

Louvain School of Management

Measuring the Effectiveness of Loyalty Strategies in Amateur Sports Clubs:

A Quantitative Approach based on Member
Behavioral Data in Brussels and Walloon Brabant.

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Abstract:

The thesis explores the different factors influencing member loyalty in amateur sports clubs in Brussels and Walloon Brabant. The study focuses on team sports, specifically football, field hockey, and rugby. A two-phase methodology was implemented to address the research objectives. First, exploratory interviews with club managers were conducted to identify current loyalty strategies. Then, a quantitative survey was distributed to adult members of amateur clubs in the targeted regions, providing a final sample of 241 valid responses. Data were analyzed using robust linear and logistic regressions, with LASSO employed for variable selection. An overall loyalty score was also constructed using multiple correspondence analysis to capture simultaneously attitudinal and behavioral components of loyalty. The results demonstrate that satisfaction, teammate interaction quality, infrastructure quality, perceived value, and social identification positively influence attitudinal loyalty, while only infrastructure quality and social identification significantly affect overall loyalty. The findings also suggest that the impact of these factors may vary across sports. This study offers practical recommendations for amateur sports club managers. They are encouraged to monitor member satisfaction more systematically, strengthen team cohesion through low-cost team-building activities, improve infrastructure quality, and clearly communicate the value of membership. Additionally, promoting social activities may reinforce members' sense of belonging. However, the results should be interpreted with caution due to limitations such as sample imbalances, the limited geographic scope, and the methodological simplification of treating ordinal dependent variables as continuous in regression analyses.

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Declaration

During the preparation of this master's thesis, the author(s) utilized [ChatGPT (GPT-4)] for the following purpose:

1. Formalizing the content to present it in a professional manner; Refining and clarifying complex ideas; Translating and rephrasing sentences; and Improving paragraph structure and style.
2. After using [ChatGPT (GPT-4)], the authors diligently reviewed and edited the content produced by the tool. We take full responsibility for the final content presented in this thesis.

By signing this declaration, we affirm that the content of this master's thesis reflects our original work, augmented by the responsible use of AI.



Géraldine Vinel



Eléonore Lebens

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1. Introduction

Sport holds an essential place in our society. According to the Belga News Agency (2023), the Wallonia-Brussels Federation had 765 000 members in its sports clubs in 2022. Sport is widely considered as a major contributor to health in society, moreover, according to Robertson *et al.* (2018) it is also a way of socializing. Sport offers a possibility to create social relationships and get together around a shared activity. This contributes to everyone's individual well-being and to create a sense of community (Min, 2022). Sports clubs therefore make an important contribution to the health and well-being of society as a whole.

The viability of amateur sports clubs is seriously threatened by the presence of commercial sports providers (e.g. Basic fit) as they are increasingly facing an uphill battle to find and keep members (Borgers *et al.*, 2016). Over the years, growing competition, economic and social changes have led to financial unsustainability for many amateur sports clubs (Bradbury *et al.*, 2020). The sustainability challenge is intensified by the fact that amateur sports clubs have relatively few sources of income. Barget and Chavinier-Rela (2017) found that members make a significant contribution through membership fees: 63% of funding comes from membership fees and subsequent purchase. This proportion may vary depending on the country and the sport discipline. For example, the membership rate in tennis clubs is around 70% in Germany and Spain, while it is closer to 55% and 50% in the Netherlands and France, respectively. These figures apply only to individual sports. The other sources of income are services, sponsorship, hospitality and public subsidies. Member retention is therefore crucial for financial stability to enable clubs to continue to deliver social and health benefits to the community.

Barget and Chavinier-Rela (2017) noted that there is limited economic research on amateur sports clubs, with most studies focus on professional sports or large-scale sporting events. It is in this framework that this study is relevant because it addresses a core issue: **“Measuring the effectiveness of loyalty strategies in amateur sports clubs: A quantitative approach based on member behavioral data in Brussels and Walloon Brabant.”** The sports considered in the study are football, rugby, and hockey.

The goal of this research is to identify the most successful loyalty strategies that can be used to improve member retention. In order to achieve this goal, the main strategies will first be

identified. A preliminary qualitative survey will be conducted consisting of an interview with one club executive member from each one of the sports covered by this study. The preliminary qualitative survey enables us to confront the findings of our literature review with practical insights from the field, before proceeding to the quantitative approach. The quantitative survey is then addressed to members of the amateur sports clubs. The survey helps understand which aspects are considered as crucial for players, making them both satisfied and committed. This research will provide actionable recommendations for amateur sports organizations to strengthen their loyalty practices and long-term sustainability.

1.1 Amateur sports club

An amateur sports club is a non-profit organization whose main goals are driven by the needs of its members. These clubs are typically managed by volunteers and focus on encouraging sports participation for enjoyment and well-being rather than financial profit or professional careers (Maladi *et al.*, 2019). To define amateur sports, Elmoose-Østerlund *et al.* (2022) highlights the fundamental role of non-profit clubs, the importance of volunteer involvement, and the emphasis on accessibility and inclusion in sports rather than financial gain or professional success.

1.2 Loyalty

Although not unequivocally defined in the literature, many researchers share a similar understanding of the concept of loyalty. Many researchers define it as a bond between the consumer and the brand (Maladi *et al.*, 2019; Sirdeshmukh *et al.*, 2002; Uncles *et al.*, 2003). According to Uncles *et al.* (2003), this relationship could extend to more general consumption habits, such as product categories or activities.

Loyalty can also be conceptualized as the customer's intent to maintain a long-term relationship with a company (Sirdeshmukh *et al.*, 2002). That includes allocating a larger share of their spending to a specific service provider and engaging in positive word-of-mouth. It also leads to repeated purchases from the same company (Artha *et al.*, 2022; Lovemore *et al.*, 2023; and Sirdeshmukh *et al.*, 2002). Loyal customers tend to remain committed despite competing offers (Artha *et al.*, 2022). Loyalty is thus perceived as a strong consumer commitment (Söderlund, 2006).

Brand loyalty includes two dimensions: attitudinal and behavioral loyalty (Dick & Basu, 1994). These two dimensions, although distinct, are interconnected and very important for member loyalty, as well as for the success of loyalty strategies.

Bandyopadhyay and Martell (2007) refer to behavioral loyalty as consumers' actual behaviors toward the brand. This type of loyalty is measurable through concrete indicators such as purchase frequency, length of membership and participation in events. Customers who regularly purchase the same brand, maintain long-term membership, and actively participate in brand-organized events demonstrate high levels of behavioral loyalty.

In service-oriented sectors like amateur sports clubs, behavioral loyalty can be stimulated by incentives such as membership fee reductions, reward for participation, and loyalty cards. Monitoring these behaviors allows clubs to identify trends and adjust their strategies to maximize retention and engagement (Bandyopadhyay & Martell, 2007). However, Amine (1998), argues that having an exclusive reliance on behavioral loyalty is insufficient. Without a positive attitude toward the brand, purchasing behaviors may not persist over time.

Attitudinal loyalty is a component of global loyalty that describes the emotional or psychological attachment a consumer feels toward a brand (Bandyopadhyay & Martell, 2007). It can be measured using satisfaction, involvement, and trust scales. Consumers with a positive attitude toward a brand are more likely to continue purchasing it and recommending it to others. Dick and Basu (1994) emphasized the need to understand attitude-behaviour relationship to fully grasp the concept of loyalty. Attitudinal loyalty is of great importance as it directly affects behavioral loyalty and may have predictive value for consumer behavior (Bandyopadhyay & Martell, 2007).

In the context of amateur sports clubs, attitudinal loyalty can be fostered through positive social and recreational experiences, as well as trust-building among members. Organization of social events also foster emotional commitment. By monitoring member attitudes, clubs can identify trends, recognize stagnation/excitement or disengagement, and determine if new strategies or actions should be considered, all with the intent to maximize retention and engagement (Bandyopadhyay & Martell, 2007).

1.3 Focus on Team Sports

This thesis focuses specifically on three team sports: hockey, football, and rugby. The benefits of team sports are not equivalent to those of individual sports. According to Eime *et al.* (2013), people who participate in team sports get involved in more frequent feelings of belonging and stronger peer relationships than those engaged in individual sports.

The choice to focus our study on hockey, rugby and football is based on several criteria common to these disciplines. They are three team sports played outdoors, involving a degree of physical contact between players. In addition, these sports have a comparable team structure, with a similar number of players on the pitch. In fact, we are basing ourselves on 11-a-side football, the traditional version played outdoors (*Règlements*, n.d.). In the case of rugby, we are studying XV rugby, which is also played outdoors with 15 players per team (Nidale, 2025). Hockey, for its part, generally involves 11 players per team (Elise, 2025). In all three sports, teams are generally classified into categories from U8 to U18, and then into senior and women's teams. These features make the comparison between the disciplines more relevant and coherent in the context of our analysis.

2. Literature Review

Numerous studies have been conducted to better understand the concept of customer loyalty. This literature review seeks to identify and analyse the key factors influencing loyalty, drawing on general research and studies specific to the leisure sports sector. We will focus on four primary factors: satisfaction, service quality, perceived value, and social identification. Additionally, we will incorporate a theoretical model to enhance the analysis of service quality and its impact on member loyalty within this context.

2.1 Satisfaction

The literature clearly indicates that customer satisfaction is an important concept in understanding customer loyalty (Bodet, 2006; Bodet, 2012; Min, 2022). According to Bodet (2012), satisfied customers are more likely to remain loyal than dissatisfied ones. In this context, satisfaction plays a crucial role in influencing long-term consumer behavior and serves as a major metric for evaluating it (Cronin & Taylor, 1992).

Min (2022) cites Oliver (1997), who defines satisfaction as “a post-purchase evaluation judgment resulting from a discrepancy between expectations before the purchase of a product or service and the performance experienced with its use”. Similarly, Tse and Wilton (1998) describe satisfaction as the consumer's reaction to assessing the gap between initial expectations and the actual performance of a product after use.

Studies have shown that service quality and perceived value positively influence satisfaction (Cronin & Taylor, 1992; García-Fernández *et al.*, 2017; Min, 2022; Murray & Howat, 2002; Theodorakis *et al.*, 2014). Since satisfaction influences retention (Bodet, 2012), customer satisfaction is recognized as a mediating factor between various determinants, such as service quality and perceived value, and members' loyalty.

2.2 Service quality

Previous research indicates that service quality is a determinant in retaining members within the sports industry (Min, 2022), with high service quality positively influencing customer retention (García-Fernández *et al.*, 2017; Murray & Howat, 2002; Theodorakis *et al.*, 2014). Core product quality has a significant impact on behavioral intentions, especially in the context of non-professional sports (Kölbl *et al.*, 2022). It is important to understand this relationship (Min, 2022).

Service quality refers to a company's ability to deliver services that meet customer expectations (Lovemore *et al.*, 2023). It is evaluated by comparing customers' expectations with their perceptions of the services provided (Grönroos, 1984; Parasuraman *et al.*, 1988). Min (2022) concludes that “service quality is a subjective, customer-centered concept, primarily based on cognitive factors”.

Several researchers have proposed service quality measurement frameworks (Dahholkar *et al.*, 1996; Grönroos, 1984; Parasuraman *et al.*, 1988; Rust & Oliver, 1994). Building on these frameworks, Brady and Cronin (2001) developed a three-dimensional service quality model, which includes interaction quality, the physical environment quality, and the outcome quality.

Ko and Pastore adapted this model to the amateur sport industry, adding a fourth dimension: program quality. Their model, the Scale of Service Quality in Recreational Sport (SSQRS), adopts a hierarchical and multidimensional approach. Ko and Pastore (2004) distinguish program quality to outcome quality, because previous models often combined service product

and outcome. Program quality reflects consumer perceptions of program variety and attractiveness, separate from the evaluation of service outcomes like physical changes.

2.2.1 Program quality

Program quality is a main dimension in measuring service quality in the sports context (Ko & Pastore, 2004). It refers to the customer's perception of quality of training and the organization of the club through which customers experience sport services. This dimension includes operating hours and the availability of information. Operating hours ensure that classes run on time and fit customers' schedules. Information quality relates to how easily customers can access up-to-date details about trainings, events, competitions, and other services (Ko & Pastore, 2004).

2.2.2 Interaction quality

Interaction quality focuses on the service delivery process (Surprenant & Solomon, 1987). It includes two main types of interactions: between customers and service providers, and between customers themselves (Ko & Pastore, 2004).

The first type is shaped by staff attitudes, behavior, and expertise (Brady & Cronin, 2001). Kopanidis (2023) explains that the role of coaches has a significant impact on customer behavior. Members agree that the instructor's attitude and methodology influence not only their decision to join a club but also their willingness to stay (Kopanidis, 2023). The instructor's role and teaching play an important role in shaping participant outcomes, particularly in terms of motivation, risk of dropout, and well-being (Gonzalez-García and Martinent, 2019). Furthermore, Min (2022) highlights that staff quality, defined by their attitude, kindness, knowledge level, and problem-solving ability, is a key factor in member retention.

The second type of interaction is influenced by the actions and attitudes of other customers. These social interactions are especially important in team sports, where members frequently engage with and influence each other (Ko & Pastore, 2004).

2.2.3 Outcome quality

Outcome quality is concerned with the benefits members gain from participating in sports activities (Rust & Oliver, 1994; McDougall & Levesque, 1994). Ko and Pastore (2004) identify three subdimensions of outcome quality: physical change, sociability, and valence.

Physical change refers to tangible benefits such as improved fitness and performance (Brady & Cronin, 2001). Physical fitness is a factor that motivates individuals to participate in sports (Ko & Kim, 2010). Moreover, members seek to enhance their skills by engaging in sports (Deelen *et al.*, 2018).

Sociability captures the social interactions that arise from sports participation, where family, friends, and teammates play an essential role in shaping the experience. Social experiences contribute to motivating customers to participate in sports.

Finally, valence reflects members' overall assessment of the service outcome, regardless of other aspects of their experience (Brady & Cronin, 2001). In recreational sports, this includes intangible benefits like increased confidence, improved self-esteem, and stress reduction (Ko & Pastore, 2004). Ko and Kim (2010) explored these intangible benefits in martial arts and found that participants are motivated by opportunities for personal growth, particularly the development of self-esteem and values. Sport can serve as a means of self-improvement and contribute to a sense of well-being.

2.2.4 Physical environment quality

Service quality in sports clubs is not only determined by training programs and interactions with staff but also by the perception of the physical environment in which the service is delivered (Bitner, 1992). Ambience, facility design, and equipment quality have an impact on members' experiences (Ko & Pastore, 2004). Ambience refers to the sensory atmosphere of the service environment, including factors such as lighting and noise levels (Ko & Pastore, 2004). Facility design involves the layout and architecture of sports facilities, while equipment refers to the tools and devices provided to enhance members' experience. Although sports training itself is an intangible service, tangible elements, such as facilities, ambience, and equipment, significantly influence customers' perception of service quality (Ko & Pastore, 2004).

2.3 Perceived value

Researchers have studied perceived value and concluded that it influences consumer behavior (Min, 2022). In the sports sector, perceived value is identified as a determinant of member loyalty (Bodet, 2012; Murray & Howat, 2002). Min (2022) defines perceived value as a customer's subjective assessment of a product or service, based on a comparison between the benefits received and the costs incurred. Similarly, some authors conceptualize perceived value

as a benefit-cost ratio, emphasizing the balance between what consumers gain and what they sacrifice (Kölbl *et al.*, 2024).

2.4 Social identification

Social Identity Theory (Tajfel & Turner, 1979) suggests that individuals define their identity based on the social groups they belong to. This group affiliation influences their self-perception, attitudes, and behaviors, strengthening their sense of belonging while differentiating their group from others. Bodet and Bernache-Assollant (2011) demonstrated that team identification within the sports context influences loyalty.

Numerous studies on social identification have been conducted in the context of sports spectatorship. Findings show that consumer behavior, particularly purchasing decisions, is strongly influenced by the level of identification with the team. For instance, fans who identify with a team are more likely to attend matches, whether in minor or major leagues (Kim *et al.*, 2022). Additionally, identification with the club increases the likelihood of purchasing club-related products or services (Lee & Ferreira, 2013). Moreover, the stronger the fan's identification with their team, the more positive their attitude toward the team, and the more likely they are to purchase club products and attend matches (Kim & Gower, 2021). Fewer studies have focused on members of sports clubs themselves. Kölbl *et al.* (2024) examined the impact of club members' identification with a tennis club, and their findings show that identification is not limited to spectators or fans; it also positively influences the willingness to stay of tennis club members.

2.5 Socio-demographics factors

The literature suggests that loyalty mechanisms vary with age, yet few studies have specifically examined how age-related factors influence commitment in sports clubs (Vial *et al.*, 2024). Casper and Stellino (2008) identified age-related differences in commitment, influenced by socio-demographic constraints such as gender and financial means. Similarly, research on sports clubs has begun to highlight the impact of age on loyalty patterns (Côté, 2002; Wu *et al.*, 2015; Yim *et al.*, 2021).

Casper and Stellino's (2008) study on demographic predictors in tennis further emphasizes the need for age-based segmentation in recreational sports. Their findings suggest that commitment tends to increase with age, although the impact varies by sport. Wu *et al.* (2015) highlight the

necessity of distinguishing between younger individuals (under 30) and mature participants (30 and older), as their motivations and loyalty drivers differ.

2.6 Hypotheses

To develop the hypotheses we will test, we base our approach on the literature review. We conducted three interviews with managers of football, rugby, and hockey clubs to understand the initiatives already implemented by these clubs. We will combine the theoretical insights from our research with the clubs' actual practices to create hypotheses that are as relevant and accurate as possible.

The literature suggests that member satisfaction plays a role in influencing their behavior and, by extension, their loyalty. Christian Cornet, Sports Director of the Boitsfort Rugby Club, highlights that their loyalty strategy is based on ensuring member satisfaction with the services offered by the club. Based on this, we formulate the first hypothesis:

H1: Member satisfaction positively influences member loyalty to the club.

In the literature review, we explored Ko and Pastore's (2004) service quality measurement model. Findings suggest that service quality affect member retention. Therefore, it would be valuable to examine whether the model's sub-dimensions have a significant impact on member loyalty.

H2: Program quality positively influences member loyalty.

Several researchers highlight the role of instructors in member retention (Min, 2022; Kopanidis, 2022). Christian Cornet explains that their coaches receive training to effectively manage groups, while the technical coordinator of the Auderghem football club, Jacques Verhelst, adds that nearly all their coaches are currently undergoing training to enhance their skills. Based on these insights, we propose the following hypothesis:

H3.a: The quality of interactions between members and their coach positively influences member loyalty.

In the literature, it has been shown that interactions between members are essential, particularly in team sports. Jacques Verhelst explains that players generally do not remain when team cohesion is lacking. Benoit Dormal, the manager of the Ixelles Hockey Club, emphasizes the importance of the social aspect of team sports. According to him, the team atmosphere is one

of the main factors influencing player retention. Some teams at the Auderghem Football Club organize team-building activities to strengthen bonds among teammates. Based on this, we have formulated the following hypotheses:

H3.b: The quality of interactions between teammates positively influences member loyalty.

H3.c: Participating in team-building activities positively impacts the quality of interactions between teammates.

Another dimension of Ko and Pastore's (2004) model is outcome quality. We have formulated a hypothesis for each sub-dimension: physical change, sociability, and valence. Benoit Dormal explains that sports help improve personal skills.

H4.a: The improvement of members' physical condition positively influences their loyalty to the sports club.

H4.b: Social interactions created through sports participation positively influence member loyalty.

H4.c: Intangible benefits, such as increased self-confidence and stress reduction, positively influence member loyalty.

The quality of the environment in which services are delivered shapes the overall experience and can have an impact on member loyalty. The Sports Director of Boitsfort Rugby Club emphasizes their commitment to offering high-quality service by maintaining top-tier infrastructure. The manager of the Ixelles Club further highlights the importance of providing high-quality equipment and well-maintained training grounds for their members. Additionally, Jacques Verhelst confirms that having high-quality equipment is essential. Based on these insights, we have formulated the following hypotheses:

H5.a: The quality of the facilities provided by the sports club positively influences member loyalty.

H5.b: The quality of the equipment provided by the sports club positively influences member loyalty.

In the sports sector, perceived value is a determinant of member loyalty (Bodet, 2012; Murray & Howat, 2002). The Boitsfort Rugby Club charges a high membership fee, yet they provide high-quality services in return. The hockey manager also believes that the price plays a significant role in members' decisions when choosing between clubs. Based on these insights, we have formulated the following hypothesis:

H6: The perceived value positively influences member loyalty.

Research has shown that social identification significantly impacts member loyalty. Members who have a strong sense of belonging and identify with the team or club tend to exhibit greater loyalty. In rugby, the sense of belonging is particularly strong (Cornet, 2025). To foster this connection, clubs organize events such as barbecues, allowing members to feel part of a collective group. Benoit Dormal explains that they aim to establish a strong club identity through their values and unique atmosphere. To further cultivate this "club spirit", they organize events that are open to all members.

H7.a: A strong sense of social identification with the club positively influences member loyalty.

H7.b: Participation in club-organized social events increases members' social identification with the club.

It is interesting to explore whether socio-demographic factors influence members' behavior. Specifically, it would be valuable to analyse if members of different ages respond differently to sports participation. Benoit Dormal observed that individuals of different genders have distinct motivations for engaging in sports, which could affect their behavior. Furthermore, both the manager of the hockey club and the technical coordinator of the football club noted that location plays a significant role in member retention.

H8.a: Age has an impact on member loyalty.

H8.b: Gender influences member loyalty.

H8.c: Location affects member loyalty.

3. Methodology

3.1 Research Design

The data collection was carried out in two stages: an exploratory qualitative phase and a quantitative analysis. The qualitative phase involves exploratory interviews with club leaders to gain insights into the current loyalty practices and contextual specificities of amateur sports clubs. The quantitative phase consisted of a structured questionnaire allowing us to test our hypotheses with statistical tools.

3.2 Exploratory qualitative study

Following the literature review, three semi-structured interviews were conducted with the leaders of rugby, football, and hockey clubs. These exploratory interviews, each lasting approximately thirty minutes, allowed us to compare information from the literature with real-world practices. Several key themes were explored during these discussions. The interviews began with a brief presentation of the respective club before addressing the various strategies implemented, such as member benefits, communication, and event organization. The discussion then focused on assessing the effectiveness of these strategies, the challenges encountered in retaining members, and the reasons that might explain their departure. Finally, their past experiences with retention of members and the potential improvements for member engagement were tackled ¹.

3.3 Quantitative study

3.3.1 Questionnaire Design

As stated in our research question, “**Measuring the Effectiveness of Loyalty Strategies in Amateur Sports Clubs: A Quantitative Approach Based on Member Behavior Data in Brussels and Walloon Brabant.**”, the main data collection was conducted using a quantitative methodology. This approach is well-suited for measuring concepts not directly observable, such as the intentions, preferences, and attitudes of the respondents (Tharenou *et al.*, 2007). Several unobservable concepts were assessed including *member satisfaction (H1)*, *quality of interactions (H3.a, H3.b)*, *positive impact of team-building activities (H3.c)*, *social interactions (H4.b)*, *intangible benefits (H4.c)*, *perceived value (H6)*, and *social identification (H7.a)*.

Three data collection methods could be used in the context of a quantitative approach: surveys, existing data, and experiments (El-Chaarani & El-Abiad, 2021). In this thesis, the survey method was prioritized. This decision is justified by the limited availability of existing data on factors influencing the effectiveness of loyalty strategies in amateur clubs. Concerning the experimental method, it is not feasible to implement it within the scope of this thesis.

¹ The interview guide and transcripts can be found in Appendices 1, 9, 10 and 11 respectively.

Furthermore, conducting a quantitative study will allow us to test our hypotheses on a large sample of the targeted population. The questionnaire will be developed based on our literature review. We rely on the methodological principles outlined in *Management Research Methods* by Tharenou (2007) to ensure its rigor and comprehensiveness.

The questionnaire is structured into several sections to capture demographic data, club experience, and perceptions of various loyalty factors. All items measuring loyalty determinants used a five-point Likert scale (from "Strongly Disagree" to "Strongly Agree") to ensure ease of interpretation and facilitate statistical analysis. The final instrument was pre-tested to improve clarity and reliability.

The survey was designed to gather members' opinions on the various factors influencing loyalty in amateur sports clubs. The questionnaire began with a short introductory message explaining its purpose. It informed participants that all collected data would remain anonymous and be used exclusively for academic purposes, in compliance with informed consent principles and GDPR regulations. It was created using Google Forms². The questionnaire was conducted in French because it is the native language of our audience. The questionnaire is divided into four distinct sections.

The first section is dedicated to filtering questions. Those types of questions ensure that respondents match our target audience. This section includes three binary questions, with only "yes" or "no" as possible answers. The aim is to confirm that the respondent is an adult, an amateur player in one of the three sports covered in this thesis. If a respondent answers "no" to any of these questions, they are automatically redirected to the end of the survey and are not included in the analysis. The second part addresses the respondent's profile. These questions allow for the categorization of respondents. It consists of four multiple-choice questions tackling gender, age, the exact sport of the respondent, and information about the club's location and name. The third section assesses respondent loyalty to their club. It includes three multiple-choice questions: membership duration, intention to renew, and only for those who are not renewing, willingness to continue the sport elsewhere. This also includes a Likert scale measuring the extent to which the respondent would recommend the club. This structure helps

² The detailed questionnaire can be found in Appendix 2.

analyse retention trends and overall commitment to the sport. The final section is the most relevant one, as each hypothesis is assessed through a question using a five-point Likert Scale. This approach allows for a precise evaluation of respondents' perceptions regarding various statements. For thirteen of the questions, respondents were presented with the following response options: "*Strongly Disagree*" to "*Strongly Agree*". A slight variation was applied to a statement related to satisfaction, where the response options were: "*Not at all Satisfied*" to "*Completely Satisfied*". Additionally, for three of the questions assessing infrastructure quality and club location, the response scale was adapted to: "*Very Bad*" to "*Excellent*". In order to assess the consistency of responses, the question related to hypothesis H7.a was deliberately phrased in a reversed manner by introducing a negation, while maintaining the same response scale ranging from "Strongly Disagree" to "Strongly Agree." This approach helps verify the reliability and consistency of the answers. If a respondent fails to notice the reversed wording and answers similarly to the previous questions, they will be considered unreliable and consequently excluded from the data analysis.

The 5-point Likert scale has the advantage of being simple and easy to understand (Jebb *et al.*, 2021). Given the diversity of the target audience, this method ensures a good understanding of the questions, however it still allows respondents to nuance their statements (Jebb *et al.*, 2021). Those are the main reasons why the 5-point Likert scale was used instead of the 7-point scale.

3.3.2 Sample determination

The target population for this survey consists of members of amateur sports clubs practicing one of the following team sports: football, hockey, or rugby. To ensure the relevance and reliability of the data, only participants over the age of 18 were included, as minors are generally not considered to have full autonomy in deciding whether to remain in a specific sports club. This criterion makes it possible to identify a representative sample of the most active and engaged members in the context of amateur sports examined in this study.

Geographically, the scope of the survey was limited to clubs located in the Brussels-Capital Region and Walloon Brabant. This choice was motivated by considerations of logistical feasibility and proximity, which facilitated direct access to clubs and simplified the distribution process.

Efforts were made to ensure a balanced representation across the different sports by selecting an equivalent number of participants from each discipline. When an insufficient number of responses was observed in one sport compared to the others, additional clubs from that discipline were contacted to restore balance. To maximize the response rate, in-person visits were conducted at the clubs to distribute the questionnaire directly to members.

To determine the minimum required sample size for this study, as well as to conduct all subsequent quantitative analyses, the statistical software Stata was used. Recognized for its power and flexibility, Stata is particularly well-suited for social science research, allowing for the implementation of a wide range of statistical models, including linear and logistic regressions, as well as models with robust standard errors (*Why Use Stata?*, n.d.).

The minimum sample size was calculated using the “power R-squared” command in Stata, based on three key parameters: the power level, the significance level (alpha), and the expected R^2 value. All hypotheses in this study were tested using a statistical power of 90%, indicating a 90% probability of detecting a true effect when it is present. This corresponds to a 10% risk of committing a Type II error (failing to reject a false null hypothesis). The significance level (α) was set at 5%, which defines the critical region of the test: the set of extreme values of the test statistic under the null hypothesis that have a probability of less than 5%. If the test statistic falls within this region, the null hypothesis (H_0) is rejected (Van Belleghem, 2022). Having an alpha equal to 5% is commonly adopted for defining the critical region, offering a balance between Type I error risk (rejecting a true null hypothesis) and statistical power (Van Belleghem, 2022). In the context of linear models, an R^2 of 10% is generally considered acceptable in exploratory studies within the social sciences. Using these parameters, the Stata command indicated that a minimum of 236 respondents was required to achieve adequate statistical power.

3.3.3 Data processing

Primary data was collected through an online survey specifically created for this research. The questionnaire was administered via Google Forms, which allowed for automatic processing of responses into a csv file for analysis. As a first step, we performed a data quality check to remove incomplete or inconsistent responses. The inclusion of the reverse-coded question served as a reliability check to ensure that participants were answering thoughtfully and consistently.

The survey used a 5-point Likert scale to measure respondents' attitudes and perceptions. Statements expressing disagreement were coded with lower numerical values, specifically, responses such as “Strongly Disagree,” “Not at all Satisfied,” or “Very Bad” were assigned a value of 1. Intermediate responses were coded from 2 to 4 depending on the level of agreement or satisfaction, while the most positive answers, such as “Strongly Agree,” “Completely Satisfied,” or “Excellent”, were coded with a value of 5. This transformation enabled us to conduct quantitative analyses on our data. The digitization of other variables was adapted according to their nature. Binary variables, such as the intention to re-enrol in the current club or to continue practicing a sport, were coded as 1 for “Yes” and 0 for “No”.

Ordinal variables were coded from 1 to 5, as described above. Categorical variables, such as gender, age group, sport practice, club location, and membership duration, were also converted into numeric codes for statistical processing. For example, gender was coded as 1 for male, 2 for female, 3 for other, and 4 for prefer not to say. Age was coded from 1 (18–24) to 5 (over 55); sport as 1 for football, 2 for hockey, and 3 for rugby; location as 1 for Walloon Brabant and 0 for Brussels; and membership duration from 1 (less than one year) to 4 (more than six years).

3.3.4 Sample description

The questionnaire collected a total of 254 responses, with 13 being excluded by filter questions. Those participants were not meeting age criteria, not practicing the targeted sports in the amateur framework, or belonging to a club located outside the regions of Brussels or Walloon Brabant. Thus, the final sample consists of 241 valid respondents.

A total of 24 clubs were approached. Specifically, 8 football clubs were solicited, 9 hockey clubs, and 8 rugby clubs all provided data. In terms of geographic distribution, 65.6% of respondents belong to clubs located in the Brussels-Capital Region, while 33.2% are from Walloon Brabant.

The gender distribution is relatively balanced: 50.2% female, 49% male, 0.4% identifying as other, and 0.4% preferring not to specify their gender. Regarding the sports disciplines represented, 44.4% of respondents practice rugby, 19.1% football, and 36.5% hockey. Despite

efforts to balance responses across the three sports, football remains underrepresented in the final sample (figure 1).

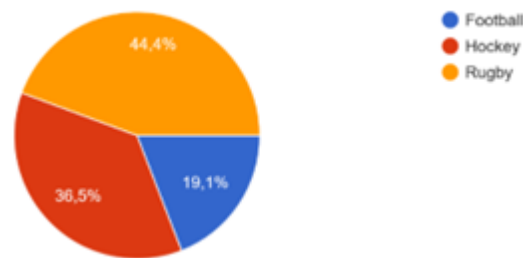


Figure 1: Distribution of sports represented

An email was sent to the federation to request the exact number of members in the Brussels and Walloon Brabant regions in order to assess the representativeness of the respondents in each sport. Regarding football, the sample includes 46 respondents out of 20,128 members affiliated with the Royal Belgian Football Association, representing approximately 0.23% of the total. For rugby, the sample includes 107 respondents out of 1,442 members affiliated with the Ligue Belge Francophone de Rugby, which also supported the dissemination of the questionnaire. This corresponds to a representativeness rate of approximately 7.42%. Finally, for hockey, 88 people responded out of 5,737 adult members in the Brussels and Walloon Brabant regions, resulting in a representativeness rate of approximately 1.53%. While this sample offers valuable insights, it does not fully reflect the overall composition of the Belgian sports population. This limitation will be further addressed in the concluding section of this master's thesis.

Among the respondents, 91.3% declared their intention to re-enrol in their current club next season. Among the 7.5% not planning to re-enrol, 44.4% stated they intended to stop this specific sport altogether, while 55.6% planned to continue in another club.

3.4 Statistical protocol

As mentioned in the introduction, loyalty can be divided into two components: attitudinal loyalty and behavioral loyalty, which correspond respectively to members' willingness to recommend the club and their actual re-enrolment. We begin by analyzing these two types of loyalty separately by conducting one multiple linear regression, one logistic regression, one with recommendation as the dependent variable, and the other with registration.

The different regression methods allows us to examine the relationship between a dependent variable, in this case, attitudinal loyalty, behavioral loyalty, or overall loyalty, and a set of explanatory variables (ranging from $X_{1,i}$ to $X_{17,i}$). This statistical technique helps to identify which factors significantly influence each form of loyalty and to what extent they contribute to explaining variations in members' behaviors and attitudes.

We then perform a multiple correspondence analysis (MCA), where the first dimension represents behavioural loyalty, and the second dimension captures attitudinal loyalty. MCA is a descriptive method used to reduce the dimensionality of categorical data and visually explore relationships between categories (Le Roux & Rouanet, 2010). It helps to identify patterns, trends, and clusters of respondents by positioning them within a two-dimensional space based on their loyalty characteristics. This method offers a complementary perspective to the regression analyses, allowing for a more understanding of how forms of loyalty interact and manifest across different member profiles.

3.4.1 Attitudinal loyalty regression

In our study, attitudinal loyalty is measured by the variable Y: the intention to recommend the club, assessed using a 5-point Likert scale. Although this variable is ordinal and discrete, we chose to treat it as continuous, following the argument presented in Norman (2010). The author demonstrates that parametric tests, such as linear regression, are robust to violations of the normality assumption and to the use of ordinal variables (Norman, 2010).

A first multiple linear regression is conducted to analyse the determinants of club recommendation by members³. This approach makes it possible to identify the explanatory variables that have a significant influence on attitudinal loyalty, measured here by the intention to recommend. The estimated model is presented below:

$$Y = \beta_0 + \beta_1 X_{1,i} + \beta_2 X_{2,i} + \beta_3 X_{3,i} + \beta_4 X_{4,i} + \beta_5 X_{5,i} + \beta_6 X_{6,i} + \beta_7 X_{7,i} + \beta_8 X_{8,i} + \beta_9 X_9 + \beta_{10} X_{10,i} + \beta_{11} X_{11,i} + \beta_{12} X_{12,i} + \beta_{13} X_{13,i} + \beta_{14} X_{14,i} + \beta_{15} X_{15,i} + \beta_{16} X_{16,i} + \beta_{17} X_{17,i} + \varepsilon_i$$

³ All outputs related to this regression can be found in Appendix 3.

Y : Recommendation	X _{6,i} : Communication (H2)	X _{13,i} : Perceived value (H6)
β_0 : Intercept	X _{7,X7,i} : Interaction coach (H3.a)	X _{14,i} : Social identification (H7.a)
X _{1,i} : Place (H8.c)	X _{8,i} : Team interaction (H3.b)	X _{15,i} : Location of the club (H8.c)
X _{2,i} : Sex (H8.b)	X _{9,i} : Physical benefits (H4.a)	X _{16,i} : Sport
X _{3,i} :Age (H8.a)	X _{10,i} : Social benefits (H4.b)	X _{17,i} : Psychological
X _{4,i} :Satisfaction (H1)	X _{11,i} : Infrastructure quality(H5)	benefits(H4.c)
X _{5,i} :Schedule (H2)	X _{21,i} : Material quality (H5)	ε_i : Error

This model includes 17 explanatory variables. To simplify the model structure and identify the variables that can be considered negligible in predicting attitudinal loyalty, we employed the LASSO (Least Absolute Shrinkage and Selection Operator) method. This is a regression method that minimizes the sum of the absolute values of the coefficients, constraining some to zero to eliminate unnecessary predictors and reduce overfitting (Han, 2024). This leads to some coefficients being reduced to zero, keeping only the most relevant variables (Han, 2024). According to the Lasso method, the following explanatory variables are not among the most relevant: age, schedule, communication, psychological benefits, interaction with the coach.

The Lasso method was chosen for variable selection, rather than stepwise regression. According to Han (2024), LASSO offers better cross-validity and reduces parameter overestimation, unlike stepwise, which is more sensitive to model uncertainty. By applying a penalty to the coefficients, LASSO enables more rigorous selection and better generalization of results (Han, 2024). Its use thus guarantees a more stable and interpretable model.

To ensure the correct interpretation of our results, we verified the validity of our model. A model qualifies as a multiple linear regression if it meets the following conditions: the existence of real coefficients, zero conditional expectation of errors given X, absence of collinearity, and homoscedasticity (Van Belleghem, 2022), along with a residual analysis (Pleyers, 2024).

First, we used the White test in Stata to assess homoscedasticity. Linear regression assumes constant error variance (σ^2) across observations, a key condition for estimator efficiency under the Gauss-Markov theorem. Our test returned a p-value of 0.0230, below the 5% threshold, thus rejecting the null hypothesis meaning that there is no evidence supporting the homoscedasticity of the model. As a result, we used linear regression with robust standard errors, which adjusts for heteroscedasticity to ensure valid statistical inference.

Second, we checked for multicollinearity using the Variance Inflation Factor (VIF), which detects correlations among explanatory variables that can distort parameter estimates. Following O'Brien (2007), a VIF below 10 indicates acceptable levels. Our mean VIF is 1.486, confirming minimal collinearity and no need to remove variables.

Third, we examined the residuals' distribution using the Jarque-Bera test. With a p-value of 2.0e-04 (lower than 0.05), we reject the null hypothesis, the model does not provide evidence supporting the normality of residuals. Given the presence of heteroscedasticity, we repeated the Jarque-Bera test on standardized residuals, dividing residuals by their estimated standard deviation, to obtain a more accurate assessment of normality. The resulting p-value is 1.8e-08, which leads us to reject the null hypothesis of normally distributed residuals. However, given our large sample size (241 observations), we can rely on asymptotic theory. According to this theory, with a sufficiently large number of observations, the estimators remain consistent and asymptotically normal even if the residuals deviate from normality (Van Bellegem, 2022). This implies that, despite the rejection of strict normality, the inference drawn from the model remains valid.

Having verified these key assumptions, we ran a robust multiple linear regression using the variables selected through the Lasso method. To assess model performance, we referred to the adjusted R-squared. The results can be found in the "Results" section.

3.4.2 Behavioral loyalty regression

Behavioral loyalty is measured by the variable Y: re-enrolment in the club, a binary variable. We use a logistic regression model to identify the factors influencing this intention. A logistic regression has been conducted to analyze the determinants of club re-registration by members. This outcome was modelled using a logistic regression, as the dependent variable is binary (1 = re-enrolled, 0 = not re-enrolled)⁴. The model initially included the same 17 explanatory variables used in the attitudinal loyalty analysis.

To refine the model and identify the most relevant predictors, the Lasso method was applied. However, the method returned only zero coefficients, indicating that these variables can be ignored without affecting the quality of the prediction. One plausible explanation lies in the

⁴ All outputs related to this regression can be found in Appendix 4.

strong imbalance of the dependent variable: 91.3% of respondents indicated that they would re-enrol in the club. This limited variability may reduce the model's ability to detect significant effects.

To address this issue, an alternative specification was considered using a complementary log-log Cloglog model. This type of model is better suited to situations where the event of interest is highly probable or rare, as it handles asymmetric outcome distributions more effectively (Mustafa, 2025). The Cloglog model thus provided a theoretically sound framework for the context.

Nevertheless, after estimating both the Cloglog and logistic models with the same set of predictors, only minimal differences in coefficients and p-values were observed. This similarity suggested that the Cloglog model did not offer significant improvements over the logistic regression. This decision allowed for consistent variable selection and ensured better integration with the overall modelling strategy.

3.4.3 Global loyalty regression

To gain a broader understanding of member loyalty, we sought to integrate both its attitudinal and behavioral components into a single, aggregate measure. Rather than analyzing these two forms of loyalty separately, as done in previous sections, we aimed to identify an unified structure that could reflect the overall loyalty profile of each respondent.

To achieve this, we used Multiple Correspondence Analysis (MCA), a method specifically designed for reducing and visualizing the structure of relationships among categorical variables (Le Roux & Rouanet, 2010). MCA is particularly suitable in this context because both indicators of loyalty, recommendation and re-enrolment, are categorical in nature. This technique allowed us to project individuals and response categories onto a lower-dimensional space that reflects their underlying similarity in terms of loyalty-related behaviors and attitudes⁵.

From this analysis, a synthetic loyalty score was derived by retaining the first principal dimension. This score summarizes how everyone's combination of responses aligns with a

⁵ All outputs related to this regression can be found in Appendix 5.

more or less loyal profile. In other words, it captures the latent loyalty tendency that links a member's intention to recommend the club with their decision to re-enrol. For easier interpretation, the scale was adjusted so that higher values correspond to stronger overall loyalty.

Once this composite loyalty score was constructed, it was used as the dependent variable in a linear regression model. The same explanatory variables used in the previous models, were included to examine what influences this broader notion of loyalty.

This final model offers a comprehensive view of member loyalty, integrating both what members say (attitudinal loyalty) and what they do (behavioral loyalty). The combination of MCA and regression analysis thus provides a more nuanced understanding of loyalty, going beyond isolated behaviors or opinions to identify consistent loyalty patterns across different member profiles.

This approach not only enriches the analysis but also reflects the complex and multidimensional nature of loyalty in amateur sports clubs. It serves as a bridge between theory and practice, offering clubs a more complete picture of what drives long-term engagement and how various factors interact to shape loyalty as a whole.

To simplify the model structure and identify the variables that can be considered negligible in predicting attitudinal loyalty, we employed the LASSO method. The following explanatory variables are not among the most relevant: age, schedule, communication, social benefits, interaction with the coach, location and material quality.

First, we used the White test in Stata to assess homoscedasticity. Our test returned a p-value of 0.000, below the 5% threshold, thus rejecting the null hypothesis meaning that there is no evidence supporting the homoscedasticity of the model. As a result, we used linear regression with robust standard errors, which adjusts for heteroscedasticity to ensure valid statistical inference.

Second, we checked for multicollinearity using the Variance Inflation Factor (VIF), a VIF below 10 indicates acceptable levels. Our mean VIF is 1.45, confirming minimal collinearity and no need to remove variables.

Third, we examined the residuals' distribution using the Jarque-Bera test. With a p-value of $9.7e-33$ (lower than 0.05), we reject the null hypothesis, the model does not provide evidence supporting the normality of residuals. Given the presence of heteroscedasticity, we repeated the Jarque-Bera test on standardized residuals, dividing residuals by their estimated standard deviation, to obtain a more accurate assessment of normality. The resulting p-value is 0, which leads us to reject the null hypothesis of normally distributed residuals. However, given our large sample size (241 observations), we can rely on asymptotic theory. According to this theory, with a sufficiently large number of observations, the estimators remain consistent and asymptotically normal even if the residuals deviate from normality (Van Belleghem, 2022). This implies that, despite the rejection of strict normality, the inference drawn from the model remains valid. Having verified these key assumptions, we ran a robust multiple linear regression using the variables selected through the Lasso method. The results can be found in the “Results” section.

3.4.4 Simple linear regressions

3.4.4.1 Simple linear regression with team interactions as dependent variable

We now aim to assess the influence of participation in team-building activities on team interaction quality. To do so, we estimate a simple linear regression to determine whether participation in these activities has a statistically significant effect on team cohesion ⁶. As with the previous regressions, it is essential to verify that the model assumptions are satisfied in order to ensure the validity of the interpretation. This leads us to the following regression line:

$$Y = \beta_0 + \beta_1 X_{1,i}$$

Y : Team interaction quality

$X_{1,i}$: Participation in team-building activities

β_0 : Intercept

ε_i : Error

A model qualifies as simple linear regression if it meets the following conditions: the existence of two real coefficients, zero conditional expectation of errors given X, and homoscedasticity (Van Belleghem, 2022), along with a residual analysis (Pleyers, 2024).

⁶ All outputs related to this regression can be found in Appendix 6.

First, we used the White test in Stata to assess homoscedasticity. Linear regression assumes constant error variance (σ^2) across observations, a key condition for estimator efficiency under the Gauss-Markov theorem. Our test returned a p-value of 0.0003, below the 5% threshold, thus rejecting the null hypothesis meaning that there is no evidence supporting the homoscedasticity of the model. As a result, we employed robust linear regression, which adjusts standard errors to ensure valid inference despite heteroscedasticity.

Secondly, given the presence of heteroscedasticity, we repeated the Jarque-Bera test on standardized residuals (dividing residuals by their estimated standard deviation) to obtain a more accurate assessment of normality. The resulting p-value is 1.8e-08, which leads us to reject the null hypothesis of normally distributed residuals. However, given our large sample size (241 observations), we can rely on asymptotic theory. According to this theory, with a sufficiently large number of observations, the estimators remain consistent and asymptotically normal even if the residuals deviate from normality. This implies that, despite the rejection of strict normality, the inference drawn from the model remains valid.

Having verified these key assumptions, we ran a robust simple linear regression. To assess model performance, we referred to the adjusted R-squared. According to Pleyers (2024), the adjusted R² reflects “the percentage of variability of the response explained by the model weighted by the number of variables in the model and the number of observations.”. In this model, the R-squared is 3.8%, which means that only a small portion of the variability in the dependent variable (Team interaction) is explained by the independent variable (Participation in team building events).

3.4.4.2 Simple linear regression with social identification as dependent variable

We now aim to assess the influence of participation to club activities on social identification. To do so, we estimate a simple linear regression to determine whether participation in these activities has a statistically significant effect on social identification⁷. As with the previous regressions, it is essential to verify that the model assumptions are satisfied in order to ensure the validity of the interpretation. This leads us to the following regression line:

$$Y = \beta_0 + \beta_1 X_{1,i}$$

⁷ All outputs related to this regression can be found in Appendix 7.

Y : Social identification

$X_{1,i}$: Participation to club activities

β_0 : Intercept

ε_i : Error

As with the previous regression, we make sure that this model meets the conditions to qualify as simple linear regression. First, we used the White test in Stata to assess homoscedasticity. Our test returned a p-value of 0.6266, greater than 5% threshold, thus not rejecting the null hypothesis of homoscedasticity meaning that there is no evidence supporting the heteroscedasticity of the model.

Secondly, we examined the residuals' distribution using the Jarque-Bera test. With a p-value of $2.0e-04$ (below 0.05), we reject the null hypothesis, supporting the non-normality of residuals. However, given our large sample size (241 observations), we can rely on asymptotic theory. This implies that, despite the rejection of strict normality, the inference drawn from the model remains valid.

Having verified these key assumptions, we ran a simple linear regression. To assess model performance, we referred to the adjusted R-squared. In this model, the R-squared is 6,4%, which means that only a small portion of the variability in the dependent variable (Social identification) is explained by the independent variable (Participation in Club activities)

4. Results

4.1 Descriptive statistics

	Count	Mean	SD
Satisfaction	241	4.212	0.696
Schedule	241	4.054	0.988
Communication	241	4.220	0.815
Coach interactions	241	4.382	0.568
Team interactions	241	4.610	0.630
Physical	241	4.270	0.815
Social	241	4.539	0.683
Psychological	241	4.365	0.790

	Count	Mean	SD
Infrastructure quality	241	3.734	0.849
Material quality	241	3.834	0.767
Perceived value	241	3.834	1.015
Social identification	241	3.871	1.216
Location	241	3.971	1.112

Table 1: Descriptive Statistics of Independent Variables

Table 1 presents the descriptive statistics (mean and standard deviation) for the explanatory variables used in the regression models. Overall, respondents reported high levels of satisfaction ($M = 4.21$, $SD = 0.70$) and positive perceptions across most service quality dimensions.

Specifically, the variables with the highest average scores were *Team Interactions* ($M = 4.61$), *Social outcome* ($M = 4.54$), and *Coach Interactions* ($M = 4.38$), suggesting that members are particularly satisfied with interpersonal aspects of the club. On the other hand, lower mean scores were observed for *Infrastructure Quality* ($M = 3.73$), *Material Quality* ($M = 3.83$), and *Perceived Value* ($M = 3.83$), indicating potential areas for improvement.

Regarding variability, most standard deviations are below 1, indicating relatively consistent responses. However, variables such as *Social Identification* ($SD = 1.22$) and *Location* ($SD = 1.11$) show greater dispersion, reflecting more diverse opinions among members on these dimensions.

4.2 Regression results

To identify the main predictors of member loyalty, we conducted multiple linear regression analyses with LASSO regularization. Three different dependent variables were tested: Willingness to recommend the club (Recommendation), re-registration next year (Registration), and a global loyalty factor which is a combination of recommendation and re-registration. The final models include only the most relevant predictors selected by LASSO.

4.2.1 Multiple linear regression with recommendation as dependent variable

Table 2 presents the results of the multiple linear regression analysis for the dependent variable *Recommendation*. The model explains approximately 60.6% of the variance in the dependent variable ($R^2 = 0.6064$), based on a sample of 241 observations.

Several variables were identified as statistically significant predictors of the intention to recommend the club. Among the socio-demographic variables, the “Prefer not to say” category for Gender had a significant negative association with recommendation ($p = 0.040$), while the “Other” category showed a strong positive association ($p < 0.001$). However, these two categories each correspond to only one respondent, and therefore their statistical significance should be interpreted with caution. The reference group for Gender was Man. No significant effect was found for Sport or Place.

Regarding the explanatory variables, Satisfaction ($p < 0.001$), Infrastructure Quality ($p = 0.004$), Perceived Value ($p = 0.001$), Team Interactions ($p = 0.031$), and Social Identification ($p = 0.001$) were statistically significant. Physical and Location were close to significance with p -values of 0.053 and 0.098 respectively. Other variables such as Social and Material Quality did not reach statistical significance.

Linear regression

Recommendation	Coef.	p-value	Sig
Place	.066	.338	n.s
Gender: Male	0	.	
Female	-.118	.09	n.s
Other	.756	0	***
Prefer not to say	-.417	.04	*
Sport : Football	0	.	
Hockey	-.123	.229	n.s
Rugby	.053	.579	n.s
Satisfaction	.273	0	***
Teammate interactions	.137	.031	*
Physical	.102	.053	n.s
Social	.059	.381	n.s
Infrastructure quality	.173	.004	**
Material quality	.022	.753	n.s
Perceived value	.142	.001	**
Social identification	.1	.001	**
Location	.049	.098	n.s
Constant	.156	.678	n.s
R-squared	0.606	Number of obs	241

*** $p < .001$, ** $p < .01$, * $p < .05$, n.s: not significant

Table 2: Regression Results - Recommendation as Dependent Variable

4.2.2 Multiple linear regression with global loyalty as dependent variable

Linear regression

Global loyalty	Coef.	p-value	Sig
Place	.114	.282	n.s
Gender : Male	0	.	
Female	.2	.075	n.s
Other	-1.526	0	***
Prefer not to say	-2.85	0	***
Sport : Football	0	.	
Hockey	-.101	.538	n.s
Rugby	-.297	.055	n.s
Satisfaction	.23	.088	n.s
Teammate interactions	.121	.277	n.s
Physical	.188	.064	n.s
Psychological	.098	.381	n.s
Infrastructure quality	.242	.001	**
Perceived value	.071	.312	n.s
Social identification	.134	.014	*
Constant	-4.419	0	***
R-squared	0.381	Number of obs	241

*** $p < .001$, ** $p < .01$, * $p < .05$, n.s: not significant

Table 3: Regression Results – Global loyalty as Dependent Variable

Table 3 shows the results of the multiple linear regression analysis for the dependent variable *Global Loyalty Score*. The model explains approximately 38.1% of the variance in the dependent variable ($R^2 = 0.3812$), based on a sample of 241 observations.

Among the socio-demographic variables, the categories “Other” ($p < 0.001$) and “Prefer not to say” ($p < 0.001$) under Gender were significantly associated with the loyalty score. However, it is important to note that each of these categories corresponds to only one respondent, and their statistical significance should therefore be interpreted with caution. No significant effects were found for Place or Sport, although the Rugby category was close to the significance ($p = 0.055$).

Regarding the explanatory variables, Infrastructure Quality ($p = 0.001$) and Social Identification ($p = 0.014$) were found to be significant positive predictors of global loyalty. Other variables such as Satisfaction ($p = 0.088$) and Physical Environment ($p = 0.064$) were close to the threshold of significance but did not meet the conventional cut-off of $p < 0.05$. The remaining predictors, including Team Interactions, Psychological factors, and Perceived Value, were not statistically significant.

4.2.3 Simple linear regression with team interactions as dependent variable

Linear regression

Team interactions	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]	Sig
Participation to team-buildings	.367	.171	2.15	.033	.03 .703	*
Constant	4.29	.166	25.78	0	3.963 4.618	***
Mean dependent var		4.610	SD dependent var		0.630	
R-squared		0.038	Number of obs		241	
F-test		4.611	Prob > F		0.033	

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 4: Regression Results – Team Interactions as Dependent Variable

Table 4 displays the results of the linear regression model using the quality of team interactions as the dependent variable. The analysis included one explanatory variable: participation in team-building activities.

The model explains approximately 3.8% of the variance in *Team Interactions* ($R^2 = 0.0381$), based on 241 observations. The results indicate a statistically significant and positive association between participation in team-building events and quality of team interactions ($p = 0.033$).

4.2.4 Simple linear regression with social identification as dependent variable

Linear regression

Social identification	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]	Sig
Participation to club activities	.761	.182	4.17	0	.401 1.12	***
Constant	3.265	.161	20.31	0	2.949 3.582	***
Mean dependent var		3.871	SD dependent var		1.216	
R-squared		0.064	Number of obs		241	
F-test		17.400	Prob > F		0.000	

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 5: Regression Results – Social Identification as Dependent Variable

Table 5 reports the results of the linear regression model using *Social Identification* as the dependent variable. The model includes a single explanatory variable: participation in club activities.

The analysis explains approximately 6.4% of the variance in *Social Identification* ($R^2 = 0.0636$), based on a sample of 241 respondents. The results reveal a strong and statistically significant positive association between participation in club activities and social identification with the club ($p < 0.001$).

5. Discussion

5.1 Interpretation of results

This study aimed at examining the factors influencing member loyalty in amateur team sports clubs. Through a quantitative approach, we tested several hypotheses related to satisfaction, service quality, perceived value, and social identification. The following discussion interprets the obtained results, compares them with existing literature, and highlights possible explanations for the significant and non-significant relationships observed.

Our findings support the hypothesis that satisfaction positively influences attitudinal loyalty, which is consistent with previous research. Min (2022) found that members of sports clubs are more likely to remain loyal when they report high levels of satisfaction. Similarly, Kölbl *et al.* (2024) and Vial *et al.* (2024) concluded that satisfaction plays an important role in members' willingness to stay in their club, based on studies conducted in tennis and equestrian settings. Beyond assessing the overall effect of satisfaction on loyalty, we also examined whether this relationship varies across the three team sports studied⁸. Satisfaction has a positive impact on loyalty across all three sports, with the strongest effect observed among hockey players. It means that a satisfied hockey player is more likely to remain loyal to their club than a football or rugby player.

Regarding program quality, we divided it into two components: schedule and communication. *Schedule* reflects how well the training times align with the member's schedule, while *communication* refers to the quality of information provided by the club. Neither variable has a significant effect on member loyalty. However, their respective mean scores ($M = 4.05$ and $M = 4.22$) suggest that members are generally satisfied with the program quality offered by their club. This implies that even when program quality is perceived as high, it does not necessarily prevent some members from leaving.

Previous research has shown that the instructor is essential in fostering member loyalty (Vial *et al.*, 2024; Kopanidis, 2023). Kopanidis (2023) highlights that a coach's ability to create a supportive social environment can directly influence members' decisions to remain in the club. These findings are based on research conducted in martial arts clubs. In contrast, our results

⁸ In Appendix 8, you can find the interactions between sports.

demonstrate that the quality of interactions between the coach and the member does not have a significant impact on attitudinal loyalty. This difference may be explained by the context of our study, which focuses on team sports rather than individual disciplines. In team-based settings, the coach's influence may be less central, while peer dynamics and group cohesion play a more important role in shaping loyalty. Our findings support this interpretation, as we observed a positive effect of teammate interactions quality on attitudinal loyalty. This aligns with previous studies showing that social interactions within a sports community enhance members' behavioral intentions and overall engagement with the club (Casper & Stellino, 2008; Yim *et al.*, 2021). It is worth noting that, when analysing the effect of team interaction quality within each sport separately, no statistically significant impact on loyalty was found. These results should be interpreted with caution, as splitting the sample by sport reduces statistical power, making it more difficult to detect potential effects due to the smaller group sizes.

To further explore the factors that may influence team dynamics, additional analysis shows that participation in team-building activities is associated with better interactions between teammates. These findings align with those of Kong *et al.* (2020), who identified team-building activities as a factor contributing to group cohesion, even within a corporate context. This effect remains modest, as it explains only 3.8% of the variance in team interaction quality ($R^2 = 0.038$). This suggests that while team-building activities can contribute to fostering a positive team atmosphere, other factors may play a more substantial role.

Sports club members seek to improve their physical condition and skills through regular participation in physical activity (Deelen *et al.*, 2018). In martial arts, participation is often motivated by personal development, increased self-confidence, and stress reduction (Ko & Kim, 2010). Our findings contrast with these prior studies, as none of the outcome dimensions (physical, social, or psychological) indicates a significant effect on loyalty in the global model. However, the physical outcome dimension has a p-value close to the threshold of significance ($p = 0.053$), which may suggest a potential trend.

When analyzing the effect by sport, our results reveal that physical outcomes positively influence attitudinal loyalty in hockey and football, and to a lesser extent in rugby. Regarding overall loyalty, physical outcomes have a significant impact across all three sports, with no substantial differences between them.

In addition, psychological outcomes positively affect attitudinal loyalty in hockey and football but have no significant effect in rugby. A possible explanation can be found in the study by

Biernat *et al.* (2018), who suggest that for some individuals, sport is fully integrated into their lifestyle. Their participation is no longer evaluated based on immediate benefits, but rather perceived as a regular and stable part of everyday life. While members may still enjoy the positive effects of their sporting activity, these outcomes do not appear to play a decisive role in shaping their loyalty to the club, except in specific sports where certain outcomes (e.g., physical or psychological) may be more strongly valued.

Infrastructure quality stands out as a key factor with a positive effect on member loyalty. It influences attitudinal loyalty and overall loyalty. This finding is supported by the literature (Kölbl *et al.*, 2024). When comparing sports, this effect is not statistically significant in football, suggesting that infrastructure quality positively influences loyalty only among hockey and rugby players.

As for material quality, its influence on loyalty appears to be relevant only in hockey. This may be because equipment quality is essential for player safety, especially for goalkeepers (Royal Belgian Hockey Association, 2024). As Benoît Dormal, manager of the Ixelles Hockey Club, explains, clubs often provide protective equipment for goalkeepers, which can directly affect members' experience and perception of the club. In contrast, football and rugby require less individual equipment, which may explain why material quality is not a decisive factor for loyalty in those sports.

Min (2022) demonstrates that a higher perceived value increases the likelihood of a member remaining loyal to their club. Our results confirm this relationship, showing that perceived value positively influences attitudinal loyalty. This is consistent with the findings of Kölbl *et al.* (2024), which suggest that members report greater satisfaction when the membership fee is perceived as justified by the quality of services provided.

When analyzing the interaction effects by sport, perceived value was found to have a similar positive impact on attitudinal and overall loyalty in hockey and football. However, it does not appear to influence loyalty among rugby players. These differences may partly reflect the broader social contexts in which these sports are embedded. Field hockey is often perceived in Belgium as an elite sport (Bertrand, 2018), whereas football is more commonly associated with working-class communities (Claron & Lagarde, 2024). This social distinction is also reflected in the membership fees, which tend to be significantly higher in hockey than in football (Bertrand, 2018). As a result, hockey players may have higher expectations regarding the quality of facilities, equipment, and overall club services. In contrast, football members may

prioritize affordability, and thus be more willing to accept compromises such as infrastructure quality.

A sense of belonging to the club is an important factor in enhancing member engagement and loyalty (Kopanidis, 2023; Kölbl *et al.* 2024). Our results support the hypothesis that social identification with the club positively influences attitudinal loyalty. The more members feel integrated into the club, the more likely they are to renew their membership and to recommend the club to others. Bodet (2012) emphasizes that deeper involvement in sports participation strengthens group identification, which in turn reduces the likelihood of members wanting to switch clubs. In line with this, our analysis confirms that participation in club-organized activities further reinforces this sense of belonging.

When comparing the three sports, social identification influences loyalty only in hockey and rugby, with a stronger effect in hockey. This may reflect the strong club spirit in hockey, where it is common for several family members to be involved in the same club (Dormal, 2025). Rugby also promotes a culture of solidarity and mutual support, often described as a "big family" (Darbon, 2007). In contrast, football's more popular nature may limit the development of such a familial atmosphere.

The hypothesis that the club's proximity to members' homes influences their loyalty is not supported by our results. The analysis of the mean of the variable ($M = 3.97$) indicates that members do not necessarily live close to the club. This suggests that geographic convenience is not a determining factor, and that members may be willing to travel further when other aspects are perceived as more important in their decision-making process. Similarly, demographic factors such as age and gender demonstrate no significant influence on loyalty. These findings suggest that member loyalty in amateur sports clubs is more defined by experiential and psychological dimensions than by sociodemographic characteristics.

Hypothesis	Independent Variable	Dependent Variable	Effect	Interpretation
H1	Satisfaction	Attitudinal loyalty	Positive	Confirmed
	Satisfaction	Global loyalty	No effect	Rejected
H2	Program quality	Attitudinal loyalty	No effect	Rejected
	Program quality	Global loyalty	No effect	Rejected
H3. a	Coach interactions	Attitudinal loyalty	No effect	Rejected
	Coach interactions	Global loyalty	No effect	Rejected
H3. b	Teammate interactions	Attitudinal loyalty	Positive	Confirmed
	Teammate interactions	Global loyalty	No effect	Rejected
H3. c	Participation in team-buildings	Teammate interactions	Positive	Confirmed
H4. a	Physical outcome	Attitudinal loyalty	No effect	Rejected
	Physical outcome	Global loyalty	No effect	Rejected
H4. b	Social outcome	Attitudinal loyalty	No effect	Rejected
	Social outcome	Global loyalty	No effect	Rejected
H4. c	Intangible outcome	Attitudinal loyalty	No effect	Rejected
	Intangible outcome	Global loyalty	No effect	Rejected
H5. a	Infrastructure quality	Attitudinal loyalty	Positive	Confirmed
	Infrastructure quality	Global loyalty	Positive	Confirmed
H5. b	Equipment quality	Attitudinal loyalty	No effect	Rejected
	Equipment quality	Global loyalty	No effect	Rejected
H6	Perceived value	Attitudinal loyalty	Positive	Confirmed
	Perceived value	Global loyalty	No effect	Rejected
H7. a	Social identification	Attitudinal loyalty	Positive	Confirmed
	Social identification	Global loyalty	Positive	Confirmed
H7. b	Participation club activities	Social identification	Positive	Confirmed
H8. a	Age	Attitudinal loyalty	No effect	Rejected
	Age	Global loyalty	No effect	Rejected
H8. b	Gender	Attitudinal loyalty	No effect	Rejected
	Gender	Global loyalty	No effect	Rejected
H8. c	Location	Attitudinal loyalty	No effect	Rejected
	Location	Global loyalty	No effect	Rejected

Table 6: Overview of Tested Hypotheses and Results

5.2 Managerial implications

This study offers valuable insights for managers of football, hockey, and rugby clubs. By identifying the drivers of member loyalty, it helps clubs prioritize strategic actions to strengthen engagement and improve long-term retention.

The first recommendation is to place greater emphasis on member satisfaction. During our interviews with club managers, many reported that they assess satisfaction primarily through re-registration rates. However, our findings suggest that this metric alone does not accurately reflect how satisfied members truly are. Managers should ensure that members' expectations are being met more directly. To do so, they could implement regular feedback mechanisms, such as satisfaction surveys, to monitor perceptions and make necessary adjustments to the services offered.

The positive effect of team interaction quality on loyalty highlights the importance of fostering group cohesion. Organizing team-building activities can help strengthen the bonds between members. While this variable explains only 3.81% of the variance in loyalty, its effect is significant and can easily be activated at a low cost.

Although it appears, thanks to our study, that the coaches do not directly affect member loyalty, steps can be taken to enable them to contribute more actively to shaping group dynamics. Providing training in soft skills could allow coaches to foster a more positive and cohesive team atmosphere. It is also possible that the coach has an indirect influence on group cohesion, which in turn affects loyalty. Future research could further explore this potential indirect relationship.

The quality of the physical environment is a strong predictor of attitudinal and overall loyalty. This dimension is often overlooked in amateur sport settings, yet it plays a direct role in shaping members' overall perception of the club. Even small improvements, such as regular cleaning or basic infrastructure maintenance, can have a meaningful impact on member satisfaction and retention.

When members perceive that the membership fee is justified by the quality of services provided, their loyalty tends to increase. Clubs should aim to be transparent about how membership fees are allocated so that members better understand the value they receive in return. Clear communication in this regard can help reinforce trust and justify the cost of membership.

Members who participate in club-organized activities tend to develop a stronger sense of belonging. During our interview with Benoît Dormal, he pointed out that participation rates in these activities are generally low. To address this, clubs should promote such events more actively and diversify the types of activities offered, so that all members can find something they enjoy. Assigning community leaders within teams could also help motivate teammates to get involved. In addition, clubs could communicate more effectively their core values and ensure alignment between those values and their activities. Burrmann *et al.* (2020) suggest that clearly defined social values and norms play an important role in strengthening members' sense of belonging.

6. Conclusion

6.1 Conclusion

This dissertation aims to identify the factors that significantly influence member loyalty in amateur sports clubs, focusing on three team sports. Using a mixed methodological approach combining exploratory qualitative interviews and a quantitative survey, we tested eight hypotheses represented by 17 variables. The results shed valuable light on the mechanisms that foster member loyalty.

Firstly, satisfaction appears to be a key determinant of attitudinal loyalty, with a particularly strong effect observed among hockey players. This underlines the importance of meeting member expectations and ensuring a positive experience. Clubs should regularly assess member satisfaction using short, targeted surveys.

Secondly, the quality of the club's infrastructure has a significant and positive impact on member loyalty, particularly in hockey and rugby. Although no effect was found in football, this result highlights the importance of the physical environment in certain sports. It is therefore advisable to invest in the maintenance and improvement of infrastructure, where appropriate.

Thirdly, the perceived value of membership, i.e. the belief that the fee is justified by the services provided, has a significant influence on loyalty, particularly in football and hockey. When members feel that the price paid is fair in relation to the benefits received, they are more inclined

to remain loyal. Clubs should clearly explain the membership fee structure and what it covers in order to reinforce perceived value.

Fourthly, identification with the club, or a sense of belonging, has a strong positive influence on both attitudinal and behavioral loyalty. This emotional bond plays a crucial role in members' propensity to renew their membership and recommend their club. To reinforce this sense of belonging, clubs can organise inclusive events and adopt communication based on their values.

Finally, interactions between teammates have a moderate but significant effect on attitudinal loyalty. Strong interpersonal relationships enrich the overall club experience. To promote social cohesion, it is advisable to organise simple, friendly activities, and to train coaches in interpersonal skills.

These results allow us to answer our research question: 'Measuring the effectiveness of loyalty strategies in amateur sports clubs: A quantitative approach based on behavioral data from members in Brussels and Walloon Brabant.' In a nutshell, the most effective levers for encouraging loyalty are member satisfaction, the perceived value of membership, the quality of the infrastructure (depending on the sport), the social identification to the club, and the quality of interactions between teammates.

6.2 Limitations

The first limitation concerns the distribution of sports among the participants. There is a certain balance between respondents who play rugby (44.4%) and those who play hockey (36.5%). On the other hand, the proportion of football players is much lower (19.1%), creating a significant imbalance. Although we attempted to correct this disparity by soliciting more football clubs throughout the collection period, the number of respondents in this discipline increased very little. This unbalanced distribution limits comparability between sports and reduces the representativeness of the results for football. This may influence conclusions about the differences or similarities of factors between the sports studied.

Two other limitations concern the geographical scope of the study and the low proportion of respondents relative to the total number of members in the targeted regions, which together constitute a dual limitation. On the one hand, the analysis focused solely on clubs located in Brussels and Walloon Brabant. However, these regions may include clubs with financial

resources that differ significantly from those in other parts of the country, which can influence loyalty practices and introduce bias into the results. According to Statbel (2021), Walloon Brabant is the second richest province in Belgium in terms of income per capita and in the Brussels-Capital Region the clubs surveyed are predominantly located in the wealthier municipalities. These two socio-economic extremes may limit the generalizability of the findings to other regions of the country. On the other hand, despite efforts to disseminate the questionnaire, the response rate remains very low compared to the total number of registered members in these regions: 0.23% for football, 1.53% for hockey, and 7.42% for rugby. This low level of participation affects the statistical robustness of the analyses and compromises the extent to which the conclusions can be applied at the national level.

A further limitation relates to the evolution of the sample during the data collection process. In order to reach the minimum required sample size and rebalance the distribution between sports, additional clubs were contacted at a later stage. This allowed us to increase the number of respondents, it may introduce a recruitment bias. Indeed, newly solicited members could differ in profile or motivation from those who responded earlier, which may affect the internal consistency of the sample and the comparability of responses. Furthermore, the questionnaire was distributed in person in each club. Although this boosted the participation rate, it may have influenced participants' responses, as they might have felt encouraged to provide more positive opinions due to the presence of their coach and teammates. These contextual influences should be considered when interpreting the results. To limit these biases in future research, it would be advisable to favour a fully online and anonymized distribution of the questionnaire, without any direct involvement from the researchers or the coaches. Sports federations could also play a key role by facilitating access to clubs, ensuring a centralized and neutral distribution.

This research relies on the assumption of continuity of ordinal variables, in particular the variable measuring intention to recommend the club captured using a Likert scale. Although this type of variable is, by nature, discrete and ordinal, treating them as continuous allows to integrate them into a multiple linear regression model. Some authors point out that the intervals between the modalities of a Likert scale are not necessarily equidistant, which could introduce bias into the analysis (Norman, 2010). However, Norman (2010) argue that parametric tests remain robust even when these assumptions are violated. He demonstrates that techniques such as regression, ANOVA, and correlation produce reliable results. Drawing on old empirical

studies, he shows that parametric methods perform well with ordinal data, even when distributions are non-normal or skewed. The central limit theorem further justifies this approach, as it ensures that with a sufficiently large sample, the sampling distribution of the mean approximates normality, regardless of the original distribution of the data (Norman, 2010). One of the limitations of this dissertation therefore lies in this assumption of continuity, which, although common and supported by the literature, remains a methodological simplification. This choice was made for the sake of clarity, readability, and interpretability of the results, but it deserves to be explored further in future research using more advanced statistics.

6.3 Future research

This study examined the factors influencing loyalty in amateur football, hockey, and rugby clubs. While the primary aim was to identify general drivers of loyalty across team sports, we also explored whether sport-specific differences existed. Interestingly, our findings revealed differences between the three sports. Nevertheless, the limited sample size within each sport reduces the statistical power of these sub-analyses. Future research could focus specifically on comparing these sports in greater depth, using larger and more balanced samples. Several hypotheses were proposed in the discussion to explain these variations; testing them empirically could provide valuable insights into how sport-specific cultures and expectations shape member loyalty.

In addition, most existing studies focus on individual sports. It would be valuable to expand this research to other team sports such as volleyball, basketball, or ultimate frisbee, where team dynamics, group cohesion, and peer influence may shape loyalty differently.

Finally, our study focused on adult members, yet a significant proportion of amateur club members are children and teenagers. Future research could investigate the factors that influence parents' willingness to keep their children enrolled in a club. This perspective could offer valuable guidance to club managers aiming to strengthen long-term member retention.

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