



# Article Golf Tourism and Sustainability: Content Analysis and Directions for Future Research

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**Abstract:** Golf tourism is an important sector in the tourism industry, in terms of average daily expenditure per visitor. However, golf tourism also generates social and political controversies, mainly due to its impact on the environment. The main objective of this paper is to observe the progress of research on golf tourism from the perspective of sustainability. For this, the study is based on identifying the scientific production on the subject from the Scopus and Web of Science databases. Thus, we have detected 46 articles published in scientific journals in the last 22 years. The findings indicate five lines of research, such as environmental impacts, environmental management, environmental attitudes and behaviors, conflict of interests, and sustainable management and planning. Environmental impact is the most prolific content, while environmental attitudes and behaviors are the least frequent, but the latter is the most current line of research.

Keywords: bibliometric; golf tourism; research trends; scientific production; sustainability

# 1. Introduction

Golf is a sports activity that is acquiring a higher boom and diffusion in recent years, due to the boost it has received due to its inclusion in the Rio de Janeiro Olympic Games in 2016 [1,2], as well as at the next Tokyo Olympics in 2021. Golf is currently considered as the primary sport in the world in terms of financial expenses [3]. Golf and tourism are closely related, so their combination constitutes one of the most critical sectors for the tourism industry [4–10]. However, younger generations do not seem to be as interested in playing golf as previous generations [11,12].

Golf is both a sport and a leisure activity, encompassing aspects related to tourism, hospitality and real estate [13]. Tassiopoulos and Haydam [14] consider that the definition of the golf tourist is more complicated than that of the concept of golf tourism, and this is because different classifications of the golf tourist have been made [15–17]. However, it can be clearly stated that the golf tourist is the person who travels and stays away from home to participate in or attend the practice of the sport of golf. Hudson and Hudson [16] provide one of the most accurate and broad classifications of the golf tourist, establishing three categories: (a) tourists whose primary motivation for travel is to play golf; (b) tourists who play golf as a secondary activity on their vacation or business trips; and (c) tourists who attend golf tourists, depending on whether they practice golf or are dedicated to watching it. In turn, within active golf tourists we find a new division according to the principal or secondary motivation in their tourist travel; being able to identify the former as essential golf tourists and the latter as casual golf tourists.

The importance of golf tourism can be stated in various specific aspects. Thus, for example, the popularity of golf and the motivation of trips related to this sport have increased among tourists [18], being one of the essential segments of the tourism market [16]. Furthermore, golf courses become a very relevant attraction for a tourist destination [19]. In this sense, golf tourists on their trips

make higher average spending than other types of tourists [14,16,20]. Finally, golf courses attract tourism investment, provide quality tourism, improve employment and regional competitiveness, and compensate for the seasonality of traditional tourism [16,20–23]. Consequently, the political authorities of many governments and regions show great interest in incorporating golf into their tourism development plans [24].

However, golf tourism may be one of the tourist typologies that generates the most social and political controversies, especially due to the environmental impact of golf courses. The development of golf tourism has sparked these controversies, because they are often based on large-scale projects [25]. In this sense, golf has a significant, growing and complex environmental footprint [13]. The harmful effects related to golf activity include, in a summarized way, the destruction of natural landscapes, the over-exploitation of primary resources such as water, the abuse of fertilizers, pesticides and other chemical products, and pollution, in general. As emphasized by Petrosillo et al. [2], most academic studies on golf courses have shown intense confrontation between those who are focused on adverse environmental consequences and those who consider that they are a favorable instrument to protect biodiversity in an urban context. Socio-economic unfavorable implications can also be derived from golf tourism. For example, golf courses are excuses for developing housing promotions [23], or they may be exclusive for tourists and selective for residents [16,26]. Likewise, the development of golf has caused conflicts between the different parties involved [21] and, in fact, has often been accompanied by local opposition from residents [26,27].

Golf activity and sustainability are two closely related aspects. In fact, as Han et al. [28] mentions, the ecological issue is the Achilles heel of golf. Today, the project, construction and operation of a golf course must be supervised by sustainability parameters. Furthermore, the creation of a golf course should improve the environmental value of the land it occupies [29]. As indicated by Petrosillo et al. [2], golf courses are often considered as 'green infrastructure'. All of this requires a robust ecological awareness of golf course managers, but golf players must also have a pro-environmental behavior that is in line with this requirement. Relatively recently, academic research has focused on golf tourism [4]. Therefore, it is logical that we have not found any work that makes an exhaustive review on this topic. In this study, we try to fill this gap, and we believe that the best approach we can propose is precisely from the perspective of sustainability, given its close relationship with golf tourism.

## 2. Literature Review

Bibliometric studies are mainly based on the quantitative analysis of the publications that belong to a specific phenomenon [30]. This type of study is an efficient procedure to understand how a field of research emerges and develops [31,32]. Therefore, it is possible to measure the evolution of a specific research area through its scientific production, as well as its productivity over a particular period. As Guzeller and Celiker [33] suggest, bibliometric analysis can examine the intellectual structure, areas of knowledge, geographic areas, research topics and methods, and maturity levels of issues in a scientific discipline or journal. Bibliometric analysis provides a more objective approach to explore research trends and performance, acting as a complementary method to traditional literature reviews [34].

Bibliometric analyses related to tourist literature have been classified in different ways. Thus, for example, Tsang and Hsu [35] suggest that the study of publications in journals on tourism and hospitality can be derived from three broad approaches, such as: (1) analyses of authorship and institutional contribution, which are the most frequent and refer to the identification of authors or institutions, whose main objective is to establish some classification; (2) research method analysis, which deals with examining statistical methods applied within a discipline; and (3) the analysis of profiles, which attempts to summarize the works that have been published, the topics covered and the places where the publications come from.

Albacete, Fuentes and Haro-Domínguez [36] adopt a more precise classification based on five sections, which are listed as follows: (1) institutional analysis, which is carried out to measure

the performance of universities and research centers that contribute the most in the tourism field; (2) authorship analysis, which is carried out to identify the academics with the most contributions in tourism research, as well as the most cited; (3) analysis of publications, which in this way tries to identify especially the most prestigious publications in the tourism field; (4) content analysis, which is used to evaluate the development of tourism research through publications; and (5) network analysis, which is based on the study of network formation among researchers in the tourism field.

Finally, Koseoglu, Sehitoglu, and Parnell [37] make a more recent classification of bibliometric studies in tourism and hospitality, establishing six categories, such as the following: (1) studies on ranking and valuation of scientific journals (e.g., [33,38–40]); (2) studies on article identification, covering contributions from authors, institutions, and regions (e.g., [41–44]); (3) content analysis, which is dedicated to observing research trends, the growth of scientific production, the topics covered and the methodologies applied (e.g., [45–51]); (4) citation analysis, which deals with examining the influence of authors, articles and journals (e.g., [34,52–54]); and (5) the analysis of research carried out in specific countries ([e.g., [35–37,55–59]).

This study has focused on the fourth category established by Albacete, Fuentes and Haro-Domínguez [36] and the third category indicated by Koseoglu, Sehitoglu and Parnell [37], since it deals with identifying the development of research on golf tourism and sustainability through its scientific production, the topics covered, the methodologies used and future research trends.

### 3. Material and Methods

The bibliometric analysis has been based on the Scopus and Web of Science databases. Both databases are the most comprehensive, scientifically recognized and internationally disseminated. This supports the reliability of the bibliometric analysis. The selection of articles has been based on an exhaustive review, guaranteeing the validity of the results. Moreover, experienced academics on the topic of golf tourism took care of the identification of articles. The study period runs from 1998 to early 2020.

The first search for articles was carried out in the Scopus database and, subsequently, the data obtained was completed with a second search in the Web of Science database. In this way, the term "golf" was searched first in the title and, secondly, the term "golf touris\*" in the title, abstract and keywords of the works published in specialized tourism and hospitality journals. All the articles found in the specialized journals on tourism and hospitality were considered and, in turn, the contents of the other articles that were found in the other non-specialized journals were reviewed to see if they fit into the subject of study. Likewise, we have searched for the combination of the words "golf" in the title and "touris\*" in the title, abstract and keywords, selecting articles that have been filtered with a series of words in the abstract and keywords related to the subject of study, such as the following: ecology, ecological, environment, environmental, impact, sustainable, and sustainability.

Bibliometric analyses focus mainly on academic journals [40]. For this reason, exclusively those articles that were published in "journals" were selected, discarding the other options, such as editorials, books and book chapters. It has been decided to analyze the past twenty-two years because there are very few previous articles and they have had a little academic impact. The search for articles was closed at the end of February 2020. The bibliometric analysis was carried out based on the information obtained on the journals in which these articles have been published, the authors and their institutional affiliations, the years of publication and the number of citations received.

The content analysis was carried out with the support of the Vosviewer software, version 1.6.14, developed by van Eck and Waltman [60], which is a computer tool that allows the graphical visualization of bibliometric networks. This software generates graphs and maps of relationships between authors, institutions, countries and keywords by compiling a bibliographic database. This computer program has allowed us to identify groups of countries, researchers, and thematic areas. The present study applied this software similarly to other recent works (e.g., [48,49]).

# 4. Results

Golf tourism can be analyzed from several perspectives, but the theme of golf courses has been the most frequently studied approach to date. Recently, Petrosillo et al. [2] reviewed 239 academic articles that analyze the benefits and harms that golf courses cause. They carried out their study based on a landscape context, but not in a tourist context. These authors note that interest in environmental research on golf courses increased significantly between 2000 and 2005. This comprehensive and interesting review highlights that golf courses affect various environmental aspects, such as: water, soil, land use, composition of the landscape and spatial configuration, ecosystem services and biodiversity, tourism and population. Table 1 details the percentages of articles that have been devoted to all these affected factors, both positively and negatively, and we can highlight that tourism activity is the only component that offers exclusively favorable impacts. As previously mentioned, the present work will delve into research focused on golf tourism, but not on golf courses.

| Socio-Environmental Component   | Benefits (%) | Impacts (%) | Total (%) |
|---------------------------------|--------------|-------------|-----------|
| Water                           | 10.0         | 33.0        | 43.0      |
| Soil                            | 3.2          | 19.5        | 22.7      |
| Land-use                        | 2.3          | 8.6         | 10.9      |
| Landscape                       | 3.6          | 3.6         | 7.2       |
| Biodiversity/ecosystem services | 32.6         | 14.0        | 46.6      |
| Tourism                         | 10.0         | 0.0         | 10.0      |
| People                          | 7.7          | 6.3         | 14.0      |

Table 1. Socio-environmental benefits and impacts related to golf courses (% of articles).

Source: [2].

The bibliographic search on golf tourism and sustainability has detected 46 articles published in journals indexed in Scopus and Web of Science. Figure 1 shows the articles published each year, observing a clear upward trend in scientific production. Academic interest in this topic has been boosted since 2006, in which the special issue of Tourism and Hospitality Research journals [61], which publishes several papers presented at a conference on organized golf in the Algarve, seems to play a prominent role.

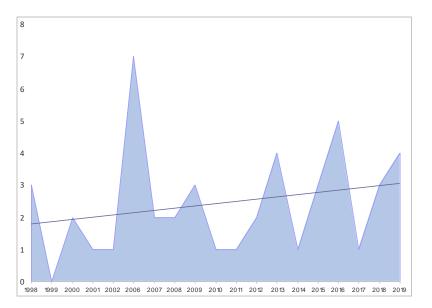


Figure 1. Number of articles published in the last 20 years.

The first studies on golf tourism and sustainability are more oriented towards the controversial reactions generated by its development and implementation in different territories in the world, such as

in Myanmar and Thailand [62], in Hawaii [63,64] or Mallorca [65]. However, the Markwick [21] study can be considered the first article to clearly define the guidelines for golf tourism research, from a sustainability perspective. This work has been by far the most cited to date on this topic and, therefore, we can consider it as the seminal study that drives this new line of research.

# 4.1. Authorship Analysis

The authorship of the articles comes from 15 countries. The vast majority of articles have been published by European authors, reaching 70% of all publications (32 articles). Next, the authors belonging to North American countries participated in twelve articles, which represent 26.1%. In the count by country, authors who belong to Spanish institutions stand out, with participation in 18 articles (39.1%), followed by US authors, who participate in seven articles (15.2%), and British authors, in six articles (13%).

Figure 2 reflects the relationships between the 15 countries through the use of Vosviewer software. The size of the nodes represents the importance according to the number of documents, and the color represents the existence of a cluster between nodes. The bibliographic coupling analysis offers clear visualization of the relationships between four groups of countries. The three countries with the most published articles each lead a group: (1) Spain, Italy and Sweden; (2) USA, Canada, Bahamas, and South Korea; and (3) United Kingdom, Australia, Portugal, Croatia, Greece, and Cyprus. Mexico and Cuba are part of a fourth, more peripheral group. Spain occupies a central position interconnected with the other three clusters.

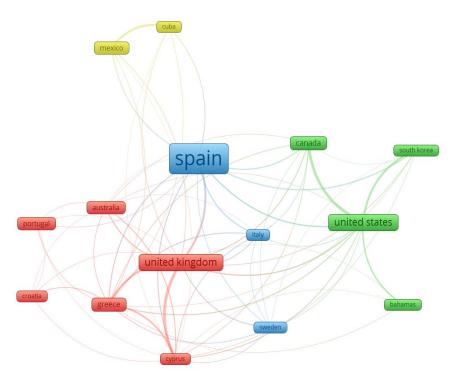


Figure 2. Contribution of authorship by country.

Considering the temporal distribution of articles published by country, Australia, Canada and Portugal appear as the countries with the oldest publications. Instead, Italy, Mexico, Sweden and South Korea are distinguished with the most recent publications.

Figure 3 details the 19 most prolific authors, who have published at least two articles on the topic. A. Vargas-Sánchez (University of Huelva) stands out with five articles, followed by F. Riquel-Ligero (University of Huelva) and the López-Bonilla brothers (University of Seville), with four articles each. H. Briassoulis (University of the Aegean) ranks fifth, with three articles.

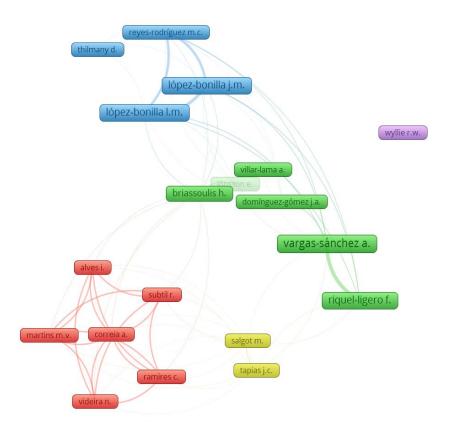


Figure 3. Prolific authors.

The 19 authors are responsible for 24 articles, which means just over half of the total number of publications analyzed (52.2%). Almost all of them are European authors, except a Canadian author (R.W. Wyllie) and an American author (D. Thilmany). Most of the articles are signed by authors from three countries: Spain, Greece and Portugal. The Spanish and Portuguese authors are the most numerous, with nine and six researchers, respectively. Furthermore, the nine Spanish authors belong to the University of Seville (four authors), the University of Huelva (three) and the University of Barcelona (two), while the Portuguese authors (red cluster) are from the University of the Algarve in their majority (four authors).

Figure 3 establishes four clusters, with H. Briassoulis as the central axis that connects them. However, there is a greater interconnection between the green and blue clusters, led by A. Vargas-Sánchez and the López-Bonilla brothers, respectively. The red cluster is represented by Portuguese authors, occupying a central position A. Correia. In contrast, the yellow group, represented by M. Salgot and J.C. Tapias, is little related to the other clusters. Finally, there is an author (R.W. Wyllie) who has no interconnectedness with others.

Considering the greater or lesser currency of the publications, the authors who have published more recently are M.C. Reyes-Rodríguez (University of Seville) and J.A. Domínguez-Gómez (University of Huelva), along with E. Jönsson (University of Lund) and López-Bonilla brothers (University of Seville).

## 4.2. Analysis of Methodological Issues

The methodology used in the published articles is very varied. A predominance of theoretical and qualitative studies can be observed, a majority of them being based on case studies [21,26,27,63,64,66–68]. Furthermore, a few studies have been based on interviews, which have been mainly targeted at stakeholders [69–73]. Minoli, Goode and Smith [13] also conducted discussion group interviews with golf tourists and added a web page analysis of 34 eco-certified golf resorts.

The quantitative studies have been based mainly on primary data sources, through personal surveys that have been carried out on golf course managers [74–78], golf tourists [24,79–84], golf players [3,79–81,85] and even the resident population [65] and spectators at a golf tournament [86].

Other studies have been based on secondary data sources, such as the Scott, Rutty and Peister [78] study, which collects data from the Ministry of the Environment on the volume of water used by golf courses in Ontario (Canada); as well as the studies by Rodríguez, Knox and Weatherhead [87] and Villar-Lama [88], which use a geographic information system (GIS) to observe the water consumption of golf courses in Spain and to analyze the current situation and the evolution of golf courses in Andalusia, respectively.

Quantitative studies have been based on different statistical techniques, such as descriptive analysis [78,80,86]; cluster analysis [79] and multivariate analysis [3,74–77,81–84]. The most common method has been partial least square (PLS), which has been used with Visual-PLS software [74–77], SmartPLS software [81–83] and the free R-encoded PLS-PM software [84].

### 4.3. Thematic Content Analysis

Next, the more specific contents that have been treated in the articles are analyzed. For this, the relationships among all the keywords of the 46 articles are reviewed. The contents have been analyzed through the keywords from authors and database aggregated. The minimum number of occurrences of each keyword was set to two. Figure 4 includes the interrelationships among all the selected keywords, and a series of thematic clusters are established. Firstly, a set of main concepts are at the center of the graph, such as: golf, golf course, golf tourism, sustainability and tourism development. Curiously, there is a slight predominance, by the number of articles, of the term "golf courses" concerning the term "golf tourism".

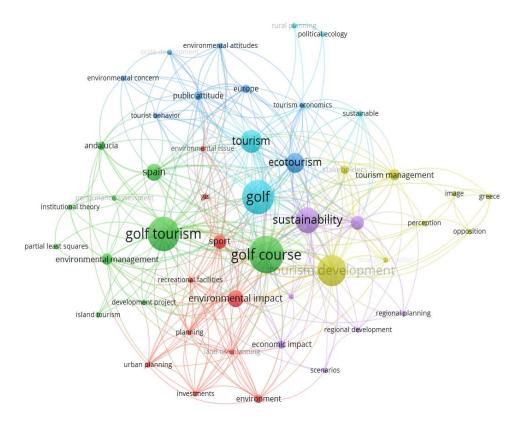


Figure 4. Analysis of keywords (clusters).

The visual analysis presented in Figure 4 through Vosviewer distinguishes six clusters, which are the following:

- - Cluster 1, in red color, mainly represented by the term environmental impact,
- - Cluster 2, in green, in which the terms golf course and golf tourism are found, but the term environmental management appears especially,
- Cluster 3, in blue, where terms related to environmental attitudes and behaviors stand out,
- - Cluster 4, in yellow, in which the term tourism development appears, but which also includes tourism management, stakeholders, perception, image, and opposition,
- Cluster 5, in purple, containing the terms sustainability and sustainable development, but also
  other terms related to regional planning and development,
- - Cluster 6, light blue, with little content focused on ecological policy.

Figure 5 indicates that the most recently studied concepts are related to environmental attitudes and behaviors. Instead, the older concepts are linked to sustainable planning and development.

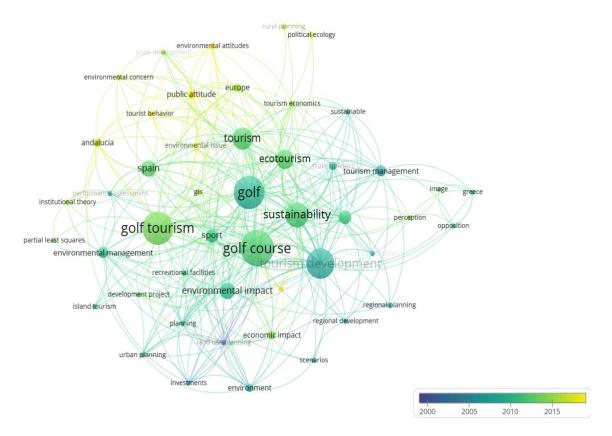


Figure 5. Analysis of keywords (temporal distribution).

Next, a grouping of thematic contents is made according to these six previously defined groups, and the research domains are defined. However, we believe it is convenient to regroup cluster 6, since it is located in a peripheral position of the analysis and is considered by a very limited number of articles. Thus, cluster 6 is included in cluster 5, due to its higher thematic affinity.

## 4.3.1. Impacts

Fourteen articles are found in this line of research. Studies on the positive and negative effects related to golf courses are usually abundant in the academic literature, as evidenced by the review carried out by Petrosillo et al. [2] in this subsection, especially highlighting the negative factors as more recurrent. As Parnwell [62] points out in his study on the impact of golf tourism in Myanmar and Thailand, the overall perceived benefits are often contrasted with negative and occasionally severe impact on local security. However, most golf tourism studies try to strike a better balance between the for and against forces. Some of the works are also more oriented towards the benefits of golf

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tourism, such as Butler's study [68], which concludes that in the case of a privileged place such as St. Andrews (Scotland), considered the birthplace of golf, it is very positive for the city in its three aspects of sustainability, with few environmental problems and various favorable social and economic benefits for its residents. In any case, as proposed by Salgot and Tapias [89], integrated management of all the characteristics of the golf course environment is necessary to minimize its damage and, in turn, improve the positive effects.

Some studies have focused on the socio-economic impacts of golf tourism. For example, Agrusa and Tanner [86] carry out a study on the tourist benefits of a second category golf tournament in Louisiana through the opinion of the spectators who attended, being 88 tourists and 534 residents. Their results indicate a positive economic impact on the local community. Lim and Patterson [90] describe the effect of an international golf event on Jeju Island (Korea) and consider this sport as a strategic market niche for the development of the island. Jugovic, Grzinic and Loncar [91] analyze the macroeconomic benefits in the development of golf tourism in Istria (Croatia). Watson, Davies and Thilmany [80] perform an impact analysis to highlight the economic contribution of the Colorado golf industry. The direct effects on the tourism sector were recorded from a survey of 155 golf tourists. Wilson and Thilmany [79] also analyze the economic impact of golf regularly; (2) the visitors of resorts, who wish to be in this type of facilities and seek good life experiences; and (3) network professionals, who are mostly residents who play with acquaintances from the business world. The first segment, and followed by the second one, are those that provide the highest economic income for Colorado.

Concerning environmental impacts, Villar-Lama and Férnandez-Tabales [92] confirm that golf courses of a tourist and sports nature have a lower territorial and environmental impact than residential complexes linked to the real estate business. Likewise, Villar-Lama [88] ensures that golf courses are critical pieces in the urbanization process of the Costa del Sol and the commercialization of the landscape. As Petrosillo et al. [2] indicated, the landscape is a crucial aspect to determine the positive and negative effects of the other components that make up a golf project.

Rodríguez, Knox and Weatherhead [87] focus on the study of the water consumption of golf courses and make a comparison with irrigation in the agricultural sector in Spain, using a geographical information system (GIS). Their results indicate that the volume of water used for the irrigation of the golf courses is minimal compared to agricultural irrigation. In this way, the water consumption of golf courses for tourist use is economically rational despite the controversial transfer of resources from agriculture. On the contrary, Wurl's study [93] indicates that the 13 existing golf courses in the tourist corridor of Los Cabos, in Mexico, exceed the volume of water used in agriculture in the area. Another recent study, also closely linked to water use, is published by Scott, Rutty and Peister [78], which examine the characteristics of 129 Ontario golf courses and their effect on the variability of water use, highlighting factors such as the type of land, the age of the golf course and its public-private property. Furthermore, this study is concerned with observing the influence of climate change on water use, by comparing regular seasons with strangely hot and dry seasons, in which the average water used almost doubles. These authors suggest that among the best environmental practices regarding water consumption is the incorporation of grass that is drought tolerant, as well as the installation of soil moisture sensors to avoid excessive irrigation and the addition of wetting agents to retain soil moisture.

#### 4.3.2. Environmental Management

Eight articles are found in this line of research. Tapias and Salgot [94] consider that water, soil and grass resources are critical elements in the environmental management of golf courses, which must be applied comprehensively. In turn, these authors assert that golf tourists who come from countries or regions with abundant water should modify their expectations when travelling to destinations with scarce water. Flores, Vargas and López [95] warn that the excessive growth of golf courses would place Mexican tourist destinations at environmental risk, so they propose that companies should seek formulas for environmental management and governments should create a

political and regulatory framework to guide them towards the sustainability. In the specific case of the Baker's Bay Golf and Ocean Club resort in the Bahamas, Sullivan-Sealey and Cushion [67] review the efforts, resources and costs required in the implementation of a long-term environmental management program. This program is expensive but necessary to avoid future problems. The long-term benefits of responsible environmental management include (1) stabilization of the coastline and coastal dune system, (2) reduction of land-based sources of pollution, preserving the value of marine resources close to the coast; and (3) maintenance of the site's biological diversity and the wildlife habitats.

Vargas-Sánchez and Riquel-Ligero [74–77] describe and verify the influence of institutional pressures on the environmental management practices of managers of Andalusian golf courses. In turn, environmental management is also related to social legitimacy and organizational performance. To do this, these authors propose structural research models based on institutional theory. They used a structured questionnaire addressed to the managers and greenkeepers and received 31 valid responses. In particular, two of these works have been longitudinal studies comparing data obtained from two manager or greenkeeper surveys in 2007 and 2010.

Minoli, Goode and Smith [13] explore the role of ecolabels in golf tourism from the field of outreach and education. Ecolabels publicly certify leadership, commitment and a high level of environmental management on golf courses. These authors point out that golf tourists have little awareness and understanding of the international wildlife habitat management program called the Audubon Cooperative Sanctuary Program (ACSP). Increasing the environmental awareness of golf tourists and knowledge of ecolabels can affect decision making regarding their golf vacation. In this way, ecolabels can play an essential role in customer retention and the generation of new business opportunities.

# 4.3.3. Environmental Attitudes and Behaviors

The sustainability of golf tourism requires a holistic understanding of the interrelationships between the social, cultural, economic, environmental and cultural elements. However, the sociocultural dimension of golf tourism destinations is not sufficiently explored in the tourism literature [24]. In this subsection, we have included the six studies that have addressed environmental attitudes and behaviors from the perspective of golf tourists. Thus, Boukas and Ziakas [24] examine the perceptions of golf tourists in Cyprus regarding their vacation experience. Their results indicate that the main motivations of golf tourists to visit this country include the natural characteristics of the island, a welcoming environment and a unique experience accompanied by friends. This research has attempted to understand the meaning of golf tourists' experiences and contextualize the potential to foster sustainable golf tourism.

López-Bonilla and López-Bonilla [81,82] review two measurement scales through large samples of golf tourists visiting Andalusia (Spain). In a first study, these authors analyze the tourist ecological orientation scale (TEO), developed by Uriely, Reichel and Shani [96], and propose a newly revised scale, called RTEO, which is more specific and directly related to environmental aspects and, also, strengthens the operability of the construct through this brief, simple and reliable measure [81]. The second study focuses on the new environmental paradigm (NEP), created by Dunlap and Van Liere [97], and they propose a new scale to overcome the dilemma of dimensionality that exists in the literature [82]. This new measure is called the brief ecological paradigm scale (BEP). It is intended to eliminate the bipolarity between the paradigms of egocentrism and anthropocentrism, in addition to offering a way of measuring environmental attitudes with greater efficiency and operability.

Han, Yoon and Woods [3] try to bring more insight into the role that ecological awareness plays in the golf decision-making process. In particular, these authors suggest the existence of relationships between environmental knowledge, the image of golf, the frequency of play, the desire to play, the intention to play and the intention to recommend to others (WOM) in the traditional and screen-golf industries. The results indicated that ecological awareness significantly influenced decision-making in the game of golf through virtual simulators, but did not predict the decision for traditional outdoor golf. In this way, individuals with greater ecological awareness can probably have a more favorable

image towards screen-golf than conventional golf, this being what will lead them to play virtual golf more frequently, considering it less harmful to the environment.

López-Bonilla, Reyes-Rodríguez and López-Bonilla [83,84] delve into the study of the environmental attitudes of golf tourists, by analyzing the moderating effects of culture and gender. On the one hand, they confirm the relationship between environmental attitudes and behaviors in three samples of German, British and Spanish golf tourists, also verifying that nationality does not act as a moderating effect of this relationship [83], and, on the other hand, they examine personal factors in the environmental behavior of golf tourists from a gender perspective and corroborate the relationships between capacities, ecological habits and environmental attitudes [84]. However, the interactions are more limited between these constructs.

## 4.3.4. Conflict of Interests

Ten articles have been included in this research domain. Thus, for example, Markwick [21] examines the complexity of the different interests that are involved in the development of golf in Malta, first analyzing its advantages and disadvantages and identifying the interest groups and the conflicts that arise between them. This author proposes a matrix of power interests to facilitate that academics and tourism managers can interpret the complex relationships that exist and, thus, guide their development strategies in a negotiated manner between the parties. In this sense, Domínguez-Gómez and Vargas-Sánchez [70] evaluate the socio-economic profitability of a golf-based tourism development project. To do this, stakeholder opinions on the El Rompido Golf facilities, in the municipality of Cartaya (Huelva), which question the benefits it brings to the local community, are analyzed. For example, it generates little employment and is of low quality.

The tourist isolation regime neither favors local businesspeople nor reduces seasonality, because only the five-star hotels operate outside the high season. Domínguez-Gómez and González-Gómez [73] observe the perceptions of stakeholders regarding a golf project, but distinguish two different discourses according to their socio-political positions: influential actors versus non-influential actors. The former presents a traditional developmental discourse, maintaining generic references around the concept of growth. In contrast, non-influential actors have a less positive outlook and reflect a more reactionary sentiment. From this same point of view, Jönsson [72] explores the diversity of approaches and power relations between the parties involved in the context of the golf project known as Trump International Golf Links Scotland. This author indicates that the divergence of opinions is derived from the different interpretations of space. Briassoulis [66] focuses on the European Mediterranean coast and understands that golf-focused tourism development generates a high risk to opt for sustainable development in these destinations, and, therefore, it is necessary to adopt strategic regional planning that is multi-functional, collaborative, adaptive and flexible, achieving a balance of present and future interests between the local community, tourists and business people.

The opposition of the local community to the development of golf tourism has been studied more directly in other works [26,27,63–65]. In particular, Wyllie [63,64] addresses this issue from the adverse reactions of residents to the implementation of a golf course in Maui County (Hawaii). Schmitt [65] suggests that quality tourism is not compatible with golf tourism, nautical tourism or residential tourism initiatives in Mallorca (Spain), as proposed by the Government of the Balearic Islands. This author verifies that the local population of Mallorca, with a sample of 200 people, rejects golf tourism by 67%, being a much higher percentage than opinions contrary to nautical tourism and residential tourism. Briassoulis' works [26,27] have focused on the perceptions and attitudes of groups protesting against a new golf resort project located in Cavo Sidero (Crete). Briassoulis [27] proposes a conceptual scheme to understand and interpret the collective opposition that can support golf-based tourism development. This scheme includes a set of relevant factors, such as the sociodemographic characteristics of the opponents and the contextual factors, as well as their values, beliefs, attitudes and image towards golf projects.

#### 4.3.5. Sustainable Planning and Development

Eight articles have been selected in this line of research. Priestley [98] considers essential the planning of the tourist areas based on the development of golf with the idea of achieving economic and social objectives that are compatible and that contribute to the sustainability of the tourism sector, the territory, the landscape and the local community. Difficulties in achieving these goals must be overcome through a sustainable development approach. Warnken, Thompson and Zakus [99] discuss the environmental and economic planning process in Australia's Gold Coast development, which has led to an oversupply of golf facilities, and conclude that local communities must demand effective local planning policies and greater public control to avoid possible imbalances. Jönsson [71] observes that environmental policy has had little to do with tourism and analyses the possibilities of applying it in golf tourism, referring to the specific case of a high-level golf course in Sweden. Górgolas [100] reviews the Andalusian legislation to enable the establishment of golf courses in the region and suggests that the declaration of "golf course of tourist interest", which was intended to seek tourist excellence, has been an excuse to perpetuate the association between golf courses and real estate-residential operations that extend through the tourist territories of the Andalusian region, especially in the coastal areas.

Regarding the development of golf tourism, Woodside [101] believes that the application of system dynamics is necessary to model and evaluate the inputs and outputs, encompassing an integrative vision of its multiple factors involved, such as real estate development, agriculture, the resident population, employment and government regulations. Videira et al. [85] analyze a series of fundamental indicators from three dimensions: environmental, business and regional economy. These authors indicate that improving the environmental performance of golf courses can be facilitated through the adoption and implementation of various management instruments.

Like Videira et al. [85], based on the same sets of indicators, Correia et al. [69] introduce the concept of sustainable golf development (SGD). These authors recommend a number between 29 and 41 golf courses in the Algarve (Portugal), so that there is sustainable development from the socioeconomic, business and environmental perspectives and therefore the possibility to improve the development of relations between all parties involved, from businesspeople to rulers, passing through the citizens themselves. Del Campo, Molina and Sales [102] focus on the sustainable limits of golf courses that extend to a prominent tourist destination, such as the province of Alicante (Spain). These authors consider that these spaces must be economically profitable and committed to the environment, for which they analyze determining factors, such as economic benefit, land use and water consumption.

## 5. Conclusions

Research on the sustainability of golf courses has been extensive, but it needs to be distinguished from research on golf tourism, which has been much more limited and recent. However, the research on golf courses has mainly focused on environmental issues, while research on golf tourism focuses on a greater diversity of sustainable perspectives. In the present study, we have reviewed the studies published in scientific journals over a very long period, from 1998 to early 2020. We have found a total of 46 published articles, and we have analyzed their content to especially detect existing research domains and establish future lines of research. All this will be useful for academic and postgraduate students, as well as for public and private managers linked to the development of golf tourism.

The results indicate that the published works on golf tourism are geographically concentrated in southern Europe, such as Spain, Greece and Portugal. In contrast, studies on golf courses come mainly from North America, as indicated by Petrosillo et al. [2] Spain and Portugal lead golf tourism in Europe. Hence, it coincides with the academic interest of two regions regarding research on this topic, such as the Algarve, in Portugal, and, above all, Andalusia, in Spain. In this sense, there is a predominance of researchers who come from the University of Seville and the University of Huelva, in Spain, and the University of the Algarve, in Portugal, which are curiously institutions located in bordering territories to the west of the Iberian Peninsula. The most prominent authors in the descriptive analysis are A.

Vargas-Sánchez (University of Huelva) and López-Bonilla brothers (University of Seville), who lead different clusters. However, there is another relevant author, H. Briassoulis (University of the Aegean), who acts as the central axis between the network connections between researchers. Besides, among all the authors who have published on the topic, it is noteworthy also to mention that one of them, Professor Butler, is one of the leading researchers in the field of sustainability and tourism in general, as observed in the ranking of authors established by Niñerola et al. [48]

The published articles have been based on both qualitative and quantitative studies in a similar proportion. However, there is a lack of studies using both data analysis techniques. Also, the quantitative studies used samples of limited size, both from golf courses and golf tourists, except for a few studies, such as the works by Scott, Rutty and Peister [77], with a sample of 120 golf courses in Ontario (Canada), and López-Bonilla and López-Bonilla [81], who used a sample of 509 European golf tourists. It would be convenient to carry out studies based on extensive and diverse samples to improve analysis capabilities. For example, to compare their results, one could study the environmental management of golf courses in different regions or countries, or also the ecological behavior of golf tourists visiting very different destinations, located in distant geographical locations or different tourist settings. Furthermore, samples of golf tourists are often poorly defined; for example, the distinction of golf tourists provided by Hudson and Hudson [16] could be taken into account. Thus, it would be interesting to propose studies in which the opinions of essential tourists, who play golf as another activity on their trip. It would also be appropriate to consider other studies based on passive golf tourists acting as tournament spectators.

In the content analysis, we have detected five lines of research on golf tourism from different sustainability perspectives. The most prolific line of research has been related to the impacts of golf tourism, with fourteen published works. The second line of research, by number of articles, is focused on conflicts of interest, with ten works. Below are two lines of research with eight papers each, dedicated to environmental management and sustainable planning and development. Finally, the line of research least treated in the literature has focused on the environmental attitudes and behaviors of golf tourists, with six articles.

As we have commented, research on golf tourism and sustainability is still relatively scarce. The number of articles on the topic represents approximately a fifth of the published works on sustainability and golf courses. For this reason, we can propose some studies for each of the research lines described above. The research line on the impacts of golf tourism should consider the effects of climate change in a next future, and a series of sustainability indicators could be established to assess its importance levels and generate a balance of positive and negative effects. In this sense, the subject of conflicts of interest is closely associated with the previous line of research, and the balance between stakeholders could be analyzed to enhance the local image of golf facilities. Regarding the study on sustainable planning and development, the strategic plans of the public administration could be revised to focus on the sustainable development of geographical areas focused on golf tourism. Concerning the line on environmental management, one could delve into the ecological practices of managers of tourist facilities based on golf courses. Finally, research on environmental attitudes and behaviors would have the possibility of segmenting golf tourists to identify ecological and sustainable profiles, analyze gender equity or study the authenticity of golf tourism facilities regarding the socio-cultural environment in which they are located. There is no doubt that a more cross-sectional study could be carried out, involving several research lines described above. Thus, for example, gender equality is fundamental for sustainability; there is inequality in the number of golfers and, therefore, golf tourists. Moreover, it could identify those golf tourism facilities that have achieved success due to their maximum efficiency, both in areas with abundant natural and scarce resources, as well as analyzing the use of renewable energy and its acceptance by stakeholders.

The present work has several limitations. On the one hand, the study was based on searching for articles in the two most important international databases in the world today. These two databases

have extensive coverage of indexed journals and, also, they are the ones with the highest academic recognition. However, this study does not cover other sources of information. Likewise, we have focused on the publication of articles, but different types of published documents have been ruled out, such as, in particular, book chapters and conference papers. Furthermore, our study has been based on a descriptive graphic analysis that in future studies should be complemented with other analysis techniques to deepen the results.

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