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Football team quality and fans' attachment: investigating the mediating role of emotional satisfaction in changchun yatai football club (CYFC) fans

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Abstract

Background Football, as a global phenomenon, intertwines team quality and fan attachment. This study, centered on Changchun Yatai Football Club (CYFC) fans, explores how emotional satisfaction acts as a mediator in this intricate relationship, providing nuanced perspectives crucial for understanding and optimizing the dynamics of fan-team connections in football culture.

Objectives The primary objective of this research is to examine the influence of team quality on emotional satisfaction and fans' attachment. Additionally, it aims to investigate the mediating role of emotional satisfaction in the relationship between team quality and fans' attachment. By achieving these objectives, the study seeks to contribute valuable insights into the dynamics of fan-team relationships in the context of football.

Methodology The research adopts an applied approach in terms of its purpose, aiming to provide practical implications for football clubs. The data collection method is descriptive, utilizing electronic questionnaires voluntarily completed by 396 fans of CYFC. The research tool comprises three questionnaires: the team quality questionnaire adapted from Zhan et al. (1997), the emotional satisfaction questionnaire developed by Reynold and Bettie (1999), and a researcher-made attachment questionnaire. Structural equation modeling is employed to analyze the gathered data.

Results The results obtained through structural equation modeling reveal a significant impact of team quality on both emotional satisfaction and fans' attachment. Furthermore, a positive and significant relationship is identified between emotional satisfaction and fans' attachment. The study also confirms the positive mediating role of emotional satisfaction in the connection between team quality and fans' attachment.

Conclusions In conclusion, the research suggests that football clubs can influence fans' attachment by strategically enhancing team quality. This improvement can be achieved through measures such as acquiring high-quality players and stars. Understanding and addressing the mediating role of emotional satisfaction can be a key strategy for clubs

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looking to strengthen their connection with fans. The findings provide practical insights for football clubs seeking to optimize their strategies for fan engagement and attachment.

Keywords Team quality, Attachment, Emotional satisfaction, Football fans

Introduction

Sports have become an integral part of the service industry, exerting an increasingly significant impact on the economy and being perceived as a profitable source globally. For instance, in Europe, football teams attract a considerable number of fans to engage in leisure activities, reflecting the importance and popularity of sports in those societies [1]. The overflowing stadiums and the competition's viewership in the hundreds of millions highlight football as the most popular sport globally [2]. As a result, among various sports activities worldwide, football is undoubtedly one of the most popular, watched, and participatory sports [3]. Football fans and spectators constitute a significant part of the essential assets of this sport [4]. Major football events, such as the World Cup, generate substantial financial resources, and professional leagues also attract the attention of fans [5]. Therefore, the presence of spectators in football matches significantly influences the team's performance and serves as a financial resource for the team [6]. Consequently, this study examines factors impacting fans, such as attachment, emotional satisfaction, and team quality.

Literature review

Studies indicate that consumers can extend their attachments to gifts, places, brands, sports teams, and various objects [7]. For example, Ngai et al. [8] demonstrated a significant impact of customer attachment on purchase intention in the context of social media marketing. While psychological studies often focus on individuals' attachments to others [9], research in marketing suggests that such attachments can transcend person-to-person relationships [10]. Customer attachment explains why some customers are more inclined towards certain purchasing activities than others and how customers receive different messages throughout the purchase communications. In summary, customer attachment represents a chain of customer interest in products and services [11]. Additionally, variables associated with quality are perceived as motivational factors in customer attachment [12]. As a result of this attachment, individuals tend to compare and evaluate their favorite sports and teams, confirming that they are indeed their preferred sports and teams [13]. Research indicates that attachment influences a broad range of consumer reactions, such as attitude change, satisfaction, mental engagement, and behaviors like purchase intention, willingness to pay, word-of-mouth advertising, and forgiveness of errors [14]. Therefore, marketing researchers have recently focused

on customer engagement, recognizing its impact on various consumer-related outcomes [15, 16].

Customer satisfaction is a fundamental and key element of marketing success, playing a vital role in achieving companies' competitiveness [17]. On the other hand, consumer emotions are crucial components of customer responses and impact customer satisfaction and repeat purchasing [18]. Customer satisfaction is the customer's feeling or attitude towards a product or service after using it [19]. It is defined based on desirable performance, where customer satisfaction is a judgment that the sports services or service components meet a desirable level of satisfaction, primarily related to superior performance [20]. Satisfaction is also a key determinant in customers' decision-making regarding whether to continue or discontinue their relationship with a product or service [21]. Thus, one of the influential factors in the success of advanced service organizations is pursuing customer satisfaction by improving the quality of services provided [22]. Alexandrov et al. [23] claim that emotions play a central role in service quality management. Marketing theory examines sports products in two dimensions, as proposed by Edvardsson [24]: the core essence of the product (related to intrinsic features like player performance, game quality, and team capabilities) and the supportive and environmental element (associated with facilities, stadiums, ambiance, support services, and interaction between staff and spectators) [25].

The attractiveness of the game is one of the main reasons spectators support and follow sports and teams, consisting of team performance and players' skills [26]. Regardless of whether a team wins or loses, fans may consider the game's quality a criterion for evaluating their favorite team. Players are influential in the attachment of fans and spectators to the team, and their skills are important to fans and spectators [27]. Star players significantly contribute to the attractiveness of sports events [28]. It is evident that overall team quality is a key factor influencing the team's success, and this variable positively affects fans' willingness to participate in events [29]. Kim et al. [30] demonstrated that the team's personality and players' performance influence spectators' emotions, predicting spectators' behavioral intentions. Lee et al. [31] investigated the impact of event quality on fan satisfaction and attendance in professional football in Iran, confirming that fan satisfaction moderates the relationships between event quality and attendance. Glieco [32] found that various unpredictable emotions and motivations significantly influence fans' extent and trend. Theodorakis

et al. [33] believed that technical quality, result quality, and customer satisfaction affect fan attendance at sports stadiums. Yoshida and James [34] stated that increasing team quality can enhance fan satisfaction and retain fans. Yoshida et al. [35] showed that fan attachment to the team is the only predictor that can anticipate fan attendance frequency over the long term, while team identification, satisfaction, and behavioral intentions are not significant predictors.

Ladhari et al. [36] focused on evaluating emotions and emotional satisfaction and their effects on behavioral intentions in service industries, emphasizing emotions' role in consumer decision-making. Prentic et al. [37] found that customer-centric factors significantly relate to customer attachment, while service quality in the airline industry has a lesser effect on attachment. Radith et al. [38] stated that customer satisfaction significantly impacts customer attachment. Yoong & Lian [39] mentioned that customer attachment has a positive relationship with purchase intentions. Recently, the significant revenue generated from sports, especially football, has led to a special focus on fans as assets for clubs. This has made managing service quality a crucial concern for sports industry managers. Fan attachment serves as an important indicator, challenging marketing managers. Managers seek to understand how to provide services to fans more effectively, and club officials aim to retain and attract fans, ultimately increasing financial income.

In this regard, club managers and marketers must manage fans' decisions and behavioral responses in times of victory and defeat. Therefore, the main objective of the present research is to investigate the effect of team quality on emotional satisfaction and fan attachment. Additionally, the study aims to examine the mediating effects of emotional satisfaction on the relationship between team quality and fan attachment. Considering the

research framework and variables of interest, a conceptual model is presented in Fig. 1.

Research hypotheses

Based on the conceptual framework, the following hypotheses can be stated:

H1=Football club quality has direct effect on the fan's attachment.

H2=Football club quality has direct effect on the fan's Emotional satisfaction.

H3=Football fan's emotional satisfaction has significant effect on their attachment.

H4=Football club quality has indirect effect on the fan's attachment through the mediating variable of emotional satisfaction.

Research methodology

The present research is applied in terms of purpose and descriptive in terms of data collection method, explicitly using correlational design. Additionally, the structural equation modelling (SEM) method was employed to determine the impact of predictor variables on outcome variables. This method is one of the techniques for analyzing complex data structures and is suitable for investigating causal relationships. Through this approach, it is possible to assess the acceptability of theoretical models in specific communities using correlational, non-experimental, and experimental data [40]. The statistical population of the research included all fans of the CYFC team in Changchun who followed the team's matches during the 2023 season. The sample in this study was randomly selected from among these fans. However, due to the circumstances and the unavailability of fans in person, the relevant electronic questionnaire was sent to CYFC fans nationwide through virtual platforms such as WhatsApp, Instagram, etc. Considering that the number

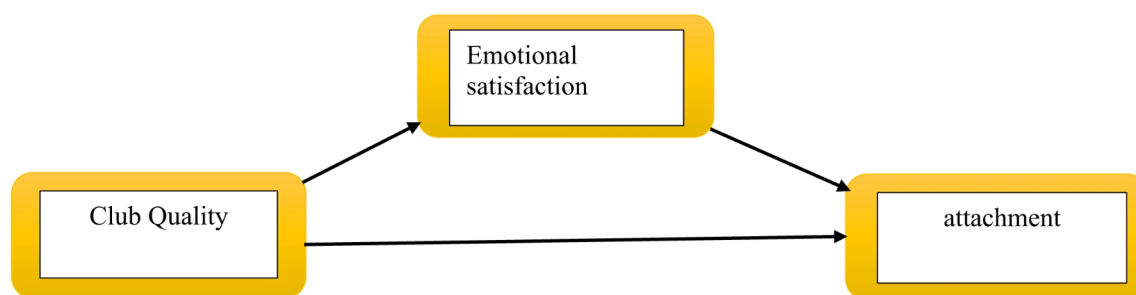


Fig. 1 Conceptual framework of the research

Table 1 Convergent validity of the measurement model, including reliability and convergent validity of the variables

	Cronbach's Alpha	AVE	Composite reliability	α
Attachment	0.83	0.68	0.93	0.89
Emotional Satisfaction	0.88	0.87	0.94	0.93
Team Quality	0.87	0.57	0.85	0.81

of observations for multiple regression analysis should not be less than 5 times the number of independent variables Talarico & Moore [40] a total of 500 questionnaires were received, and 396 valid questionnaires were collected. The following questionnaires were used to measure the research variables: (A) Team Quality Questionnaire, developed by Paolacci et al. [41], consisting of 5 questions; (B) Emotional Satisfaction Questionnaire by Peterson and Merunka [42], consisting of 4 questions; (C) Attachment Questionnaire, developed by Ladhari et al. [43], consisting of 6 questions.

Moreover, the Emotional Satisfaction questionnaire used a seven-point Likert scale, while the Team Quality and Fan Attachment questionnaires used a five-point Likert scale. The mentioned questionnaires have been validated through a three-stage process of content, face, and construct validity. Cronbach's alpha coefficient and composite reliability were utilized to assess the reliability of the questionnaires. The calculated coefficients for each questionnaire are presented in Table 1. Since all coefficients obtained are greater than 0.70, the reliability of the instruments is considered acceptable.

The present research employed both descriptive and inferential statistical analyses. Descriptive statistics included measures of mean and standard deviation, while inferential statistics involved Kolmogorov-Smirnov and the assumption of normality, as well as structural equation modelling techniques to examine relationships between variables. Additionally, Skewness and Kurtosis indices were utilized to assess the normality assumption. It is noteworthy that, according to the PLS software, whether to use the covariance-based or variance-based approach in structural equation modelling depended on the examination of data normality.

Findings

In the section related to descriptive statistics, after examining the collected questionnaires, a total of 396 questionnaires were analyzed. Based on the questions outlined in the research demographic form, the sample information was examined and analyzed. In examining the age distribution of the sample, the highest proportion was related to the age range of 23 to 30 years with 35%, and the lowest proportion was associated with the age group under 20 years with 3% of the total sample volume.

Table 2 Factor loadings, means, standard deviations, and significance of items

Items	S. D	Mean	Factor Loading	t-statistic
Q1	0.81	4.43	0.72	13.73
Q2	0.76	4.32	0.70	11.94
Q3	0.70	4.55	0.83	31.64
Q4	0.60	4.68	0.75	19.4
Q5	0.70	4.61	0.73	15.5
Q17	0.69	4.50	0.84	29.8
Q18	0.83	4.39	0.85	48.23
Q19	0.91	4.24	0.81	23.56
Q20	0.83	4.18	0.82	30.12
Q21	0.80	4.39	0.82	26.12
Q22	1.1	3.97	0.74	17.20
Q28	1.3	5.46	0.85	30.00
Q29	1.6	5.63	0.88	110.00
Q31	1.52	5.66	0.89	70.68

More than 60% of the individuals had a bachelor's degree or higher. On the other hand, nearly half of the sample (about 40%) in the present study were employees; other occupations, including students (20%) and self-employed individuals (40%), made up the rest of the employment statuses in the studied sample. A significant portion of the individuals were male, constituting over 76% of the total volume of fans. Moreover, a substantial percentage, over 67%, of the fans had more than 10 years of experience supporting their favorite team.

Structural Equation Modeling (SEM) with variance-based approach consists of two main stages: (1) Measurement model (Outer model) and (2) Structural model (Inner model), which is responsible for examining the relationships between constructs. According to Hair et al. [44], each of these stages is evaluated using specific indicators. The following sections delve into each of these indicators.

Factor loadings are calculated by assessing the correlation between indicators of a construct and that construct. The decision regarding the removal or retention of items in this stage depends on evaluating various items, including the values of factor loadings, and simultaneously considering their significance. While some sources only emphasize factor loadings as the decision-making criterion, in studies conducted by Hair et al. [44], simultaneous consideration of both criteria (factor loading values and significance of item) can be a suitable option for researchers. The cut-off point is set at 0.5 for factor loadings, and the acceptable range for the significance of each item is considered as +/-1.96 (See Table 2).

A, it can be stated that all contributing factors were in a suitable and acceptable condition. Additionally, the meaningful range of each item was beyond the specified limits (indicating the insignificance of the items, ± 1.96), which was also appropriately evaluated. Regarding the

averages of items in the team quality component questions (questions 1 to 5), the highest average belonged to question 4 (indicating a good ranking position for CYFC in the ranking table). Furthermore, among the questions related to fan attachment (questions 17 to 22), the highest average was for question 17 (I take pride in CYFC's successes), and in the component of emotional satisfaction questions (questions 22 to 31), question 31 (I find watching CYFC matches enjoyable) had a higher average compared to other questions. On the other hand, question 30 was not at an acceptable level and was eliminated.

In the section related to the assessment of the reliability of the questionnaires (one of the requirements for confirming the external model), two statistical methods were used: Cronbach's alpha coefficient for assessing internal consistency of the questionnaires and the combined reliability or structural reliability method. The reason for using the combined reliability method alongside Cronbach's alpha was that Cronbach's alpha considers equal weight for all items related to a variable. Therefore, to estimate the reliability of items related to variables used in structural equation modeling, the combined reliability method was also recommended [44]. Given the results obtained, both of these indices were confirmed as their values exceeded 0.7, the threshold considered for confirmation.

In structural equation modeling, the average variance extracted (AVE) index is used to assess the convergent validity at the factor level. The cutoff point for this index, according to Henseler et al. [44] is estimated to be higher than 0.5. Therefore, considering this criterion and the results presented in the above table, it can be confirmed that the convergent validity at the factor level is met, results are presented in Table 1.

In the section assessing the divergent validity of the research variables, the average extracted variance and variance extracted for each latent variable should be higher than its correlation with other latent variables [45]. Therefore, to investigate this factor, the Fornell-Larcker criterion was employed. This criterion was satisfied for all latent variables, indicating the appropriate estimation of divergent validity for the research variables. The results are presented in the following table (Table 3).

The results from the above table also indicate the confirmation of discriminant(divergent) validity among the research variables.

Structural model

After confirming the external validity of the model, the next step involves evaluating the results of the structural model. This includes examining the predictive capabilities of the model and the relationships between constructs. Following a systematic approach with five steps,

Table 3 Discriminant validity of the variables

	1	2	3
Attachment	0.826		
Emotional Satisfaction	0.520	0.934	
Team Quality	0.597	0.599	0.749

Table 4 Results of assessing homogeneity among variables

Inflation Factor for the Variable of Inflation	VIF	
	Attachment	Emotional Satisfaction
Emotional Satisfaction	1.588	
Team Quality	1.588	1

Table 5 Evaluation results of relationships between variables

Direct Effects	B	SD	T	P	f2
	Emotional Satisfaction > Attachment	0.25	0.105	3.39	0.01
Team Quality > Attachment	0.44	0.110	4.25	0.001	0.212
Team Quality > Emotional Satisfaction	0.59	0.062	9.72	0.001	0.558
Mediating Effects (Bootstrapping Test)					
Team Quality > Emotional Satisfaction > Attachment	0.15	0.06	2.22	0.026	

based on the recommendation of Hair et al. [44] these steps include:

1), Assessing the homogeneity among factors in the structural model, 2) Evaluating the significance of path coefficients and relationships between variables in the structural model, 3) Assessing the level of determination coefficient (2R), 4) Evaluating the effect size, and 5) Assessing the predictive power of the model. To assess the homogeneity among factors, the variance was utilized with the inflation factor as an indicator. According to Hair et al., [44] a threshold of 5 is considered for estimating and detecting the level of homogeneity between variables. Although in some sources, this threshold is slightly more stringent, around 2.5, the obtained values were satisfactory in both the strict and lenient intervals, results are presented in Table 4.

The next step involves evaluating the path coefficients and the significance of relationships between variables. For this purpose, a detailed description of the results pertaining to the relationships between research variables is provided in Table 5.

According to the results obtained from examining the relationships between the research variables presented in Table 5, it can be stated that all direct paths between the research variables were reported positively and significantly. For example, the direct effect of team quality on emotional satisfaction was significant with a coefficient of 0.59 (β) and a p-value of 0.001, indicating a stronger impact compared to other coefficients. Team quality also had a positive and significant impact on fan attachment,

with a coefficient of 0.44 (β) and a p-value of 0.001. Additionally, emotional satisfaction has a positive and significant effect on fan attachment, with a coefficient of 0.25 (β) and a p-value of 0.01.

Furthermore, the examination of the mediating role of emotional satisfaction in the causal relationship between team quality and fan attachment was confirmed to be significant, obtaining a coefficient of 0.151 (β) and a p-value of 0.02 as a partial mediator. After evaluating the path coefficients of the structural model (step two), the next step involves assessing the structural model indicators. The results of this evaluation can be observed in Table 6.

According to Hair et al. [44], the coefficient of determination, or R^2 , is considered one of the key indicators for evaluating the structural model in the variance-based approach. The decision range for assessing the coefficient of determination for each endogenous variable is divided into three intervals: 0.25, 0.5, and 0.75. Based on the findings of this study, it can be stated that approximately 40% of the total variance in fan attachment is explained by the independent and influential variables (team quality and emotional satisfaction). Furthermore, around 35% of the variance in emotional satisfaction is explained by team quality. Referring to the cut-off points considered in different intervals, it can be estimated that all obtained determination coefficients for all three endogenous variables are moderately to low on average.

Predictive power of the model, Q^2 (Stone-Geisser's Q), is another criterion for evaluating the structural model. This indicator helps us determine the predictive power of the model. In essence, for each dependent variable, we can report a Q^2 , which indicates the predictive power of the model [44]. Similar to other criteria, cut-off points have been considered for evaluating this indicator.

Henseler et al. [45] have considered three cut-off points: 0.02, 0.15, and 0.35, have proposed a single cut-off point of 0.163 based on simulated studies and analysis of previous research. According to the obtained findings (Table 6), it can be stated that the estimated model for assessing the determination of the influence of team quality and emotional satisfaction on fan attachment, taking into account the mediating role of emotional satisfaction, has shown a satisfactory predictive power overall. Regarding the predictive power of each variable, including emotional satisfaction and fan attachment, values of 0.290 and 0.244 were obtained, respectively. All of these values indicate a predictive power ranging from moderate to high.

The next criterion is the effect size index, f^2 (Cohen's f^2). This index determines how much each predictor variable in the regression model contributes to the increase in a coefficient of determination. In other words, this criterion examines the explanatory power of the model. According to Cohen's guidelines [46], values of 0.02, 0.15,

Table 6 Indicators of structural model evaluation

	Emotional Satisfaction	Attachment
Coefficient of Determination (R^2)	0.35	0.39
Predictive Power of the Model (Q^2)	0.29	0.24

Table 7 Evaluation of the overall fit of the structural equation model

Indicator	Obtained Values
SRMR	0.075

and 0.35 represent weak, moderate, and strong effect sizes, respectively, for one construct on another [45].

According to the results in Table 5, the path from team quality to emotional satisfaction has a large effect size (0.558), the path from team quality to fan attachment has a moderate effect size (0.212), and the path from emotional satisfaction to fan attachment has a moderate effect size (0.068).

Finally, after examining multiple indicators for evaluating each section of the structural equation modeling (SEM), including the outer model and inner model, Hair et al. [44] introduced criteria for an overall evaluation of the model. One of these criteria is the primary fit index in structural equation modeling in the variance-based approach, commonly referred to as the Standardized Root Mean Square Residual (SRMR). The cut-off point for this index is typically set to be less than 0.08. Overall, considering various assessments, it can be stated that the empirical data in this study generally confirm and support the theoretical and assumed model (See Table 7).

Graphically, the results of the structural equation modeling for the variables involved in this study can be observed in the Fig. 2.

Discussion

Fans play an undeniable role in sports disciplines' globalization and widespread appeal. In sports economics, they are acknowledged as the primary customers and audience for sports. Some believe that the success of professional sports is, to some extent, dependent on its relationship with its fans [47]. This study aims to determine the impact of team quality and relationship quality on football fans' attachment and behavioural tendencies, focusing on the mediating role of emotional satisfaction and the moderating effect of perceived value adjustment of CYFC supporters.

Team quality and emotional satisfaction

The influence of team quality on the emotional satisfaction of fans has been examined. The results indicate a significant impact of team quality on emotional satisfaction, aligning with studies by Kim et al. [30], Ladhari et al. [36], Lee et al. [31], and Yoshida and James [34]. However, in



Fig. 2 The evaluation of the model based on standard coefficients

contrast, Chen and Tsai [48] found that team quality does not directly affect satisfaction and behavioural tendencies. The findings suggest that the CYFC's good position in the ranking table is highly important to fans. Therefore, enhancing team quality is crucial for addressing the emotional satisfaction of fans. Given the continuous growth of football teams globally, a strategic approach and planning are necessary to develop a high-quality team that appeals to fans. Managers and officials must focus on the club's history and utilizing star and high-quality players to maintain a competitive team. Consistently satisfying fans ensures their financial and moral support, ultimately contributing to the club's revenue generation.

Team quality and fan attachment

The study also confirmed the impact of team quality on fan attachment. This finding is consistent with studies by Dharmaputra & Aruan [49], Theodorakis et al. [37], and Guchait & Hamilton [50]. On the other hand, Prentice et al. [37] stated that service quality has a minimal effect on customer attachment. Given the significance of factors such as the team's historical aspect, CYFC managers and sports marketers should focus on increasing fans' awareness of the club's history and position in the league. In the competitive environment among football teams in China, fans take pride in their team's successes and pay attention to news from the club. They enjoy exchanging information with other fans and demonstrate their attachment by following the club's social media pages [51, 52]. Therefore, CYFC officials and managers should strategically leverage news and information for fans while striving to

maintain a high-quality team that aligns with fans' preferences. The loyalty and attachment of fans on social media can be utilized for income-generating activities, such as advertising.

Emotional satisfaction and fan attachment

The impact of emotional satisfaction on fan attachment was also examined, confirming its influence. This finding aligns with studies by Glieco [32], Ladhari et al. [36], and Radith et al. [38]. When fans experience joy and happiness from watching their favourite team, such as CYFC, these emotions lead them to praise the team even outside match times. Fans engage in discussions with other supporters, contributing to fan attachment. Even if the team achieves poor results during the season, the fans' attachment is not quickly diminished. Dedicated fans often follow social media pages related to their favourite club. Therefore, CYFC marketers and managers can harness this sense of satisfaction and attachment for effective advertising in both physical and virtual environments, leading to potential revenue generation.

Mediating role of emotional satisfaction

The mediating role of emotional satisfaction in the relationship between team quality and fan attachment has been confirmed. This result is consistent with research by Fachmi et al. [51] and Ladhari et al. [36]. Emotional satisfaction is identified as a necessary precondition for the formation of fan attachment. The results indicate that team quality predicts emotional satisfaction and fan attachment. Consequently, CYFC managers and officials

must enhance team quality by recruiting renowned and famous footballers and utilizing professional coaches. This strategy can increase satisfaction and attachment and the number of fans. Therefore, this crucial point should be considered during transfer seasons. Additionally, the results show that communication quality predicts fan attachment. Club managers should transparently address revenue generation and profit/loss discussions, considering the two components of communication quality—commitment and trust—to maintain strong relationships with fans.

Conclusions and implications

In conclusion, this study sheds light on the pivotal role that fans play in the global sports landscape, serving as the primary customers and audience for sports disciplines. The findings underscore the significant impact of team quality on emotional satisfaction and fan attachment, emphasizing the importance of a strategic approach in developing high-quality teams to attract and retain fan support. The confirmation of the mediating role of emotional satisfaction between team quality and fan attachment suggests that fostering positive emotions among fans is a necessary precondition for building enduring attachments. To sustain and enhance emotional satisfaction, football clubs like CYFC should focus on recruiting renowned players, maintaining a competitive edge, and strategically leveraging social media to disseminate news and information that align with fans' preferences. Ultimately, the study highlights the interconnectedness of team quality, emotional satisfaction, and fan attachment, emphasizing their collective contribution to the club's financial and moral support.

The implications of this research extend beyond the immediate scope of sports economics, pointing towards actionable strategies for football club managers and officials. Recognizing the confirmed impact of team quality on emotional satisfaction and fan attachment, managers are urged to prioritize the recruitment of renowned players and employ professional coaches to enhance team quality. The study also underscores the importance of effective communication, particularly in addressing fans' concerns about revenue generation and financial matters transparently. Leveraging emotional satisfaction and fan attachment for advertising purposes, both in physical and virtual environments, presents a viable avenue for potential revenue generation. As the sports landscape continues to evolve globally, the findings advocate for a holistic and strategic approach to club management that not only focuses on on-field performance but also prioritizes fan engagement and satisfaction as key drivers for sustained success.

Limitations and suggestions for further studies

While this study provides valuable insights into the relationship between football team quality, emotional satisfaction, and fans' attachment, it is essential to acknowledge certain limitations that may impact the generalizability of the findings. Firstly, the research is confined to a specific football club, Changchun Yatai Football Club (CYFC), and its fans. The uniqueness of each football club and its fanbase may limit the applicability of the results to other clubs or diverse cultural contexts. Future studies should consider conducting similar research across multiple football clubs to enhance the external validity of the findings.

Another limitation lies in the focus on football fans, particularly those of CYFC, which may not fully capture the nuances of fan attachment in other sports or among fans of different football clubs. Diversifying the scope to include fans from various sports and teams could provide a more comprehensive understanding of the factors influencing fan attachment. Additionally, exploring how cultural differences impact the dynamics between team quality, emotional satisfaction, and attachment would contribute to a more nuanced interpretation of the findings.

The study primarily relies on self-reported data from fans, which may introduce biases and subjectivity. Future research could incorporate more objective measures or utilize mixed-method approaches to triangulate findings and provide a more robust understanding of the complex relationships under investigation. Longitudinal studies could also offer insights into the temporal aspects of fan attachment, tracking changes over time and allowing for a deeper analysis of the causal relationships between the variables.

Furthermore, the study focuses on emotional satisfaction as a mediating variable, leaving room for exploration of other potential mediators that may influence the relationship between team quality and fan attachment. Investigating additional psychological and sociological factors could provide a more comprehensive framework for understanding the intricate dynamics at play.

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Author contributions

Yunlong Zhao designed the study. Feng Zhao and Chuning Sun collected the data. Yunlong Zhao, Feng Zhao and Chuning Sun analyzed and interpreted the data. Feng Zhao and Chuning Sun drafted the manuscript. Yunlong Zhao proofread the paper. Yunlong Zhao, Feng Zhao and Chuning Sun agreed to be accountable and verified the submitted version.

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Data availability

The data will be available upon request from the corresponding author.

Declarations

Ethical approval consent

Institutional Review Board of Changchun Normal University approved the study, indicating that the study was conducted in line with the guidelines and ethical considerations of the institute. All subjects gave their informed consent for inclusion before participating in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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