Participants

Using convenience sampling, data were collected from a Korea Ladies' Professional Golf Association Tournament event in South Korea. Data collection was carried out from two hours before and until five minutes before the start of the tournament, 275 self-administered questionnaires were distributed. About 15 minutes after the questionnaire distribution, surveyors visited the respondents again and collected the completed questionnaires. In total, 247 questionnaires were collected for a response rate of 89%.

Measurement

The questionnaire consisted of three sections: service quality factors, customer satisfaction, and demographic information. Service quality factors of a total of 22 items were divided into five factors: Employee, Facility Parking, Facility Access, Facility Aesthetic, and Game Atmosphere. The measures facility parking, facility access, and facility aesthetic were adapted from Wakefield and Blodgett's (1996) sportscape scale. To measure the golf tournament employee, six items were adapted from Brady and Cronin's (2001) interaction quality scale. Game atmosphere was adapted from Brady and Cronin (2001). To measure the Service satisfaction, three-items were adapted from Brady, Knight, Cronin, Hult, and Keillor (2005). All quality items will be measured on a 5-point Likert -type scale ranging from "strongly disagree (1)" to "strongly agree (5)." Questions regarding gender, levels of golf skill, and levels of attending golf tournament were included in the demographic information questionnaire. In addition, back translation was conducted in order to minimize discrepancies between the original instrument and the translated instrument.

Data Analysis

The Statistical Package for Social Science (SPSS, V23.0) was used to compute and analyze the data. In order to measure internal consistency and reliability of the scales used for this study, Cronbach's alpha coefficients were utilized. The construct validity of the Service Quality Scale was verified through an exploratory factor analysis (principle components with a Varimax rotation and Eigen value). A multiple regression analysis was conducted to examine the relationship between measures of service quality and measures of customer satisfaction. More specifically, correlation analysis and the multiple regression analysis were used to identify the influential level that service quality factors have on measures of customer satisfaction. MANOVA was used to examine the effects of gender differences on service quality. Also, univariate F-tests was provided additional support for the effects of gender differences on service quality

Results

Reliability and Validity of the Scale

In order to examine the validity of the service quality Scale, this study conducted an exploratory factor analysis (EFA) to examine the factor structure of the service quality scale. To see whether factor analysis is appropriate, Kaiser-Meyer-Olkin (KMO) and Bartlett Test for Sphericity (BTS) were used to examine whether factor analysis is appropriate. In this study, KMO values were .824 for the sample, and BTS values were 2848.460 ($p < .001$) for the sample, indicating that conducting a factor analysis was deemed proper. The construct validity of the service quality scale was verified through an EFA. The following criteria were used to

determine the factors and their items: (a) a factor had an Eigen value equal to or greater than 1.0 (Kaiser, 1974), (b) an item had a factor loading equal to or greater than .50 (Nunnally & Bernstein, 1994), (c) a factor had at least 3 items (Hair, Black, Babin, Anderson, & Tatham, 2005), and (d) An identified factor and retained items must be interpretable in the theoretical context. In the EFA, six factors with 25 items emerged meeting the retention criteria, explaining a total of 247 respondents. Overall, the factor loadings for sample was comparable, ranging from .630 (Atmosphere 4) to .806 (Employees 3) for the sample. The results of the rotated pattern matrix from varimax rotation are presented in Table 1.

The Cronbach's alpha coefficients for the subscales were high, exceeding the standardized criterion (Nunnally & Bernstein, 1994). The results of the Cronbach's alpha coefficients are as follows: (1) Employees (.875), (2) Access (.881), (3) Aesthetic (.821), (4) Atmosphere (.840), (5) Parking (.676), and (6) Satisfaction (.791). The reliability coefficients for the factors utilized in this study are reported in Table 1.

Table 1. The Result of Exploratory Factor Analysis and Cronbach's Alpha (α) for This Study

	Component					
	1	2	3	4	5	6
Employees3	.806	.085	.121	.142	-.030	.094
Employees2	.792	.004	.152	.123	.061	.034
Employees1	.783	.080	.172	.062	.068	.058
Employees6	.762	.114	.036	-.021	.084	-.049
Employees5	.745	.096	.050	-.027	.065	.064
Employees4	.710	.120	.069	.068	-.032	.170
Access2	.135	.849	.119	.001	.135	.140
Access3	.131	.811	.205	.055	.177	.059
Access4	.084	.801	.114	.070	.093	.185
Access1	.141	.761	.106	.045	.204	.175
Aesthetic3	.115	.156	.823	-.001	.019	.089
Aesthetic2	.084	.008	.814	.037	.049	.037
Aesthetic4	.230	.136	.761	.106	.014	.155
Aesthetic1	.133	.342	.661	.004	.149	.098
Atmosphere3	-.034	.070	-.031	.804	-.034	-.001
Atmosphere2	.140	-.014	.009	.740	.089	-.005
Atmosphere1	.225	.052	.163	.722	.084	.232
Atmosphere4	-.023	.083	.047	.630	-.106	.420
Parking3	-.042	.293	.050	.114	.791	.054
Parking4	.037	.319	.095	.135	.740	.006
Parking1	.010	-.027	-.042	-.169	.666	.208
Parking2	.148	.083	.096	.017	.658	.001
Satisfaction3	.116	.116	.109	.156	.045	.802
Satisfaction2	.136	.175	.070	.032	.166	.799
Satisfaction1	.067	.344	.233	.223	.103	.674
Eigen values	6.591	2.907	2.303	1.880	1.441	1.286
% of variance	26.365	11.626	9.211	7.521	5.765	5.143
Cumulative %	26.365	37.991	47.202	54.723	60.488	65.630
Cronbach's α	$\alpha=.875$	$\alpha=.881$	$\alpha=.821$	$\alpha=.840$	$\alpha=.676$	$\alpha=.791$

Result of Multiple Regression Analysis

In order to test the first hypothesis, a correlation analysis was undertaken to examine significant relationships between identified service quality factors with satisfaction. Also, multiple regression analysis was conducted to examine the predictive relationship between service quality factors and satisfaction.

The Pearson's product Moment Correlation Coefficient (r) was employed in order to test the bi-variate relationship between the five service quality factors with customer satisfaction. The results of correlation analysis revealed that statistically significant positive correlations existed between five service quality factors and satisfaction. In particular, the access factor had the strongest correlation with the satisfaction ($r = .446, p < .01$) while the employee factor had the weakest correlation with the satisfaction ($r = .258, p < .01$). The results of the correlation analysis are reported in Table 2.

Table 2. Correlations between Service Quality Factors with Customer Satisfaction

	Satisfaction	Employees	Parking	Access	Aesthetic	Atmosphere
Satisfaction	1	.258**	.268**	.446**	.345**	.381**
Employees		1	.139**	.280**	.332**	.205**
Parking			1	.421**	.198**	.091
Access				1	.394**	.178**
Aesthetic					1	.168**
Atmosphere						1

Note. **. Correlation is significant at the 0.01 level (2-tailed).

The regression model considered five service quality factors as independent variables and satisfaction was treated as the dependent variable. The ENTER method for five service factors as predictor variables was assessed. To check the assumption of multicollinearity, tolerance and Variance Inflation Factor (VIF) scores were measured on each variable. In this study, tolerance statistics ranged from 0.7 (access) to 0.93 (atmosphere), and VIF score ranged from 1.06 (atmosphere) to 1.42 (access), indicating that presence of multicollinearity was not among service quality factors as predictor variables. As shown in Table 3, the multiple regression indicated that the overall model was statistically significant $F(5, 241) = 23.241, p < .05$ and 31% of customer satisfaction was explained by the five factors of service quality.

Table 3. Model Summary for the Service Quality on Customer Satisfaction

Model	R ²	Adjusted R ²	df	F	Sig.
1	.325	.311	5	23.241	.000

Note. a. Predictors: (Constant), Atmosphere, Parking, Employee, and Aesthetic, Access b. Dependent Variable: Customer Satisfaction

In Table 4, the result of the coefficient from the multiple regressions reveals the influence of the five service quality factors on the customer satisfaction. The results of the model parameter indicated that the factors of access ($\beta = .29, p < .05$), aesthetic ($\beta = .15, p < .05$), and atmosphere ($\beta = .29, p < .05$) were statistically significant predictors of customer satisfaction. However, the factors of employees and parking exerted the weak influence on the customer satisfaction.

Table 4. Regression Analysis of the Five Service Quality Factors on Customer Satisfaction

Variables	β	t	Sig.
Model	Employees	.06	1.019
	Parking	.09	1.449
	Access	.29	4.505
	Aesthetic	.15	2.492
	Atmosphere	.29	5.231

Note. * $P < .05$, a. Dependent Variable: Overall Customer Satisfaction

Result of Multiple MANOVA

As shown in Table 5, MANOVA was used to examine the effects of gender differences on service quality. First, the test of the assumption of homogeneity of covariance matrices was statistically significant: Box's M = 37.23, $F[15, 185071.93] = 2.42, p = .001$, suggesting a likely violation of the assumption. Second, the results of the MANOVA indicated that the multivariate null hypothesis of equality of the means between the three attendance groups regarding the areas of service quality was rejected at the .05 level: Wilk's $\Lambda = .887, F(5, 241) = 6.15, p < .000$.

Table 5. Multivariate Analysis of Variance-gender differences

Effect	Wilk's Lambda	F	Hyp. df	Error df	P
1	.325	.311	5	23.241	.000

As shown in Table 6, univariate F-tests provided additional support for the effects of gender differences on service quality: Access, $F(1, 245) = 4.477, p < .05$; Employee, $F(1, 245) = 14.742, p < .05$. These results reveal that female spectators were more affected by the employees, while male spectators were more affected by the access factor than were female spectators.

Table 6. ANOVA of Service Quality Factors by Gender

Source		SS	df	MS	F	P
Parking	Between Groups	.629	1	.629	1.568	.212
	Within Groups	98.328	245	.401		
	Total	98.957	246			
Access	Between Groups	2.571	1	2.571	4.477	.035*
	Within Groups	140.672	245	.574		
	Total	143.242	246			
Aesthetic	Between Groups	.212	1	.212	.456	.500
	Within Groups	113.884	245	.465		
	Total	114.096	246			
Atmosphere	Between Groups	.524	1	.524	1.120	.291
	Within Groups	114.709	245	.468		
	Total	115.233	246			
Employee	Between Groups	7.913	1	7.913	14.742	.000*
	Within Groups	131.504	245	.537		
	Total	139.4174	246			

* $P < .05$

Discussion

The first research question examined the relationships between five service quality factors and customer satisfaction. The result of the multiple regression test indicated that the five service quality factors predicted 31 percent of the variance in customer satisfaction. This study found that the facility access factor had a positive influence on customer satisfaction which was consistent with previous studies (Lambrecht et al., 2009; Wakefield & Blodgett, 1996; Yoshida & James, 2010). Lambrecht et al. (2009) found that course accessibility had a positive influence on golf spectators' level of satisfaction. Wakefield and Blodgett (1996) found that Layout accessibility had a positive relationship with satisfaction of three leisure settings such as football, baseball and casino. Yoshida and James (2010) also found that Facility access had a positive relationship with satisfaction of Japanese and United States sport consumers. In this study, the access factor referred to the way in which spectators reach desired location (i.e., seats, concession and restroom). Therefore, it should be under the control of the KLPGA TOUR marketers through helpful employees, volunteers and appropriate signage. The current study found that the relationship between facility aesthetic factor and customer satisfaction was statistically significant. This finding is consistent with the finding of previous studies (Dhurup, Mofoka, & Surujlal, 2010; Wakefield & Blodgett, 1996; Tsuji, Bennett & Dees, 2011). Tsuji et al. (2011) found that the facility aesthetic was an import predictor of overall satisfaction for a professional tennis tournament. The facility aesthetic quality may directly have effect on customer pleasure, and enhanced facility aesthetics (e.g., architectural design, interior design and deco, etc.) may also affect sport fan's attitudes toward the facility (Wakefield & Blodgett, 1996). Golf tournaments are different from other sport events because golf events are held at flexible venues with enormous capacity. Thus, it is suggested that KLPGA directors need to employ eco-friendly seating and walking course for spectators to improve the game experience. The finding that the game atmosphere factor had a positive influence on customer satisfaction was consistent with Yoshida and James' (2010) study. In terms of game atmosphere, Yoshida and James (2010) mentioned, "creating an exciting game atmosphere will satisfy attendees, and positively influence the likelihood of returning for future events" (p. 354). The game atmosphere is related to core product (e.g., player performance and star player) so that sport marketers may not control their game atmosphere. However, golf spectators are able to interact directly with players during the golf tournament because spectators can walk the golf course with their favorite players. Therefore, KLPGA directors should consider training sessions and media education for players' manner to enhance spectators' satisfaction. Another suggestion to improve the game atmosphere is to use electronic displays during the tournament that can provide spectators with update players' performance and live action pictures.

The current study found that the parking factor was not a significant predictor of customer satisfaction with the facility. This finding is consistent with the findings of previous studies (Lambrecht et al., 2009; Tsuji et al., 2011). Although the facility had the weakest relationship with customer satisfaction, KLPGA directors and marketers should pay attention to this factor in order to enhance spectators' satisfaction and pleasure. Thus, it is suggested that parking access should be sufficient and shuttle services should be provided for spectator to access easily from public places (e.g., airport, subway and bus terminal) to the golf event. Additionally, this study found that the facility employee factor was not found to be a predictor of customer satisfaction, which was in contrast of previous studies (Lambrecht et al., 2009; Yoshida & James, 2010). In Lambrecht et al.'s (2009) study, tournament employees had a positive relationship with the satisfaction of PGA tournament spectators. Although the finding was different from previous studies, KLPGA directors and marketers should consider taking service education and training for event employees because the event employees might be frequently confronted with spectators' wants and needs.

Another finding from this study is that male and female spectators had different perceptions about service factors. For female spectators, the facility employee factor had a significantly greater impact than for male spectators. The female spectators may consider helpfulness and kindness of employees as a significant factor for attending golf tournaments. KLPGA events are getting more and more popular for female spectators so that KLPGA directors and marketers should focus on this factor in order to increase female fan base. Male spectators were more affected by the access factor than were female spectators, which were in contrast with previous research (Tsuji et al., 2011).

Conclusions

This study was attempted to understand the effects of perceived service quality factors on customer satisfaction at a professional golf tournament. In addition, the finding from this study is that male and female spectators had different perceptions about service factors. The findings of this research may provide important factors and influence of service quality factor decisions that KLPGA directors and marketers must make; however, several limitations may have affected the results. First, this study did not include various core product quality factors because the golf is individual sport which does not related to the core product of team sports such as the quality of the home and opposing team, team history, and number of star players. Furthermore, although the current study examined ancillary service factors (e.g., facility access and aesthetic), previous studies have measured various related ancillary service factors such as concessions, giveaways, and security. Therefore, future research should measure simultaneously with both various core product and ancillary factors in terms of individual sports.

“Funding for this paper was provided by Namseoul University year 2018”

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