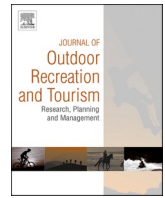


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Research Article

The role of motivations and satisfaction in repeat participation in cycling tourism events

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ABSTRACT

With the rise of international cycling tourism, it is necessary to study the role that motivations and satisfaction play in explaining the probability of repeat participation. This study analyses a sample of 1098 participants in the "Mallorca312", an international road cycling race. The results confirm the importance of motivations related to contemplation, lifestyle, social interaction, and the satisfaction dimension before, during and after service increase the probability of repeat participation. Furthermore, the findings contribute to the theory of the characterization and behaviour of cycling tourists, in addition to helping event organisers and destination management to improve their marketing strategies.

Management implications: This article provides management implications for enhancing marketing campaign effectiveness and repeat participation in sports tourism events. These suggestions will

- Promote more sustainable tourism and maintain constant demand outside peak season,
- Focus promotional campaigns on motivational dimensions that increase the likelihood of repeat participation,
- Emphasize experiential aspects and social interactions in event organization,
- Vary challenges and new routes to sustain participant interest.

The study provides information to identify and attract the most profitable and potentially loyal market segments, thereby improving segmentation efficiency, promotional campaign effectiveness, and the event's economic performance.

1. Introduction

Cycling tourism is currently a growing phenomenon, both in the number of participants and events held, as in the diversity of disciplines engaged in around the world. Most research into cycling tourism has focused on countries such as Australia or South Africa (Han, Lho, Al-Ansi, & Yu, 2020; Kruger & Saayman, 2014; Lamont & Buultjens, 2011; Shipway, King, Lee, & Brown, 2016) and particularly on continental Europe (Ferrucci et al., 2021; Malchrowicz-Moško, Młodzik, León-Guereño, & Adamczewska, 2019; Perić, Dragičević, & Škorić, 2019; Rejón-Guardia, García-Sastre, & Alemany-Hormaeche, 2018; 2020). Due to its economic potential and sustainable practices (Plevnik et al., 2015), certain administrations and governments are supporting its development (Buning & Lamont, 2020; Duglio & Beltramo, 2017). In

common with other sports tourism events, cycling events provide economic opportunities for the regions which host them (Perić et al., 2019; Shonk & Chelladurai, 2008). As an example, the most recent reliable data indicate that the annual economic impact of cycling trips is approximately 44 million euros (Bodor, 2016). Cycling associations organizing world championships attribute a gross added value of € 8.2 million to the UCI Road World Championship 2019 with a total attendance of 721,000 cyclists (UCI, 2019).

In the course of the most recent ten years, the Balearic Islands have started to have some expertise in sports the travel industry, advancing various games and holding small and medium-sized events, taking advantage of existing infrastructures which have not required significant public investment (Gibson, Kaplanidou, & Kang, 2012). In that sense, the sport of cycling has become highly famous between numerous

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English and Germans inhabitants and tourists since 2015 (Rejón-Guardia et al., 2018, 2020). With more than 1600 km of courses with normalized street signage, a velodrome and 60 inns cooking explicitly for cyclists, as well as both amateur and professional competitions (Challenge Mallorca, Cinturón Ciclista Vuelta Ciclista a Mallorca, Vuelta Cicloturista Internacional, Marcha Cicloturista Mallorca 312) the Balearic Islands is an optimal setting for the pre-periods of both novice and expert groups and are considered as Europe's cycle tourism paradise (GOIB, 2023). Cycling events have an incredible potential to neutralize the irregularity of tourist demand, which is concentrated in the summer months. Thus, the most recent reports indicate the beneficial economic effect created by more than 150,000 cyclists, who leave more than one million overnight stays and approximately 150 million euros each year in the economy of the Balearic Islands.

Although cycling is a niche product with great potential (Getz & McConnell, 2011) and the Balearic Islands can benefit from it, it is important to highlight that there are certain gaps in research related to this topic. Throughout the literature review, it is observed that most studies have addressed aspects such as motivations (Kruger, Hallmann, & Saayman, 2016), satisfaction (Mur-Sangrà, Abella-Garcés, & Barlés-Arizona, 2020; Yoon & Uysal, 2005) and repeat participation in cycling tourism (Kaplanidou & Gibson, 2010), but have mainly focused on specific cycling disciplines (Lamont & Jenkins, 2013) and have not explored in-depth the relationship between different variables and their interaction. In this regard, it is necessary to conduct comparative research analysing the differences and similarities between the motivations of tourists who practice road cycling and other types of cycling (Streicher & Saayman, 2010), as well as studying how these motivations influence satisfaction (Lee, Kang, & Lee, 2013) and repeat participation in cycling tourism events (Kaplanidou, Jordan, Funk, & Ridinger, 2012). Furthermore, it is necessary to analyse how participants' demographic characteristics (Kruger & Saayman, 2014) affect the likelihood of repeating participation and their relationship with the expenditure made during the event (Mullenbach, Mueller, & Graefe, 2020).

Therefore, this study primarily aims to address the gaps in research and provide a deeper understanding of the key variables and their interaction in the field of cycling tourism and related events. In doing so, it seeks to contribute to the knowledge in this field and provide valuable information for designing effective marketing strategies in the cycling tourism sector.

This research aims to contribute to the understanding of cycling event participation by identifying the different motivations and aspects of event satisfaction that explain the likelihood of repeat participation, analyzing the most relevant segments of participating cycling tourists, and examining tourist behavior in terms of repeat participation and expenditure. By employing a three-stage multimethod analysis approach, the study provides novel insights into the main motivations for participating in a cycling event and the primary dimensions that explain cyclists' behavior in sporting events. Furthermore, this research explores how motivations and satisfaction with the event explain the likelihood of repeat participation, addressing a gap in the literature on comparative studies of cycling events.

The theoretical conclusions contribute to the literature regarding the analysis of the influence of motivational factors and satisfaction on the loyalty of participants in road cycling race events. The findings help to determine the profile of the most profitable segments of cycling tourists in the European context. As for the practical implications, the study's findings will assist in optimising marketing campaigns and improving loyalty programmes in markets that send cycling tourists, contributing to transforming the host destinations of cycling tourism events into tourist attractions with the capacity to drive the tourism industry and attract tourists at different times of the year. Overall, this research contributes to the scientific understanding of motivations, satisfaction, and tourist behaviour in cycling tourism events. It provides valuable information for event organisers and host destinations to improve their offerings and promotional strategies.

To do it so, this study is structured as follows: firstly, a review of the literature on the analysis of the motivations and satisfaction of the sports tourist, examining the relevance of sport tourist segmentation for the target groups. In the methodology section, to achieve the objectives set, multivariable analytical techniques were applied. Specifically, a logistic regression was used to analyse repeat participation, and a decision-tree analysis was used to identify distinct segments of tourists. To determine the relationship between the segments identified and expenditure, a Welch's *t*-test was used. Finally, the theoretical and practical observations regarding the segments of the cycling tourists identified are discussed, followed by the implications of the findings and possible future lines of investigation.

2. Literature review

2.1. Cycling tourism events

In the realm of sports tourism, the organization and management of sports events have become critical strategic elements for host destinations, given the potential economic, social, and environmental benefits (Henderson, Foo, Lim, & Yip, 2010; Snelgrove & Wood, 2010). As a result, sports events have emerged as crucial tools for shaping tourism marketing strategies (Salgado-Barandela, Barajas, & Sánchez-Fernández, 2019; Ziakas, 2010, 2014).

Sports tourism has recently experienced significant growth and definitional evolution (Weed, 2005). The heterogeneity of the concept has made it challenging to establish a universally accepted definition. Drawing from Standeven and Knop (1998), Weed (2005), and Lee, Chen, and Huang (2014), sports tourism can be defined as "sport-based travel away from the home environment for a limited time, where the sport is characterized by unique rule sets, competition related to physical prowess and play" (Hinch & Higham, 2001, p. 49). Cycling tourism, a subset of sports tourism, is defined by Lamont (2009) as: "trips away from one's home region with active or passive participation in cycling as the primary purpose" (p. 21). This definition encompasses passive tourists, race spectators, and active participants in competitive and non-competitive cycling events (Lee et al., 2014; Ritchie, Tkaczynski, & Faulks, 2010).

Like many other sports tourism events, cycling events offer economic opportunities for host regions (Perić et al., 2019; Shonk & Chelladurai, 2008). Data from 2016 indicate that cycling tourism generated approximately €44 billion in economic impact across Europe (Bodor, 2016). Germany ranked first with 607 million one-day bicycle trips, contributing an estimated 11,370 million euros, followed by France with 373 million one-day bicycle trips and 7490 million euros. Compared to the figures for Germany and France, cycling tourism in Spain still needs to be developed. However, it was estimated that 80 million one-day cycling trips would be made on the Iberian Peninsula in 2016, contributing 1620 million euros to the Spanish economy (Weston, Davies, Lumsdon, & McGrath, 2012, p. 196). Therefore, cycling tourism has great potential in Spain (Kruger, Hallmann, & Saayman, 2016; Rejón-Guardia et al., 2018, 2020), especially in regions such as the Balearic Islands, where there is more than 1600 km of roads with standardised signage and a suitable climate which makes them the destination of choice for many European cycling teams, both to train and to compete (Ginard, 2017).

Academic research into cycling tourism events has increased considerably in the last twenty years, highlighting the existence of different disciplines of the sport according to the terrain on which they are run, the type of bicycle used, or the accessories required. The main studies have focused on disciplines such as road cycling (LaChausse, 2006); mountain biking (Buning, Cole, & Lamont, 2019); downhill (Hagen, 2013); or the latest trend, gravel (Mullenbach et al., 2020). They have been studied in different parts of the world, such as the United States (LaChausse, 2006); Australia (Lamont & Buultjens, 2011); Tanzania (Nkurunziza, Zuidgeest, & Van Maarseveen, 2012); Canada

(Abernethy, Dixon, Holladay, & Koo, 2022; Damant-Sirois, Grimsrud, & El-Geneidy, 2014); South Africa (Kruger, Hallmann, & Saayman, 2016); New Zealand (Symmonds, Hammit, & Quisenberry, 2000); or Spain (Rejón-Guardia et al., 2018, 2020).

Of particular note are the analyses of the two main disciplines of this sport: road cycling (Brown, O'Connor, & Barkatsas, 2009; Rejón-Guardia et al., 2018; Streicher & Saayman, 2010) and mountain biking (Abernethy et al., 2022; Kruger & Saayman, 2014; LaChausse, 2006; Rejón-Guardia, Alemany-Hormaeche, & García-Sastre, 2020; Skar, Odden, & Vistad, 2008). Studies focused on the comparison between the two disciplines (road vs mountain biking) (Kruger & Saayman, 2014) or comparisons with other sports, such as running (Getz & McConnell, 2014; Perić et al., 2019), are also important.

Researchers and industry practitioners have sought to better understand race participants and their behavior due to the unique characteristics of cycling tourism (Han et al., 2020; Lamont & Buultjens, 2011). Early research predominantly focused on describing participant profiles through socio-demographic, motivational, and behavioral variables (Kruger, Myburgh, & Saayman, 2016; Kruger & Saayman, 2014). Various theories from leisure, recreation, and tourism fields have been employed to analyse motivations, such as self-determination theory (SDT) (Deci & Ryan, 2015), push and pull motivations (Abernethy et al., 2022; Rejón-Guardia et al., 2018, 2020), and the theory of planned behavior (TPB) (Han, Meng, & Kim, 2017).

A considerable number of academic studies have focused on tourist behaviour and the economic impact of cycling tourism, drawing the conclusion that the type of sports event and discipline influence both the motivations for participation in competitions and the economic impact generated, the latter being greater in those disciplines which take place over a greater number of hours and/or days at the destination (Kruger & Saayman, 2014). Similarly, in sports events tourism, the factors influencing the intention to return to participate in the sport have been studied (Kruger, Hallmann, & Saayman, 2016). Among these, the mediating role that satisfaction with the service plays in the intention to return (Shonk & Chelladurai, 2008) and, ultimately, loyalty is of note (Kaplanidou & Gibson, 2010). In the specific case of sports events, satisfaction with the event is a critical factor driving the intention to return to a destination for future sports events and, consequently, fostering participant loyalty (Kaplanidou & Gibson, 2010).

2.2. Motivations for participation

In tourism research, numerous studies have explored the diverse motivations behind travel (Andreu, Kozak, Avci, & Cifter, 2005; Park & Yoon, 2009; Tkaczynski, Rundle-Thiele, & Beaumont, 2009). Understanding these motivations is crucial for marketing professionals, as they drive behavior (Dolnicar, 2008). A literature review on cycling tourism emphasizes the significance of studying motivations for participating in cycling events (Deery, Jago, & Fredline, 2004), but a key challenge is that motivations can be multiple and rapidly changing (Odgen & Hills, 2008). Thus, a comprehensive understanding of participation motivations can enable effective market segmentation and marketing campaign development (Boo & Jones, 2009; Kruger, Hallmann, & Saayman, 2016; Kruger & Saayman, 2014; Ritchie et al., 2010).

Research on motivations has employed theories from the leisure, recreation, and tourism fields, including the push-pull framework (Crompton, 1979; Dann, 1981), which has been successfully applied to road cycling (Rejón-Guardia et al., 2018) and mountain bike (Abernethy et al., 2022; Rejón-Guardia et al., 2020). Other motivation scales, such as the Leisure Motivation Scale (LMS) (Beard & Ragheb, 1980) and the Pleasure Travel Motivation scale (PTMS) (Figler, Weinstein, Sollers, & Devan, 1992), have also been effectively used in tourism research. Furthermore, Self-Determination Theory (SDT) (Deci & Ryan, 1985, 2008, 2015) has been widely employed in sports event motivation research, with intrinsic and extrinsic motivations being key factors (Kruger & Saayman, 2014). The SDT has seen successful application in

cycling research (Brown et al., 2009; Damant-Sirois et al., 2014; Kruger, Hallmann, & Saayman, 2016; Kruger & Saayman, 2014; LaChausse, 2006; Streicher & Saayman, 2010). The Sport Motivation scale (SMS) and its updated version, SMS-II, have been developed to measure various types of motivations in sports (Pelletier et al., 1995, 2013). The Cyclist Motivation instrument (CMI) has been created specifically for cycling (Brown et al., 2009). Recently, the Theory of Planned Behavior (TPB) has been employed to study planned behavior in sports tourism, particularly from a sustainability perspective (Ajzen, 2011; Han et al., 2017; Lin, Hsu, Ho, & Lai, 2020).

Table 1 presents major motivations in cycling tourism, revealing common motivational domains and the significance of each study. A deep comparative analysis shows that the main motivations include self-development, physical challenge, social interaction, lifestyle, exploration, stimulus-seeking, and contemplation. However, few studies have explored event-specific factors (Kruger, Hallmann, & Saayman, 2016; LaChausse, 2006; Streicher & Saayman, 2010). In summary, the analysis of motivations for participating in cycling events reveals: 1) considerable heterogeneity in stated motivations; 2) predominantly intrinsic motivations; 3) health and physical appearance concerns as important factors; 4) event characteristics as potential motivators; 5) variations in motivations based on ability level, loyalty, gender, event type, and mode of participation; and 6) the value of motivations for effective market segmentation (Kruger, Hallmann, & Saayman, 2016) (see Table 1). The research gaps include a need for further exploration of event-specific factors and a deeper understanding of how motivations vary across different participant demographics and event characteristics.

2.3. Satisfaction and repeat participation

In the tourism industry, the primary objective for operators is to attract new visitors and retain existing ones. Identifying the factors that influence destination repeatability is crucial for understanding visitor loyalty development and designing effective marketing strategies (Li, Cheng, Kim, & Petrick, 2008). Therefore, satisfaction has become a central research topic, as it affects destination attraction and choice, product and service consumption, and the decision to revisit a destination (Yoon & Uysal, 2005). Satisfaction is defined as the alignment between prior expectations and perceived value (Meng Teapanon & Uysal, 2008). In tourism, it pertains to feelings arising from cognitive and emotional aspects of goods and services (Antón, Camarero, & Laguna-García, 2017). Specifically, in sports tourism, satisfaction refers to the enjoyment derived from participating in sports competitions or utilizing ancillary services during an event (Yoshida & James, 2010).

Researchers have extensively examined variables such as motivations and behavioral intent in relation to satisfaction (Kaplanidou & Gibson, 2010; Pandza-Bajs, 2015; Smith, Costello, & Muenchen, 2010; Yoon & Uysal, 2005). Prayag and Grivel (2018) emphasize the importance of understanding the relationship between motivations, satisfaction, and future behavioral intentions. This is because knowing motivations enables event organizers to ensure visitor satisfaction (Lee et al., 2013; Prayag, Grivel, & others, 2015; Yoon & Uysal, 2005), which is positively associated with intentions (Kaplanidou & Gibson, 2010) and future positive behaviors (Elahi, Moradi, & Saffari, 2020; Koo, Byon, & Baker III, 2014).

Tourist behavior research typically distinguishes between first-time and repeat visitors, with the cognitive pre-trip image being replaced by a newly formed image resulting from the emotional experience at the destination (Beerli & Martín, 2004; Correia, Valle, & Moco, 2007). Multiple studies identify satisfaction with the travel experience as the primary antecedent of revisit intention (Chi & Qu, 2008; Kozak, 2001; Oppermann, 2000). This means that when tourists' expectations are met or surpassed, they are more likely to return (Som, Marzuki, Yousefi, & AbuKhalifeh, 2012, p. p39). In the context of sports events, participant satisfaction significantly influences their intention to revisit the destination for future sports-related activities, which is closely tied to loyalty

Table 1
Cycling motivational domains.

Authors	Type/ Country	Motivation theory scales	Motivation domains								
			Self- development	Contemplation	Social interaction	Exploration	Physical challenge	Stimulus seeking	Lifestyle	(Event attractiveness) Commitment and event affiliation	(Event attributes) International standing of event
Ritchie (1998)	Bicycle/ New Zealand	Pleasure travel motivation (Figler et al., 1992)	× Self- development (1)	× Contemplation (2)	× Social interaction (6)	× Exploration (3)	× Physical Challenge (4)	× Stimulus seeking (5)	----	----	----
LaChausse (2006)	USA	Modified version Motivations of Marathoners Scales (MOSM) (Masters, Ogles, & Jolton, 1993)	× Health Orientation, Weight Concern Self-Esteem (2)	----	× Recognition (3)	----	× Goal Achievement, Competition (1)	----	× Coping, Life Meaning (5)	× Affiliation (4)	----
Faulks, Ritchie, and Dodd (2008)	Australia	Leisure Motivation Scale (Beard & Ragheb's, 1983)	----	× Escape and relax (5)	× Social interaction (1)	× See new places (6)	× Personal challenge (2)	× Enjoyment, fun (3)	× Health and fitness, Volunteering (4)	----	----
Brown et al. (2009)	Australia	Self-determination theory (Pelletier et al., 1995)	× Physical Health (5)	× Exploring environments (4)	× Social (1)	× Exploring environments (4*)	× Embodiment (2)	× Exploring environments (4*)	× Self- Presentation (3)	----	----
Ritchie et al. (2010)	Australia	Pleasure travel motivation + Leisure motivation scale + push factors (Beard & Ragheb, 1980; Figler et al., 1992)	× Competence mastery & Personal challenge (4) (5)	× Relaxation/ Escape (6)	× Social encounters (7)	× Adventure experiences (3*)	× Adventure experiences & personal challenge (3*)	× Enjoyment, fun (1)	× Self- expression (2)	----	----
Snelgrove and Wood (2010)	Canada	Leisure Motivation Scale (Beard & Ragheb's, 1983) Push and pull motivation	----	----	× Socializing (3)	× Learning about a destination (2)	× Physicality (4)	----	× Cycling identity (1)	----	----
Filo, Funk, and O'Brien (2008)	USA	Psychological Continuum Model (PCM) (Funk & James, 2001)	× Self-esteem Intellectual competency, Personal achievement (1)	----	× Social (3)	× Exploration (2)	× Challenging oneself (4)	----	× Need to help others (2)	----	----
Streicher and Saayman (2010)	South Africa	Modified version Motivations of Marathoners Scales (LaChausse, 2006; Masters et al., 1993)	× Personal motivation (3*)	× Escape and relaxation (4)	× Socialization (1)	× Escape and relaxation (4)	× Personal motivation (3*)	----	----	× Event attractiveness (2)	× Event attributes (5)
Kruger and Saayman (2014)	South Africa	Self-determination theory (Pelletier et al., 1995)	× Skill mastery Health and fitness (1*)	× Escape and relaxation (3*)	× Socialization, Participation composition (3*)	----	× Intrinsic achievement and challenge (2)	----	× Group affiliation Cycling identity and enjoyment (1*)	× Event attractiveness and qualities (1*)	× Event loyalty (5)
Kruger, Myburgh, and Saayman (2016)	South Africa	Deep literature analysis. (Streicher & Saayman, 2010)	× Skill mastery and group affiliation (2)	----	× Scape and socialization (3)	× Achievement and challenge (1*)	----	× Stimulus seeking (1*)	× Lifestyle (4)	× Commitment and event affiliation (5)	× International standing of event (6)

(continued on next page)

Table 1 (continued)

Authors	Type/ Country	Motivation theory scales	Motivation domains					Lifestyle	(Event attractiveness) Commitment and event affiliation	(Event attributes) International standing of event
			Self- development	Contemplation	Social interaction	Exploration	Physical challenge			
Wattanaklang, Ratanavara, Chatpattananan, and Jomnonkwaio (2016)	Thailand	+ (Brown et al., 2009) Self-determination theory (Pelletier et al., 1995)	× Self- development (1)	× Contemplation (2)	× Social interaction (6)	× Exploration (3)	× Physical Challenge (4)	× Stimulus seeking (5)	---	---
Malchrowicz-Moško et al. (2019)	Poland	---	× Appearance (5)	---	× Social (1)	---	× Competence/ Challenge (3)	× Enjoyment (2)	---	---
Total relevance score: (1 → 5; 2 → 4; 3 → 3; 4 → 2; 5 or > → 1)			5 + 4 + 1 + 2 + 5 + 3 + 5 + 4 + 5 = 34	4 + 1 + 2 + 1 + 2 + 3 + 4 = 17	1 + 3 + 5 + 5 + 1 + 3 + 3 + 5 + 3 + 3 + 1 = 33	3 + 1 + 2 + 3 + 4 + 4 + 2 + 5 + 3 = 27	= 2 + 5 + 4 + 4 + 3 + 2 + 2 + 3 + 4 + 2 + 3 = 34	= 1 + 3 + 2 + 5 + 5 + 1 = 17	= 2 + 4 + 5 + 1 = 12	= 1 + 1 + 1 + 1 = 3 = 2 + 2 = 28

Note: × = presents; - = absence; (X) ranking of relevance and variance explained.

(Kaplanidou et al., 2012; Kaplanidou & Gibson, 2010; Pandza-Bajs, 2015). Elahi et al.'s (2020) recent research corroborates this idea by showing a direct relationship between satisfaction levels and sports tourists' behavioral intentions.

Although some studies have assessed satisfaction in relation to various service quality aspects (Kaplanidou & Gibson, 2010; Shonk, Greenwell, Bravo, & Won, 2012) and examined their impact on loyalty and revisit intentions (Kruger, Hallmann, & Saayman, 2016; Shonk & Chelladurai, 2008; Shonk et al., 2012), there remains a need for more comprehensive research to understand the relationship between events service quality, satisfaction, and behavioral intentions in the context of sports tourism. It is widely recognized that service quality is a precursor to satisfaction and a significant variable explaining positive behavioral intentions, such as repeat participation (Ahrholdt, Gudergan, & Ringle, 2017; Matic et al., 2020).

2.4. Typologies of cyclists and the profile of the cycling tourist

The multifaceted world of cycling is reflected in the diverse typologies of its practitioners. Cyclists are often classified based on behavior, motivations, abilities, and preferences, offering insights into the many ways individuals engage with cycling and the distinct goals they strive to fulfill. Each typology illuminates a unique facet of cyclist motivations and behaviors, adding depth to our understanding of this intricate activity.

Classifications of cyclists often hinge on a spectrum of characteristics, including participation motivations, recreational or professional orientation, the type of bicycle used, and preferred terrains. Thus, it's conceivable that an individual might align with multiple categories, and their classification could evolve over time due to influences like age, life circumstances, health, and economic factors. This fluidity underscores the complexity of grasping cyclists' motivations and behaviors, which continues to evolve and deepen (Ravesteijn, Sprengers, & de Boer, 2016). While no single definitive classification exists, several commonly recognized typologies include.

- Competitive Cyclists: These individuals participate in races and competitive events, exhibiting a high degree of commitment to training and enhancing their performance. They frequently invest in advanced equipment and technology (Kulczycki & Halpenny, 2014; LaChausse, 2006).
- Recreational or Leisure Cyclists: These cyclists prioritize pleasure and physical wellness, preferring social or recreational cycling events and cycle tourism to competition. Their expenditures are typically more moderate compared to their competitive counterparts (Ferucci et al., 2021; Kozumplikova, Chmelikova, Hlavackova, & Konecny, 2018).
- Long-Distance Sport Cyclists: This group is drawn to challenging, long routes and often participate in long-distance cycle tourism events. They invest in equipment and technology that optimize their performance and comfort during long journeys (Buning & Gibson, 2016; Lumsdon, Downward, & Cope, 2004).
- Urban or Daily Cyclists: These cyclists primarily rely on their bicycles for daily transportation, driven by motivations ranging from health benefits to environmental sustainability, cost savings, and convenience (Damant-Sirois et al., 2014).
- Cycle Tourists: This group merges their love for cycling with an interest in tourism. They enjoy exploring new locations and immersing themselves in local cultures. Their investments typically extend beyond their cycling activities to accommodation and other tourism experiences, thereby enriching their overall travel experience (Faulks et al., 2008).

Our study zeroes in on cycle tourists, who we define as those engaging in "recreational visits, either overnight or day visits outside the home, which involve leisure cycling as a fundamental and significant

part of the visit" (Keeling & Sustrans, 1999, p. 1). This definition encapsulates various forms of cycle tourism, ranging from mountain biking and long-distance trips to day excursions, underlining the multifaceted nature of this activity. Specifically, we focus on cycle tourists participating in the Mallorca 312, an international road cycling race event.

The existing literature on cycling tourism primarily investigates participant profiles through the lens of socio-demographic, motivational, and behavioral variables (Kruger, Hallmann, & Saayman, 2016; Kruger & Saayman, 2014). A comprehensive review of these studies suggests that participant socio-demographic traits are closely tied to the cycling discipline, race difficulty, and the cyclist's level of specialization (Lamont & Jenkins, 2013). For example, participants in mountain bike racing tend to be younger, as these disciplines are often perceived as riskier (Buning et al., 2019; Cessford et al., 1995; Getz & McConnell, 2011; Rejón-Guardia et al., 2020; Roberts, Jones, & Brooks, 2018). This trend is particularly apparent in high-risk disciplines like downhill racing (Buning et al., 2019).

In the realm of road cycling, a study by Streicher and Saayman (2010) found participants to be primarily bilingual, highly educated men in their mid-thirties, hailing from nearby provinces. This profile aligns with the findings of Brown et al. (2009). Another notable market segment is the MAMILs (Middle-Aged Men in Lycra), which encompasses middle-aged to senior men who actively engage in road cycling (Falcous, 2017; Lin et al., 2020).

However, an evident research gap persists in the stark underrepresentation of female racing cyclists (Abernethy et al., 2022; Bordelon & Ferreira, 2019; LaChausse, 2006; Rejón-Guardia et al., 2018, 2020). A plethora of studies have identified numerous factors contributing to this imbalance, such as gender disparities in access to resources (e.g., time and money), as well as societal and cultural barriers that deter women from participating in traditionally male-dominated sports (Malchrowicz-Moško et al., 2019; Mullenbach et al., 2020).

Specifically in the case of cycling, women encounter unique challenges such as inadequate infrastructure, safety concerns, and a lack of women-specific clothing and equipment. Additionally, women often face a dearth of role models and opportunities, and heightened safety concerns, which may discourage their participation in cycling events. These barriers cumulatively contribute to lower female participation rates in cycling and other sports.

Our research aims to shed light on these complexities within the realm of cycle tourism, particularly focusing on the Mallorca 312 event. Through this work, we hope to contribute to the growing body of knowledge surrounding the diverse motivations, behaviors, and experiences of cycle tourists.

2.5. Research questions

The literature review suggests evident interest for research into the relationship between motivations for participation and levels of participant satisfaction with the probability of repeat participation in cycling tourism events. An analysis of the literature reveals that there is no single theoretical framework to analyse reasons for visiting. This study has therefore used push and pull types of motivation, which cover the major motivational domains reflected in previous studies (see Table 1). Expanding on previous studies which have identified segments of participants in cycling tourism races based on their socio-demographic characteristics, the present study is concerned with tourist segments which can be identified according to whether they repeated a road cycling race and with their description using socio-demographic variables. As observed in the literature review, the use of socio-demographic variables to explain the various segments of sports participants is common. Finally, and given the economic impact earlier studies have shown, it is pertinent to determine the possible relationship between the segments of repeat participants in cycling tourism events, with their level of expenditure during the trip, to identify which segments are the most profitable. Thus, drawing from the analysis of the literature, the

following research question are proposed.

- Do the motivational domains identified in this study correspond with those declared by the rest of the cycling tourists (self-development, physical challenge, and social interaction)?
- To what extent do the main motivational dimensions and satisfaction influence the probability of repeat participation in the event?
- Which segments of participants can be identified on the basis of whether they repeat a race, and what are the demographic characteristics of these segments?
- What is the relationship between the identified participant segments and their expenditure during the event?

To respond to these questions, the present study is structured in three stages of analysis. The stages, as well as the analytical techniques implemented in each one, are shown as follows Fig. 1.

3. Materials and methods

To achieve the proposed research objectives, a sample of cycling tourists participating in the 8th annual Mallorca312 race (2018) was analysed. This one-day, international cycling race, of considerable difficulty due to distance and gradient, is held during the first weekend of April. The route of the race runs 312 km around the island of Mallorca in the Balearic Islands, Spain. Using a non-probability convenience sampling method with respondent self-selection, 8000 registered participants were contacted via email, and a CAWI (Computer-assisted web interviewing) the questionnaire was translated by native university teachers and administered in several languages. (Spanish, Catalan, German, and English). The data was gathered during May and June 2018, and the final sample analysed consisted of 1098 complete questionnaires (response rate of 13.72%).

This study implemented a questionnaire grounded in previous literature, particularly drawing from the works of Driver, Tinsley, and Manfredo (1992), Tocquer and Zins (2004), and Taylor (2010). The instrument comprised of thirty questions divided across four sections, developed to measure motivations for attending the event, satisfaction with various aspects of the race, spending behaviour, previous race experience, and socio-demographic variables. The design of the questionnaire was informed by a rigorous review of relevant literature, with its final structure being refined by a pilot study conducted in January 2016. The instrument's validity and reliability, verified after data collection, are consistent with previous research (Rejón-Guardia et al., 2018, p. 312; Rejón-Guardia et al., 2020).

The first section, titled "Behaviour-Oriented Variables", adapted the constructs proposed by Driver et al. (1992) to frame questions on participant behaviour, including aspects such as choice of destination, companions, length of stay, and expenditure. The second section, "Motivations for Selecting the Sports Event" relied on Taylor's (2010) conceptual framework, addressing factors like motivations to ride (push factors), site attributes (pull factors), social influences, intrinsic rewards, and constraints to participation. The third section, "Satisfaction Levels" drew from the perspectives of Tocquer and Zins (2004), considering satisfaction and image refinement as a consequence of lived experiences. The final section recorded "Socio-Demographic Characteristics" to provide an overarching view of the respondents. This comprehensive approach, substantiated by prior literature, was taken to ensure the questionnaire's construct validity and reliability. The full questionnaire is available in Appendix II.

Given the scarcity of recent studies on the topic, the enduring relevance of our research question, and the impact of the global pandemic (Karabulut et al., 2020), which resulted in either canceled or significantly reduced participation in the event in 2019, 2020, and 2021, we decided to analyse data exclusively from the 2018 sample.

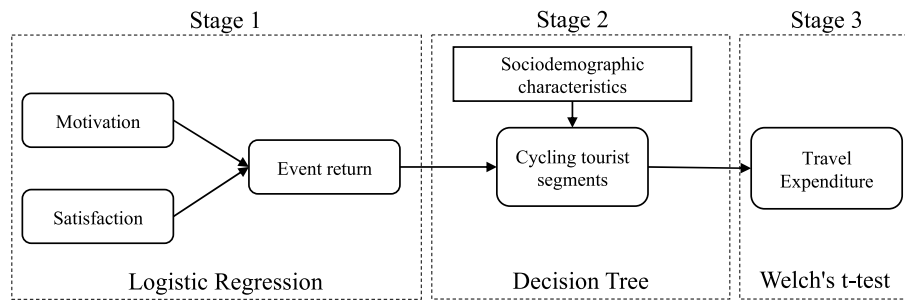


Fig. 1. Three-stage analysis of cycling tourists.

3.1. Sample

The analysis of the socio-demographic variables indicates that the study sample consisted mostly of males (91%; 999); female participants were a minority (9%; 99). This is consistent with previous races and this sports discipline (Fullagar & Pavlidis, 2012; Malchrowicz-Mosko et al., 2019; Mullenbach et al., 2020). The average age of the sample was $\bar{x} = 45.15$ years-old ($SD = 10.178$). The majority of participants stated that they had a university education 64.5% (708), followed by secondary education 27.6% (303). Regarding country of residence, 38.98% were resident in Spain (428); 32.06% were resident in the UK (352); 21.58% from the rest of the world (237) and 7.38% were from Germany (81). These results highlight the international character of the race. 25.5% of the sample stated they were travelling alone; 19.3% in the company of another person; 27.5% in groups of between three and five persons; and 24.95% were travelling with more than five persons. Regarding accommodation, 64.5% stayed in a hotel/apart-hotel, while 14.5% chose to rent a house or apartment; 12.1% stayed in a house they owned, and only 4.6% stayed with family or friends.

4. Results

An exploratory factor analysis (EFA) was then applied with the aim

of finding the underlying structure of the stated motivations for participation. An exploratory factor analysis (EFA) was then applied with the aim of finding the underlying structure of the stated motivations for participation. The number of factors was determined by extracting eigenvalues, retaining those greater than one (Tabachnick, Fidell, & Ullman, 2019). To assess the sample adequacy and the relationship among variables, the KMO and Bartlett's test of sphericity was employed. A significant factor loading cut-off of 0.40 was established to determine a variable's loading onto a factor (Tabachnick et al., 2019). If a variable failed to reach this cut-off, it was removed, and an additional analysis was conducted without including the deleted variable. All variables correlated at least 0.3 with another item, suggesting adequate factorability (Tabachnick et al., 2019). Furthermore, the KMO measure of sampling adequacy was 0.88, surpassing the 0.6 threshold, and Bartlett's test of sphericity was significant ($p < 0.001$), indicating that the data were suitable for factor analysis (Tabachnick et al., 2019).

From the analysis, five factors with an eigenvalue superior to one were obtained, containing 64.01% of the information gathered in the original variables. According to the rotated matrix (through varimax rotation) (see Table 2), the five motivations obtained correspond to: having a break (F1) (contemplation), living new experiences (F2) (exploration), engaging in sport (F3) (physical challenge), (F4) self-fulfilment (self-development) and (F5) family or social reasons (social

Table 2
Exploratory factor analysis (EFA) - Motivation segments.

Motivation domain	Factor 1 (Contemplation)	Factor 2 (Exploration)	Factor 3 (Physical challenge)	Factor 4 (Self-development)	Factor 5 (Social interaction)
Motivations	Having a break	Living new experiences	Engaging in sport	Self-fulfilment	Family or social reasons
Having a break	0.869	0.073	0.084	0.165	-0.063
Recharging energy	0.832	0.143	0.165	-0.003	0.086
Taking a break from everyday activities	0.776	0.112	0.107	0.162	0.121
For introspection (reflection on my state of mind)	0.675	0.214	0.039	0.184	0.319
Living new experiences	0.220	0.821	0.130	0.060	0.035
It is a challenge for me	-0.051	0.818	0.053	0.164	0.014
To learn something new	0.270	0.623	0.159	-0.001	0.333
Practice sport in new places	0.211	0.490	0.198	0.256	-0.031
Engaging in sport	0.073	0.114	0.795	0.083	0.031
To enjoy sports and healthy activities	0.218	0.214	0.705	0.191	-0.164
To practise my sport in company	0.057	0.069	0.698	0.024	0.351
To compete	0.057	-0.031	0.110	0.819	0.144
It gives me a sense of prestige when I participate in such events	0.242	0.235	-0.020	0.753	0.091
Self-determination	0.123	0.263	0.251	0.536	-0.084
Have friends/relatives living on the island	0.103	0.037	0.018	0.067	0.821
Fostering personal relationships and social interaction	0.345	0.185	0.337	0.167	0.443
Eigenvalues	5.05	1.62	1.30	1.22	1.04
% Information	31.58%	10.15%	8.12%	7.68%	6.52%
Reliability alpha	0.86	0.82	0.88	0.81	0.79

Note: Varimax rotation. In bold are the highest loadings.

interaction). The analysis of literature on cycling tourism in general gives most importance to motivations based on physical challenge, self-development, and social interaction. In the present study, contemplation, and exploration ranked first.

In order to identify the levels of satisfaction experienced by participants in the M312 race, a number of questions relating to the services offered before, during, and after the event were posed, as well as questions relating to satisfaction with the organisation of the event. Then, with the aim of identifying the underlying structure among the eleven items of satisfaction, an EFA was applied once again. In applying this analysis, two possible factorial solutions were considered: the first solution with two factors, which gathered 51.2% of the information contained in the original variables, and a second factorial solution with three dimensions; in the latter, one factor presented an eigenvalue inferior to the unit. According to the interpretation of the factors deriving from the rotated matrices (see Table 3), the two-factor solution was chosen as valid. On this occasion, the KMO measure of sampling adequacy was 0.83, surpassing the threshold of 0.6, and Bartlett’s test of sphericity was significant ($p < 0.001$) (Tabachnick et al., 2019). Thus, the structure of the variables relating to satisfaction were summarised in two: satisfaction factor one (SF1) named “satisfaction before, during and after service and satisfaction factor two (SF2) “satisfaction with event organisation”.

As has been observed in the literature review, the main antecedents of revisit or revisiting intention for a tourist destination, are motivations and satisfaction. To examine these relationships in more depth, this study has analysed participant repetition rate, observing that, out of a total of 1098 participants, 64.11% participated in the race on only one occasion (704 participants), while 394 participants (35.88%) did so more than once, with a mean participation of $\bar{x} = 2.37$ times ($SD = 1.44$).

In order to model the probability of repeat participation in a cycling tourism event based on motivations and satisfaction, a logistic regression was applied, using the dependant variable of having participated in the race on more than one occasion. Prior to the regression analysis, the possible problems with collinearity between the five motivational factors and the two factors of satisfaction were analysed. In all cases, the correlation coefficients were lower than 0.8. The Variance Inflation Factor (VIF) was also analysed for each independent variable (motivational factors and factors of satisfaction), obtaining values below 10 in

Table 3
Satisfaction dimensions.

Two factor solutions		
	Satisfaction Factor 1: “satisfaction before, during and after service”	Satisfaction Factor 2: “satisfaction with event organisation”
Recovery point or physiotherapy	0.819	0.052
Trophy ceremony	0.792	0.111
Pasta Party	0.786	0.088
Participant’s pack	0.608	0.348
Distribution of race bibs	0.362	0.311
Signaling and mapping of routes and trails	0.105	0.762
Treatment by volunteers	0.140	0.737
Circuit closure	-0.019	0.707
Overall organization of Mallorca 312	0.407	0.695
Tour	0.187	0.519
Refreshments	0.417	0.428
Eigenvalues	4.07	1.56
Information %	37%	14.19%

Factor 1*: “satisfaction before, during and after service”; Factor 2***: “satisfaction with event organisation”. In bold are the highest loadings.

all cases (see Table 4).

Table 5 presents the results of the logistic regression. The motivational dimensions F1 – to have a break (contemplation) ($B = 0.159$, $SE = 0.077$, $Exp(B) = 1.17$, $p < 0.05$), F3 to engage in sport (physical challenge) ($B = 0.366$, $SE = 0.082$, $Exp(B) = 1.44$, $p < 0.01$), and F5 – for family or social reasons (social interaction) ($B = 0.410$, $SE = 0.076$, $Exp(B) = 1.50$, $p < 0.01$) increased the probability of repeat participation in the event, while F2 – living new experiences (exploration) ($B = -1.217$, $SE = 0.097$, $Exp(B) = 0.29$, $p < 0.01$) and F4 – self-fulfilment (self-development) ($B = -0.204$, $SE = 0.074$, $Exp(B) = 0.81$, $p < 0.01$) reduced the probability of repeat participation. In the case of the dimensions of satisfaction, SF1 – “satisfaction with service before, during and after the event” ($B = 0.201$, $SE = 0.081$, $Exp(B) = 1.22$, $p < 0.05$) increased the probability of repetition, whereas SF2 – “satisfaction with the event organization” dimension had no significant effect ($B = 0.091$, $SE = 0.080$, $Exp(B) = 1.09$, $p > 0.1$). The model’s -Log-Likelihood was 145.922 ($p < 0.01$), indicating a good fit for the data.

As previously mentioned, the second stage of this study aimed to identify and describe the segments of tourists who repeatedly participate in the race using socio-demographic variables. A decision tree was employed for this purpose, which works by successively dividing the data into subgroups based on specific values of the independent variables. This aims to maximize homogeneity within the subgroups and heterogeneity between them (Tabachnick et al., 2019). In this decision tree, the dependent variable was the rate of repeat participation in the event. The independent variables included socio-demographic factors such as nationality, gender, age, and level of education (see F.. 2). This segmentation process identified eight distinct segments related to repeat participation (see Table 6). The cycling tourist segment with the highest rate of repeat participation consisted of Spanish and German individuals aged 44 and above who had either vocational training or university education.

By segmenting cycling tourists according to the rate of race repetition, the effect of motivations and satisfaction on the probability of repeating a cycling tourism event was established for each of the groups. The results of the logistic regression are shown in Table 7.

The logistic regression analysis showed that the motivations and satisfaction dimensions were not equally important for all identified segments. It is evident that some motives and satisfaction factors increased the likelihood of repetition in certain segments but had no significant effect on others. Specifically, taking a break significantly increased the probability of repetition for segments 1 and 6; engaging in sports increased the probability of repetition for segments 4 and 8; self-fulfillment motives increased the likelihood of repetition for segment 6 but decreased for segment 7, while family motives increased the probability of repetition for segments 5 and 6. On the other hand, experiencing new things reduced the probability of repetition for all identified segments. Concerning satisfaction dimensions, satisfaction with service before, during, and after the event increased the probability of repetition for segments 3 and 8, while satisfaction with event organization increased the probability of repetition for segment 7 but reduced it for segment 8.

Finally, the expenditure of the sports tourists was linked to the segments identified (see Table 8). The number of observations providing

Table 4
Collinearity statistics - Variance Inflation Factor (VIF).

	Factors	VIF
Motivations	F1 - Having a break	1.05
	F2 - Living new experiences	1.06
	F3 - Doing sport/engage in sport	1.06
	F4 - Self-fulfilment	1.04
	F5 - Family or social motives	1.05
Satisfaction	SF1- Satisfaction with service before, during and after the event	1.19
	SF2 - Satisfaction with event organization	1.12

Table 5
Estimated parameters (Yes/No Probability) from linear regression models examining factors predicting the probability of f repeat participation in the M312 cycling event in 2018.

Terms	β Estimates	Standard Error	OR
Intercept	-0.707***	0.075	
F1 - Having a break	0.159**	0.077	1.17
F2 - Living new experiences	-1.217***	0.097	0.29
F3 - Engaging in sport	0.366***	0.082	1.44
F4 - Self-fulfilment	-0.204***	0.074	0.81
F5- Family or social reasons	0.410***	0.076	1.50
SF1- Satisfaction with service before, during and after the event	0.201**	0.081	1.22
SF2 - Satisfaction with event organization	0.091	0.080	1.09
-Log-Likelihood	145.922***		
Nagelkerke R Square	0.408		

Note: * sig.<0.1; **sig.<0.05; ***sig.<0.01; F = Factor; SF = Satisfaction Factor; OR = Odds Ratio.

Table 6
Identified segments.

Nodes	Repeat participation			
	Yes		No	
	n	%	n	%
(Germany, Spain) & (Age ≥ 44 or missing) & (Vocational training, university education)	65	54	55	45.9
(Germany, Spain) & (Age ≥ 44 or missing) & 4 (Elementary education, secondary education)	71	47.9	77	52.0
(Germany, Spain) & (Age ≥ 38 & Age <44 not missing)	49	41.8	68	58.1
(Germany, Spain) & (Age <38 or missing)	57	38.7	90	61.2
(Others, United Kingdom) & (Age ≥ 53 not missing)	59	36.6	102	63.3
(Others) & Age <53 or missing	43	27.7	112	72.2
United Kingdom & Age ≥ 45 & Age <53 or missing	30	23.3	99	76.6
United Kingdom y Age <45 or missing	20	16.6	101	83.3

Table 7
Estimation of the model by segments.

	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7	Segment 8
Intercept	0.237	-0.018	-0.715**	-0.655***	-0.924**	-1.678***	-0.958***	-3.053***
F1 - Having a break	0.531**	0.229	-0.442	0.123	0.420	1.006***	0.010	0.749
F2 - Living new experiences	-1.599***	-0.974***	-1.361***	-0.802***	-1.430***	-2.104***	-1.295***	-2.763***
F3 - Engaging in sport	0.318	0.344	0.338	0.508**	0.236	0.384	-0.277	1.300**
F4 - Self-fulfilment	-0.011	0.237	-0.207	-0.106	0.290	0.760**	-0.850**	0.518
F5- Family or social reasons	0.165	0.175	0.156	0.184	0.609**	0.584**	0.503	0.476
SF1- Satisfaction with service before, during and after the event	0.123	0.126	0.634***	0.042	-0.063	-0.249	0.320	1.259**
SF2 - Satisfaction with event organization	-0.203	0.380	-0.287	-0.046	0.066	0.412	0.659**	-0.640*
-Log-likelihood	22.062***	14.794***	15.598***	10.360***	36.147***	31.819***	19.003***	29.287***
N	108	136	117	147	161	153	129	108
Mean	50.77	50.26	40.67	32.11	57.61	41.84	48.83	37.25
Standard Deviation	6.036	4.93	1.73	6.26	4.59	10.48	2.12	7.65

Note: * sig.<0.1; **sig.<0.05; ***sig.<0.01.

Table 8
Expenditure analysis per segments.

Level	Size	Mean	Standard Deviation	Standard Error	Lower 95%	Higher 95%	Welch Test
Segment 1	82	951.304	706.187	77.985	796.138	1106.471	13.46***
Segment 2	100	811.910	495.601	49.560	713.571	910.248	
Segment 3	81	814.740	604.369	67.152	681.103	948.377	
Segment 4	80	677.962	429.021	47.966	582.488	773.436	
Segment 5	156	1203.429	870.633	69.706	1065.732	1341.126	
Segment 6	145	1551.227	1118.247	92.865	1367.672	1734.783	
Segment 7	122	904.795	417.475	37.796	829.967	979.623	
Segment 8	111	942.108	573.083	54.394	834.310	1049.905	

information about the total spend was from 877 cycling tourists (78.9%). Significant differences were found in the total expenditure among the identified segments through a Welch's *t*-test analysis, with participants in segment 6 spending the highest amount (refer to Table 8). Further analysis of the segment with the highest expenditure showed that it consisted of 155 mainly male participants (88.38%, 137) with university education (74.8%, 113) or secondary education (21.19%, 32) and of various nationalities such as Belgian (13.5%), Irish (12.25%), British (8.38%), Swedish (8.38%), and other nationalities. Delving deeper into the demographics, the highest-spending segment consisted of individuals aged 53 or under from various international backgrounds, followed by visitors aged 53 or above from the United Kingdom and other parts of the world.

5. Discussion and implications

5.1. Discussion

The present study aimed to enhance the knowledge on cycling event participation by investigating the drivers of repeat participation, including motivations and aspects of event satisfaction. Additionally, we aimed to identify and describe the key segments of cycling tourists who are likely to repeat participation, and to explore their behavior in terms of repeat participation and expenditure.

Despite the heterogeneity in the register of motivations for participation in cycling events resulting from the use of different scales (see Table 1), the findings of the present study suggest a similar prevalence to the motivational dimensions found by other studies. The findings position contemplation and exploration are the most important motivational dimensions, that is to say, and in order of importance, the motivations linked to having a break from the activities of everyday life, and the experiential aspects of the race, these results are consistent with previous work (Goeldner & Ritchie, 2005; Streicher & Saayman, 2010; Swanson & Horridge, 2006). The subsequent domains of importance identified by the cyclists were physical challenge and self-development, with these results being similar to those found in non-competitive

cyclists (LaChausse, 2006). The comparative study observed that both sets of motivations have proven to be the most important for cycling races. Meanwhile, Family/social motives (social interaction) occupied the last place, in contrast to in other studies where social interaction was of particular relevance (Brown et al., 2009; Streicher & Saayman, 2010). This difference could be justified because the needs for socialization and interaction were covered during the trip and not during the race. After all, most participants in the study (71.5%) travelled in predetermined groups of three or more persons.

With regard to the analysis of motivations and their influence on the probability of repeat participation, the findings suggest that the motivations do not all contribute in the same way to the explanation of the probability of repeat participation in the cycling event. The motivational dimensions of having a break (contemplation), engaging in sport (physical challenge), and family or social motives (social interaction) increase the probability of repeat participation in the event. These results may be explained by the specific characteristics of the event analysed. The event is held during one weekend only in April, coinciding with a non-holiday period for the majority of participants. Therefore, the experiential aspects of taking a break from everyday activities, as well as the motives of social interaction, are especially important for this segment. In contrast, living new experiences (exploration) and self-fulfilment (self-development) reduce the probability of repeat participation. These results draw attention to the need to offer new challenges and new routes with which to attract cyclists year after year.

In the analysis of satisfaction related to various aspects of the cycling event, the results indicate two primary factors: satisfaction with the services provided before, during, and after the event, and satisfaction with event organization. These findings build upon Romiti and Sarti's (2016) research, which identified dimensions of service quality in running events, such as aesthetic quality, technical quality, and information service quality. Moreover, for the first time, the satisfaction dimensions that increase the likelihood of participants returning to the event were examined. Satisfaction with services before, during, and after the event was found to increase the probability of repeat participation, while satisfaction with event organization did not have a significant impact. This insight is crucial for event organizers, as it suggests that focusing on the quality of services offered before (e.g., distribution of race bibs and participant packs), during (e.g., refreshments), and after the event (e.g., pasta party, recovery point or physiotherapy, and trophy ceremony, etc.) can promote higher participant retention. These findings add to the body of research linking event satisfaction to repeat participation (Huang, Mao, Wang, & Zhang, 2015).

In relation to age, the results of the socio-demographic analysis show that most participants in road cycling are middle-aged. This result is slightly higher than the mid-thirties found in studies such as Brown et al. (2009) or Streicher and Saayman (2010), although it does coincide with the more mature profile in more recent studies such as Kruger, Myburgh, and Saayman (2016). The majority of participants were male, which once again confirms the low percentage of female participation, although the ratio obtained in this study was slightly higher than in others (Bordelon & Ferreira, 2019; Mur-Sangrà et al., 2020; Rejón-Guardia et al., 2018, 2020). With regard to country of residence, the majority of participants came from Spain, followed by the UK, and finally Germany, these results align with other studies on sports tourism in the Balearic Islands (Rejón-Guardia et al., 2018, 2020). This finding demonstrates the importance of this type of events for attracting both national and international tourists. Relating to tourist behaviour, race participants mainly travelled in groups of three persons or more and stayed in hotels or aparthotel. These are consistent with previous studies in the same geographical area (Rejón-Guardia et al., 2018, 2020). In terms of the profile and tourist behaviour of participants who had taken part in previous races, it was concluded that the segment formed of tourists from Germany and Spain, 44 years-old or over, with further or higher education, had the highest rate of repeat participation. This finding is consistent with the age and gender profile obtained in the

study of mountain bike races by Roberts et al. (2018). Furthermore, it was found that not all reasons which may explain repeat participation, or the effect of the dimensions of satisfaction, are equally important for the different segments.

Finally, from the expenditure study, we would like to extend our discussion on the implications of the identified segments, particularly those representing a more lucrative market for event organisers and marketers. Our analysis revealed Segment 6, notably demonstrating the highest expenditure among all segments. The segment predominantly consists of male participants, the majority with a university education, and represented by diverse nationalities, including Belgian, Irish, British, and Swedish.

Furthermore, an intriguing finding was that the highest-spending segment included participants aged 53 or under from various regions outside the primary location of the study, followed by visitors aged 53 or over from the United Kingdom and the rest of the world. These findings suggest that both these groups, especially the younger participants from diverse regions, can be potentially lucrative markets due to their higher spending patterns.

5.2. Theoretical and managerial implications

In terms of theoretical implications, this study provides significant contributions. Firstly, this study elucidates the varying impacts of different motivational dimensions on the likelihood of repeat participation in cycling events. While earlier studies have acknowledged the importance of motivations in influencing participation (Brown et al., 2009; Faulks et al., 2008; Malchrowicz-Moško et al., 2019; Rejón-Guardia et al., 2020), our study goes further by detailing how specific motivations (contemplation, physical challenge, social interaction) increase the probability of repeat participation, while others (exploration, self-development) decrease it. This granular view on the influence of motivations contributes to the literature by deepening our understanding of how motivations operate in the context of cycling events.

Secondly, the research sheds light on the significant role of event-related services in driving repeat participation. Prior research has alluded to the link between satisfaction and repeat participation (Huang et al., 2015; Shonk & Chelladurai, 2008; Shonk et al., 2012), but our findings substantiate this relationship by indicating that satisfaction with services provided before, during, and after the event significantly influences the probability of repeat participation. Moreover, by identifying the relative insignificance of event organization satisfaction on repeat participation, the study adds nuance to the current understanding of the satisfaction-repeat participation dynamic.

Thirdly, the research contributes a nuanced perspective on cycling event participants' expenditure behavior, extending the literature on cycling tourism's economic dimensions. Our segment-specific expenditure analysis allows a more detailed understanding of which groups are more likely to make substantial financial contributions to cycling events. This breakdown of expenditure patterns by segment is a novel addition to the theoretical discourse on sports tourism economics.

Fourth, by providing a comprehensive overview of participant demographics and behavior, the study contributes further depth to the existing profile of cycling event participants. It reaffirms the primary demographic trends identified in previous studies, such as the dominance of middle-aged men (Falcous, 2017; Lin et al., 2020). However, it also notes deviations such as a slightly higher female participation rate than previously reported. Furthermore, our examination of participant behavior adds another layer to understanding these events' audience.

Fifth, our approach of examining motivations, satisfaction, and participant behavior in an integrative analysis is a novel methodological contribution to the field. This multi-stage, comparative analysis offers a more holistic perspective on the dynamics of cycling event participation. Our study is one of the first to conduct such a comprehensive analysis, thereby setting a potential blueprint for future research in the domain.

Regarding practical implications, the results can help generate more effective promotional marketing campaigns by highlighting the motivational dimensions that best explain repeated participation in sporting events. To make this more tangible, event organizers could design marketing campaigns emphasising the relaxation opportunities, physical challenges, and social interactions offered at the event. For instance, they could display images of participants enjoying the event location's natural beauty during their relaxation time or highlight testimonials from those who have overcome significant physical challenges in past events.

Secondly, to maintain a steady demand for sports tourism events and provide high-quality service, organizers should focus on the motivational dimensions that increase the probability of repeated participation. This could be achieved by implementing additional services to improve participant satisfaction. Possible options include creating relaxation areas with massage services to promote relaxation, developing alternative challenge routes for those seeking a more significant physical challenge, and organizing social events to encourage interactions.

On the other hand, organizers should be aware that motivations related to exploration and self-development can decrease the probability of repeat participation. To address this, they might consider introducing new routes and challenges each year, promoting these as opportunities for participants to discover new areas of the event location and overcome new physical challenges.

Thirdly, our study offers valuable insights into identifying the largest and most economically impactful segments, underscoring the economic potential of cycling tourism. This sector demonstrates a higher degree of profitability than other tourism segments. Consequently, we recommend that event organizers and marketers concentrate their promotional endeavors on these identified segments. The derived information can serve as a roadmap to crafting targeted marketing campaigns in principal outbound travel markets. For instance, if a significant segment comprises middle-aged cyclists from Northern Europe, it may be beneficial for organizers to establish partnerships with leading cycling magazines within those regions for event advertising.

Furthermore, the segments identified in our study are predominantly well-educated and internationally diverse. Hence, marketing strategies should emphasize aspects of the event that resonate with these unique preferences, including opportunities for cultural exploration, physical challenges, and social interaction. Given their higher spending habits, future marketing strategies could consider offering premium packages or experiences to maximize the profitability potential of this segment. By catering to these demographics' distinct needs and preferences, event organizers can effectively attract and retain these lucrative segments, thus enhancing the overall profitability of cycling tourism events.

Lastly, by improving segmentation efficiency and implementing the above strategies, organizers can contribute to the event's success and sustainability. This could transform the host destination into an annual reference point for cycling tourism and attract tourists outside the peak season. This can also be promoted by highlighting the sustainable practices adopted at the event, such as using recyclable materials and encouraging cycling or walking during the event.

5.3. Limitation and future research directions

Despite its contribution, this research has some limitations. First, it should be noted that the generalisation of the research findings should be approached with caution, as in the case of other similar studies on sports events, since the identified segments, the peculiarities of the destination combined with the unique characteristics of Mallorca312, mean that the participants' characteristics, motivations, or expectations and perceived satisfaction with the different services offered may differ in other destinations and events. Another limitation lies in the cross-sectional focus of the analysis. It would be interesting to conduct a longitudinal analysis of motivations and satisfaction over time to see whether they persist or are attributable as much to the destination as to

the cycling event itself.

Future research should consider several directions to enhance our understanding of cycling tourism further. These include conducting a detailed analysis of the female segment and evaluating factors that increase loyalty among minority segments. Additionally, researchers should develop an up-to-date, standardised scale to measure cyclist motivations, considering both event and destination characteristics. Investigating the persistence and attribution of motivations and satisfaction to the destination and cycling event can be achieved through a longitudinal analysis over time, which would yield valuable insights. Moreover, it is important to explore how various types of cycling events, such as competitive races, charity rides, or leisure tours, may appeal to different participant profiles and address unique motivations and satisfaction dimensions. This examination would equip event organisers and host destinations with a more nuanced understanding of their target markets, enabling them to customise their offerings to meet the needs and expectations of participants better.

6. Conclusions

The growth of cycling tourism and the proliferation of participants in races and sports events all over the world, justify the need to better understand participant behaviour for event organizers as well as for host destinations.

This research enhances comprehension of the primary motivations driving participation in cycling tourism events and examines the relationship between event satisfaction and tourist behavior, such as revisiting and expenditure. By employing a comprehensive multi-stage analysis, the study investigates the socio-demographic characteristics, motivations, satisfaction, and tourist behavior (revisiting and expenditure) of cycling tourism event participants. Data for this analysis was gathered from attendees at a cycling event in the Balearic Islands (Spain). Through these efforts, the study provides valuable contributions to the existing literature on cycling tourism events, offering a more in-depth understanding of the factors influencing participation and satisfaction.

The present study has endeavoured to find the most recurrent and important motivational domains by employing a push and pull factor approach. It sheds light on the multidimensional nature of motivations for participation, highlighting the significance of contemplation and exploration, followed by self-development, physical challenge, and social interaction. Moreover, it investigates the determinants of repeat participation intention, focusing on motivation and satisfaction dimensions. The findings expand the research evaluating the antecedents of satisfaction in sports events and reveal the main dimensions of satisfaction related to the services offered before, during, and after the race. The study confirms the profile of participants as predominantly middle-aged men with higher education and purchasing power while also emphasising the persistent underrepresentation of women in cycling events.

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CRediT authorship contribution statement

Francisco Rejón-Guardia: Conceptualization, Methodology, Formal analysis, Visualization, Writing – original draft, preparation, Writing – review & editing. **Josep Rialp-Criado:** Methodology, Formal analysis, Writing – review & editing, Investigation. **María Antonia García-Sastre:** Project administration, Investigation, Writing – review & editing.

Declaration of competing interest

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

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jort.2023.100664>.

APPENDIX I

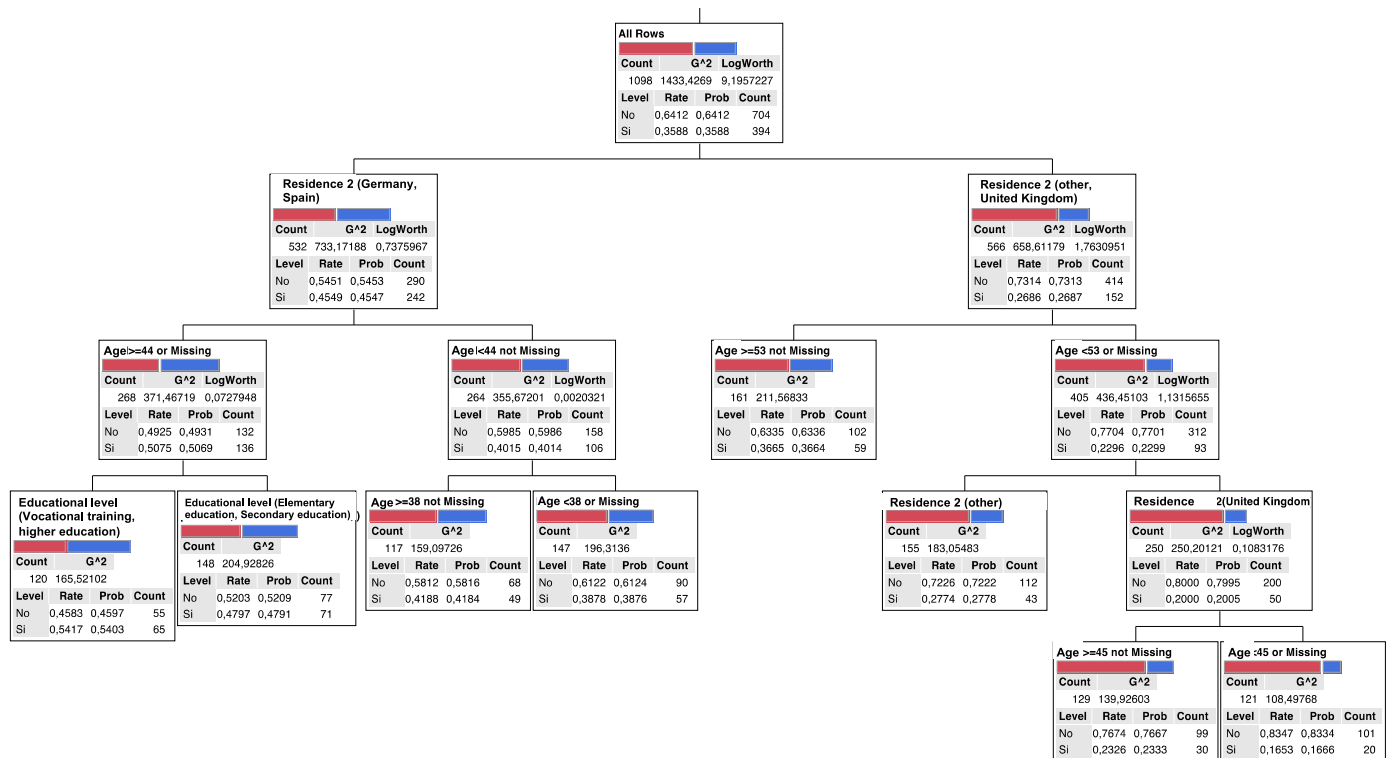


Fig. 2. Decision tree

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