



GENDER ISSUES: A FOLLOW- UP EVALUATION OF FEMALE
SPORT SPECTATOR BEHAVIOR - LATENT GROWTH CURVE
MODELING ANALYSIS

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Abstract

Introduction: With the change in Taiwan's demographic structure, the female population is already higher than men. In addition, women's rights awareness has risen, the number of female sports audiences for sports events is also increasing year by year, female had become the main audience of various top sports. Female had also been considered as the emerging group which gradually signifies and gets concern in the sports- watching market. Therefore, the purpose of this study was to explore the follow- up analysis of female sports- watching behavior.

Methods: On- site female spectators which participated the regular season competition of Chinese Professional Baseball League in 2014 were the main objects of this study, random questionnaire were being conducted at three different time periods (May, July & September). The Latent Growth Curve Modeling (LGC) analysis was used in order to evaluate the various and beneficial results of female sports- watching behavior. The total amount of valid questionnaires were 1, 209 and were collected and analyzed. The valid return rate was 95. 05% which was a really high percentage. Results: Findings were as follows: 1. We considered female like young generation, those who were unmarried and college students as the main group of sports spectators. 2. Female in different demographics has differences between sport viewing motivation and sport identity. 3. According to the analysis of latent growth curve modeling, the model presents an appropriate structure mode, however, the slopes for the sport viewing moti-

vation and sport identity at the different time period were both descending, - .07 and - .08 respectively. Conclusion: We suggest that sports organization or league should actively involve in developing and operating female sport spectator, develop marketing policies which were unique. This will strengthen the sport viewing motivation and sport identity of female and then boost it to the positive growth, and then effectively expand the female sport spectator market.

Keywords: Chinese Professional Baseball League, female, sport spectator, sport identity, Latent Growth Curve Modeling

Introduction

Because of female sports fans has increased yearly (Lee et al., 2016; Shih and Huang, 2009; Peng, 2008). Yau and Lee (2017) also found that female fans are indispensable spectators at baseball games. According to statistics from the Ministry of the Interior for 2018, the total female population in Taiwan has surpassed the total male population. The growing size of the female audience has resulted in women becoming the main audience of mainstream sports. Studies on sports audiences and fans revealed that women accounted for 46% of all Major League Baseball fans (Mark et al., 2014) and more than 40% of all fans of the National Football League, indoor soccer, and car racing (Mullin et al., 2007). Taiwanese studies have also reported that the female audience has surpassed the male audience as the main audience of the University Basketball Association, Super Basketball League, and Chinese Professional Baseball League (Lee et al., 2016; Hsieh and Hsiung, 2008). Female fans are an emerging group in the spectator sports

market and are as passionate as male fans. Chen (2014) reported that women in Iran broke the law and fought for the right to watch the FIFA World Cup. The Sports Administration of the Ministry of Education in Taiwan is planning to propose Taiwan's first and the world's second white paper on the promotion of women's sports. The purpose of this white paper is to improve women's health, foster sports empowerment, and construct a friendly environment in which women can play sport. Specific plans and strategies for promoting these goals will be implemented between 2016 and 2026. On the basis of the aforementioned evidence, the female section of the spectator sports market is gradually growing and receiving more attention.

Yu et al. (2017) indicated that building relationships with customers and eliciting customer behaviors is essential for sports organizations. The number of female fans watching sport has increased substantially; therefore, sports-related organizations must understand the sports-watching behavior of this group and develop suitable

strategies. A review of the studies on sports- watching behavior revealed that they have focused on motivation to watch sports and the corresponding identity and behaviors (Mark et al., 2014; McCabe, 2008). Scholars have generally believed that motivation to watch sports is the basis of sport consumption behavior and is predictive (Hsieh, 2018). Using numerous assessments, such as a scale for measuring motivation to watch sports, studies have determined that sports- watching motivation is affected by time, the particular target groups of research, and types of sports. Women are more likely to exhibit idol worship behavior than men because of their passion for sports stars and are therefore more engaged when watching sport (Lee et al., 2016). Yau and Lee (2017) also reported that female fans became engaged when watching baseball games because of their passion for baseball players, the game, and the atmosphere in the stadium as well as their friendship with other fans. Male and female audiences clearly have different motivations to watch sport. From the perspective of sports marketing analysis, the most direct method of strengthening the understanding of customer behavior in the target market is to understand the motivation of people to watch sport (Lee et al., 2016), through which actual customer needs can be identified. Therefore, the team identification of audiences can be analyzed to better understand their sports- watching behavior. However, scholars have ne-

glected to investigate audiences of different genders in- depth despite the recent increases in female audiences. Yu (2017) indicated that marketing personnel have limited understanding of the consumer decision- making process regarding the sport fan community. Understanding women's motivation to watch sport and their associated identification and behavior is critical and necessary if companies are to devise marketing strategies that directly target female audiences.

On the basis of the aforementioned studies, women are the emerging market in spectator sports. However, Taiwanese studies on the sport watching behavior of female audiences have been lacking. Indicators for assessing the psychology and behavior of this group are also scarce. Therefore, this study analyzed the theories of sports- watching behavior of female sports audiences in Taiwan to obtain indicators of this behavior. The objective was to understand the behavior of female sports audiences and provide a reference for sports organizations wishing to devise marketing strategies.

In this study, the theories related to the sports- watching behavior of female sports fans were first analyzed to identify the crucial indicators of this behavior and to develop a questionnaire. Women who attended live sport were recruited as the research participants. Latent growth curve (LGC) modeling was employed to analyze

behavior at three time points, with the objective of obtaining in- depth understanding of the emergence or decline of the behavior. This study aimed to understand the current sports- watching behavior of female sports audiences and to offer the findings to government units, sports organizations, individual sports leagues, and broadcast media, who can use them to design effective marketing strategies that attract women to sports- watching. The results can also serve as a reference for future studies.

On the basis of the aforementioned research background and motivation, the research objectives of this study were defined as follows:

- (1) to understand the sport watching behavior of female sports audiences;
- (2) to determine the influence of demographic variables on the sport watching behavior of female sports audiences;
- (3) to use LGC modeling to analyze the sport watching behavior of female sports audiences in different time points.

Methods

Research Participants and Scope

The research scope of this study was the sports- watching behavior of female sports audiences. We recruited women who attended live sport and

used LGC modeling to determine changes in their sports- watching behavior. We reviewed the theories on sports and gender roles, women and sports- watching, and sports- watching behavior; explored the empirical research on sports- watching behavior; and developed a questionnaire for examining the sports- watching behavior of the participants. This study recruited women who attended regular season games in the Chinese Professional Baseball League (CPBL) between 2014 and 2016. Sampling was conducted at three time points to determine any change in the sports- watching behavior of the female audience.

Research Samples

Because the official CPBL games in 2014–2016 were held from March to October, questionnaires were distributed in May 2014, July 2015, and September 2016. In addition, venues and fixtures were accounted for during questionnaire distribution to ensure that the sample would reflect the population. A total of 1, 272 questionnaires were distributed—439, 401, and 432 at the first, second, and third sampling point, respectively. In total, 1, 209 valid responses were collected for a valid return rate of 95. 05%.

Research Method

Document analysis and questionnaire methods were employed in this study. Regarding document analysis, we collected and compiled domestic

and foreign dissertations and journal articles related to sports and gender, general sports- watching behavior, and the sports- watching behavior of female audiences. The crucial indicators were compiled and served as a basis and reference for the present study. We consulted the questionnaires related to the sports- watching behavior of female audiences and designed our own questionnaire, which was distributed to women attending games in the CPBL seasons between 2014 and 2016. LGC modeling was employed to analyze the changes in the sports- watching behavior of the female audience.

Research Instrument Design

Design of the Research Instrument

We combined the results obtained by Tsao and Hsiao (2009), McCabe (2008), and Woo et al. (2009) to design a questionnaire for examining the sports- watching behavior of female audiences. The questionnaire had three sections, namely those assessing the participants' motivation to watch sport, sport- related identification, and level of engagement in the sport. The items in the structured questionnaire were scored using a 5- point Likert scale.

Verification of the Research Instrument

A pretest was performed on March 27, 2014, the date of a baseball game between the EDA Rhinos and China-trust Brothers at the Xinzhuang Base-

ball Stadium. A total of 120 questionnaires were distributed to women on the infield seats through simple random sampling; 115 valid questionnaires were obtained, yielding a valid return rate of 95. 8%.

Validity Analysis

Content validity indicates the representativeness of a questionnaire item and focuses on the breadth and depth of questionnaire items, both of which are determined and examined by five experts invited to inspect and revise the content of our questionnaire (Wang and Wang, 2012). These experts were specialized in statistical measurement, sports marketing, sports management, and professional baseball. The questionnaire items were revised according to the experts' suggestions to ensure that the questionnaire content had high validity. Factor analysis was employed to examine the construct validity. Principal component analysis was performed for factor determination. Varimax rotation, the most common orthogonal rotation method, was used to perform rotation and extract factors. Factors with eigenvalues > 1 were selected, and factors with loading $< .450$, determined using the orthogonal rotation method, served as the basis for questionnaire item removal (Wu, 2009).

Regarding motivation to watch sport, the questionnaire items were named based on their constructs as

follows: stress release (eigenvalue = 11.88; variance explained = 36.05%); emotional connection (eigenvalue = 2.02; variance explained = 6.14%); self-realization (eigenvalue = 1.98; variance explained = 5.99%); aestheticism (eigenvalue = 1.54; variance explained = 4.67%); game content (eigenvalue = 1.27; variance explained = 3.84%); financial status (eigenvalue = 1.18; variance explained = 3.60%); and social facilitation (eigenvalue = 1.05; variance explained = 3.18%). The total variance explained was 63.47%. Regarding sport-related identification, the questionnaire items were named based on their constructs as follows: team identification (eigenvalue = 7.00; variance explained = 50.00%); team member identification (eigenvalue = 1.73; variance explained = 12.35%); and athlete identification (eigenvalue = 1.16; variance explained = 8.03%). The total variance explained was 70.38%.

Reliability Analysis

Reliability is the degree to which the results obtained using a research instrument are consistent and stable. Cronbach's α was calculated to determine the internal consistency of the scale in this study. Chiou (2012) reported that Cronbach's α should be higher than .70. The reliability of the factors within sports-watching motivation ranged between .71 and .83, higher than the recommended threshold of .70. The overall internal consistency was as high as .90. The reli-

ability of the factors within sport-related identification ranged between .81 and .85, again higher than the recommended threshold of .70. The overall internal consistency was as high as .90. Therefore, the overall reliability of the research instrument was favorable.

Data Processing and Analysis

The statistical analysis software Predictive Analytics SoftWare 20.0 for Windows was used in this study. The procedure of data processing and analysis was as follows:

- (1) Descriptive statistics were employed to analyze the factors affecting the sports-watching behavior of female audiences.
- (2) The t test and analysis of variance were used to examine the differences between variables.
- (3) LGC modeling was employed to determine the change in female audiences' sports-watching behavior.

Results

Sample Structure and Analysis of Female Audiences' Sports watching Behavior

Background Variable Analysis.

The distributions for background variables were analyzed (Table 1). The

most common age group among the questionnaire respondents was 26–30

years. The majority of the respondents were single and had a college degree.

Table 1. Summary of the background variables for the sample of female audience members [unit: number of people: (%)] (N = 1, 209)

Variable	Analysis Content
Age	15 years or younger (57; 5. 0%), 16–20 years (186; 16. 2%), 21–25 years (286; 24. 9%), 26–30 years (294; 25. 6%), 31–35 years (141; 12. 3%), 36–40 years (112; 9. 7%), 41–45 years (49; 4. 3%), 46–50 years (24; 2. 1%), 51 years or older (1; 0. 1%)
Marital status	Single (874; 74. 3%), married (302; 25. 7%)
Educational level	Junior high school or below (59; 5. 2%), senior high or vocational school (237; 20. 9%), college or university (738; 65. 0%), graduate degree or higher (102; 9. 0%)

Questionnaire Homogeneity Test

Sampling was performed for a total of three times. After the invalid samples were excluded, 418, 378, and 413 participants were recruited during the first, second, and third sampling, respectively. Thus, 1, 209 participants were recruited. Levene’s test, which is commonly used to assess homogeneity of variance, was used to examine the discreteness and randomness of the samples to ensure that the respondents recruited at the three time points belonged to the same group. Table 2 shows the homogeneity test result for the three female audience groups. The variances in the sports- watching motivation and sport- related identification were nonsignificant; thus, the distributions of the three sampling groups

were similar. Therefore, the three samples could be viewed as the same group. The details are presented in Table 2.

Analysis of the Sports- watching Behavior of Female Audiences

Motivation to watch sports.

On the basis of the studies conducted by Ridinger and Funk (2006), we divided sports- watching motivation into seven constructs. According to the scores displayed in Table 3, the strongest motivations to watch sport among the respondents were self- realization and social facilitation, followed by stress release, game content, financial status, emotional connection, and aestheticism.

Table 2. Homogeneity test results for different female audience groups

Construct	Group 1(N = 418) Levene/Significance	Group 2(N = 378) Levene/Significance	Group 3(N = 413) Levene/Significance	Total Group (N = 1209) Levene/Significance
Self- realization	.63/.42	.04/.84	.00/.93	.04/.83
Social facilitation	.38/.53	.39/.53	1.25/.22	1.02/.28
Stress release	.79/.37	3.19/.07	.62/.42	.51/.47
Game content	.07/.78	1.22/.26	.98/.32	3.83/.05
Financial status	.06/.79	.00/.98	3.49/.06	1.06/.30
Emotional connection	2.77/.09	1.21/.27	1.60/.20	3.83/.05
Aestheticism	1.16/.28	.12/.72	.05/.82	.06/.79
Team identification	1.10/.29	1.59/.20	2.57/.11	.01/.95
Team member identification	.00/.98	.00/.94	.24/.62	1.75/.18
Athlete identification	.33/.56	2.41/.12	1.70/.19	2.89/.08

Table 3. Scores for the constructs of sports- watching motivation

Construct	Mean	Standard Deviation	Rank
Self- realization	4.32	.75	1
Social facilitation	4.32	.60	1
Stress release	4.16	.67	3
Game content	4.09	.63	4
Financial status	3.93	.70	5
Emotional connection	3.91	.68	6
Aestheticism	3.50	.64	7
Overall	4.03	.74	-

Sport- related identification

We divided sport- related identification into three constructs. According to the scores presented in Table 4, the average

scores for sport- related identification ranged between 3 and 5. Among the three constructs, team identification was most important, followed by sports identification and athlete identification.

Table 4. Scores for the constructs of sport- related identification

Variable	Mean	Standard Deviation	Rank
Team identification	4.06	.76	1
Sports identification	3.80	.79	2
Athlete identification	3.39	.81	3
Overall	3.76	.84	-

Level of engagement.

The level of engagement of female audiences was analyzed. Table 5 reveals that the majority of the respondents attended 1 or 2 games per month. The most common level of interest was “interested,” and almost

half of the respondents described themselves as “passionate” about attending games. Most of the respondents reported that they had moderate to good understanding of baseball. A large majority of the respondents were not a member of a baseball team fan club or player fan club.

Table 5. Scores for the constructs of level of engagement
 [unit: number of people: (%)]

Engagement	Analysis Content
Game attendance per month	1–2 games (816; 68.1%), 3–4 games (204; 17.0%), 5–6 games (91; 7.6%), 7–8 games (32; 2.7%), ≥9 games (55; 4.6%)
Level of interest	Very indifferent (42; 3.5%), indifferent (48; 4.0%), occasionally interested (435; 36.0%), interested (472; 39.1%), very interested (210; 17.4%)
Level of passion	Not passionate at all (19; 1.6%), not passionate (16; 1.3%), moderately passionate (345; 28.6%), passionate (522; 43.2%), very passionate (305; 25.3%)

Level of understanding	No understanding at all (26; 2. 2%), little understanding (68; 5. 6%), moderate understanding (485; 40. 3%), good understanding (496; 41. 2%), very good understanding (129; 10. 7%)
Member of a baseball team fan club	Yes (289; 23. 9%), no (918; 76. 1%)
Member of a baseball player fan club	Yes (142; 11. 8%), no (1, 058; 88. 2%)

Effects of Background Variables

Effect of Background Variables on Sports- watching Motivation

Table 6 shows the differences in sports- watching motivation for female spectators of different ages. Scheffé's method was employed to perform post hoc comparisons. Age significantly affected the levels of emotional connection, social facilitation, aestheticism, and stress release ($p < . 05$). The level of social facilitation of the respondents aged 16–20 years was higher than that of those aged 21–25 and 26–30 years. The level of aestheticism level of the respondents aged 15 years or younger was higher than that of those aged 21–25 and 26–30 years; additionally, the aestheticism level of the respondents aged 16–20 years was higher than that of those aged 21–25 years. No differences were observed between age groups for the other constructs. Marital status was discovered to significantly affect the levels of emotional connection, social facilitation, and stress release ($p < . 05$). The levels of emotional connection and stress re

lease of the married respondents were higher than those of the single respondents, whereas the social facilitation level of the single respondents was higher than that of the married respondents. Educational level significantly affected the levels related with game content, self- realization, emotional connection, social facilitation, and aestheticism ($p < . 05$). The level of self- realization of the respondents with junior high school education or below was higher than that of the respondents with graduate school degrees. The aestheticism level of the respondents with junior high school education or below was higher than that of those with an undergraduate or graduate degree. Furthermore, the levels of self- realization and social facilitation of the respondents with senior high or vocational school education were higher than those of the respondents with an undergraduate degree. The levels of self- realization, emotional connection, social facilitation, and aestheticism of the respondents with senior high or vocational school education were higher than those of the respondents with a graduate degree or

higher. The aestheticism level of the respondents with an undergraduate degree was higher than that of the respondents with a graduate degree. No differences were observed between education groups for the other con-

structs. Thus, the results indicated that the respondents with high educational attainment exhibited low sports-watching motivation in terms of self-realization, emotional connection, social facilitation, and aestheticism.

Table 6. Significant differences in sports- watching motivation

	Game content	Self-realization	Financial status	Emotional connection	Social facilitation	Aestheticism	Stress release
Age				*	*	*	*
Marital status				*	*		*
Educational level	*	*		*	*	*	

Note: * indicates significant difference in the variable.

Effect of Background Variables on Sport- Related Identification

Table 7 presents the differences in sport- related identification for female spectators of different ages. Age was discovered to significantly affect the levels of team identification, athlete identification, and sports identification ($p < .05$).

Scheffé's method was again used to perform post hoc comparisons. No differences were observed between groups in terms of the three constructs. Significant differences were discovered in the athlete identification and sports identification of the respondents

with differing marital status ($p < .05$). The levels of athlete identification and sports identification of the single respondents were higher than those of the married respondents. Education level also significantly affected the identification constructs ($p < .05$). The levels of athlete, team, and sports identification of the respondents with senior high or vocational school education were higher than those of the respondents with a graduate degree or higher. In addition, the levels of athlete identification and sports identification of the respondents with junior high school education or below were higher than those of the respondents with a graduate degree or higher.

Table 7. Significant differences in sport- related identification

	Sports identification	Team identification	Athlete identification
Age	*	*	*
Marital status	*		*
Educational level	*	*	*

Note: * indicates significant difference in the variable.

*Growth Curves of Female Audiences’
Sports- watching Behavior*

Structural equation modeling was employed to assess the overall goodness- of- fit. The growth- curve goodness- of- fit standard proposed by Honda (2011) was used, in which the root mean square error of approximation (RMSEA) for absolute fit should be <. 08, the normed fit index (NFI) and confirmatory fit index (CFI) for incremental fit should respectively be >. 90 and >. 95; and the parsimonious NFI (PNFI) and χ^2/df for parsimonious fit should respectively be >. 05 and <3.

Growth Curve for Sports- Watching Motivation

Table 8 displays the goodness- of- fit indicators of the structural model on the levels of sports- watching motivation of the respondents at different time points, the sports- watching motivation of the respondents, showing that their motivation decreased over time (slope = -. 07).

Growth Curve for Sport- Related Identification

Table 9 shows goodness- of- fit indices of the structural model on the levels of sport- related identification of the respondents at different time points, the sport- related identification of the respondents, revealing that their sense of identification became weaker over time (slope = -. 08).

Table 8 . Overall goodness- of- fit of the structural model for female audiences’ sports- watching motivation

Index \ Type	Absolute fit	Incremental fit		Parsimonious fit	
	RMSEA	NFI	CFI	PNFI	χ^2/df
Assessment standard	< 0. 08	> 0. 9	> 0. 95	> 0. 5	< 3
Original adjustment mode	. 03	. 95	. 98	. 92	2. 95

Degree of conformity	V	V	V	V	V
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Note: V indicates that goodness- of- fit is achieved.

Table 9. Overall goodness- of- fit of the structural model for female audiences' sport- related identification

Index	Type	Absolute fit	Incremental fit		Parsimonious fit	
		RMSEA	NFI	CFI	PNFI	χ^2/df
Assessment standard		< 0.08	> 0.9	> 0.95	> 0.5	< 3
Original adjustment mode		.06	.94	.95	.72	3.19
Degree of conformity		V	V	V	V	Almost

Note: V indicates that goodness- of- fit is achieved.

Discussion and Conclusions

Discussion

In the sample structural analysis, most of the female baseball spectators surveyed in this study were college students, aged 21–30, and single. This result concurs with the results of other studies (Lu and Cheng, 2008; Hsieh and Hsiung, 2008; Chou and Hsiao, 2008; Wu et al., 2011). If sports leagues wish to increase the number of women attending live games, we recommend that they develop strategies that target these groups and cater to the needs of their female audiences. For example, sports leagues can collaborate with shopping websites and use marketing strategies such as package ticket promotion and ladies' nights.

Because most of the female spectators are college students, sports leagues can attract women through sports promotion on campuses. The attractiveness and strength of sports competitions can be promoted through sports- watching, exhibiting the different aspects of sports.

Of the constructs within sports- watching behavior, self- realization and social facilitation obtained the highest scores. Tsao and Hsiao (2009) demonstrated that fans of sports teams perceive a connection with their team and in turn experience emotional transfer (i. e., self- realization) because the fans feel as if they are a player on the team. The results of the present study are in agreement with that of Tsao and Hsiao (2009). Regarding social facilitation, baseball teams can

portray the atmosphere at live games in advertisements, which will increase the willingness of viewers to attend live games. Regarding the constructs of sport-related identification, the highest score was obtained in team identification, followed by sports identification and athlete identification. This finding concurs with the results of other studies (Yau and Lee, 2017). Women become more engaged in baseball and attend more live games if they strongly identify with a team. A baseball team can increase the identification of their female audience with the team's athletes, the sport, and the team through strategies that strengthen their connections with the team and its players, such as designing billboards that portray the team's stars and managing fan clubs.

Analysis of the level of engagement of female spectators revealed that the majority of the respondents attended only one or two games each month. Most sports spectators follow games and matches through television broadcasts and print media. This finding is in agreement with those reported by Lee et al. (2010) and Lee et al. (2016). To increase the number of women attending games and enhance their watching motivation, baseball teams can hold activities during festivals or special events, such as distributing balloons on mother's day, releasing package tickets for couples on Valentine's day, and drawing lots at each game that enable audience mem-

bers to interact with the most valuable player of the day. The connection of fans with teams through activities increases the probability that women will attend live games. The results of this study indicated that most of the participants had a high level of interest and passion for professional baseball and moderate understanding of the game. Therefore, we recommend that baseball teams perform marketing segmentation for female audiences and focus on advertisements, flyers, or activities that specifically target women to expand the female market. The percentage of respondents who were members of fan clubs for baseball teams and players was clearly low. Hence, baseball teams should attempt to understand why female spectators are unwilling to join fan clubs and should lower the standard and increase the incentive to join fan clubs. The goal is to increase the interest of women in joining fan clubs, increase their loyalty toward their team, and achieve differentiated marketing for different teams.

Significant demographic-based differences ($p < .05$) were discovered in this study in emotional connection, social facilitation, aestheticism, and stress release. This finding concurs with that reported by Chou and Chen (2008). Regarding motivation to watch sports, the levels of social facilitation and aestheticism of female spectators aged under 20 years were higher than those of spectators aged 21–30 years.

This may have been because the women under 20 years old paid more attention to the atmosphere at the games and to interpersonal relationships. In addition, the sports- watching motivation of women of this age is likely to be influenced by external factors such as the players' physical appearance and their graceful body movements. Married and single respondents demonstrated significantly different levels of emotional connection, social facilitation, and stress release ($p < .05$). The emotional connection and stress release scores of the married women were higher than those of the single women. This may have been because married women experience more daily life stress than single women. The social facilitation level of the single women was higher than that of the married women, perhaps because single women more strongly wanted to make friends and expand their social circle. Regarding educational attainment, significant education- based differences ($p < .05$) were discovered in all constructs except financial status and stress release. Of the sports- watching motivation constructs, the self- realization, emotional connection, social facilitation, and aestheticism levels of the female spectators with high educational attainment were low.

Regarding sport- related identification, age and education level significantly affected the levels of team, athlete, and sports identification ($p < .05$).

The levels of athlete identification and sports identification of the married women were significantly different to those of the single women ($p < .05$). The strength of the sports identification of the respondents with lower educational level was higher than that of the respondents with higher educational attainment. This may have been because the more highly educated women had greater resources and could thus obtain new information regarding sports teams and members through various methods (e. g., Internet, mobile phones, magazines, and newspapers) and in turn develop a sense of identification. Being married significantly affected the levels of athlete identification and sports identification ($p < .05$). The level of sports identification of the single women was higher than that of the married women, perhaps because the single women had more time to engage in relevant activities including reading newspapers and books, watching the television, and attending games. Furthermore, audiences are likely to be influenced by their level of identification at live games. Sports fans that highly identify with sports teams are more likely to purchase products with team logos printed on them or attend games. Therefore, we recommend that baseball teams enhance the sport- related identification of women through baseball knowledge promotion, fan club participation, and enhancement of web page content and design. The goal is to increase the understanding by female audiences on sports, strengthen

their preferences, and increase how much they care for sports and thus enhance their willingness to engage with the game and fan clubs, thereby strengthening their level of identification and benefitting the marketing strategies of all baseball teams.

The results of LGC modeling analysis revealed that the motivation to watch sports of the female spectators decreased over time. Therefore, motivation of the respondents to watch sport may have declined because the female spectators begin to think that they cannot obtain satisfaction through watching sport. The CPBL must understand and increase female audiences' sports- watching motivation and learn the factors influencing this motivation if they want to prevent a decline in the female audience. For example, the Lamigo Monkeys are actively managing their female fan base and have designed activities with their sponsors, such as the "SUPER Little Sisters" activity designed for women. This activity attracted and attempted to help women attending games by publicizing the importance of skin care for women and by distributing free products (NOWNews, 2012). The third questionnaire distribution time point was during September and close to the CPBL playoffs. In general, people should be more motivated to attend games during this period. However, the opposite was discovered. This may have been because unlike the MLB, which has 30 teams, the CPBL cur-

rently has only four baseball teams and thus lacks variety of teams with whom fans can identify. Therefore, spectators' motivation to attend games might be low when the same teams compete frequently. In the future, the CPBL and baseball teams can actively create a lively atmosphere at venues to highlight the fun of game watching and should conduct in- depth research into the various groups of spectators when designing marketing strategies. The preferences and motivation of female sports fans should not be neglected. We recommend that the CPBL and baseball teams propose marketing strategies focused on female audiences before, during, and at the end of the season and during playoffs, thereby enhancing sports- watching motivation. Purchase behaviors are prompted when sports- watching motivation and sports identification are enhanced.

Regarding the LGC modeling analysis for sport- related identification, the growth curve of the female spectators' sport- related identification exhibited negative growth over time. Thus, the sport- related identification of the female audiences decreased over time. This result differed from that of the present study. This may have been because previous studies mainly focused on general audiences and thus both male and female spectators. Therefore, those studies could not reflect the difference in level of sports identification between the genders. The finding of the present study warrants further in-

vestigation. Lee et al. (2016) reported that women are the emerging group in sports game watching and account for almost 50% of all audiences in foreign countries. Hence, the CPBL must pay more attention to female audiences. Particularly, the level of team identification directly influenced fans' willingness to purchase team-related product and team-related product purchasing behavior. Therefore, the CPBL teams should enhance their connections with fans by holding activities designed for their female audience and increase the team identification of female fans through marketing strategies. The objective is to increase the frequency at which women watch games and strengthen their level of identification with their team, thereby increasing their willingness to attend games and purchase team-related products and preventing their team identification from declining over time.

Conclusions and Suggestions

On the basis of the results of this study, the Taiwanese female sports audience is mainly young, single, and attending college. This audience group has the potential for market development. Female fans are an emerging group in spectator sports and are as passionate as male fans. If sports organizations and leagues want to increase the number of women attending games, they should develop marketing strategies according to this audience's characteristics and needs. In addition,

the sports- watching motivation and identification of female audiences should be strengthened to increase the frequency at which women watch sport. We recommend that sports organizations and leagues perform marketing segmentation for female audiences according to the logic of strategic marketing to develop comprehensive sports marketing strategies. They can propose and implement advertisements, flyers, activities, and fan clubs to prompt female spectators to feel as if they were a player on their team and involved in the game, thereby increasing their sports- watching motivation, identification, and watching behavior. Demographic- based differences in sports- watching motivation and identification were discovered. Therefore, sports organizations and leagues should develop different or customized marketing strategies for different female audience groups to increase their understanding of, interest in, and preference for baseball games. Increasing the motivation of female fans to watch their teams will strengthen their sport-related identification and in turn make them more willing to purchase tickets for games.

The LGCs regarding female audiences' sports- watching motivation and identification exhibited negative growth. This finding warrants special attention. We recommend that sports organizations and leagues more deeply understand the motivation of women to watch sport and pay attention to female

spectators, enhancing their level of identification and facilitating growth. These steps are crucial to developing the female spectator market. Future studies focusing on the sports- watching behavior of female audiences can conduct long- term research and observation to understand the behavioral changes of this sports- watching group. Once the reasons for behavioral changes have been determined, suitable marketing strategies can be developed that increase the willingness of women to attend sporting events.

We recommend that relevant organizations use the following suggestions to encourage women to watch more sport and to develop the female market. (1) The characteristics of female audiences should be thoroughly understood and suitable marketing and promotion strategies proposed. For example, the CPBL and teams can focus on their female audience and propose annual and integrated marketing strategies for implementations before, during, and at the end of the season as well as during the playoffs. This will increase the willingness of female baseball watchers to attend games. (2) The motivation of women to watch sport and the identification of this group with the team they support should be strengthened to increase their game attendance. Strategies such as advertisements, marketing activities, and fan clubs for women can be employed to enhance their watching motivation and identification. These

strategies can make fans feel as if they are a player involved in games and thereby improve their sports- watching behavior. (3) Long- term observation of the sports- watching behavior of female audiences should be conducted to detect any changes. The causes of such changes should be determined and then influence relevant marketing strategies and achieve the goal of developing the female sports spectator market. In addition, future studies can extend the observation time to longitudinally analyze sports- watching behavior across seasons.

Qualitative research methods such as focus groups and in- depth interviews can be employed to determine sports- watching behavior changes and their causes at different time points. Additionally, the research scope can be extended to investigate female spectators' behavior regarding different sports and perform a longitudinal assessment. Difference analysis can be conducted to determine the similarities and differences in female audiences' watching behavior for different sports, thereby providing a reference that relevant organizations can consult when researching the behavior of female sports fans in the future.

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