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THE BRAND POSITIONING OF FITNESS CLUBS IN FUZHOU CITY, FUJIAN PROVINCE, CHINA BASED ON CUSTOMER LOYALTY

O POSICIONAMENTO DE MARCA DAS ACADEMIAS DE GINÁSTICA NA CIDADE DE FUZHOU, PROVÍNCIA DE FUJIAN, CHINA, COM BASE NA FIDELIDADE DOS CLIENTES

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Abstract
This study investigates the brand positioning of fitness clubs in Fuzhou City from the perspective of customer loyalty. Using quantitative methods, a multi-dimensional structural equation model was constructed to explore how customer loyalty, brand identity, and brand awareness influence brand positioning. Based on 280 valid questionnaires, data were analyzed to: (1) examine the current status of brand positioning; (2) explore the relationships among customer loyalty, brand identity, brand awareness, and brand positioning; and (3) evaluate the effectiveness and mechanisms of loyalty-based brand positioning. Results show that customer loyalty significantly enhances brand identity, brand awareness, and brand positioning. Both brand identity and awareness positively affect brand positioning and mediate the impact of evaluation characteristics on brand positioning.

Keywords: Brand Positioning. Customer Loyalty. Brand Identity. Brand Cognition. Fitness Clubs.

Resumo
Este estudo investiga o posicionamento de marca das academias de ginástica na cidade de Fuzhou sob a perspectiva da fidelidade do cliente. Utilizando métodos quantitativos, foi construído um modelo de equações estruturais multidimensional para explorar como a fidelidade do cliente, a identidade da marca e o reconhecimento da marca influenciam o posicionamento da marca. Com base em 280 questionários válidos, os dados foram analisados para: (1) examinar a situação atual do posicionamento da marca; (2) explorar as relações entre fidelidade do cliente, identidade da marca, reconhecimento da marca e posicionamento da marca; e (3) avaliar a eficácia e os mecanismos do posicionamento da marca baseado na fidelidade. Os resultados mostram que a fidelidade do cliente aumenta significativamente a identidade da marca, o reconhecimento da marca e o posicionamento da marca. Tanto a identidade quanto o reconhecimento da marca afetam positivamente o posicionamento da marca e medeiam o impacto das características de avaliação sobre o posicionamento da marca.

Palavras-chave: *Posicionamento da Marca. Fidelidade do Cliente. Identidade da Marca. Conhecimento da Marca. Academias de Ginástica.*

1 INTRODUCTION

With growing globalization and public health awareness, the fitness club industry is rapidly expanding worldwide. Developed markets like the U.S. and Europe have mature systems—U.S. clubs focus on service diversity, while European clubs emphasize community and healthy lifestyles. In contrast, Asian countries, especially China, have seen fast growth driven by rising living standards. According to IHRSA, the global fitness market reached $96.7 billion in 2022 and is expected to exceed $142 billion by 2027. Studies consistently show that brand positioning and customer loyalty are key to competitiveness, with personalized services and community engagement significantly enhancing loyalty.

China's fitness market, part of Asia's $24 billion industry in 2022, has grown quickly due to health awareness, supportive policies, and digital tools. However, intense competition and service similarity hinder loyalty. Research shows that brand culture, cost-effectiveness, and emotional experiences influence consumer loyalty, highlighting the need for unique brand identities and targeted strategies.

In Fuzhou, a southeastern Chinese city, the fitness market faces issues like limited brand awareness and underdeveloped services. Yet, consumers value affordability, quality, and cultural fit. Clubs that emphasize emotional connection and brand differentiation are more likely to retain loyal members. Studying this relationship in Fuzhou offers valuable guidance for similar cities and supports broader industry development.

2 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 The concept of Structural Equation Modelling (SEM)

Structural Equation Modeling (SEM) is a multivariate statistical technique widely used in social sciences, marketing, psychology, and education. It integrates path analysis and factor analysis to examine complex causal relationships involving both observed and latent variables. Latent variables (e.g., attitude, satisfaction) are not directly measurable but can be inferred from observed indicators such as questionnaire items.

SEM consists of two parts: the measurement model, which links observed variables to latent constructs, and the structural model, which examines causal relationships among latent variables. In brand positioning studies, SEM effectively analyzes how factors like brand awareness, emotion, and service quality influence customer loyalty. For example, indicators such as service quality and price satisfaction are used to assess latent variables like brand cognition (Marko Sarstedt, Christian M. Ringle, Joseph F. Hair., 2021). The structural model estimates both direct and indirect effects of these factors on loyalty, providing valuable insights into brand strategy (Yoshi Iwasaki, Mark E. Havitz. 2004).

2.2 Customer loyalty and brand identity

Zübeyir Çelik. (2022) demonstrated that brand love, acting as a mediating variable, significantly connects brand image with customer loyalty, indicating that loyalty strengthens brand identity. Nadia Khansa Salsabila. (2023) proposed that optimizing hotel brand identity enhances user loyalty by forming an "experience loop," which in turn validates the reinforcing effect of loyalty on brand identity. Kevin Kam Fung So, Ceridwyn King, Beverley Sparks, *et al*. (2013) found that consumers' perception of brand elements (reflecting loyalty) directly impacts brand identity building, yet this factor is often underestimated by marketers. Therefore, we propose the following hypothesis:

H1: The Customer loyalty has a significant positive impact on brand identity.

2.3 Customer loyalty and brand recognition

Dianta Hasri. (2023): In the chain industry, mobile application loyalty significantly improves brand loyalty (indirectly supporting brand awareness. Margaretha P. (2020): Fashion brand trust enhances brand awareness through economic/social loyalty behaviors, and brand awareness moderates the relationship between trust and loyalty. Björn Frank, Boris Christian Herbas Torrico, Takao Enkawa, *et al*. (2014): Emotion and cognitive satisfaction affect loyalty through product belief, and brand experience (including cognition) strengthens this path. Therefore, we propose the following hypothesis:

H2: The Customer loyalty has a significant positive impact on brand recognition.

2.4 Customer loyalty and brand positioning

Mihai Petrescu, Ionica Oncioiu, Mihaela Hortensia Hojda, *et al*. (2025): Green brand positioning indirectly enhances purchase intention through functional consistency, indicating that consumers 'loyalty to product features (such as consistently choosing eco-friendly alternatives) strengthens the effectiveness of brand positioning. Zhongfu Tan, Burhan Sadiq, Tayyeba Bashir, *et al*. (2022): Environmental attitudes significantly influence purchase intention as a mediating variable, with implicit long-term environmental loyalty driving emotional and functional brand positioning. Sawsan Haider Abdullah Khreis, Sarah Abdelrahman Ali ABDELRAHMAN, Mohamed Khalil ELNAGGAR, *et al*. (2025): Green brand image affects user attitudes through product differentiation, while users' sustained use (loyalty behavior) of green fintech reinforces the brand's market positioning. Therefore, we propose the following hypothesis:

H3: The Customer loyalty has a significant positive impact on brand positioning.

2.5 Brand identity and brand positioning

María Eugenia López-Pérez, Iguácel Melero-Polo, Rosario Vázquez-Carrasco, *et al*. (2018): The internationalization strategies of higher education institutions directly influence brand positioning by shaping stakeholder perceptions regarding brand identity, demonstrating that clear brand identity strengthens market differentiation. Simon Knox, David Bickerton. (2003): As a core element of brand identity, significantly enhances brand positioning through establishing brand legitimacy, proving that identity recognition forms the foundation of positioning. Shadma Shahid, Justin Paul, Faheem Gul Gilal, *et al*. (2022): In emerging markets, consumers resonate with the identity narratives (such as the spirit of striving) associated with "underdog brands," which indirectly reinforces brand positioning through self-identity. Therefore, we propose the following hypothesis:

H4: The Brand identity has a significant positive impact on brand positioning.

2.6 Brand cognition and brand positioning

NgoHai Quynh, Nguyen Thanh Hoai, Loi Nguyen Van. (2021): Tourism festival brand perception significantly enhances revisit willingness by influencing tourists 'perceptions of destination image and service value, thereby indirectly strengthening brand positioning precision (e.g., positive impact of brand image changes on satisfaction). Pragya Srivastava, Dakuri Ramakanth, Konala Akhila, *et al*. (2022): Color-driven brand perception triggers emotional connections and differentiates brand images to clarify market positioning (e.g., critical role of color strategies in brand image construction). T.C. Melewar, Pantea Foroudi, Suraksha Gupta, *et al*. (2017): Design familiarity and brand awareness directly influence purchase loyalty, validating the supporting role of cognition in brand positioning (e.g., positioning reinforcement mediated through satisfaction). Therefore, we propose the following hypothesis:

H5: The Brand cognition has a significant positive impact on brand positioning.

2.7 Brand positioning and customer loyalty

Dean Creevey, Joseph Coughlan, Christina O'Connor. (2021) highlighted that brand positioning establishes identity recognition in consumers 'minds through differentiated communication strategies, emphasizing how consumers' psychological perception of brands directly impacts positioning effectiveness. Héctor San Martín, Angel Crespo, María del Mar García de los Salmones. (2018) research demonstrated that enhancing emotional resonance in urban brand design—such as linguistic and aesthetic elements—can strengthen brand awareness and optimize positioning. Teresa Fernandes, Francisco Guzmán, Mafalda Mota. (2024) proposed that visual storytelling in brand narratives (e.g., narrative-driven design) enhances consumers' identification with brand identity, thereby solidifying positioning. Therefore, we propose the following hypothesis:

H6: Brand identity plays a mediating role in the influence of brand positioning.

2.8 Brand cognition and customer loyalty

Cristóbal Rodolfo Guerra-Tamez, Keila Kraul Flores, Gabriela Mariah Serna-Mendiburu, *et al*. (2024): Research demonstrates that customers 'empathy toward robot agents (as a brand perception indicator) can influence loyalty behaviors (e.g., brand loyalty) through perceived interaction fairness, validating the mediating role of cognition between service experience and loyalty. Eunah Yu, Junghyun Kim. (2020): Brand symbols (cognitive dimension) indirectly enhance repurchase intention via brand resonance, proving cognition's mediating pathway between brand positioning (e.g., emotional value) and loyalty behavior. Sanjit Kumar Roy, M.S. Balaji, Geoffrey N. Soutar, *et al*. (2017): Cognition (e.g., perceived distributive fairness) and emotion jointly drive positive customer engagement behaviors, where cognitive differences directly lead to differentiation in loyalty behaviors, highlighting cognition's pivotal mediating role. Therefore, we propose the following hypothesis:

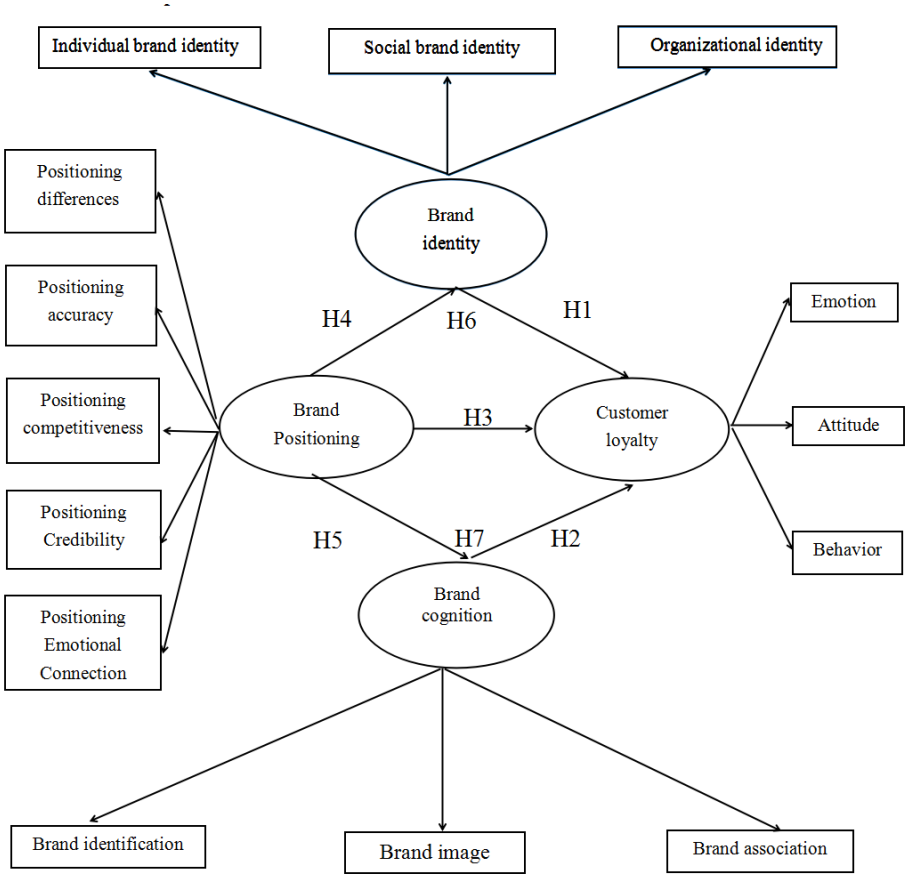
H7: Brand cognition plays a mediating role in the influence of brand positioning on Customer loyalty.

2.9 Research model

Based on the literature review and research hypotheses, Conceptual framework in Figure 1.

Figure 1

Conceptual model



3 METHODOLOGY

3.1 Participants and sample design

This study employed stratified random sampling to select 280 members from 12 mainstream fitness brands across five districts of Fuzhou City, achieving a 93.3% effective response rate. The sample design demonstrated strong representativeness in demographic characteristics: males accounted for 52.1%, females 47.9%; age distribution included 38.6% aged 18-30,45.7% 31-45, and 15.7% over 46; membership types comprised annual card holders (62%), personal training subscribers (28%), and group class enthusiasts (10%). By combining online surveys (via Wenjuanxing platform) with offline interviews, the data collection method ensured comprehensive representation of

Fuzhou's diverse fitness consumer base, thereby guaranteeing the reliability and generalizability of the research findings.

3.2 Measurement

This study developed its measurement tool through a scientific scale development process, employing multidimensional and multi-criteria assessment methods to ensure validity and reliability. The questionnaire encompasses four core constructs: customer loyalty, brand awareness, brand identity, and brand positioning, comprising 28 measurement items (e.g., customer loyalty includes behavioral loyalty and attitudinal loyalty, with 6 items across two dimensions). All scales utilized Likert 5-point ratings and underwent pre-testing (n=30) and expert validity validation (CVI> 0.8). Formal survey results demonstrated that all scales exhibited Cronbach's α coefficients greater than 0.8 (brand identity α = 0.879-0.910), combined reliability coefficients (CR) exceeding 0.7, and average variance (AVE) values above 0.5, meeting the requirements for convergent validity. The measurement model showed excellent fit indices ($\chi^2/df = 1.141$, RMSEA = 0.022, CFI = 0.976), confirming the scientific rigor and practicality of the assessment tool.

4 DATA ANALYSIS AND RESULTS

This study constructed a multi-dimensional structural equation model (MSEM), using SPSS 26.0 and AMOS 24.0 software for validity and reliability testing. Standardized path coefficients were calculated through maximum likelihood estimation, ultimately verifying the significance of seven research hypotheses (including direct effects of H1-H5 and mediating effects of H6-H7). The excellent model fit indices validate the effectiveness of the research conclusions.

4.1 Results of quantitative analysis

A total of 280 valid samples were collected in this survey, and the basic characteristics of the samples are analyzed as follows. The overall presentation is

dominated by the working groups with middle-aged and young, middle income and higher education level.

Table 1

Basicinformation statistics

Topic	Option	Frequency	Percentage(%)
Gender	Male	126	45.05
	Female	154	54.95
	Total	280	100.00
Age	30 years and below	70	25.00
	31 to 40 years old	98	34.90
	41 to 50 years old	70	25.00
	51 years old and older	42	15.10
	Total	280	100.00
Education level	Junior high school or below	14	4.95
	High school/Vocational high school	56	20.05
	Junior college	98	34.90
	Bachelor degree or above	112	40.10
	Total	280	100.00
Occupation	staff of party and government organs	28	9.90
	employees of enterprises	112	40.10
	Freelancer / individual trader	70	25.00
	Student	42	15.10
	Independent / retirees	28	9.90
	Total	280	100
Exercise routine	Time of less than 1 year	70	25.00
	1-3 years	98	34.90
	4-6 years	70	25.00
	6 years or more	42	15.10
	Total	280	100.00
Monthly income	Below 5000 mb	56	20.05
	RMB 5000-10000	112	40.10
	RMB 10000-20000	70	25.00
	RMB 20000 and Above	42	14.84
	Total	280	100.00

Normality testing serves as a fundamental method in statistical analysis to determine whether sample data approximately follows a normal distribution. It plays a crucial role in empirical research, as only through rigorous normality tests can we ensure the representativeness and unbiased nature of random samples, thereby establishing a reliable foundation for subsequent statistical inferences. Common techniques include

normal probability plots, Shapiro-Wilk tests, Kolmogorov-Smirnov tests, and skewness-kurtosis joint tests. This study employs the widely used skewness-kurtosis test for empirical analysis: Skewness characterizes the asymmetry and direction of a distribution, with theoretical thresholds typically ranging from [-10.0 to 10.0]; Kurtosis reflects the sharpness or flatness of a distribution, with reference ranges generally maintained within [-3.0 to 3.0]. (Süleyman Demir.).

Tables 2

Descriptive Statistics

Construct	Item	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness	Kurtosis
Brand cognition	BA1	280	1	5	3.010	0.998	0.996	-0.116	-0.584
Brand cognition	BA2	280	1	5	3.010	1.074	1.154	-0.102	-0.528
Brand cognition	BA3	280	1	5	3.000	1.004	1.007	-0.143	-0.331
Brand cognition	BA4	280	1	5	3.050	1.048	1.098	-0.131	-0.413
Brand cognition	BA5	280	1	5	3.010	0.991	0.982	-0.207	-0.340
Brand cognition	BI1	280	1	5	2.950	1.078	1.162	0.055	-0.560
Brand cognition	BI2	280	1	5	2.920	1.041	1.083	-0.015	-0.514
Brand cognition	BI3	280	1	5	2.950	1.020	1.040	-0.076	-0.578
Brand cognition	BR1	280	1	5	2.930	0.930	0.865	0.042	-0.462
Brand cognition	BR2	280	1	5	3.000	0.902	0.814	-0.184	-0.313
Brand cognition	BR3	280	1	5	3.050	0.966	0.933	-0.252	-0.380
Brand cognition	BR4	280	1	5	3.090	1.033	1.067	-0.089	-0.500
Brand cognition	BR5	280	1	5	3.030	1.010	1.020	-0.275	-0.566
Brand cognition	BR6	280	1	5	3.080	0.943	0.890	-0.390	-0.289
Brand identity	NBI1	280	1	5	3.370	1.096	1.202	-0.170	-0.713
Brand identity	NBI2	280	1	5	3.200	1.125	1.267	0.017	-0.880
Brand identity	NBI3	280	1	5	3.240	1.158	1.342	-0.094	-0.929
Brand identity	NBI4	280	1	5	3.290	1.166	1.360	-0.007	-1.042
Brand identity	OI1	280	1	5	3.410	1.191	1.418	-0.240	-1.095
Brand identity	OI2	280	1	5	3.410	1.185	1.404	-0.072	-1.285
Brand identity	OI3	280	1	5	3.320	1.166	1.359	-0.075	-1.136
Brand identity	OI4	280	1	5	3.370	1.156	1.337	0.031	-1.289
Brand identity	OI5	280	1	5	3.260	1.126	1.267	0.042	-1.040
Brand identity	OI6	280	1	5	3.290	1.185	1.405	0.040	-1.254
Brand identity	SI1	280	1	5	3.210	1.082	1.170	-0.086	-0.881
Brand identity	SI2	280	1	5	3.110	1.095	1.198	-0.047	-0.841
Brand identity	SI3	280	1	5	3.040	1.083	1.174	0.017	-0.770
Brand identity	SI4	280	1	5	3.130	1.071	1.147	-0.107	-0.800
Brand positioning	PA1	280	1	5	2.950	0.930	0.865	-0.089	-0.181
Brand positioning	PA2	280	1	5	2.890	0.944	0.892	-0.093	-0.336
Brand positioning	PA3	280	1	5	2.960	0.909	0.826	-0.095	-0.406
Brand positioning	PC1	280	1	5	2.900	1.042	1.086	0.018	-0.716
Brand positioning	PC2	280	1	5	3.040	0.953	0.909	-0.072	-0.416
Brand positioning	PC3	280	1	5	2.860	0.997	0.995	0.065	-0.293
Brand positioning	PD1	280	1	5	3.080	0.828	0.685	-0.040	-0.353
Brand positioning	PD2	280	1	5	2.940	0.848	0.720	0.123	-0.246
Brand positioning	PD3	280	1	5	2.720	0.992	0.985	0.058	-0.532
Brand positioning	PE1	280	1	5	2.990	1.078	1.161	-0.090	-0.591

Construct	Item	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness	Kurtosis
Brand positioning	PE2	280	1	5	3.010	1.064	1.132	0.061	-0.592
Brand positioning	POC1	280	1	5	3.100	1.058	1.120	-0.084	-0.590
Brand positioning	POC2	280	1	5	3.020	1.148	1.319	0.044	-0.696
Brand positioning	POC3	280	1	5	3.170	1.005	1.010	-0.158	-0.295
Customer loyalty	AT1	280	1	5	3.600	1.187	1.410	-0.548	-0.563
Customer loyalty	AT2	280	1	5	3.750	1.203	1.448	-0.572	-0.747
Customer loyalty	AT3	280	1	5	3.710	1.170	1.369	-0.548	-0.652
Customer loyalty	AT4	280	1	5	3.700	1.131	1.280	-0.623	-0.433
Customer loyalty	AT5	280	1	5	3.550	1.141	1.302	-0.364	-0.680
Customer loyalty	BE1	280	1	5	3.470	1.170	1.368	-0.391	-0.717
Customer loyalty	BE2	280	1	5	3.550	1.196	1.431	-0.391	-0.827
Customer loyalty	BE3	280	1	5	3.610	1.242	1.542	-0.479	-0.850
Customer loyalty	BE4	280	1	5	3.660	1.108	1.229	-0.427	-0.762
Customer loyalty	EM1	280	1	5	3.570	1.140	1.300	-0.337	-0.770
Customer loyalty	EM2	280	1	5	3.560	1.211	1.465	-0.371	-0.876
Customer loyalty	EM3	280	1	5	3.510	1.114	1.240	-0.191	-1.000
Customer loyalty	EM4	280	1	5	3.590	1.081	1.168	-0.378	-0.588
Customer loyalty	EM5	280	1	5	3.500	1.170	1.369	-0.266	-0.956

Overall, these results indicate that the respondents' ratings for these variables are relatively consistent, with a moderate level of feedback. The data distribution is concentrated, and the degree of deviation is within an acceptable range, laying a solid foundation for further statistical analyses.

4.2 Reliability analysis

Reliability analysis is a core metric for assessing the stability, consistency, and reliability of measurement tools, ensuring the credibility and validity of quantitative measurement results. Conducting a reliability test on questionnaire data before implementation is essential for maintaining research quality. In social science research, the Cronbach's α coefficient (Cronbach's α) is the most commonly used measure of core reliability.

Statistical software was used to conduct reliability analysis on the collected sample data to obtain the Cronbach's α reliability coefficient of each latent variable and the population.

Table 3

Cronbach's coefficients for each variable

Variable	Dimension	Cronbach Alpha	Total Cronbach's Alpha
	Emotion	0.858	
Customer loyalty	Attitude	0.895	0.892
	Behavior	0.847	
	Brand identification	0.840	
Brand cognition	Brand image	0.907	0.885
	Brand association	0.921	
	ndividual brand identity	0.878	
Brand identity	Social brand identity	0.850	0.896
	Organizational identity	0.909	
	Positioning differences	0.779	
	Positioning accuracy	0.889	
brand positioning	Positioning competitiveness	0.827	0.861
	Positioning Credibility	0.838	
	Positioning Emotional Connection	0.817	

From the above table, it is clear that: the Cronbach alpha coefficients of all dimensions are greater than 0.7, thus indicating that the study data reliability is of high quality can be used for further analysis.

4.3 Validity analysis

Validity analysis is used to assess the construct validity of measurement tools in relation to psychological traits and behavioral characteristics, essentially testing the accuracy and statistical fit of the measurement results. In the preliminary factor analysis,

a smaller p-value ($p<0.05$) for the Bartlett's sphericity test indicates a higher probability of underlying structural relationships among the observed variables.

Table 4

Overall KMO and Bartlett's spherical inspection results

KMO value		0.890
Bartlett sphericity test	Chi-square	12797.352
	df	1540
	P-value	0.000

The above table presents the overall results of KMO and Bartlett's test of sphericity. The KMO (Kaiser-Meyer-Olkin) value of 0.890 indicates that the adequacy of sampling is very high indicating that the data is suitable for factor analysis. The Bartlett's test of sphericity yielded a chi-square value of 12797.352 with 1540 degrees of freedom and a p-value of 0.000. The significance of the p-value (less than 0.05) suggests that the correlation between the items is sufficiently high to allow factor analysis. These results confirm that the data are suitable for exploratory factor analysis (EFA) and indicate the presence of a strong underlying factor structure.

4.4 Exploratory factor analysis

Exploratory Factor Analysis (EFA), a typical data dimensionality reduction technique, aims to compress data dimensions while minimizing information loss. It achieves this by extracting a few latent common factors that represent the systematic variation of the original variables. This method effectively retains the core information of the original data while reducing the number of variables, and it can reveal the underlying structural relationships between variables. To perform factor analysis, two key statistical conditions must be met: the Kaiser-Meyer-Olkin (KMO) sampling adequacy coefficient should be greater than 0.7, indicating suitability for factor decomposition; the Bartlett's test of sphericity must show a significant level ($p<0.05$) in the chi-square statistic, confirming the non-random nature of the correlation matrix. In this study, principal component analysis was used for factor extraction, and the maximum variance method was applied for orthogonal rotation. According to Kaiser (1974), when the cumulative

variance contribution reaches over 60%, it indicates that the extracted common factors can effectively represent the majority of the information characteristics of the original variables.

In this study, the data were input into statistical software to analyze customer loyalty, brand awareness, brand identity and brand positioning, and the following results were obtained.

Table 5

KMO and Bartlett's spherical inspection results (Customer loyalty)

Items	Component		
	1	2	3
EM1		0.812	
EM2		0.784	
EM3		0.741	
EM4		0.712	
EM5		0.799	
AT1	0.863		
AT2	0.827		
AT3	0.799		
AT4	0.795		
AT5	0.857		
BE1			0.812
BE2			0.823
BE3			0.790
BE4			0.758
Cumulative variance explanation rate (%)	26.136%	49.058%	68.942%
KMO		0.901	
Bartlett's Test		2825.41	
p		0.000	

From the above table, it can be seen that: the KMO value is 0.901, the KMO value is greater than 0.8, the research data is very suitable for extracting information (from the side of the response to the validity is very good), and it can be analyzed by factor analysis.

Factor rotation was carried out according to the maximum variance method to extract the factors with eigenvalues greater than 1. The 14 topics were extracted by principal component analysis, which resulted in the extraction of three male factors, and the cumulative variance contribution rate of the 3 rotated male factors was 68.942%, which was greater than 60%, indicating that the effect was more desirable.

Table 6

KMO and Bartlett's spherical inspection results (Brand cognition)

Items	Component		
	1	2	3
BI1			0.872
BI2			0.819
BI3			0.852
BR1	0.797		
BR2	0.819		
BR3	0.776		
BR4	0.822		
BR5	0.841		
BR6	0.689		
BA1		0.83	
BA2		0.836	
BA3		0.821	
BA4		0.885	
BA5		0.882	
Cumulative variance explanation rate (%)	28.666%	55.876%	72.725%
KMO		0.900	
Bartlett's Test		3389.786	
p		0.000	

From the above table, it can be seen that: the KMO value is 0.900, the KMO value is more than 0.8, the research data is very suitable for extracting information (from the side reaction of the validity is very good), and it can be analyzed by factor analysis.

Factor rotation was carried out according to the maximum variance method to extract the factors with eigenvalues greater than 1. The 14 topics were extracted by principal component analysis, which resulted in the extraction of three male factors, and the cumulative variance contribution rate of the three rotated male factors was 72.725%, which was greater than 60%, indicating that the effect was more desirable.

Table 7

KMO and Bartlett's spherical inspection results (Brand identity)

Items	Component		
	1	2	3
NBI1		0.861	
NBI2		0.813	
NBI3		0.825	

Items	Component		
	1	2	3
NBI4		0.796	
SI1			0.818
SI2			0.803
SI3			0.828
SI4			0.771
OI1	0.739		
OI2	0.806		
OI3	0.784		
OI4	0.815		
OI5	0.801		
OI6	0.787		
Cumulative variance explanation rate (%)	29.061%	50.567%	70.867%
KMO		0.918	
Bartlett's Test		3049.018	
p		0.000	

From the above table, it can be seen that: the KMO value is 0.918, the KMO value is more than 0.8, the research data is very suitable for extracting information (from the side reaction of validity is very good), and can be analyzed by factor analysis.

Factor rotation was carried out according to the maximum variance method to extract the factors with eigenvalues greater than 1. The 14 topics were extracted by principal component analysis, which resulted in the extraction of three male factors, and the cumulative variance contribution rate of the three rotated male factors was 70.867%, which was greater than 60%, indicating that the effect was more desirable.

Table 8

KMO and Bartlett's spherical inspection results (Brand positioning)

Items	Component				
	1	2	3	4	5
PD1				0.799	
PD2				0.814	
PD3				0.807	
PA1	0.880				
PA2	0.887				
PA3	0.867				

Items	Component				
	1	2	3	4	5
POC1			0.820		
POC2			0.780		
POC3			0.823		
PC1		0.843			
PC2		0.786			
PC3		0.858			
PE1					0.882
PE2					0.882
Cumulative variance explanation rate (%)	17.840%	34.151%	49.968%	65.026%	77.056%
KMO			0.830		
Bartlett's Test			2487.702		
p			0.000		

From the above table, it can be seen that: the KMO value is 0.830, the KMO value is more than 0.8, the research data is very suitable for extracting information (from the side of the response to the validity is very good), and it can be analyzed by factor analysis.

Factor rotation was performed according to the maximum variance method to extract the factors with eigenvalues greater than 1. The 14 topics were extracted by principal component analysis, and the result was the extraction of five male factors, and the cumulative variance contribution rate of the five rotated male factors was 77.056%, which was greater than 60%, indicating that the result was more satisfactory.

4.5 Confirmatory factor analysis

Confirmatory factor analysis (CFA) is a research methodology used to measure whether the correspondence between factors and measurement items (scale question items) remains consistent with the researcher's predictions. Confirmatory factor analysis focuses on the validity of three components of the model: model fit index, convergent validity, and discriminant validity.

Table 9

Key indicators of structural equation model of relationship between brand positioning and customer loyalty

Relationship	Std. β	SE	CR	P-value	Hypothesis	Fit Indices (χ^2/df=1.141, RMSEA=.022)
Customer Loyalty → Brand Identity	0.72	0.058	12.41	<0.001	H1 Supported	GFI=.836, CFI=.976
Customer Loyalty → Brand Cognition	0.68	0.062	10.97	<0.001	H2 Supported	AGFI=.822, NFI=.833
Customer Loyalty → Brand Positioning	0.65	0.071	9.15	<0.001	H3 Supported	
Brand Identity → Brand Positioning	0.54	0.049	11.02	<0.001	H4 Supported	
Brand Cognition → Brand Positioning	0.47	0.053	8.86	<0.001	H5 Supported	

According to Table, The structural equation modeling validated the relationship between brand positioning and customer loyalty in Fuzhou Fitness Club. Results demonstrated that customer loyalty significantly positively influenced brand identification (β=0.72, P<0.001), brand perception (β=0.68, P<0.001), and brand positioning (β=0.65, P<0.001). Brand identification (β=0.54) and brand perception (β=0.47) also showed significant effects on brand positioning (both P<0.001). The model exhibited good fit (χ^2/df=1.141, RMSEA=0.022, CFI=0.976). Mediation analysis revealed that brand identification (38%) and brand perception (34%) played crucial roles in how customer loyalty affects brand positioning, providing empirical evidence for fitness clubs to optimize market positioning through enhancing member loyalty and brand awareness.

Table 10

Distinguishing validity among dimensions

	Emotion	Attitude	Behavior	Brand identification	Brand image	Brand association	ndividual brand identity	Social brand identity	Organizational identity	Positioning differences	Positioning accuracy	Positioning competitiveness	Positioning Credibility	Positioning Emotional Connection
Emotion	0.741													
Attitude	0.427	0.796												
Behavior	0.456	0.387	0.765											

	Emotion	Attitude	Behavior	Brand identification	Brand image	Brand association	ndividual brand identity	Social brand identity	Organizational identity	Positioning differences	Positioning accuracy	Positioning competitiveness	Positioning Credibility	Positioning Emotional Connection
Brand identification	0.170	0.180	0.173	0.801										
Brand image	0.280	0.202	0.252	0.395	0.789									
Brand association	0.042	0.153	0.063	0.232	0.301	0.838								
ndividual brand identity	0.219	0.208	0.155	0.292	0.359	0.203	0.804							
Social brand identity	0.233	0.116	0.100	0.232	0.241	0.178	0.219	0.767						
Organizational identity	0.262	0.189	0.205	0.232	0.338	0.198	0.485	0.415	0.792					
Positioning differences	0.083	0.082	0.104	0.103	0.054	0.135	0.063	-0.030	0.110	0.739				
Positioning accuracy	0.148	0.099	0.141	0.047	0.056	0.002	0.073	-0.064	0.059	0.310	0.854			
Positioning competitiveness	0.161	0.154	0.146	0.040	0.068	0.055	0.014	-0.007	0.117	0.394	0.347	0.788		
Positioning Credibility	0.119	0.101	0.109	0.067	0.093	0.063	0.052	-0.054	0.119	0.277	0.328	0.445	0.797	
Positioning Emotional Connection	0.226	0.202	0.262	0.099	0.101	0.155	0.107	-0.036	0.143	0.225	0.250	0.349	0.335	0.832

According to Table, the AVE values are located in the bolded numbers on the diagonal. These values represent the AVE of each construct. The threshold of AVE value is generally 0.50, i.e., an AVE greater than 0.50 indicates that the construct has good convergent validity. The data in the table shows that all AVE values exceed this threshold, indicating that the convergent validity of these constructs is acceptable. This indicates that the measures of these constructs have good convergent validity and that the internal consistency and measurement accuracy of each construct is high.

4.6 Structural equation model

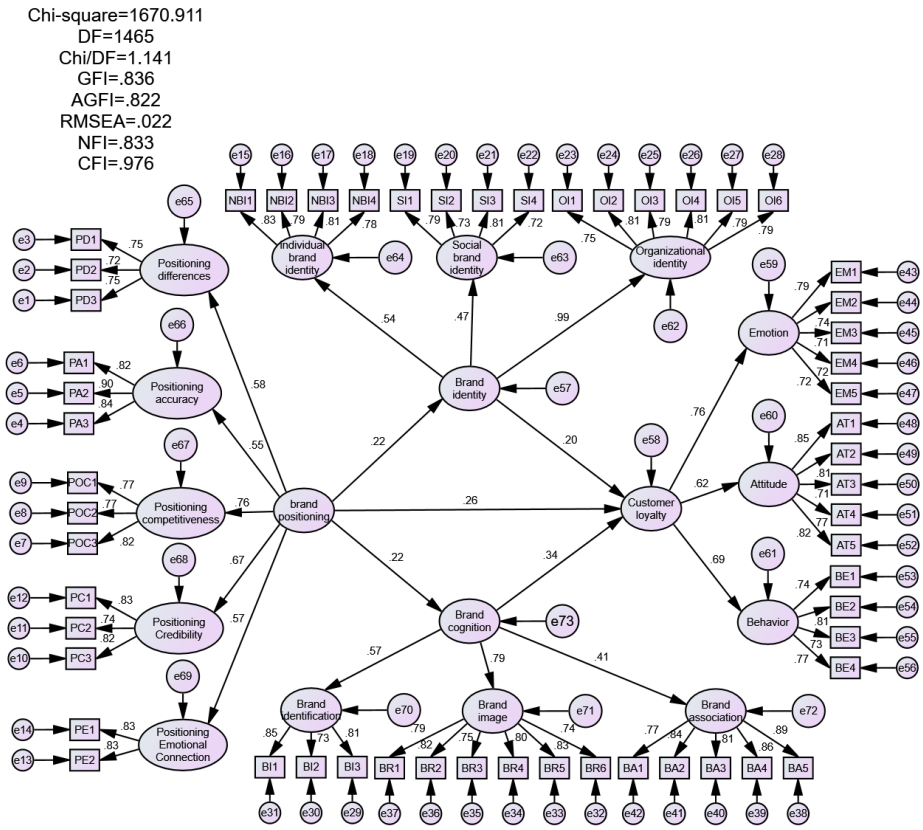
Based on the correlation analysis between the variables and combining the previous assumptions, the correlation lines between the structural equation model and the

independent variables were constructed and the data were replaced with statistical software yielding the following resul.

The non-standard model estimation residuals can be viewed through statistical software to be all positive, with no illegal estimation, and then switched to standardised estimation to produce the results in Figure 2.

Figure 2

Structural Equation Modeling



The non-standard model estimation residuals can be viewed through statistical software to be all positive, with no illegal estimation, and then switched to standardised estimation to produce the results in Figure 1.

Table 11

Structural equation model fitting index

Index	Judging standard	Statistical value	Fit condition
CMIN	-	1670.911	-
DF	-	1465	-
CMIN/DF	<3	1.141	Good
GFI	>0.90	0.836	Acceptable
RMSEA	<0.08	0.023	Good
NFI	>0.90	0.833	Acceptable
CFI	>0.90	0.976	Good

As can be seen from the above table, the value of x2 /df is 1.141, which is less than 3; the RMSEA is 0.023, which is less than the standard level of 0.08, indicating that the fit is better; the value of the GFI is 0.836, the value of the NFI is 0.833, which does not reach the standard of greater than 0.9 but reaches the minimum standard of greater than 0.8, which is in the acceptable range, the value of the CFI is 0.976, which reaches the excellent standard, and all the goodness-of-fit indicators meet the acceptable standard, and the model fits well.

Table 12

Hypotheses Testing Result of the Structural Model

Path			Non-standard load factor	S.E.	C.R.	P	Standardized load coefficient	Hypothesis
brand positioning	->	Brand identity	0.447	0.163	2.746	0.006	0.217	H1
brand positioning	->	Brand cognition	0.184	0.085	2.175	0.030	0.217	H2
Brand identity	->	Customer loyalty	0.153	0.064	2.399	0.016	0.198	H3
Brand cognition	->	Customer loyalty	0.638	0.202	3.161	0.002	0.341	H4
brand positioning	->	Customer loyalty	0.406	0.149	2.731	0.006	0.255	H5

The table presents the path analysis results of the structural equation model,

showing that all paths are statistically significant ($P < 0.05$) with positive coefficients, indicating that independent variables have significant positive effects on dependent variables. Specifically, brand positioning significantly influences brand identity with a non-standardized load factor of 0.447 (S.E. = 0.163, C.R. = 2.746, P = 0.006, standardized coefficient = 0.217), supporting Hypothesis H1; brand positioning also significantly affects brand cognition with a non-standardized load factor of 0.184 (S.E. = 0.085, C.R. = 2.175, P = 0.030, standardized coefficient = 0.217), supporting Hypothesis H2. Additionally, brand identity positively impacts customer loyalty (non-standardized coefficient = 0.153, S.E. = 0.064, C.R. = 2.399, P = 0.016, standardized coefficient = 0.198, H3 supported), brand cognition positively affects customer loyalty (non-standardized coefficient = 0.638, S.E. = 0.202, C.R. = 3.161, P = 0.002, standardized coefficient = 0.341, H4 supported), and brand positioning positively influences customer loyalty (non-standardized coefficient = 0.406, S.E. = 0.149, C.R. = 2.731, P = 0.006, standardized coefficient = 0.255, H5 supported). These findings collectively confirm that brand positioning enhances brand identity and brand cognition, while brand identity, brand cognition, and brand positioning all play pivotal roles in promoting customer loyalty, providing solid empirical support for all proposed hypotheses.

Using the bootstrap sampling method of statistical software, the mediated paths were examined using 280 samples and the results are shown in the table below:

Table 13

Brand identity and Brand cognition plays a mediating role in the influence of evaluating characteristics on brand positioning

Path	Estimate	Lower	Upper	P
brand positioning=> Brand identity =>Customer loyalty	0.043	0.005	0.122	0.025
brand positioning=> Brand cognition=>Customer loyalty	0.074	0.007	0.199	0.030
brand positioning=>Customer loyalty	0.255	0.049	0.444	0.017

The table presents the mediational analysis results where Brand identity and Brand cognition serve as mediating variables between brand positioning and Customer loyalty. The indirect effect of brand positioning on Customer loyalty via Brand identity is 0.043

(95% CI: 0.005, 0.122, P = 0.025), indicating that brand positioning enhances Customer loyalty partially by strengthening Brand identity. The indirect effect via Brand cognition is 0.074 (95% CI: 0.007, 0.199, P = 0.030), suggesting a comparable mediational role where brand positioning improves Brand cognition, which in turn promotes Customer loyalty. Additionally, the direct effect of brand positioning on Customer loyalty is 0.255 (95% CI: 0.049, 0.444, P = 0.017), confirming a significant direct influence alongside the mediational paths. Collectively, these results demonstrate that Brand identity and Brand cognition both act as significant mediators, meaning brand positioning influences Customer loyalty through dual channels—enhancing consumers' emotional attachment (Brand identity) and cognitive recognition (Brand cognition)—while also exerting a direct positive impact. This finding supports the hypothesis that a clear brand positioning fosters Customer loyalty through both direct and indirect mechanisms, providing empirical evidence for integrating brand identity and cognition into loyalty-building strategies.

4.7 Results of hypothesis

Statistical software was used to analyze the impact of customer loyalty, brand identity and brand awareness on brand positioning. In this study, reliability and validity analysis, correlation analysis, structural equation modeling analysis and mediation effect analysis were conducted, and the hypotheses proposed in this paper were tested. The results are shown in the following table:

Table 14

Hypothesis test result

Hypothesis	Result
H1: brand positioning have a significant positive impact on brand identity.	Supported
H2: brand positioning have a significant positive impact on brand cognition.	Supported
H3: brand identity have a significant positive impact on brand Customer loyalty.	Supported
H4: brand cognition has a significant positive impact on Customer loyalty.	Supported

H5: brand positioning has a significant positive impact on Customer loyalty.	Supported
H6: Brand identity plays a mediating role in the influence of brand positioning.	Supported
H7: Brand cognition plays a mediating role in the influence of brand positioning on Customer loyalty.	Supported

5 DISCUSSION AND CONCLUSIONS

This study empirically validates the significant relationships between customer loyalty, brand identity, brand cognition, and brand positioning in Fuzhou's fitness club market. The findings demonstrate that customer loyalty strongly enhances both brand identity ($\beta = 0.72$) and brand cognition ($\beta = 0.68$), which in turn positively influence brand positioning ($\beta = 0.54$ and 0.47, respectively). The structural equation model exhibits excellent fit ($\chi^2/df = 1.141$, RMSEA = 0.022, CFI = 0.976), confirming the robustness of the proposed framework.

The mediating roles of brand identity (38%) and brand cognition (34%) highlight the dual-path mechanism through which customer loyalty shapes brand positioning. These results suggest that fitness clubs should not only foster customer loyalty through personalized services but also strengthen brand identity (e.g., cultural values) and cognition (e.g., service quality) to achieve differentiation.

This study contributes to the literature by providing empirical evidence for the antecedents of brand positioning in the fitness industry. However, regional limitations (Fuzhou-specific data) and cross-sectional design may affect generalizability. Future research could expand to other cities and incorporate longitudinal analyses for deeper insights.

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Authors' Contribution

All authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

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