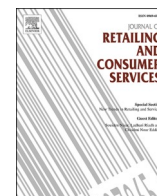


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A stimulus-organism-response approach to predicting membership retention in fitness clubs

Helen Watts^{*}, Jan Francis-Smythe, Robin Bell

University of Worcester Business School, University of Worcester, Henwick Grove, Worcester, WR2 6AJ, UK

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ABSTRACT

This study determines the impact that psychological evaluations of cognitive and affective factors have on fitness club membership retention. This study employs the stimulus-organism-response (SOR) framework to determine the impact of the cognitive factors (service quality and brand identity attractiveness) and affective factors (rapport and state anxiety) on satisfaction (organism) and ultimately, cancellation intention. A quantitative questionnaire was distributed to fitness club members ($n = 635$) and followed up with cancellation outcome data 12-months later to assess the predictive validity of intentions on cancellation outcome. Active users with validated cancellation intentions were included in the analysis ($n = 544$), through which a mediation model based on the SOR was tested using the PROCESS Macro. The SOR approach was validated, due to satisfaction mediating the influences of service quality, brand identity attractiveness, rapport and state anxiety, on cancellation intention. State anxiety was partially mediated, due to having both a mediated and direct influence over cancellation intention. This paper provides the first validation of the SOR framework in predicting fitness club membership retention and demonstrates the importance of assessing both cognitive and affective factors, especially state anxiety, when seeking to predict membership retention.

1. Introduction

Fitness club revenue is almost entirely based on membership fees, which typically represent 85% of total club income (Mintel, 2021). In 2020, revenues declined by approximately 50% as the health and fitness industry encountered competition from providers offering alternative ways to keep fit (Mintel, 2021). This revenue decline may in part be due to poor retention rates, with between 40 and 50% of members cancelling membership each year, possibly due to the delayed investment, which comes from the monetary and non-monetary sacrifice (García-Fernández et al., 2018a) (e.g. time and effort) that are often made in advance of reaping any membership benefits e.g. weight loss, increased strength. Improving retention rates would offset the revenue decline and increase revenue optimisation of fitness clubs, which heightens the need to understand what influences the decision to either retain or cancel membership, which this study contributes to.

Extant literature has conceptualised fitness club retention decision-making as an entirely rational process, by examining the influence of cognitive (rational/utilitarian) factors. For instance, service quality, a rational evaluation of how a service is performing, has been examined as

a predictor of resistance to change (Bodet, 2012), customer loyalty (Lee, 2017) and loyalty intentions (Avourdiadou and Theodorakis, 2014; García-Fernández et al., 2018a; 2018b). Evaluation of corporate image has also been examined in a fitness club context and found to account for variation in loyalty intentions (Alguacil et al., 2022).

However, affective factors have efficacy in predicting loyalty in other contexts (Yuan et al., 2022) and are posited as being critical to satisfaction and retention in this study. Fitness clubs inherently expose members to factors that may create positive or negative emotional responses due to the high-contact nature of the service. High-contact services require customers to interact with staff and other members to access and negotiate the servicescape. These social interactions and negotiations can result in heightened emotional states, positive or negative. For instance, interactions that are enjoyable provide emotional benefit and a sense of rapport. Conversely, interactions that are not enjoyable can cause a sense of isolation. Fitness club usage generally requires the performance of physical activity, and the high-contact aspect requires members to physically perform in front of other people. This creates high risk of social-evaluative threat (Dickerson and Kemeny, 2004), if members feel that their physical performance is being

^{*} Corresponding author.

E-mail address: h.watts@worc.ac.uk (H. Watts).

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judged by others, leading to feelings of anxiety whilst using the fitness club facilities. Overall, fitness clubs do not only deliver a 'good' or 'bad' service but also deliver emotional experiences through the social interactions and consciousness of others, providing an appropriate context for cognitive and affective stimuli to be simultaneously examined in relation to retention decision-making. However, there is a dearth of research examining the impact of both cognitive and affective factors on fitness club membership retention. This study addresses this gap by theoretically positing both cognitive and affective factors as influencers of retention.

There is also a lack of research examining retention outcomes with self-reported retention intentions being most predicted. Bodet (2012) sought to examine the impact of a broad range of variables (cognitive factors of satisfaction and value, and affective factors of involvement and identification) on retention intentions and outcomes but was unable to predict retention outcomes. Retention outcomes have been explained using demographic variables (Clavel San Emeterio et al., 2016) and behavioural variables e.g., frequency of visit (Clavel San Emeterio et al., 2016; Yi et al., 2020), duration of visit (Clavel San Emeterio et al., 2016), and cost and length of membership (Clavel San Emeterio et al., 2016). However, examining demographic or behavioural variables does not provide insight into the psychological evaluations that ultimately lead to membership retention decisions. Understanding the impact of psychological evaluations on membership decisions provides opportunity to assess risk of cancellation before behavioural changes occur and intervene accordingly (Watts, 2015) and requires further research.

This study addresses the aforementioned gaps in the literature, by determining the efficacy of psychological evaluations, of cognitive and affective factors, in predicting retention outcomes, and makes a conceptual and methodological contribution. Conceptually, this paper explores the parallel influence of cognitive and affective predictors, through satisfaction, on retention. This study determines the validity of the Stimulus-Organism-Response (SOR) framework (Mehrabian and Russell, 1974) as a theoretical base. The SOR framework is applied whereby the stimuli (cognitive evaluations of service and brand, and affective evaluations of social comfort and interaction), trigger the organism (satisfaction) and consequently, cancellation intention (response). Whilst the SOR model has been applied in the fitness industry to explain fitness club attendance (Özgen et al., 2024), the SOR model does not appear to have been applied in the fitness industry to predict membership retention. Methodologically, this paper combines self-reported cancellation intentions with cancellation outcomes, to predictively validate cancellation intentions, and develop a model that explains controllable cancellation decisions.

2. Theoretical background

2.1. Service quality

Service quality is widely accepted in its role in predicting loyalty (Carrillat et al., 2009). Consumer evaluations of service quality are multi-dimensional as represented by the five dimensions of 'SERVQUAL' (Parasuraman et al., 1985, 1988). Service quality is posited as critical in repurchase behaviour and profitability (Zeithaml and Bitner, 2003), and consistently shown to predict loyalty behavioural intention across multiple service environments (Cronin et al., 2000). Service quality is advocated as a significant influence on customer satisfaction and loyalty across various contexts, such as mobile phone apps (Pang and Zhang, 2024a), and the fitness industry (Tedja et al., 2024; Theodorakis et al., 2014; Tsiatskari et al., 2017; Xu et al., 2021), finding that the tangible and intangible dimensions of quality are more predictive of satisfaction than price (Loureiro et al., 2019). The systematic selection and review of 17 studies supports the importance of service quality to satisfaction and loyalty in the fitness industry (Barbosa et al., 2022). A mediated relationship between service quality, satisfaction and loyalty has been validated in the fitness industry (Dias et al., 2019; Huang and Kim, 2023;

Sun and Pan, 2023). Therefore, it is hypothesized that:

H1. Service quality positively influences satisfaction.

2.2. Brand identity attractiveness

Brand identity attractiveness plays an important role in communicating and differentiating goods and services, and in augmenting a product or service through adding value or 'equity' (Aaker, 1991). Brand identity attractiveness leads to company-consumer identification (Bhattacharya and Sen, 2003; Cardador and Pratt, 2006; Papista and Dimitriadis, 2012). When an attractive brand identity is formed, company-consumer identification is thought to occur. Brand identity attractiveness develops from perceived brand similarity (to the customer), perceived brand distinctiveness (from other organisations) and perceived brand prestige. Such identification is proposed to relate to loyalty, satisfaction, perceived value, perceived support, long-standing relationships and resilience to negative word-of-mouth (Dimitriadis and Papista, 2011; Kuenzel and Halliday, 2010; Kuenzel and Vaux Halliday, 2008; Mukherjee and He, 2008; Tuskej et al., 2013). Empirical testing, across 10 brands, validated the relationship between brand identity, satisfaction, loyalty and word-of-mouth (Popp and Woratschek, 2017). Within a fitness club context, corporate identity, the brand image as perceived by the customer, accounts for variance in loyalty intentions (Alguacil et al., 2022). Therefore, it is hypothesized that:

H2. Brand identity attractiveness positively influences satisfaction.

2.3. Rapport

Fitness clubs provide a 'social-intensive' context, in which the closeness between customers and employees is predictive of fitness club purchase intention (Guenzi and Pelloni, 2004). Such closeness is represented by a sense of rapport. Rapport is a well-established antecedent of satisfaction (Good et al., 2023; Hwang et al., 2021; Kim and Baker, 2019; Kim and Ok, 2010). Rapport is conceptualised as having two dimensions; 'personal connection' and 'enjoyable interaction' (Grenler and Gwinner, 2000). 'Personal connection' represents a general feeling of closeness and being authentically cared for, and consumer positive anticipation of seeing someone again, whereas 'enjoyable interaction' represents the comfort, enjoyment and warmth experienced within the interactions themselves. The importance of staff showing not only competence but also warmth leads to satisfaction (Zhou et al., 2024). A key aspect of warmth is empathy, which is being increasingly recognised as important in all interactions including interactions with AI-driven chatbots (Jiang et al., 2022). Enjoyable interaction is similar to communication style, and has also been found to be predictive of consumer service satisfaction (Webster and Sundaram, 2009). Not only is rapport posited as a predictor of satisfaction, it has also been empirically validated as a predictor of post-failure satisfaction (DeWitt and Brady, 2003). Rapport predicts satisfaction in restaurants (Lindsey-Hall et al., 2023) and banking (Kayeser Fatima and Abdur Razzaque, 2014). Social skills, which arguably enable enjoyable interaction and closeness are found to be predictive of satisfaction in fitness clubs (Glaveli et al., 2023). Similarly, 'social encapsulation'; the degree to which an organisation focuses on social interactions amongst members, prevents switching behaviour (Shi et al., 2017). Rapport has been validated as a predictor of fitness club satisfaction and subsequently loyalty via mediation (Kim and Kim, 2024). Therefore, it is hypothesized that:

H3. Rapport positively influences satisfaction.

2.4. State anxiety

State anxiety is a form of anxiety induced by a certain situation, or 'state'. In a fitness club, a member may feel anxious about perceived judgement from the fitness instructor (Loughead et al., 2008; Martin and

Fox, 2001) or perceived judgment from other members, on their ability to perform exercise correctly or on their physique (Leary, 1992). Fitness clubs are highly observational whereby it is very easy to observe participants, creating risk of self-consciousness about physical capability (Gammage et al., 2004; Martin Ginis et al., 2007). Physical closeness can trigger social anxiety (Delacroix and Guillard, 2016). Fitness clubs often require physical closeness with others, creating risk that the high-contact nature of fitness clubs can be anxiety provoking. Anxiety can be experienced through using self-service technologies (Liu, 2012), which could include fitness club equipment. Such anxiety has been found to affect satisfaction and behavioural intention (Gelbrich and Sattler, 2014; Meuter et al., 2003). It could be argued that due to the technical knowledge needed for fitness clubs to be able to use electronic equipment, there is a risk of 'technostress', which in other contexts has been found to impact on well-being (Pang and Wang, 2025). More broadly, social comfort, the opposite of state anxiety, influences consumer satisfaction, commitment, word of mouth and loyalty (Lee and Yi, 2022). As such, it is hypothesized that:

H4. State anxiety negatively influences satisfaction.

2.5. Satisfaction predicting loyalty

Satisfaction in fitness clubs is an overall feeling towards the fitness provider based on post-service experience (Glaveli et al., 2023; Howat et al., 2008). Fitness club members are often required to have a contractual subscription in place prior to using the service. However, the high-credence nature of the service makes it difficult to evaluate before contractually committing and poses risk of unmet expectations and consequently, desire to cancel. Satisfaction is a key determinant of customer behaviours that are critical to the success of an organisation. The efficacy of satisfaction in predicting loyalty has been notably supported (Barbosa et al., 2022; Dias et al., 2019; El-Adly, 2019; Jeon et al., 2021; Utami et al., 2023). Satisfaction has been validated as mediating the influence of a range of predictors on loyalty (Barakat Ali, 2022; El-Adly, 2019; Kim and Kim, 2024; Marcos and Coelho, 2022; Naqvi et al., 2021; Nguyen et al., 2020; Pereira et al., 2023; Sun and Pan, 2023; Uzir et al., 2025).

This has led to the following hypotheses:

H5. Satisfaction positively influences cancellation intention.

H6. Satisfaction mediates the relationship between service quality (a), brand identity attractiveness (b), rapport (c), state anxiety (d), and cancellation intention.

2.6. Stimulus-organism-response framework

To examine the pathways of influence between service quality, brand identity attractiveness, rapport and state anxiety, satisfaction and cancellation, the Stimulus-Organism-Response (SOR) framework (Mehrabian and Russell, 1974) was applied. The SOR framework has been widely applied to understand behaviour across a wide range of consumer contexts, such as mobile applications (Chopdar and Balakrishnan, 2020; Fang et al., 2017a), online brand communities (Carlson et al., 2021; Kamboj et al., 2018), supermarket loyalty (Godefroit-Winkel et al., 2021), social commerce loyalty (Molinillo et al., 2021; Tankovic and Benazic, 2018; Wu and Li, 2018), smart voice assistants (Hernandez-Ortega and Ferreira, 2021), restaurant loyalty (Chang, 2013; Lin et al., 2020), brand loyalty (Anisimova et al., 2019; Fang et al., 2017b; Mostafa and Kasamani, 2020; Rao and Ko, 2021), fast food (Akram et al., 2020; Quoquab et al., 2019), hotels (Jani and Han, 2015), retail (Gorji et al., 2021; Koo and Kim, 2013), retail banking (Izogo et al., 2017; Radia et al., 2022), festivals (Hsu et al., 2021) and fitness club attendance (Özgen et al., 2024). The SOR framework explicitly proposes the role of environmental factors (stimuli) in triggering a broader evaluation (organism) leading to a consumer behaviour

(response). The SOR causal pathway begins with the evaluation of external stimuli defined by whatever factors the customers are exposed to at the beginning of the consumption process. In fitness clubs, all members are initially exposed to service quality dimensions e.g. physical facility, cleanliness, brand assets e.g. logos, signage, and other people e.g. staff and other members. Aspects relating to service, brand, and interactions with other people, are all considered 'external' and contained to the environment. If the consumer changed fitness club, their ratings of these external stimuli would likely change. All members, regardless of exercise preferences or membership types, are exposed to these stimuli, making the fitness club an appropriate for this context. In this study, service quality, brand identity attractiveness, rapport, and state anxiety are considered external, contained to the fitness club environment and positioned as the stimuli. In line with other SOR studies, service quality is positioned as a stimulus predicting loyalty behaviour intentions (Kim et al., 2025; Molinillo et al., 2021). Similar to brand identity attractiveness, in other SOR studies brand authenticity has been positioned as a stimulus predicting satisfaction and loyalty (Shahzad et al., 2025). Anxiety has been positioned as a stimulus in other SOR models (Liu et al., 2023). Satisfaction is positioned in this paper as the organism (the broad psychological outcome of the stimuli evaluations) and cancellation intention is positioned as the response.

2.6.1. Cognitive and affective stimuli

Fitness club members are considered in this study to make satisfaction judgements based on an amalgamation of cognitive and affective inputs. Service quality and brand identity attractiveness are conceptualised as 'cognitive', as their evaluations are not likely to lead to an emotional response. Rapport and state anxiety are conceptualised as 'affective', as their evaluations inherently generate an emotional response. The affective factors of rapport and state anxiety are positioned in this study as influential stimuli alongside cognitive factors of service quality and brand identity attractiveness. Previous research delineates cognitive and affective stimuli within an SOR model by integrating affect-as-information theory (Fang, 2014). Affect-as-information theory posits that affective information acts as an input to decision making in the same way as cognitive information. In SOR literature, the organism acts as the 'storehouse' of emotion and cognitive systems (Jacoby, 2002), and affective inputs are treated as stimuli that lead to satisfaction and subsequent purchase intention (Nawres et al., 2024). Positioning cognitive and affective variables alongside each other is similar to other literature, which has examined not only functional benefits, but also psychosocial and hedonic benefits alongside each other to explain satisfaction, stickiness and word-of-mouth engagement (Pang and Zhang, 2024b).

2.6.2. Cancellation intentions vs. cancellation outcomes as the 'response'

Within the SOR framework, the 'response' relates to something that is externally detectable e.g. the retention or cancellation of a membership. Cancellation intention is treated as a proxy for cancellation behaviour, therefore treated as the 'response' in this study's SOR framework. Whilst other frameworks such as the Theory of Planned Behaviour (Ajzen, 1991) explicitly position intentional behaviour as a precursor to actual behaviour, the SOR framework would consider both intentions and actual behaviour as 'responses' to a generalised, internalised psychological state, which is why it was not appropriate to model both intention and actual behaviour in this SOR application. Instead, the response is represented by validated intention to cancel outcomes, capturing the variation on intention self-report whilst also adding in predictive validity to the intentions. Following up survey responses with customer relationship outcomes has been advocated (Bodet, 2008). Satisfaction has been positioned as the 'organism' as it represents an amalgamation of the psychological evaluations of the stimuli, which may not have translated into any kind of response at the point at which satisfaction is formed.

Fig. 1 shows the conceptual model.

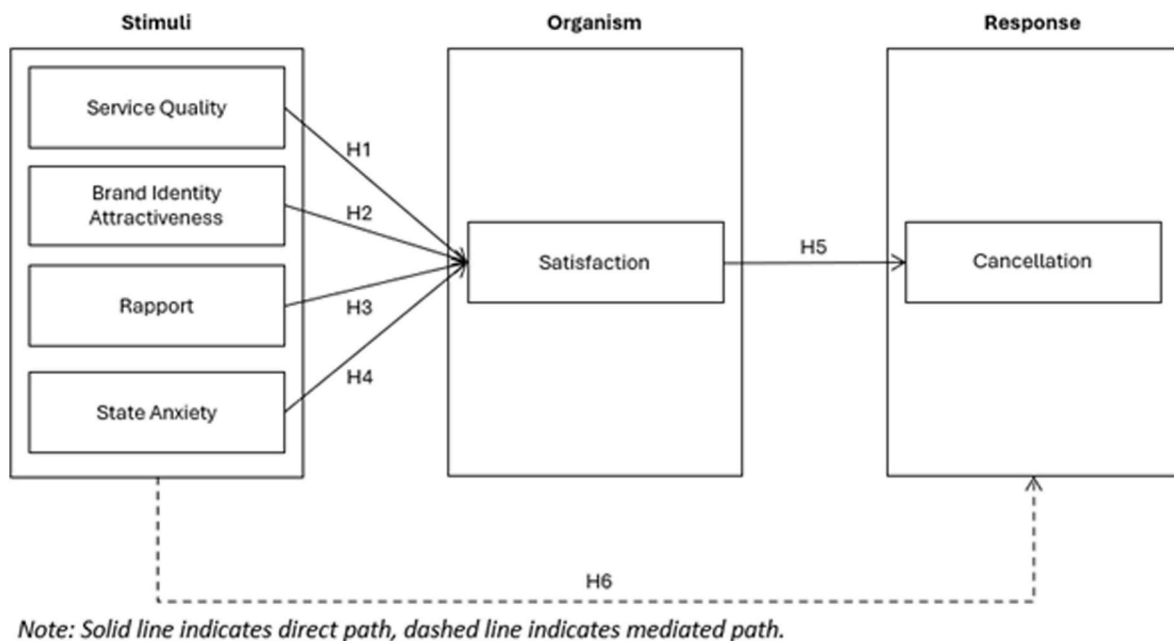


Fig. 1. Conceptual model.

3. Methodology

A quantitative questionnaire was distributed to fitness club members and followed up with cancellation outcomes (retained or cancelled/lapsed membership) from the service provider 12 months later.

3.1. Fitness club context

A large, UK-based fitness centre (10,000 members) provided access to members. The fitness club brand is considered premium, with over 10% market share in the UK. The club offers classes, workout space, swimming, coaching and family activities and childcare, attracting a diverse mix of members. Members can either opt to have a 12-month commitment contract or a rolling monthly contract. The subscription model requires all members to spend a similar amount of money per month, creating a consistent spend profile across the participants.

3.2. Participants and procedures

During the questionnaire data collection, members were approached in person and asked if they had been a member for at least three months, to ensure participants would have had sufficient exposure to the club environment. Members with at least three months of membership were asked to either complete an online questionnaire sent via email or, for research inclusivity, to complete a printed copy and return by post with a pre-paid envelope. To increase the representativeness of the sampling frame, members were approached across a three-week period at various times during the day to maximise participation from members with different usage patterns. Overall, a sample of 635 participants was achieved.

3.3. Participants sampled for analysis

3.3.1. Cancellation intentions validated by cancellation outcomes

Preliminary analysis, using binary logistic regression indicated that cancellation intention only accounted for 8% of the variation in cancellation outcome (Nagelkerke $R^2 = .75$). This is often a problem when predicting retention outcomes, usually due to customers having to cancel membership for reasons beyond their control. For instance, a member who had low intention to cancel, but subsequently cancelled

their membership is likely to have cancelled due to reasons beyond the control of fitness club, such as injury, moving house, changing job etc. Non-controllable factors reside outside of the fitness club environment and therefore not appropriate for the SOR framework. Cancellation outcomes for each participant were obtained 12 months after the questionnaire data collection. This allowed for any 12-month contractual commitments to have expired, resulting in cancellation intentions that reflected a genuine choice to either retain or cancel membership. Cancellation outcomes were integrated into the questionnaire dataset and cross-checked to see identify those with 'low' cancellation intentions who had retained membership, and those with 'high' cancellation intentions who had cancelled. Participants with validated intentions were included in the analysis. Those with 'low' cancellation intentions (between 1 and 3.99 out of 7) and who had retained membership, as well as those with 'high' cancellation intentions (4.01–7 out of 7) and who had cancelled/lapsed membership were retained in the sample. This meant that those who had given an inaccurate estimation of their retention outcome were excluded, resulting in a reduced sample of 554.

3.3.2. Active users

Only those participants who had previously attended the club at least twice in the month prior to completing the survey were considered 'active users' and included in the analysis. Low users were excluded due

Table 1
Sample demographics.

Gender	Age category	Frequency
Male (n = 253)	16–24	27
	25–34	72
	35–44	78
	45–54	45
	55–64	20
	65+	11
Female (n = 291)	16–24	13
	25–34	84
	35–44	99
	45–54	52
	55–64	35
	65+	8

to having insufficient exposure to the external stimuli. After excluding non-active users, the sample reduced from 554 to a final 544 (see Table 1).

3.4. Measures

Six variables (service quality, brand identity attractiveness, rapport, state anxiety, satisfaction and intention to cancel) were measured using scales adapted from previous literature to ensure validity and distinctiveness. Seven-point Likert scales (1–7, ‘strongly disagree’ to ‘strongly agree’) were used to measure all variables accurately and validly, apart from service quality, which was measured on a seven-point, ‘poor’ to ‘excellent’ scale, with a ‘not applicable’ option. This ensured that participants were not forced to rate dimensions of service quality that were irrelevant to them e.g. childcare, resulting in a valid overall service quality rating. A pilot study was conducted with a small sample of fitness club members ($n = 12$) to assess item validity, face validity and questionnaire usability to finalise the measures. Items were intermixed to avoid common method bias.

3.4.1. Reliability

Internal consistency was used to estimate the reliability of the scales, represented by Cronbach’s alpha (α) co-efficient, which assesses the strength of correlation between the items measuring the same variable. Cronbach alpha analyses were conducted at whichever dimensional level it was appropriate to expect that the items would have internal consistency (Polites et al., 2012). For instance, brand identity attractiveness, satisfaction and intention to cancel are unidimensional variables, each assessed by a Cronbach alpha analysis. However, for service quality, a multi-dimensional variable, Cronbach alpha analyses were conducted for each sub-dimension e.g. ‘workout facility’, rather than across all service quality items. Similarly, rapport and state anxiety had sub-dimensions of perceptions relating to staff and perceptions relating to other members, requiring a Cronbach alpha analysis for each sub-dimension.

An alpha threshold of greater than .6 is deemed acceptable. In this study, most were above .70. After establishing reliability, aggregated variables were computed to produce a single score representing each of the six variables (service quality, brand identity attractiveness, rapport, state anxiety, satisfaction and intention to cancel).

Table 2 details the origins of each scale used, example items, the internal consistency co-efficients and descriptive statistics (Mean and SD).

4. Findings

4.1. Preliminary analyses

Harman’s single-factor test was used to assess the risk of Common Method Bias (CMB); the risk that participant responses have been influenced by the questionnaire design rather than the questions per se. All measurement items were entered into a dimension reduction. Using principal axis factoring, one-factor extraction extracted only 32.6% of the variance, which, being less than 50%, suggests that there was no significant risk of common method bias (Fuller et al., 2016). Due to concerns that Harman’s single-factor test lacks rigor and may not detect all sources of bias (Podsakoff et al., 2003), marker-variable analysis was used to assess risk of CMB (Lindell and Whitney, 2001). A marker variable, a variable that is theoretically unrelated to the dependent variable and measured in the same method, was entered into a correlation with the main study variables to estimate the amount of Common Method Variance (CMV). ‘Integrated regulation’ (Deci and Ryan, 2000), was the marker variable measured using four items (Wilson et al., 2004), with good internal consistency ($\alpha = .77$). Integrated regulation had a weak correlation with satisfaction. Partialling out integrated regulation resulted in only minor reductions in the zero-order correlations. This

Table 2

Measures and descriptive statistics.

Dimension	Sub-dimension	No. of items	Example item	α	Mean	SD
Service Quality Assessment Scale (SQAS), adapted from (Lam et al., 2005)	Staff	8	Staff knowledge/skills	.89		
	Classes	5	Variety of classes	.84		
	Physical facility	9	Convenience of location	.80		
	Changing room	3	Overall maintenance	.71		
	Workout facility	6	Pleasantness of gym environment	.83		
	Childcare	3	Quality of childcare staff	.91		
	Pool/spa	3	Cleanliness of pool/spa	.69		
	Bar/café	2	Adequacy of bar/café	.77		
	Overall			n/a	5.67	.71
				.74	4.89	1.22
Brand identity attractiveness, adapted from (Bhattacharya and Sen, 2003)	n/a	2	For a fitness club, my club has an attractive identity			
	Staff	4	There are staff at the club that I get on well with	.91		
	Members	4	There are other members at the club that I get on well with	.90		
Rapport, adapted from (Gremler and Gwinner, 2000)	Staff	4	There are staff at the club that I get on well with	.91		
	Members	4	There are other members at the club that I get on well with	.90		
	Overall			n/a	3.68	1.45
State anxiety, adapted from (Martin and Fox, 2001)	Staff	3	I worry about how incapable I look in front of the staff	.81		
	Members	3	I worry about how incapable I look in front of other members	.82		
	Overall			n/a	2.10	1.20
Satisfaction, adapted from (Bodet, 2006)	n/a	4	I am satisfied to have joined this club	.80	5.77	.89
	Cancellation intention, based on (Azjen, 2006)	3	I intend to cancel my membership as soon as my contract allows	.77	1.50	.95

means that the correlations between the main study variables could not be meaningfully accounted for by CMV, indicating little risk of CMB. Scatterplots of residuals and the predicted values showed that the assumptions of homoscedasticity and linearity were met.

4.2. Analytical method

All of the hypotheses were tested using bootstrapping re-samples (5000) via the PROCESS macro, model 4 (Hayes, 2017; Hayes et al., 2017) to enable indirect effects to be calculated so that mediation could be assessed. Bootstrapping allows for re-sampling and has a higher study power compared to other methods of mediation analysis e.g. the Sobel test (Abu-Bader and Jones, 2021). The direct effects of service quality (SQL), brand identity attractiveness (BIA), rapport (RAP), and state

anxiety (ANX) on satisfaction (SAT) were assessed, followed by the direct effects of satisfaction on cancellation intentions (CAN). Mediation was examined by assessing the indirect effects of service quality, brand identity attractiveness, rapport and state anxiety on cancellation intention through satisfaction.

4.3. Direct effects of service quality, brand identity attractiveness, rapport, and state anxiety on satisfaction

The model predicting satisfaction produced $R^2 = .45$, $F(4, 532) = 108.16$, $p < 0.001$, indicating that service quality, brand identity attractiveness, rapport, and state anxiety together account for 45% of the variance in satisfaction. The results indicated that the effect of service quality ($\beta = .42$, $t = 9.26$, $p < 0.001$), brand identity attractiveness ($\beta = .25$, $t = 8.84$, $p < 0.001$), rapport ($\beta = .11$, $t = 5.14$, $p < 0.001$) and state anxiety ($\beta = -.05$, $t = -2.15$, $p < 0.001$) on satisfaction were significant. Zero did not fall between the lower (LLCI) and upper (ULCI) confidence intervals. Increases in service quality, brand identity attractiveness and rapport led to increases in satisfaction, supporting H1, H2, and H3. Conversely, an increase in state anxiety led to a decrease in satisfaction, supporting H4 (see Table 3).

4.4. Direct effects of satisfaction on cancellation intention

The model predicting cancellation intention produced $R^2 = .21$, $F(5, 531) = 28.06$, $p < 0.001$, indicating that satisfaction accounts for 21% variation in cancellation intention. For all significant results, zero did not fall between the lower (LLCI) and upper (ULCI) confidence intervals. The results indicate that satisfaction ($\beta = -.49$, $t = -8.84$, $p < 0.001$) explains cancellation intention, supporting H5. Interestingly, state anxiety also directly predicted cancellation intention ($\beta = .09$, $t = .23$, $p < 0.01$). For every unit increase in state anxiety, there was almost a .10 unit increase in cancellation intention. Full results are shown in Table 3. Please see Fig. 2 for the statistical model of direct effects.

4.5. Indirect effects of service quality, brand identity attractiveness, rapport, and state anxiety on cancellation intention, through satisfaction

Further examination of the indirect effects indicated that all predictors indirectly affect cancellation intention via satisfaction as a mediator (see Table 4). Zero, representing the null hypothesis, did not fall between the lower (LLCI) and upper (ULCI) confidence intervals meaning that the null hypothesis can be rejected. Satisfaction mediates the impact of service quality, brand identity attractiveness, rapport and state anxiety on cancellation intention, supporting H6 (a, b, and c). Due to the aforementioned finding of the direct impact of state anxiety on cancellation intention, H6d is only partially supported. The results of hypothesis testing are shown in Table 5.

Table 3
Direct effects on satisfaction and cancellation intention.

Direct effects on satisfaction					
Path	Coefficient (β)	SE	T	BootLLCI	BootULCI
SQL > SAT	.42***	.04	9.26	.33	.51
BIA > SAT	.25***	.03	8.84	.19	.30
RAP > SAT	.11***	.02	5.14	.07	.16
ANX > SAT	-.05*	.02	-2.15	-.10	-.01
Direct effects on cancellation intention					
Path	Coefficient (β)	SE	T	BootLLCI	BootULCI
SAT > CAN	-.49***	.06	-8.84	-.60	-.38
SQL > CAN	.02	.06	-.38	-.10	.15
BIA > CAN	.01	.04	.23	-.07	.08
RAP > CAN	.02	.03	.75	-.04	.08
ANX > CAN	.09**	.04	.23	.03	.15

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Based on bootstrapping with 5000 samples.

4.6. Interaction effects

The effects of interactions between the predictors on satisfaction were examined using Model 1 of the PROCESS macro. There were significant but small, negative interactions between service quality and both brand identity attractiveness and rapport. However, the R^2 change in both cases was less than 1% so not meaningfully significant.

5. Discussion

5.1. Summary of findings

This study examined the efficacy of service quality, brand identity attractiveness, rapport and state anxiety in explaining satisfaction and consequently, cancellation. Overall, a model was validated that explained nearly 50% of the variation in satisfaction and more than a 20% of the variation in cancellation intention. Nine hypotheses were tested and the findings mostly supported these.

Firstly, the findings demonstrate that service quality had the most efficacy in explaining satisfaction, followed by brand identity attractiveness, rapport and state anxiety, all of which made significant contributions to explaining satisfaction. These findings support other studies that have asserted the role of service quality (Barbosa et al., 2022; Tedja et al., 2024; Xu et al., 2021) and brand (Popp and Wortschek, 2017) in explaining satisfaction and cancellation in the fitness industry. The findings also support previous literature that posits the importance of rapport (Guenzi and Pelloni, 2004), anxiety (Gelbrich and Sattler, 2014) and social comfort (Lee and Yi, 2022) to broader customer evaluations. Further research has been called for to investigate how rapport can be understood as part of an over-arching theory (Good et al., 2023), which this study addresses. Customers of any service rely on various aspects of the service environment to afford ways in which their goals can be achieved. If goals are achieved, membership benefits will be perceived highly, and perceived benefits have been found to influence continuation intention in other studies (Pang and Ruan, 2024). Similarly, the evaluation of external attributes can enhance perceived value, and subsequent engagement (Chen et al., 2025). Different service environments offer different affordances to the consumers, and whether the customer is satisfied is dependent on the match between affordances and the nature of the service (Wang et al., 2025). Fitness clubs attract customers with goals that are functional but require a positive affective and social environment to enable the goals to be met. All aspects of the service environment can influence satisfaction (Wang et al., 2025), and in fitness clubs the customer will be impacted by physical (e.g. service, brand), affective (anxiety) and social (e.g. rapport) affordances.

Secondly, satisfaction mediates the impact of service quality, brand identity attractiveness, rapport and state anxiety on cancellation intention. These findings corroborate the role of satisfaction, which has previously been found to predict retention (Barbosa et al., 2022; Dias et al., 2019; El-Adly, 2019; Utami et al., 2023), and to mediate the influence of a range of predictors on loyalty (Barakat Ali, 2022; Dias et al., 2019; El-Adly, 2019; Huang and Kim, 2023; Kim and Kim, 2024; Marcos and Coelho, 2022; Nguyen et al., 2020; Sun and Pan, 2023).

Thirdly, the findings demonstrate that state anxiety directly impacts on cancellation intention, supporting other studies whereby anxiety has been found to impact on consumer responses (Gelbrich and Sattler, 2014; Lee and Yi, 2022; Liu, 2012; Meuter et al., 2003).

5.2. Theoretical implications

This study has several implications for theories and research on membership retention. Firstly, the study adds to the body of literature on the SOR framework, validating this in a novel context. Secondly this study determines the efficacy of psychological evaluations in translating into fitness club retention outcomes. Furthermore, this study demonstrates the importance of cognitive and affective factors, in explaining



Fig. 2. Statistical model of direct effects.

Table 4

Indirect effects on cancellation intention.

Path	Indirect effect	BootLLCI	BootULCI
SQL > SAT > CAN	-.21	-.31	-.12
BIA > SAT > CAN	-.12	-.18	-.08
RAP > SAT > CAN	-.06	-.09	-.03
ANX > SAT > CAN	.03	.00	.06

Table 5

Results of hypothesis testing.

Path	Outcome
H1	Supported
H2	Supported
H3	Supported
H4	Supported
H5	Supported
H6a	Supported
H6b	Supported
H6c	Supported
H6d	Partially supported

satisfaction and, consequently retention. Specifically, service quality and brand identity attractiveness evaluations represent the cognitive factors that are evaluated, suggesting that the quality and identity of the club are critical to retention. In addition, rapport and anxiety have been validated as predictors of cancellation in a fitness industry context, implying that social comfort and connections with others can translate into consumer outcomes. Broadly, the findings imply that when considering the external stimuli, affective factors should be given equal consideration. There were no interactions between the stimuli, suggesting that both cognitive and affective factors operate in parallel and independently of one another. This suggests that fitness club members do not allow a score on one factor to influence a score on another and that the resulting satisfaction evaluations are an aggregate of independent evaluations. Thirdly, this study elevates the importance of state anxiety, which was not only mediated by satisfaction, but was also found to act directly on retention. Whilst the SOR framework has generally been supported in this study, the partial support for the mediation of state anxiety's influence over retention through satisfaction suggests that social comfort not only impacts satisfaction, but also retention intention simultaneously. This partially mediated influence between the stimulus and response, suggests that stimuli can in some instances overlap with the response, and that the SOR framework does not have to be fully sequential and that there can be interplay between the stimuli

and response (Jacoby, 2002). For instance, perhaps processing evaluations of state anxiety does not have to stop for satisfaction to form. It could be argued that affective factors such as state anxiety, are more sensitive to 'tipping points' e.g. a difficult conversation with someone, receiving unsolicited feedback on performance, which are less likely to be rationalised along with other factors, leading to decision-making about future intentions. Overall, the perceived deficiencies in affective factors are likely to be taken personally and have a more profound, less recoverable effect on the consumer.

Conversely, cognitive factors such as service quality and brand identity attractiveness if evaluated negatively do not create the same emotional response. Instead, these evaluations simply manifest within a broader satisfaction rating.

The validation of affective factors, rapport and state anxiety, in predicting cancellation intention shows that comfort and connection with employees and other customers are important in the formation of satisfaction and subsequently retention.

The contribution of this paper is also the advocacy of using consumer behaviours to validate intentions. This enables the variation in response to be maintained from the rating scale whilst also ensuring that the scaled response provides an accurate preview of a binary outcome. This bridges the gap between continuous and dichotomous measurements. Focusing only on intentions risks including participants with unstable intentions. Focusing only on binary outcomes e.g. cancellation, risks including those in the sample who cancelled due to factors that were beyond the control of the fitness club.

Further, this study is based on a model that explains predictively valid intentions, by integrating self-report cancellation intentions with cancellation outcomes. This study makes a conceptual and methodological contribution to the literature.

5.3. Practical implications

The findings from this study suggest practical implications for improving retention rates. Broadly, this study suggests the value of measuring all aspects of the external environment, cognitive and affective rather than solely relying on satisfaction measurements. This study also shows that a questionnaire conducted cross-sectionally, which can be relatively easily administered by managers, can yield useful insights and suggests areas of improvement, with confidence that by making such improvements there will likely be an improvement to satisfaction and retention. Specifically, the study shows that service quality has the highest impact on satisfaction, meaning that the Service Quality Assessment Scale (Lam et al., 2005) can be adapted and used by managers to measure service quality with the assurance that responses will be meaningful and relevant when trying to improve satisfaction.

Sub-dimension ratings of service quality can be used to prioritize specific improvements. Fitness club managers must also ensure that the branding is clear and attractive to members, ensuring that brand messaging is clear and consistent across all assets. It is imperative that managers pay as much attention to the social environment as they pay to quality and branding. Ratings of rapport have implications for staff selection and training to ensure that staff are well-versed in what behavioural techniques build rapport e.g. employee affective delivery (Lin and Lin, 2017). Given that the rapport between members is also important, this study implies that fitness clubs need to invest in social events and buddy schemes to help members connect with one another. Due to the indirect and direct impact that state anxiety has on retention, managers should ensure the clarity of instructions to help members use equipment easily to avoid feelings of incapability in the eyes of other members. Fitness club staff should also be encouraged to proactively offer check-backs to members to ensure that they are comfortable and confident whilst working out. Managers are encouraged to consider using digital technology, such as AI-powered chatbots to help bring empathy into the servicescape (Jiang et al., 2022), or to help members plan their workouts before visiting the club or alleviate frustrations and raise concerns post-workout.

5.4. Limitations and future directions

Whilst cancellation behaviour was used to validate cancellation intentions, this paper was primarily based on self-report measures of the variables. Further, whilst this paper was based on a large, sample, the members were from one fitness club brand. Future research may wish to re-validate the findings on fitness clubs that are different types, from different brands, smaller in size or operate using a different business model e.g. pay-as-you-go, as opposed to subscription-based membership. There may also have been moderating factors that were not tested but could have impacted the model e.g. trait anxiety, length of membership.

Due to finding that state anxiety influences cancellation both directly and indirectly via satisfaction, future directions for research could be to investigate the triggers in the servicescape of state anxiety and closely track how anxiety changes in different environments by using biometric measures of anxiety when members enter and use the fitness centre. Similarly, other affective variables such as mood could be useful to research in relation to fitness club membership retention. Moods have been found to impact on switching behaviour (Pang et al., 2025). Further research might research the impact of mood on arrival on state anxiety, given other studies that have found mood to impact on perceptions of social overload (Pang, 2024). Other variables relating to the social environment could be researched in future. Social identification might be useful to explore in fitness clubs, especially as identification and belongingness is found to mediate the service quality influences on attachment in other contexts (Pang and Zhang, 2024a).

6. Conclusion

This study assesses the efficacy of cognitive and affective factors in predicting satisfaction, and subsequently cancellation intention through a mediated, SOR framework. All hypotheses were supported, with one partially supported, suggesting that both cognitive and affective factors (stimuli), mediated by satisfaction (organism) impact cancellation intention (response). State anxiety, as one of the affective factors, had direct impact on cancellation rendering state anxiety a partially mediated predictor of cancellation intention.

CRediT authorship contribution statement

Helen Watts: Writing – original draft, Software, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. **Jan Francis-Smythe:** Writing – review & editing, Supervision,

Conceptualization. **Robin Bell:** Writing – review & editing.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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