

Increasing the willingness to stay – a novel and comprehensive member satisfaction index (MSI) model tested in a leading German tennis club

Member
satisfaction
index model

Kathrin Kölbl

*Department of Marketing Management,
Duale Hochschule Baden-Württemberg Mannheim, Mannheim, Germany and
Institute for Sports Medicine, Alpine Medicine and Health Tourism (ISAG),
UMIT TIROL - Private University for Health Sciences and Health Technology,
Hall, Austria*

Cornelia Blank and Wolfgang Schobersberger

*Institute for Sports Medicine, Alpine Medicine and Health Tourism (ISAG),
UMIT TIROL - Private University for Health Sciences and Health Technology,
Hall, Austria, and*

Mike Peters

*Department of Strategic Management, Marketing and Tourism,
University of Innsbruck, Innsbruck, Austria*

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Abstract

Purpose – This study aims to address customer focus as an important component of total quality management (TQM) and explore the key drivers of member satisfaction in tennis clubs via a novel theory-based member satisfaction index (MSI) model with high explanatory and predictive power. Furthermore, the study aims to investigate the relationship between satisfaction and behavioral intentions (willingness to stay; WTS) with consideration of the mediating effect of identification with the club.

Design/methodology/approach – This study uses variance-based partial least squares structural equation modeling (PLS-SEM) to estimate the MSI model, which was tested in a leading tennis club in Germany ($n = 185$).

Findings – The results reveal that club atmosphere, club facilities and the price/quality ratio of the membership fee are the most important drivers of member satisfaction in tennis clubs. Member satisfaction has a large influence on the WTS of tennis club members. Identification with the club, when included as a mediator in the model, increases the variance explained in WTS considerably.

Research limitations/implications – The small sample limits the generalizability of findings, and further research is recommended.

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Practical implications – The MSI model is a useful benchmark tool for club managers who want to quantify the satisfaction and WTS of their club members. In addition, because of the integrated formative measurement models, the PLS-SEM results show which indicators can be used to positively impact satisfaction with each of the service quality dimensions, overall member satisfaction and WTS. The most important of these results are discussed in an importance-performance map analysis.

Originality/value – The MSI model is a multi-attribute index model through which members' evaluations of various dimensions of service and value are derived through multivariable linear function with each dimension weighted according to its importance in one holistic model. The model shows the strong impact of satisfaction on WTS of sports club members and reveals that findings of previous research on the relationship between fan and spectator identification and loyalty are transferable to sports club members. The MSI represents a new contribution to the literature; it was applied here to tennis clubs but is also suitable for application to other sports clubs.

Keywords Service quality, Value, Satisfaction, Loyalty, PLS-SEM, IPMA

Paper type Research paper

Introduction

By offering facilities for physical activities, sports clubs significantly contribute to the health and well-being of the population ([World Health Organization, 2018](#)). Furthermore, leading sports clubs have a major macro-economic impact as large sports facilities employ administrative personnel and trainers and provide services for multiple stakeholders. These clubs also host and organize tournaments and association league competitions ([European Commission, 2007](#)).

Germany is among the countries in the EU for which sports clubs play a major role in promoting physical activities ([European Commission, 2017](#)). As of January 1, 2021, there were 87,600 sports clubs with a total of 23,377,888 members in Germany ([Deutscher Olympischer Sportbund, 2021](#)). After football and gymnastics, tennis is the third-largest sports association in terms of membership ([Deutscher Olympischer Sportbund, 2021](#)), and one of the 10 most popular sports in Germany ([VuMA, 2022](#)). The 8,794 tennis clubs in Germany have 1,382,824 members ([Deutscher Tennisbund, 2021](#)).

In general, sports clubs are increasingly struggling to retain their members. Recruiting and retaining members was the most frequently cited problem in a survey of sports club managers ([Breuer and Feiler, 2019](#)). Club marketing, service orientation and, especially, customer (or more specifically member) satisfaction are being increasingly discussed in the sports club context ([Schijns et al., 2016](#); [Kim and Ling, 2017](#)), as satisfaction has a major influence on member retention ([Avourdiadou and Theodorakis, 2014](#); [MacIntosh and Law, 2015](#); [Loranca-Valle et al., 2021](#)) and economic success ([Frennea et al., 2014](#); [Gupta and Zeithaml, 2006](#)). Hence, it is imperative for sports clubs to learn more about the factors that influence member satisfaction and increase loyalty among existing club members, i.e. their willingness to stay (WTS).

Previous literature has indicated that service quality might play a decisive role in member satisfaction in various kinds of sports centers and clubs ([Alexandris et al., 2004](#); [Bodet, 2006](#); [Lee et al., 2011](#); [Polyakova and Ramchandani, 2020](#)). Overall satisfaction research is important for this research domain especially as this study concurs with the view that leading sports clubs require a management approach comparable to that of business enterprises. The implementation of total quality management (TQM) comprises creating value, continuous improvement of quality and accurate measurement of performance ([Homburg, 2020](#)). All these efforts are aimed at increasing customer satisfaction, which, because of its link to customer loyalty, is also a crucial factor for sports clubs to survive in increasingly competitive markets.

The overall goal of this study is to offer sports club, and more specific tennis club managers, valuable insights into ways to improve member satisfaction (through enhanced club offerings) and WTS. In detail, the current study aims to contribute to the literature by

investigating service quality, value, satisfaction and WTS by application of PLS-SEM in one comprehensive model: the member satisfaction index (MSI) model. Thereby, the study offers six major contributions. We firstly reveal indicators of aspects of service quality in tennis clubs and show how they contribute to satisfaction with each of the service quality dimensions. Second, we show the performance and the total effects of each of the significant indicators on member satisfaction and discuss these findings in an importance-performance map analysis (IPMA). Third, using the MSI model, we outline an approach to measuring member satisfaction in tennis clubs including the provision of performance values based on antecedents of service quality and value, conceptualized in terms of their influenceability by club management. Forth, since, as member retention is one of the main issues of sports clubs (Breuer and Feiler, 2019), we substantiate evidence of the strong influence of membership satisfaction on WTS. Fifth, we extend our model by including the mediating effect of identification with the club on the relationship between member satisfaction and WTS to identify further positive management opportunities for WTS. In this way, we show that the findings of previous research on the relationship between fan and spectator identification and increasing loyalty are transferable to sports club members. Finally, we demonstrate that PLS-SEM is suitable for estimating and testing higher-order constructs in complex relationships and deriving detailed and valuable insights.

To achieve the abovementioned aims, the subsequent chapter introduces the theoretical foundations of service quality and value, member satisfaction, WTS and identification with the club and discusses hypothesis development. The dataset and construct measurements are then described. Thereafter, we present the results and discuss the main findings and their managerial implications. The conclusion includes limitations of the MSI model and potential avenues for further research.

Theoretical foundations and hypothesis development

Service quality and satisfaction

Grönroos (1982) conceptualized perceived service quality as an “outcome of an evaluation process, where the consumer compares his expectations with the service he perceives he has received” (p. 37). Thus, perceived service is compared against expected service, where service perceptions are based on a set of indicators of quality dimensions (Wilson *et al.*, 2021). Furthermore, in the SERVQUAL model of Parasuraman *et al.* (1985), consumers “typically rely on experience properties when evaluating service quality” (p. 48).

While Grönroos (1984) used the two categorical dimensions of technical quality and functional quality in his model, Parasuraman *et al.* (1985, 1988) proposed more “descriptive terms” (Brady and Cronin, 2001, p. 44), namely, tangibles, assurances, empathy, responsiveness and reliability. However, a number of studies have failed to support the five-factor structure (e.g. Brady and Cronin, 2001). Therefore, Brady and Cronin (2001) developed interaction quality and physical environment quality as process dimensions influencing service quality during service delivery, as well as outcome quality (which influences service quality as an outcome dimension after service delivery) (Howat and Assaker, 2013). Regarding outcome quality, Alexandris *et al.* (2004) reported that ensuring health club clients perceive the physical and mental benefits of exercise participation is a “difficult task” (p. 46) with success in the public sports centers study by Polyakova and Ramchandani (2020). As our study focuses on aspects of service in tennis clubs that are influenced by club management, outcome quality is not included in the model. Additionally, according to Brady and Cronin (2001), process dimensions have a larger influence on the overall satisfaction of consumers in competitive environments compared to outcome dimensions.

In the sport context, service quality research is mainly based on process dimensions (Howat and Assaker, 2013; Schijns *et al.*, 2016; Howat *et al.*, 1995). Therefore, with some

adjustments, we follow the framework of [Howat and Assaker \(2013\)](#) by conceptualizing service quality based on process dimensions, namely, general facilities and core services (outdoor tennis courts). Furthermore, club restaurant, club office and club magazine is included as secondary services, which also include evaluations of staff quality. The main difference with our model is the inclusion of club atmosphere as an “aesthetic quality” ([Biscaia et al., 2021](#), p. 1) dimension, which provides a framework for interaction between the club and its members. Club atmosphere reflects the emotional bond among members, but it is also within the sphere of influence of the club management; for this reason, it qualifies for the MSI model as a management tool. The club’s heritage and tradition appear to be an integral element of it ([Abosag et al., 2012](#)).

Perceptions of the quality of the above-mentioned service dimensions are based on the various attributes considered in the evaluation process of club members ([Ahrholdt et al., 2019](#)). By specifying the multiple indicators of each service quality dimension, we also follow this attribute-level approach to investigate members’ perceptions of the quality of antecedents of overall satisfaction ([Zeithaml, 1988](#)). As stated in a previous study, “This is mainly because customers have the potential to be highly satisfied by an attribute, while they can be completely dissatisfied by other(s) at the same time” ([Albayrak and Caber, 2015](#), p. 43).

[Loranca-Valle et al. \(2021\)](#) illustrate the often confusing conceptual overlap between service quality and satisfaction. Accordingly, satisfaction does not only relate to a transaction-specific purchase or use experience but develops cumulatively as a result of an assessment of all previous consumption. This form of an inner attitude also includes an emotional component ([Bolton and Christopher, 2014](#)) which is relevant to this study because we also included club atmosphere as an antecedent of member satisfaction in the MSI model.

Although there has been some controversy, the literature tends to support satisfaction as an important aspect of service quality (e.g. [Cronin and Taylor, 1992](#)). This has also been confirmed in the sport management literature on health clubs ([Alexandris et al., 2004](#)), as well as for an Australian sports center ([Murray and Howat, 2002](#)) and fitness centers in Greece ([Theodorakis et al., 2014](#)) and spectator sport ([Biscaia et al., 2021](#)). Furthermore, [Bodet \(2006\)](#) emphasized the importance of aspects of service quality to customer satisfaction in sport services. They observed a direct positive relationship between perceived service quality and satisfaction in various sport contexts; based on this, we propose the following hypothesis:

- H1a-f.* There is a direct and positive relationship between the perceived quality of various service dimensions (a-f.) and the overall satisfaction of tennis club members.

Value and satisfaction

As a failure to explore perceptions of pricing seems to be a limitation of service quality-satisfaction models in the sports context (e.g. [Murray and Howat, 2002](#)), we extended our model to include the perceived value of services. [Zeithaml \(1988\)](#) conceptualized perceived value as the “consumer’s overall assessment of the utility of a product, based on perceptions of what is received and what is given” (p. 14). [Bolton and Drew \(1991\)](#), similar to [McDougall and Levesque \(2000\)](#), concretized the concept in the form of a benefit-cost ratio, while [Ruyter et al. \(1997\)](#) described “a value-for-money approach” (p. 232). [McDougall and Levesque \(2000\)](#) suggested that value encapsulates various aspects of the service and that customers who perceive that they have received value for money are more satisfied than customers who do not have this impression ([Zeithaml, 1988](#)). [Dorai and Varshney \(2012\)](#) posited a conceptual connection between value and satisfaction, as both are derived via an evaluation process; additionally, they state that “value is a super ordinate concept subsuming quality and value becomes an input for satisfaction” (p. 405). In the sports management literature, the value was conceptualized similarly by [Murray and Howat \(2002\)](#); they considered value to be an

independent and important antecedent of satisfaction, next to service quality. [Tian et al. \(2021\)](#) focused on overall assessment in their conceptualization of perceived value to investigate the relationship with sports consumption as spectators at the Wuhan Tennis Open, while [García-Fernández et al. \(2020b\)](#), p. 213) proposed a “services deserve what they cost” conceptualization measuring perceived value in CrossFit centers.

Value as a predictor of member satisfaction confirmed for different kinds of sports clubs, e.g. by [Murray and Howat \(2002\)](#), for an Australian sports and leisure center, by [Theodorakis et al. \(2014\)](#) for sport and fitness centers in Greece, by [García-Fernández et al. \(2018\)](#) for low-cost fitness centers, by [Kim and Zhang \(2019\)](#) for martial arts programs and by [García-Fernández et al. \(2020b\)](#) for CrossFit centers. Therefore, we postulate the following hypothesis:

- H2.* There is a direct and positive relationship between perceived value and the satisfaction of tennis club members.

Member satisfaction index (MSI) and willingness to stay (WTS)

Member satisfaction in sports clubs is analogous to customer satisfaction which is due to its major influence on economic success ([Frennea et al., 2014](#)) a key target for many business enterprises ([Homburg and Bruhn, 2017](#)). As a consequence, customer satisfaction is also discussed in the sport management literature, and researchers have focused on the determinants thereof in different sport settings, and on its relationships with other constructs (especially loyalty [e.g. [Moura e Sá and Cunha, 2019](#)]). As suggested by [Bodet \(2006\)](#) and [Biscaia et al. \(2021\)](#) satisfaction could be represented and assessed by service quality dimensions. Taking into account that sports club members accrue considerably more service experience over time than that provided by a single transaction, we propose the concept of overall or “cumulative satisfaction” (p. 31), based on all previous interactions with the club ([Bodet, 2012](#)). Therefore, similar to [Sarstedt et al.’s \(2014\)](#) fan satisfaction model and [Rosenbusch et al.’s \(2018\)](#) patient satisfaction model, we constructed the MSI as a multi-attribute model in which members’ evaluations of service dimensions are derived through a multivariable linear function, with each dimension being weighted according to its importance ([Sarstedt et al., 2014](#)). The index is based on a formative measurement model ([Diamantopoulos and Winklhofer, 2001](#)) and allows measurement of the level of satisfaction in a number of dimensions, and quantification of the impact on the satisfaction of the various service quality indicators ([Hair et al., 2022](#)).

[Aksoy et al. \(2014\)](#) conceptualize loyalty as “the combination of commitment to the relationship with behaviors designed to maintain the relationship” (p. 38). Loyalty can be more precisely defined in terms of purchase behavior: Loyal customers continue to buy the same product or service over a given period of time ([Gupta and Zeithaml, 2006](#)). For continuously provided services, such as telecommunications and financial services, loyalty is reflected in customer retention ([Bolton, 1998](#)). In the sport management literature, loyalty is often conceptualized in terms of behavioral intentions ([Howat and Assaker, 2013](#); [Murray and Howat, 2002](#); [Schijns et al., 2016](#)) and less often in terms of attitudinal loyalty (commitment) ([Alexandris et al., 2004](#); [Bodet, 2008](#); [Schijns et al., 2016](#)). Behavioral intention includes recommending a club to others ([Alexandris et al., 2004](#); [Murray and Howat, 2002](#)), willingness to renew one’s membership ([García-Fernández et al., 2018](#)) and, as a reverse-scored item, the intention to unsubscribe ([Schlesinger and Nagel, 2013](#)). As these are the three most relevant loyalty-related factors to member retention for sports clubs, we combined them to derive a sports club-specific loyalty construct, i.e. WTS.

[Howat et al. \(1999\)](#) revealed a strong relationship between clients’ satisfaction and their willingness to recommend an Australian sports and leisure center and identified the following predictors of customer retention: the level of customer repurchase (such as

willingness to renew a membership having been unsubscribed), and how willing customers recommend the service to other prospective customers. Murray and Howat (2002) additionally highlighted that satisfaction seems to be a major predictor of the future intentions of clients, especially future purchases. Studies of different sport organizations have provided evidence that satisfaction has a direct and positive effect on behavioral intentions, especially word-of-mouth recommendations (Theodorakis *et al.*, 2014), retention (Schijns *et al.*, 2016) and future intentions (García-Fernández *et al.*, 2018; Yildiz *et al.*, 2018). Based on these findings, we hypothesize the following:

- H3. There is a direct and positive relationship between satisfaction and WTS among tennis club members.

Identification with the club and mediating effect

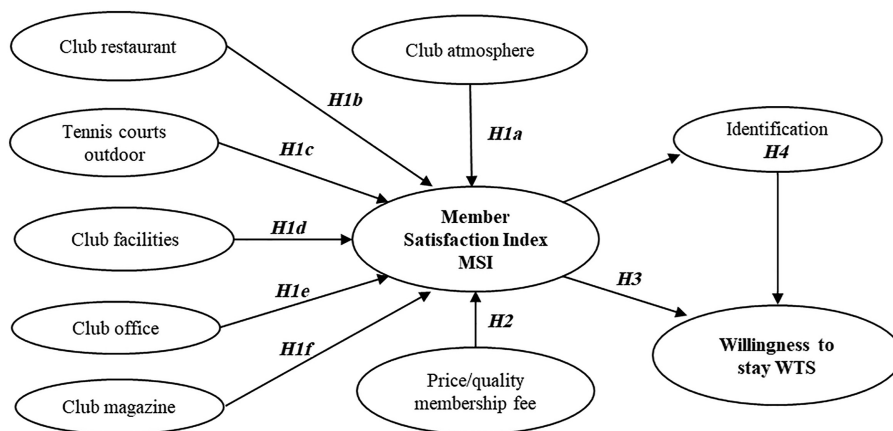
Social identity theory, which was established by Tajfel (1978) and Tajfel and Turner (1979), posits that an individual defines his or her own identity with reference to the social groups with which he or she is affiliated. Furthermore, this process of group identification also leads to differentiation from other groups (Turner *et al.*, 1987). Following Turner's (1982) definition of a group "as two or more individuals who share a common social identification of themselves or, which is nearly the same thing, perceive themselves to be members of the same social category" (p. 15), we assume that members of a tennis club form a group, in line with Lock *et al.* (2009) and Inoue *et al.* (2022). We included identification in the MSI model as first Bhattacharya and Sen (2003) revealed in their consumer-company identification framework that customer retention is a "key consequence" (p. 83) of identification with the company as the consumer identifies with the company rather than its products. Second with reference to sports clubs Bodet and Bernache-Assollant (2011) recommend team identification to sport managers as "a powerful trigger for positive organizational outcomes" (p. 795) as they found team identification to play a mediating role between satisfaction and loyalty. Identification appears to be strongly linked to the prestige of an organization and to characteristics that positively differentiate one organization from others (Blader and Tyler, 2009). Therefore, sports club managers have the chance to influence identification positively, e.g. by communicating prestige-related information to the club members (Delia and James, 2018).

In sports management research, Wann and Branscombe (1993) developed a model to measure sports fans' degree of identification with their team. Lock *et al.* (2009) analyzed the growth of member identification with a newly established sports team. Research has also revealed that identification with a club is a driver of spectator satisfaction (van Leeuwen *et al.*, 2002) and a success factor for sport marketing leading to increased purchase intentions (e.g. Lee and Ferreira, 2013). Theodorakis *et al.* (2009) confirmed that the degree of identification with a club's team influences the extent to which perceived service quality predicts ticket repurchase intentions among spectators of a professional sports event. Jang *et al.* (2018) revealed that outcome has a stronger influence on happiness for sport consumers with high team identification. Kim and Gower (2021) found in their study that the degree of fan identification directly affects attitudes toward the favorite team and, furthermore, directly affects purchase and attendance intentions. Kim *et al.* (2022) confirmed for minor and major leagues that team identification leads to revisiting intentions.

In leading sports clubs with teams competing in leagues, the lines between spectators, fans and members become increasingly blurred. Therefore, we hypothesize the following:

- H4. Member identification mediates the WTS of tennis club members.

Figure 1 illustrates the path model with the constructs included in the MSI model and the hypothesis raised.



Member
satisfaction
index model

Figure 1.
The hypothesized
member satisfaction
index (MSI) model

Method

Sample and data

To collect the data for this study, we conducted a survey in a leading tennis club in Germany. We chose this club because its park-like grounds provide the entire spectrum of facilities that one would expect from a leading tennis club, commensurate with those of a country or golf club. Additionally, the tennis club has registered several teams in leagues that are followed by the club members. Therefore, it can be assumed that the revealed identification of fans and spectators is transferable to club members (Wann and Branscombe, 1993). For two reasons, we collected data from a single tennis club. First, for the assessment of formative measurement models, it is advantageous to have a precise knowledge of the conditions on-site. Especially, when evaluating the model, decisions about the exclusion of variables, e.g. because of multicollinearity issues, can be made more accurate in terms of content validity (Hair *et al.*, 2022). Second, following a convenience sampling approach, we also had the support of the club management. We got permission to survey the members and were allowed to announce our study, specifically, the survey in the club magazine to motivate the club members to participation. In Germany, the disclosure of member data is prohibited by statute in many clubs and strict data protection regulations have prevailed since the European General Data Protection Regulation (GDPR) came into force in May 2018. To do so, we must acknowledge the limited generalizability of our results, a point that is further outlined in the limitation section.

To identify the antecedents of member satisfaction in tennis clubs, we conducted semi-directed interviews with 12 club members in the summer of 2018. Before launching the survey, a pre-test involving another 12 club members of all age groups was conducted. Moreover, a research consultation with GESIS Leibniz Institute for Social Science provided information to the satisfaction scales, and the time required to complete the survey (12–15 min). In order to prevent common method bias in the data which is a concern of self-report studies (Podsakoff and Organ, 1986; Podsakoff *et al.*, 2003; Kock, 2015), our survey included introductory messages to increase respondents' motivation to participate and detailed information to minimize response difficulties. We assured respondents of anonymity, encouraged them to answer spontaneously, stated that there were no right or wrong answers in the survey and offered an additional do not know option (Podsakoff *et al.*, 2012; Lietz, 2010).

We invited 726 club members aged 18 years or above to participate in the survey. The survey was open for 6 weeks after the summer tennis season of 2018, from the middle of

October until the end of November. The MSI model is based on the ratings of members with full membership status. Unlike associate members, full members are allowed to take full advantage of the club’s tennis-specific offerings and can submit ratings based on their own experience. Among the 726 adult members surveyed, 491 had full membership status; of these, 185 (37.8%) completed the survey (for sociodemographic information, see Table 1). According to a power analysis ($f^2 = 0.1, p = 0.05, \text{power} = 0.90$), only 133 observations were required (Faul *et al.*, 2009; Cohen, 1992). The minimum number of observations based on the PLS-SEM rule of thumb for our final model was 110 (Hair *et al.*, 2011, 2022).

Following Hair *et al.* (2022), we removed observations with more than 15% missing values. In our data with $n = 185$ observations and 51 variables, there are all in all 128 missing values. Mean value replacement was used when less than 5% of the values were missing for a given indicator. Descriptive analysis conducted with SPSS 28 showed that all variables are negatively skewed (Fornell, 1995), 19 of the 51 variables with values greater than -1.0 . All variables were not normally distributed, $p < 0.01$, assessed by Shapiro–Wilk test. To confirm the suitability of the respondents, we also checked for nonresponse bias. As shown in Table 1 males, age group 51–65 years, and duration of membership ≥ 25 years are overrepresented. For this reason, we tested for variance homogeneity using Levene’s test, which showed statistical significance ($p < 0.05$) for 3 (gender), 32 (age) and 12 (duration of membership) of the total 51 variables. As equal variances for all variables could not be generally assumed we included gender, age and duration of membership as control variables in the proposed MSI model.

This study uses variance-based partial least squares structural equation modeling (PLS-SEM) as a multivariate analysis of the second generation to estimate the MSI model (Hair *et al.*, 2022; Sarstedt *et al.*, 2020b). There are two types of SEM: covariance-based SEM (CB-SEM) and partial least squares SEM (PLS-SEM). There are various reasons that PLS-SEM is the appropriate method for this study. The MSI model has a certain complexity with several constructs that are measured by numerous indicators which are both reflective and formative specifying what makes the application of PLS-SEM compulsory (Henseler *et al.*, 2016). In general, the frequency distribution of satisfaction ratings is negatively skewed (Fornell, 1995), which has been confirmed for our sample by descriptive data analysis. PLS-SEM is a nonparametric method (Hair *et al.*, 2022). In our study, we do not understand mediation as a single process and PLS-SEM enables us to estimate the entire structural model in a single analysis (Sarstedt *et al.*, 2020a). Furthermore, PLS-SEM has been applied in the sports club context before (Liu *et al.*, 2021; Schijns *et al.*, 2016). The model estimation was conducted using SmartPLS 3 software (Ringle *et al.*, 2015). Mode A was selected to calculate the weights of the formative measurement models (Rigdon *et al.*, 2017).

Table 1.
Sociodemographic
information of the
respondents ($n = 185$)

Variable	Category	Sample n	%	Full club members N	%
Gender	Male	118	63.8	303	61.7
	Female	67	36.2	188	38.3
Age (years)	18-34	34	18.4	154	31.3
	35-50	46	24.9	112	22.8
	51-65	65	35.1	127	25.9
	≥ 66	40	21.7	98	20.0
Duration of membership (years)	≤ 5	35	18.9	149	30.3
	6-24	87	47.0	211	43.0
	≥ 25	63	34.1	131	26.7
All groups		185	100	491	100

Measurement scales

Satisfaction, service quality and value. Similarly to Sarstedt *et al.* (2014), the MSI includes an overall satisfaction statement. Furthermore, six process service quality dimensions are measured by 45 service quality indicators. The data analysis revealed four indicators measuring similar information which could lead to collinearity issues. So, the final MSI model includes 41 service indicators (Appendix, Table A1). Similar to Nuviala *et al.* (2012), we measured perceived value by asking “How satisfied are you with the price/quality ratio of the membership fee?”. Murray and Howat (2002) and McDougall and Levesque (2000) argued for, and validated, the use of a single item to measure value.

Similar to Bolton (1998) we asked the respondents “How satisfied are you about XXX?” as a measure of their perceptions of service quality, value and overall satisfaction. Each item was responded to via a seven-point-scale ranging from “very dissatisfied” to “very satisfied” (Sarstedt *et al.*, 2014).

WTS. The WTS construct was measured by Finn’s (2005) two-item intention (loyalty) scale, and Schlesinger and Nagel’s (2013) intention to resign construct.

Identification. The identification construct was measured by the single-item social identification (SISI) measure validated by Reysen *et al.* (2013), i.e. “I strongly identify with XXX,” responded to via a seven-point scale (1 = fully disagree, 7 = fully agree). This was supplemented by the social identification item of the MAK0 02 sports science-based social cohesion/team spirit scale (Lau, 2002).

Results

The results were assessed according to the sequence and criteria suggested by Chin (2010) and Hair *et al.* (2019) and Hair *et al.* (2022).

Indicator-specific results and measurement model quality

The measurement model (outer model) includes two reflective constructs: WTS and identification of club members with the club; the validity and reliability of these constructs had to be evaluated (Table 2). All outer loadings were well above the threshold value of 0.70, which suggests sufficient indicator reliability. With composite reliability of 0.934 (WTS) and 0.921 (identification), the two reflective constructs have high internal consistency, as confirmed by rho_A values of 0.898 (WTS) and 0.828 (identification), and Cronbach’s alpha values of 0.894 (WTS) and 0.828 (identification). Convergent validity is supported by average variance extracted (AVE) values of 0.826 (WTS) and 0.853 (identification) which indicate that far more than half of the variance in their respective indicators was explained. Discriminant validity was evaluated by the Heterotrait-Monotrait (HTMT) ratio of correlations (Henseler *et al.*, 2015) and shows a result significantly below 10,000 subsamples, one-tailed test, $p < 0.05$ the more conservative value of 0.85 (Table 3).

The results obtained with the formative constructs of service quality are shown in Table 4. The percentile bootstrapping procedure (with 10,000 subsamples, one-tailed test, $p < 0.05$) generated p -values denoting whether the weights contributed significantly to a given

Reflective construct	Indicator labels	Indicator loadings	Cronbach’s alpha	Rho_A	Composite reliability	AVE
Willingness to stay (WTS)	L01	0.956	0.894	0.898	0.934	0.826
	L02	0.855				
	L03	0.904				
Identification	Ident01	0.908	0.828	0.828	0.921	0.853
	Ident02	0.937				

Table 2.
Results of the reflective measurement models

construct. In the MSI model, all formative indicators having significant ($p < 0.01$) correlations with the constructs are considered relevant. Variance inflation factor (VIF) should be close to 3 or lower and values of 5 or above indicate critical multicollinearity issues (Hair *et al.*, 2022). In the formative measurement model, the highest VIF value is 3.878 which indicates that multicollinearity is not a severe issue in this study (Table 4).

As shown in Table 4 satisfaction with the club as a “well-being oasis” (0.347) had a major influence on the club atmosphere. The ambience of the club facilities (0.292) contributed most to the satisfaction with this construct. Satisfaction with the outdoor tennis courts was based mainly on the condition and cleanliness of the courts (0.202), followed by their availability (0.174). Staff friendliness (0.426) was the strongest driver of satisfaction with the club office. The price/quality ratio (0.169), followed by the quality of the food (0.162), were the most important drivers of satisfaction with the club restaurant. Satisfaction with the content (0.322) was the most important driver of satisfaction with the club magazine, closely followed by the quantity of advertising (0.292). Table 4 also illustrates the total effects on the target construct, MSI and the performance values (on a scale from 0 to 100) for all the service quality and value indicators.

In a final step to evaluate the measurement model following Hair *et al.* (2018), the latent variables’ mode of measurement (i.e. reflective or formative) was tested via confirmatory tetrad analysis (CTA; Gudergan *et al.*, 2008). As shown in Table A2 in the MSI model, all exogenous constructs with at least four indicators met the requirement for this analysis and empirically supported the formative measurement approach.

Construct-specific results and structural model quality

Multicollinearity is not at a critical level in this study. For VIF values of 2.582 and below, the MSI model can also be considered uncontaminated by common method bias (Kock, 2015). The R^2 values of the member satisfaction (0.509) and WTS (0.680) constructs were significant ($p < 0.01$). In other words, slightly more than 50% of the variance in member satisfaction was explained by satisfaction with the club offerings. Furthermore, member satisfaction and identification with the club explained 68% of the variance in WTS. An R^2 value for the identification construct was also obtained, although this is not intended to be interpreted. Table A3 and Figure 2 illustrate these results, including the performance values (PerfV) of the service quality constructs, MSI, identification and WTS on a scale from 0 to 100.

The predictive power of the model can be determined using the PLSpredict procedure which provides an out-of-sample prediction. The Q^2_{predict} values ($r = 10, k = 10$) are all above zero (Table A5) and indicate the high predictive power of the MSI model (Hair *et al.*, 2019). Furthermore, the comparison of the prediction errors between PLS-SEM and the linear model (LM) showed that PLS-SEM outperformed the most naïve benchmark: the PLS-SEM root mean squared error (RMSE) values for all indicators were lower than those of the LM (Table A5).

Assessment of the relationships between constructs including mediation analysis

Regarding the relationships of the exogenous constructs with member satisfaction, the standardized coefficients of the service quality dimensions of club atmosphere ($p < 0.01$) and club facilities ($p < 0.05$) and of the perceived value measured by the PQR of the membership

Table 3.
Heterotrait-Monotrait
(HTMT) ratio of
correlation

	Identification
Willingness to stay (WTS)	0.726 CI ₉₅ * = 0.821
Note(s): CI ₉₅ = Upper bound of the one-sided 95% percentile confidence interval	

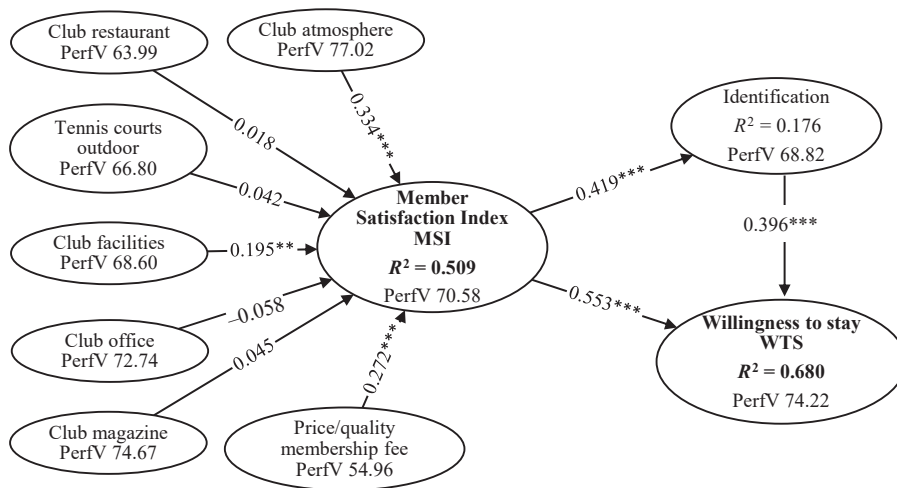
Formative constructs (composites)	Indicator labels	Formative indicators	Outer weights (outer loadings)	p value of the outer weights	95% percentile confidence interval	VIF	Total effects (unstandardized)	Indicator performance values
Satisfaction with the club atmosphere	Ca01	Sporting performance	0.182 (0.595)	0.001	0.122 0.236	1.407	0.091	89.41
	Ca02	Reputation	0.216 (0.777)	0.001	0.175 0.251	1.909	0.099	82.61
	Ca03	Club as well-being oasis	0.347 (0.854)	0.001	0.301 0.408	1.983	0.107	66.40
	Ca04	Sophisticated appearance	0.275 (0.822)	0.001	0.236 0.312	2.013	0.102	75.24
	Ca05	Maintenance of club traditions	0.259 (0.776)	0.001	0.205 0.314	1.749	0.096	73.24
Satisfaction with the club facilities	Cf01	Parking	0.113 (0.404)	0.008	0.033 0.187	1.343	0.026	79.64
	Cf02	Signposting	0.089 (0.486)	0.008	0.023 0.144	1.440	0.022	73.96
	Cf03	Ambience	0.292 (0.808)	0.001	0.241 0.348	1.825	0.056	72.79
	Cf04	Condition of the green area	0.225 (0.757)	0.001	0.175 0.274	1.938	0.032	51.54
	Cf06	External appearance of the club house	0.225 (0.758)	0.001	0.178 0.270	2.000	0.043	59.19
	Cf07	Condition and cleanliness of the locker rooms	0.210 (0.775)	0.001	0.158 0.257	1.973	0.044	65.84
Satisfaction with tennis courts outdoor	Cf09	Overall impression of the pool	0.241 (0.714)	0.001	0.183 0.303	1.583	0.059	75.95
	Co01	Placement of the tennis courts	0.088 (0.434)	0.011	0.022 0.147	1.702	0.005	82.52
	Co02	Availability	0.174 (0.550)	0.001	0.118 0.237	2.017	0.010	82.89
	Co03	Booking system	0.135 (0.496)	0.001	0.082 0.192	1.707	0.007	80.91
	Co04	Light-shadow ratio	0.079 (0.581)	0.007	0.016 0.121	1.711	0.005	76.41
	Co05	Flatness	0.152 (0.682)	0.001	0.110 0.195	2.036	0.005	49.01
	Co07	Condition and cleanliness	0.202 (0.716)	0.001	0.160 0.253	2.595	0.007	43.06
	Co08	Equipment	0.161 (0.726)	0.001	0.122 0.202	2.290	0.006	53.69
	Co09	Operability of irrigation	0.121 (0.715)	0.001	0.085 0.154	2.169	0.006	72.16
	Co10	Waste bins	0.119 (0.736)	0.001	0.076 0.158	2.571	0.005	65.94
Satisfaction with the club office	Co11	Parasols	0.146 (0.756)	0.001	0.106 0.186	2.910	0.006	57.73
	Co12	Benches	0.144 (0.721)	0.001	0.101 0.188	2.541	0.005	61.84
	Of01	Staff friendliness	0.426 (0.785)	0.001	0.285 0.587	1.353	-0.027	73.69
	Of02	External appearance	0.361 (0.884)	0.001	0.261 0.436	2.687	-0.030	74.49
	Of03	Interior design	0.400 (0.867)	0.001	0.310 0.504	2.497	-0.028	69.87

(continued)

Member satisfaction index model

Table 4.
Results of the formative measurement model, total effects and indicator performance values

Formative constructs (composites)	Indicator labels	Formative indicators	Outer weights (outer loadings)	p value of the outer weights	95% percentile confidence interval	VIF	Total effects (unstandardized)	Indicator performance values
Satisfaction with the club restaurant	Re01	Opening hours	0.119 (0.695)	0.001	0.082	1.921	0.002	64.01
	Re02	Access for non-members	0.069 (0.582)	0.007	0.016	1.567	0.001	64.41
	Re03	Ambience of the clubhouse terrace	0.122 (0.610)	0.001	0.071	1.673	0.002	74.78
	Re04	Ambience	0.131 (0.677)	0.001	0.098	1.930	0.002	54.60
	Re05	Service staff friendliness	0.108 (0.762)	0.001	0.066	1.411	0.002	73.60
	Re07	Speed of operation	0.137 (0.767)	0.001	0.104	1.666	0.003	70.77
	Re08	Variety of the menu	0.104 (0.836)	0.001	0.070	1.129	0.002	57.14
	Re09	Quality of the food	0.162 (0.853)	0.001	0.135	0.202	0.002	52.43
	Re10	Size of the food portions	0.115 (0.818)	0.001	0.085	0.141	0.002	64.89
	Re11	Variety of beverages	0.097 (0.712)	0.001	0.049	0.139	0.002	75.14
Satisfaction with the club magazine	Re12	Price/quality ratio	0.169 (0.815)	0.001	0.140	0.213	0.003	52.07
	Cm01	Layout and design	0.261 (0.872)	0.001	0.206	0.303	0.016	77.08
	Cm02	Content	0.322 (0.924)	0.001	0.285	0.379	0.020	74.30
	Cm03	Page size	0.270 (0.856)	0.001	0.219	0.318	0.016	76.08
	Cm04	Quantity of advertising	0.292 (0.838)	0.001	0.230	0.362	0.017	71.43
Price/quality ratio of the membership fee	PQR		1.000 (1.000)	—	—	1.000	0.272	54.96



Note(s): ** = $p < 0.05$, *** = $p < 0.01$

Member
satisfaction
index model

Figure 2.
MSI and PLS-SEM
structural model
results including
performance
values (PerfV)

fee ($p < 0.01$), were significant; this supports H1a, 1d and H2. Club atmosphere is the most important driver of member satisfaction (0.334), followed by the PQR of the membership fee (0.272) and club facilities (0.195). Moreover, the f^2 effect sizes, which indicate whether an exogenous construct has a substantive impact on the target construct, showed the same rank order as the path coefficients (Table A3).

The path coefficients reflect the change in the dependent variable when the independent variable is increased by one and all other independent variables remain constant (Henseler et al., 2016). Therefore, the significant standardized path coefficient linking member satisfaction with WTS ($p < 0.01$) confirms the direct positive relationship between these two constructs, and thus supports H3. Moreover, it shows a high f^2 effect size (Table A3).

Social identification plays a major role in loyalty in the sports context and arises at least in part from satisfaction. Our mediation analysis followed the procedures suggested by Nitzi et al. (2016) and Hair et al. (2022). The MSI model revealed significant positive ($p < 0.01$) direct and indirect effects of member satisfaction on WTS (Table 5), which supports H4. The identification of members with the club is a complementary partial mediator (Hair et al., 2022).

We report the results, in which gender, age and duration of membership have been considered as control variables to estimate and test the hypothesized effects at constant levels of the control variables. As shown in Table 1, males, age group 51–65 years and duration of membership ≥ 25 years are overrepresented in the sample. Following the recommendations of Hair et al. (2022), gender serves as a dummy-coded variable (0 = female, 1 = male) and is included as a binary single-item construct in the PLS path model. Age and duration of membership are recorded in four and three categories, respectively. The age control construct

	Direct effect	95% Confidence interval of the direct effect		p -value	Indirect effect via identification	95% Confidence interval of the direct effect		p -value
MSI → WTS	0.553	0.435	0.675	0.001	0.166	0.103	0.223	0.001

Note(s): MSI = Member Satisfaction Index, WTS = Willingness to stay

Table 5.
Results of the
mediation analysis

consists of three dummy-coded indicators (18–34, 35–50 and 51–65 years). The fourth category (≥ 66 years) which is left out serves as a reference category. The duration of membership consists of two dummy-coded indicators (≤ 5 and 6–24 years). Here, the third category (≥ 25 years) serves as a reference category. Age and duration of membership are each incorporated into the MSI model using a formative measurement model specification. [Table A3](#) shows the specific results of the three control variables (i.e. gender, age and duration of membership). Additionally, [Table A4](#) shows the total effects of each age group and each duration of membership group on the target constructs MSI and WTS.

Discussion

In our study, we revisited the relationship between service quality, perceived value, satisfaction and loyalty and gained insights into the relationships among these variables in the context of tennis clubs. We observed a direct positive relationship between the service quality dimensions of club atmosphere and club facilities with tennis club member satisfaction, which supported [H1a](#) and [H1d](#). These results are in line with [Bodet \(2006\)](#), who identified cleanliness of the facilities and reputation of the club, as components of the club atmosphere, as key drivers of satisfaction and dissatisfaction in French health clubs. [García-Fernández et al. \(2020a\)](#) confirmed the importance of facilities condition and layout in Spanish low-cost fitness centers. [Polyakova and Ramchandani \(2020\)](#) also confirmed the physical environment as a key element of the provision in leisure service settings. Many other studies reported positive relationships between service quality and satisfaction in different sports organizations, e.g. in Spanish ([Nuviala et al., 2012](#)), and Greek fitness centers ([Theodorakis et al., 2014](#)) and municipal swimming pools ([Moura e Sá and Cunha, 2019](#)). Physical environment as a significant predictor of satisfaction also plays a decisive role in other currently discussed TQM settings ([Bellio and Buccoliero, 2021](#)).

Interestingly, having outside tennis courts, which seems to be intuitively very important for tennis clubs, did not significantly impact overall member satisfaction. This finding is in line with the dual-factor motivation theory, which classifies individual needs into two main categories: basic, lower order or hygiene needs; and growth, higher order or motivational needs ([Herzberg, 1974](#); [Wolf, 1970](#)) and shows that playable courts are self-evidently important in leading tennis clubs. Expending less effort to the maintenance of tennis courts (hygiene needs) could lead to member dissatisfaction. However, improving the performance of the courts beyond the expected level does not have an additional impact on overall member satisfaction. Nevertheless, tennis courts in tennis clubs can be classified as a core benefit, according to [Kotler et al. \(2016\)](#) and are therefore integral with respect to the perceived value of membership. Club managers should, therefore, closely attend to the performance of the tennis courts themselves and not just focus on additional benefits. Secondary services such as club office, club magazine and club restaurant were not significant in our analyses in accordance with the study by [Howat and Assaker \(2013\)](#).

We also investigated the relationship between perceived value and satisfaction: value, as measured by the PQR of the membership fee, is one of the most important drivers of member satisfaction in leading tennis clubs ([H2](#)). This is consistent with the results of [Nuviala et al. \(2012\)](#), and with those obtained in the fitness sector by [Murray and Howat \(2002\)](#), [Theodorakis et al. \(2014\)](#) and [García-Fernández et al. \(2020b\)](#) who tested this relationship using different study designs.

Finally, we verified the direct positive relationship between satisfaction and WTS, with the latter representing behavioral loyalty in tennis clubs ([H3](#)). This result is in line with previous sport studies ([Howat et al., 1999](#); [Murray and Howat, 2002](#); [Theodorakis et al., 2014](#); [García-Fernández et al., 2018](#)) and [Biscaia et al. \(2021\)](#), who revealed a strong effect of core product

quality on behavioral intentions, particularly for non-professional sports. Our findings are equivalent to other service environments recently presented in TQM research (Ahmed *et al.*, 2021). However, we probed this theme more deeply by analyzing the mediating role of identification with the tennis club. We confirmed that identification is not limited to spectators of sport competitions (Theodorakis *et al.*, 2009; Trail *et al.*, 2005) or fans of sport teams (Kwon *et al.*, 2005); it also exerts a positive influence on the WTS of tennis club members (H4).

This study contributes to the sport management literature by applying the frequently discussed themes of service quality, value, satisfaction and loyalty to the tennis club context. We addressed the recommendations for future research of Theodorakis *et al.* (2014) by including a wider range of antecedents to explain the variance in overall satisfaction. Our model revealed several drivers of member satisfaction, i.e. club atmosphere, club facilities and the PQR of the membership fee, which might be relevant to similar kinds of sports clubs, especially country clubs and golf clubs, and provide inspiration for further academic research on such sports clubs.

Managerial implications

Similar to the well-established American customer satisfaction index (ACI; Anderson and Fornell, 2000), the MSI model is a useful benchmark tool for tennis club managers wishing to regularly quantify the satisfaction of their members. Therefore, the PLS-SEM results present the actual performance of the exogenous and endogenous constructs, i.e. MSI, identification and WTS, by the average score (Table A3). For better understanding, the average score is rescaled on a scale from 0 to 100, e.g. the MSI in our study was 70.58, indicating considerable scope for optimization. In terms of club atmosphere, club facilities and PQR of the membership fee were the major drivers of member satisfaction. These constructs of service quality and value were measured by several indicators in a formative measurement model, thus providing club managers with guidance on how to improve member satisfaction.

Most obviously, this guidance could be in the form of an IPMA, as shown in Figure 3 (Oliver, 2015; Ringle and Sarstedt, 2016), i.e. “a strategic management map” (Hsu, 2008, p. 3040). In this map, we classify the indicators according to their importance to member

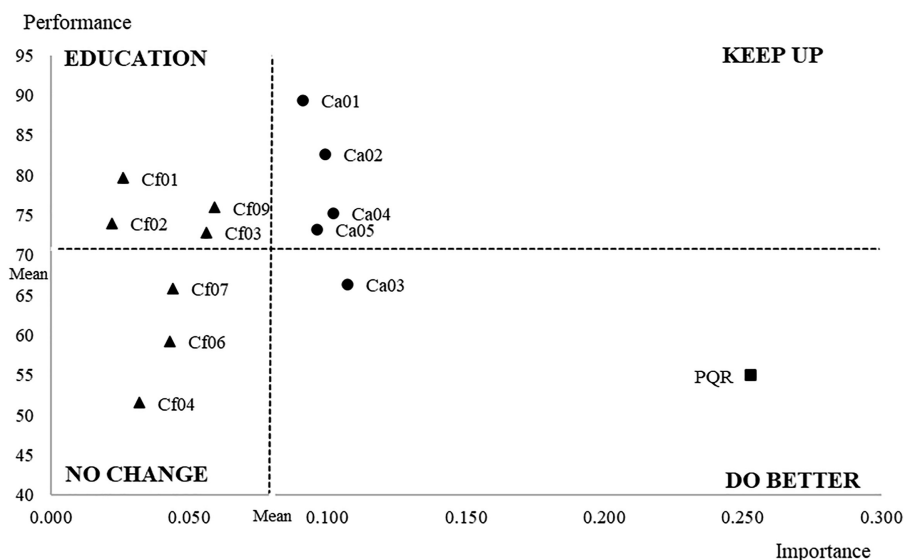


Figure 3.
IPMA results (target
construct MSI)

satisfaction (the target construct), to determine the areas that should be targeted to improve member satisfaction. In this manner, an indicator's importance is based on its overall effect on member satisfaction. An indicator's performance value is derived from its mean value, converted using a 100-point scale. The measurement points are transferred in a coordinate system split into four quadrants: "do better," "keep up," "education" and "no change" (Hsu, 2008, p. 3040; Rosenbusch *et al.*, 2018, p. 274). The "do better" quadrant has the largest implications for management. The PQR of the membership fee and club, as a well-being oasis (Ca03), is of above average importance but show low average performance. Improving these indicators is very important to enhance member satisfaction and, due to the significant positive relationship confirmed herein, the WTS of the club members.

Higher-level member satisfaction is mainly associated with service quality dimensions in the "keep up" quadrant. The indicators (i.e. the club's sporting performance (Ca01), reputation (Ca02), sophisticated appearance (Ca04) and maintenance of club tradition (Ca05) should be focused on by tennis club managers to maintain high member satisfaction. The "education" quadrant has high-performance indicators (parking (Cf01), pool (Cf09), signposting (Cf02) and the ambience of the club (Cf03) that are less important than the club atmosphere indicators. Club managers should make efforts to translate these high-performance areas into competitive advantages (Hsu, 2008). This applies above all to the pool; in line with MacIntosh and Law (2015), the pool was the most important of the club facilities in the MIS model. Indicators in the "no change" quadrant (condition and cleanliness of the locker rooms (Cf07), external appearance of the club house (Cf06) and condition of the green areas (Cf04)) should be a lower priority, as improvements therein only slightly increased member satisfaction.

Furthermore, our study confirms a direct, positive and strong relationship between member satisfaction and WTS and also provides guidance for club managers aiming to further strengthen this relationship by enhancing the identification of members with the club. Böhm (2008) found that identification with an organization arises from a distinct collective identity and proposes in his human resource management based-research that people should have strong prospects (i.e. a clear future direction), as well as a sense of pride based on all of the factors that distinguish a given organization from its competitors (Haslam *et al.*, 2000). Stroebe *et al.* (2021) suggest merchandise to be a catalyst for identification. These insights shed light on how club managers could enhance the identification of their members with the club (Böhm, 2008).

Conclusions and future research

The goal of this study was to develop a MSI model to learn more about how service quality, value, member satisfaction and WTS act together in sports clubs in one holistic model. Thereby, one major contribution of the study is the development of a questionnaire to measure service quality dimensions in a leading tennis club by a formative specified measurement model which allows the replicability of the study and has not been proposed in earlier research. In addition, we presented the indicators of the significant service quality dimensions and value in an IPMA to identify the need for action to improve member satisfaction. Therefore, we also provided the performance values of the included constructs of the MSI model and its total effects on WTS. We could demonstrate that increased member satisfaction is worth the effort by revealing its high significance to WTS. Our results also indicate that research findings from previous studies on fan identification are transferable to sports club members. These findings provide club management with further opportunities to increase WTS. Our results demonstrate that PLS-SEM is appropriate for estimating and testing higher-order constructs in complex relationships.

Nevertheless, the results of this study are limited given the used sample of a leading tennis club in Germany and should be brought to a broader database. Case studies investigating service quality, value, satisfaction, loyalty and related constructs are prevalent in the sports management literature; examples include a sports and leisure center in Australia (Howat *et al.*, 1999; Murray and Howat, 2002), a health club in Greece (Alexandris *et al.*, 2004), a fitness center in Greece (Avourdiadou and Theodorakis, 2014), a professional football match in Greece (Theodorakis *et al.*, 2011), an American university (e.g. Kwon *et al.*, 2005), a swimming sport center in Greece (Kontogianni *et al.*, 2011), the Wuhan tennis open (Tian *et al.*, 2021) and university training programs for seniors (Doistua *et al.*, 2022).

Further research could test the MSI model in other types of related sports clubs, e.g. leading golf clubs. Thereby, in further research, the demographics gender, age and duration of membership which we included in our study as control variables could be integrated as moderators or as aspects of multi-group analysis (Hair *et al.*, 2018) which requires correspondingly larger sample sizes. Further research could also investigate whether (un) observed heterogeneity affects the MSI model and the strength of the link between MSI and WTS. Furthermore, Valcarce-Torrente *et al.* (2021) revealed in their study that technology, more specifically fitness apps increased customer satisfaction in fitness centers. Future research could enhance the MSI model to include technological innovations, such as club apps, as additional service quality dimensions. Furthermore, as Damberg (2022) recently revealed that health consciousness is a predictor of behavioral intentions in participant sport, more specifically, the future use intentions of fitness apps, it would be of interest for future research to extend the MSI model to more personal aspects which are at the same time relevant for entire health care systems and investigate health consciousness as a mediator of the relationship between member satisfaction and WTS. In our study, we were able to show that club atmosphere, club facilities and the PQR of the membership fee are the main drivers of member satisfaction in leading tennis clubs and that identification with the club significantly increases the willingness to stay. As PLS-SEM handles complex models with many structural model relationships, future research could enhance the MSI model by the proposed aspects.

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(The Appendix follows overleaf)

Constructs	Indicator labels	Items	Scale
Member satisfaction index (MSI; target construct)	S_overall	How satisfied are you overall with the club?	1 = very dissatisfied to 7 = very satisfied
Service quality dimensions		How satisfied are you with the (insert service quality and value dimension) in terms of the following criteria?	1 = very dissatisfied to 7 = very satisfied
Club facilities	Cf01 Cf02 Cf03 Cf04 Cf05* Cf06 Cf07 Cf08* Cf09	Parking Signposting in the club Ambience of the club Condition and cleanliness of the green area Gravel paths in the club External appearance of the clubhouse Condition and cleanliness of the locker rooms Condition and cleanliness of the restrooms Overall impression of the pool	
Tennis courts outdoor	Co01 Co02 Co03 Co04 Co05 Co06* Co07 Co08 Co09 Co10 Co11 Co12	Placement of tennis courts within the club Availability of the courts Booking system of the courts Light-shadow ratio on the courts Flatness of the courts Grip of the courts Condition and cleanliness of the courts Equipment of the courts (e.g. peeling mats) Operability of irrigation Waste bins Parasols Benches	
Club office	Of01 Of02 Of03	Staff friendliness External appearance of the club office Interior design of the club office	
Club magazine	Cm01 Cm02 Cm03 Cm04	Layout and design Content Page size Quantity of advertising	
Club restaurant	Re01 Re02 Re03 Re04 Re05 Re06* Re07 Re08 Re09 Re10 Re11 Re12	Opening hours Access to the club restaurant for non-members Ambience of the clubhouse terrace Ambience of the club restaurant Service staff friendliness Service staff competence Speed of operation Variety of the menu Quality of the food Size of the food portions Variety of beverages Price-quality ratio	
Club atmosphere	Ca01 Ca02 Ca03 Ca04 Ca05	Sporting performance of the club Reputation of the club Club as a well-being oasis Sophisticated appearance of the club Maintenance of club traditions	

Table A1.
Description of the
items of the
questionnaire

(continued)

Member
satisfaction
index model

Constructs	Indicator labels	Items	Scale
<i>Value</i>			
Price quality ratio	PQR	Price/quality ratio of the membership fee	
Willingness to stay (WTS; target construct)	L01	If you had to decide one more time: Would you join the club again?	1 = No, never to 7 = Yes, definitely
	L02	How many times have you thought about quitting your membership in the club lately?	1 = never to 7 = permanently
	L03	How likely are you to recommend the club to friends and colleagues?	1 = very unlikely to 7 = very likely
Identification (mediator)	Ident01	I would do a lot to remain a member	1 = very strongly disagree to 7 = very strongly agree
	Ident02	I identify strongly with the club	

Note(s): * = Cf05, Cf08, Co06 and Re06 were not included in the MSI model to avoid collinearity to indicators with similar information (Hair *et al.*, 2022), e.g. the restrooms (Cf08) are located within the locker rooms (Cf07)

Table A1.

Formative Constructs (with at least four indicators)	CI Low adjusted*	CI Up adjusted*
<i>Club atmosphere</i>		
1: Ca01, Ca02, Ca03, Ca04	0.024	0.587
2: Ca01, Ca02, Ca04, Ca03	0.023	0.636
4: Ca01, Ca02, Ca03, Ca05	0.009	0.508
<i>Club facility</i>		
1: Cf01, Cf02, Cf03, Cf04	0.196	1.455
2: Cf01, Cf02, Cf04, Cf03	0.320	1.543
13: Cf01, Cf02, Cf04, Cf06	0.365	1.784
19: Cf01, Cf02, Cf04, Cf09	0.096	1.058
34: Cf01, Cf03, Cf04, Cf07	0.103	1.163
<i>Tennis courts outdoor</i>		
65: Co01, Co02, Co08, Co07	0.218	2.370
68: Co01, Co02, Co09, Co07	0.006	1.142
70: Co01, Co02, Co07, Co10	0.066	1.533
71: Co01, Co02, Co10, Co07	0.071	1.605
89: Co01, Co02, Co12, Co08	0.100	1.843
131: Co01, Co03, Co07, Co05	0.154	1.509
224: Co01, Co04, Co12, Co07	0.083	1.029
227: Co01, Co04, Co09, Co08	0.074	0.822
248: Co01, Co04, Co11, Co10	0.206	1.281
428: Co02, Co03, Co10, Co09	0.043	1.609
505: Co02, Co04, Co11, Co12	0.085	1.636
<i>Club restaurant</i>		
1: Re01, Re02, Re03, Re04	0.287	2.693
59: Re01, Re02, Re11, Re05	0.056	1.577
<i>Club magazine</i>		
2: Cm01, Cm02, Cm04, Cm03	0.021	0.319
Note(s): *90%Bonferroni corrected and bias adjusted confidence interval		

Table A2.
Results confirmatory
tetrad analysis –
nonredundant tetrads
significantly different
from zero

TQM										
Outcome	Predictor	Hypo-theses	Path coefficient	p-value	95% bootstrap confidence interval		f ² effect size*	VIF	PerfV	
MSI (R ² = 0.509)	Club atmosphere	H1a	0.334	0.001	0.225	0.445	0.108 high	2.106	70.58	
	Club restaurant	H1b	0.018	0.377	−0.067	0.124	0.001	1.608	63.99	
	Tennis courts outdoor	H1c	0.042	0.293	−0.073	0.180	0.001	2.453	66.80	
	Club facilities	H1d	0.195	0.023	0.028	0.351	0.030 high	2.582	68.60	
	Club office	H1e	−0.058	0.188	−0.165	0.053	0.004	1.710	72.74	
	Club magazine	H1f	0.045	0.253	−0.071	0.153	0.003	1.526	74.67	
	Price/quality ratio membership fee	H2	0.272	0.001	0.138	0.383	0.087 high	1.728	54.96	
	Gender		−0.029	0.299	−0.119	0.060	0.002	1.035		
	Age		−0.039	0.242	−0.147	0.035	0.003	1.105		
	Duration of membership		−0.017	0.388	−0.119	0.072	0.001	1.107		
	WTS (R ² = 0.680)	MSI	H3	0.553	0.001	0.435	0.675	0.758 high	1.264	74.22
		Identification	H4	0.396	0.001	0.271	0.493	0.387 high	1.268	
Gender			−0.007	0.441	−0.080	0.074	0.001	1.037		
Age			0.004	0.465	−0.096	0.070	0.001	1.086		
Duration of membership			−0.141	0.006	−0.210	−0.048	0.060 high	1.034		
Identification (R ² = 0.176)		MSI	H4	0.419	0.001	0.285	0.547	0.213 high	1.000	68.82

Table A3. Structural model results

Note(s): *Designation of effect sizes according to [Kenny \(2018\)](#), PerfV = Performance value on a scale from 1 to 100

			Member satisfaction index model
Control Variable	MSI	WTS	
<i>Age (years)</i>			
18-34	0.014	0.008	
35-50	-0.057	-0.033	
51-65	-0.125	-0.072	
<i>Duration of membership (years)</i>			
≤5	0.008	-0.070	
6-24	-0.046	-0.403	
Note(s): Age group ≥66 years serves as a reference age group for the age control variable; duration of membership ≥25 years serves as a reference duration for the duration of membership variable			Table A4. Total effects (unstandardized) of the control variables' indicators

Construct	Indicator	PLS RMSE	Q^2_{predict}	LM RSME	PLS-LM RSME	Table A5. PLSpredict analysis results
MSI	S_overall	1.113	0.434	1.200	-0.087	
WTS	L01	1.258	0.385	1.396	-0.138	
	L02	1.330	0.298	1.537	-0.207	
	L03	1.168	0.374	1.285	-0.117	

Corresponding author

Mike Peters can be contacted at: Mike.peters@uibk.ac.at

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