

Artículo de revisión

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Gestión de entornos turísticos

Bibliometric review on the management of golf courses as recreational centres in Cuba and the world

Revisión bibliométrica sobre la gestión de campos de golf como centros recreativos en Cuba y el mundo

1. Sandro Felipe Acosta Mesa

Universidad de La Habana, Facultad de Turismo, La Habana, Cuba.

(sandrofelipeacostamesa@gmail.com) ID ORCID: <https://orcid.org/0000-0002-4170-7892>

2. Emilio Enrique Guerra Castellón

Universidad de La Habana, Facultad de Turismo, La Habana, Cuba.

(emilito042@gmail.com) ID ORCID: <https://orcid.org/0009-0005-2436-7186>

3. Jorge Félix Quintana Cala

Universidad de La Habana, Facultad de Turismo, La Habana, Cuba.

(jorgefelixquintanacala@gmail.com) ID ORCID: <https://orcid.org/0009-0000-0750-4170>

Abstract

Golf course management is multifaceted, as it not only encompasses the practice of the sport, but also the provision of additional services and the maintenance of facilities and green areas. Given the importance of the subject and the challenges related to the proliferation of recreational golf centres, which go beyond their construction, this research aims to analyse the scientific production on the management of golf courses as recreational sports centres in Cuba and the world between 2014 and 2024. To carry out the bibliometric analysis, a review methodology based on the PRISMA model was applied and 251 articles were selected from the Google Scholar, Scopus and Dimensions databases. The following methods were used: synthetic analytical, literature review and descriptive statistics. In addition, software such as R-Studio, Excel, Scimago Graphica and VOSviewer were used. The findings highlight an increase in the number of publications since 2020, which shows the growing trend of research on this topic and countries such as the United States, Spain and Cuba stand out as leaders in the production of research in this field. The management of golf courses is very complex despite the fact that in Cuba golf tourism is not highly developed, actions are carried out to promote its progress.

keywords: bibliometric analysis, golf courses, management, tourism, leisure, Cuba.

Resumen

La gestión de campos de golf es multifacética, ya que no solo abarca la práctica del deporte, sino también la provisión de servicios adicionales y el mantenimiento de instalaciones y áreas verdes. Ante la importancia del tema y los retos relacionados con la proliferación de centros recreativos de golf, que van más allá de su construcción, surge esta investigación, cuyo objetivo es analizar la producción científica sobre la gestión de campos de golf como centros deportivos recreativos en Cuba y el mundo entre 2014 y 2024. Para realizar el análisis bibliométrico se aplicó una metodología de revisión basada en el modelo PRISMA y se seleccionaron 251 artículos de las bases de datos Google Académico, Scopus y Dimensions. Se utilizaron los métodos: analítico sintético, la revisión bibliográfica y la estadística descriptiva. Además, se utilizaron softwares como R-Studio, Excel, Scimago Graphica y VOSviewer. Los hallazgos resaltan un aumento en la cantidad de publicaciones desde 2020, lo que muestra la tendencia creciente de las investigaciones en este tema y países como Estados Unidos, España y Cuba se destacan como líderes en la producción de investigación en este ámbito. La gestión de los campos de golf resulta muy compleja a pesar de que en Cuba el turismo de golf no tiene un gran desarrollo, se realizan acciones para potenciar su avance.

Palabras claves: análisis bibliométrico, golf courses, management, tourism, leisure, Cuba.

Introduction

Tourism plays a crucial role in the development of nations, as it contributes to job creation, heritage preservation, infrastructure development, improvement of services, promotion of local initiatives, strengthening of cultural exchange and promotion of international cooperation (Thommandru *et al.*, 2023).

According to Acosta Mesa *et al.* (2024) tourism has become very important for socio-economic growth, and is recognised worldwide for its role in fostering a wide range of leisure and entertainment options. These options are developed to meet the growing and changing needs of tourists.

Today, nations are creating new social and economic models through tourism, generating new opportunities for the social, economic, cultural and environmental modernisation of the geographical area (Castellanos-Verdugo y Orgaz-Agüera, 2013), which translates into an increase in the level of quality of life of the local population.

In this context, the implementation of more sustainable tourism seeks to address the needs of tourists and local communities, while protecting the future of countries. There is a growing interest among tourists in nature experiences and a rejection of mass tourism, which has led to the emergence of alternatives, such as golf tourism.

This type of tourism is part of sports tourism, which has been one of the most prominent sectors during the last decades (Del Campo Gomis *et al.*, 2018; Ramírez-Hurtado y Berbel-Pineda, 2015; Song *et al.*, 2021) and is also experiencing an accelerated growth in tourism activity (Mason y Moretti, 2015).

According to ONU Turismo (2019), sports tourism is a type of tourism activity that relates to the experience of the traveller, who may choose to be an observer or actively participate in a sporting event. This generally involves both commercial and non-commercial activities of a competitive nature.

Golf and sustainability are deeply interconnected. In fact, Han (2014) points out that environmental issues represent golf's main challenge. Nowadays, the design, construction and operation of a golf course must be guided by sustainability criteria.

According to Petrosillo *et al.* (2019), golf courses are often classified as 'green infrastructure', which implies the need for golf course managers to have a deep understanding of ecological sustainability principles. It is also imperative that golfers adopt behaviours that are consistent with these environmental imperatives, thereby promoting the practice of golf that contributes to the conservation and enhancement of the environment.

Golf course management is a multifaceted activity that is not only limited to the practice of the sport, but also involves offering a variety of complementary services and dealing with the cost of maintaining the facilities and green areas. It must therefore be focused on guaranteeing the

best customer experience (members, visitors, events) with the aim of increasing profits and with the necessary resources for its correct execution (Grimaldi Puyana *et al.*, 2018).

This management has evolved significantly and has become a crucial aspect for the development of sport and the promotion of tourism in various regions of the world, including Cuba. Recently, there has been a significant increase in interest in the subject, not only from a sporting perspective, but also in the business context, especially among specialists and researchers in the field of tourism. This is due, among other factors, to the various benefits that these facilities provide, such as the creation of added value for clients, the generation of employment, and the stimulation of other economic sectors, such as transport and hospitality.

In this order of ideas, it is essential that the entities in charge of the management of golf courses and the professionals of the sector get involved in the research and promotion of topics related to the development of this activity. The aim should be to raise awareness, encourage innovation and generate scientific studies that contribute to the development of golf as a sport and as a recreational or leisure activity, as these are increasing in turnover, expansion and diversification (Reverter-Masia, 2021). A useful strategy to achieve this is bibliometrics, which helps to analyse relevant information and identify trends in research related to the subject (Guerra Castellón *et al.*, 2024).

From an exhaustive study in the Google Scholar, Dimensions and Scopus databases, a single precedent has been identified in relation to this type of research. Specifically a study carried out by López-Bonilla *et al.* (2021), which consisted of a bibliometric analysis that examined the interrelationship between golf tourism and sustainability and identified the works carried out over the last decades.

Cuba is currently making significant progress in the creation, diversification and strengthening of services and offers complementary to accommodation that distinguish the country. As part of this initiative, the development of golf associated with real estate projects is being promoted.

Given the relevance of the topic and the challenges associated with the proliferation of recreational sports centres for golf, which go beyond their construction and often ignore their functionality and effect on the local environment, generating economic and environmental problems (Peña Guzmán y Mesa Fernández, 2014; Cátedra del Golf, 2024), the authors decided to conduct a bibliometric analysis to establish the current state of knowledge, analyse indicators of scientific production and identify trends in the management of golf courses, thus providing guidelines for their application in the tourism sector in Cuba. From this, the present research arises with the aim of analysing the state of scientific production on the management of golf courses as recreational sports centres in Cuba and the world from 2014 to 2024.

Methods

To carry out the research, a methodology based on the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement, in its most recent version, developed by Page *et al.* (2021). The articles were analysed both quantitatively and qualitatively.

The aim of the quantitative analysis was to provide an overview of the publications, including factors such as the year and source of publication, the location where they were published, the methods and instruments used, as well as the importance of the articles according to the number of citations received.

The qualitative analysis focused on the content of the publications, especially on how the relationship between the circular economy and tourism competitiveness has been addressed in the specialised literature, as well as on the factors identified in empirical studies that enable organisations to achieve a competitive advantage through this relationship.

The search was carried out in the databases Google Scholar, Scopus and Dimensions, selected for their relevance in the academic field and for the sophisticated search tools they offer. The following search equation was used: ‘golf course’ AND (‘leisure’ OR ‘management’ OR ‘tourism’). In order to select the papers, the following inclusion criteria were established:

- 1) Publications from 2014 to 2024.
- 2) Open access.
- 3) English and Spanish language (in case of Cuba).
- 4) Research articles, reports and theses.
- 5) Relevance to the topic.

The selection of articles was carried out in accordance with the PRISMA declaration guidelines, as shown in Figure 1. The last review was carried out on 26 September 2024.

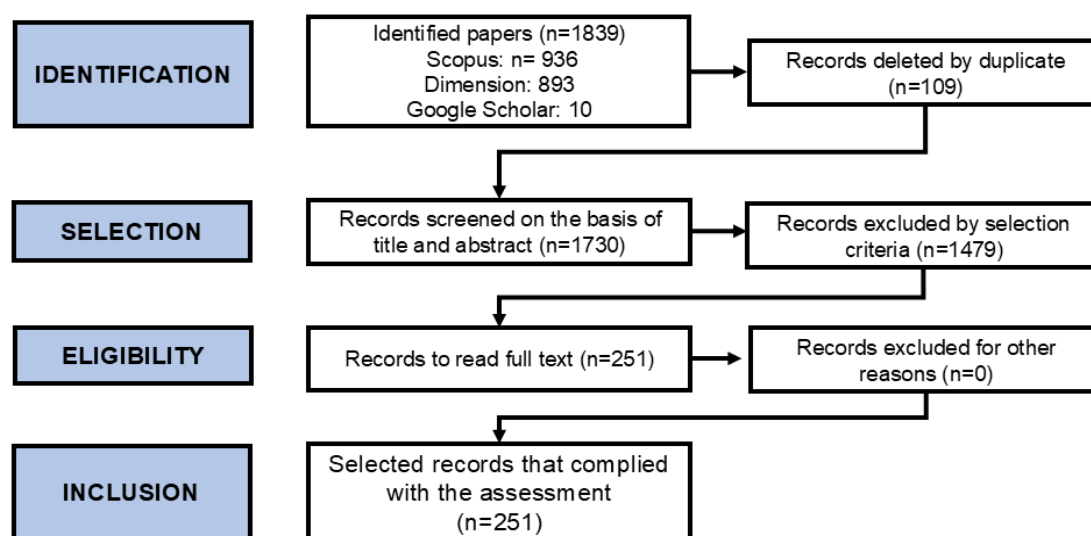


Figure 1. Selected articles.

Source: own elaboration based on Page *et al.* (2021).

In a first stage, 1839 publications (articles, theses, conferences, book chapters) were identified in the selected databases, of which 109 were eliminated because they were duplicated in the databases. Subsequently, during screening, by reviewing titles and abstracts, 1479 publications were excluded if they did not match the inclusion criteria and research variables. In the eligibility stage, 251 research papers were reviewed and found to be suitable for bibliometric analysis, as they met the research questions and the criteria for inclusion and scientific rigour.

The analytical-synthetic method was used to examine the literature and specialised documentation. A bibliographic and documentary review was also carried out in order to identify various antecedents, as well as conceptual, theoretical and methodological frameworks, in addition to the bibliometric evaluation indicators. The application of statistical-mathematical methods, such as descriptive statistics and univariate and bivariate analyses, facilitated the understanding of trends and the evolution of studies, the identification of the main areas of research development and the recognition of the authors and studies with the greatest scientific impact, among other significant aspects.

To carry out the bibliometric analysis, R Studio software was used, applying the bibliometrix package and the mergeDbSources function to combine the Google Scholar, Scopus and Dimensions databases into a combined dataframe. This dataframe was exported in Excel format and any duplicates were removed, mathematically represented as $DUSUG = \{CDF\}$ to facilitate the analysis and visualisation of the data in the Biblioshiny application. In addition, VOSviewer software contributed to the creation of a bibliometric map, which allows for a co-occurrence analysis and the identification of key concepts related to the topic. Scimago Graphica software was also used to generate graphs.

Results and discussion

Quantitative analysis

A total of 251 articles published in 135 journals were reviewed, authored by 779 authors from 400 institutions in 12 countries. In relation to the year of publication, figure 2 illustrates the number of articles published annually from 2014 to 2024, as well as the average cumulative citations.

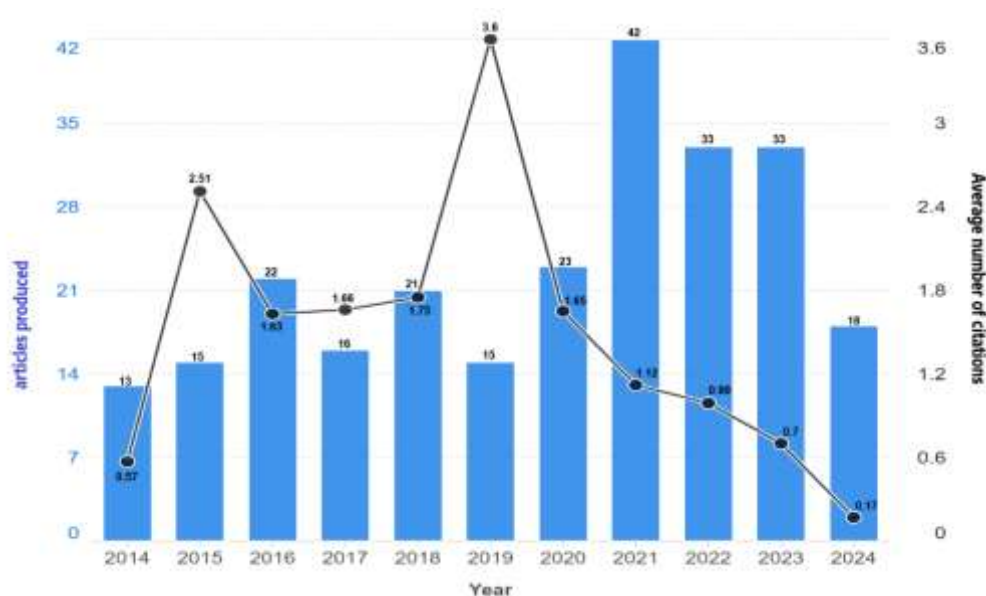


Figure 2. Annual evolution of the number of articles and average number of citations.

Source: own elaboration in Scimago Graphica.

A continuous increase in scientific production is observed, although a slight decrease is recorded in 2024, the year with the lowest average number of accumulated citations, with a value of 0.17. However, this figure remains slightly above the averages for the years prior to 2020; for example, 2019, which in turn recorded the highest average number of citations, with a value of 3.6. These data suggest an upward trend in research activity associated with the topic in question.

With regard to sources, a total of 135 published at least one article related to this topic. Figure 3 illustrates the variability in productivity and impact among them.

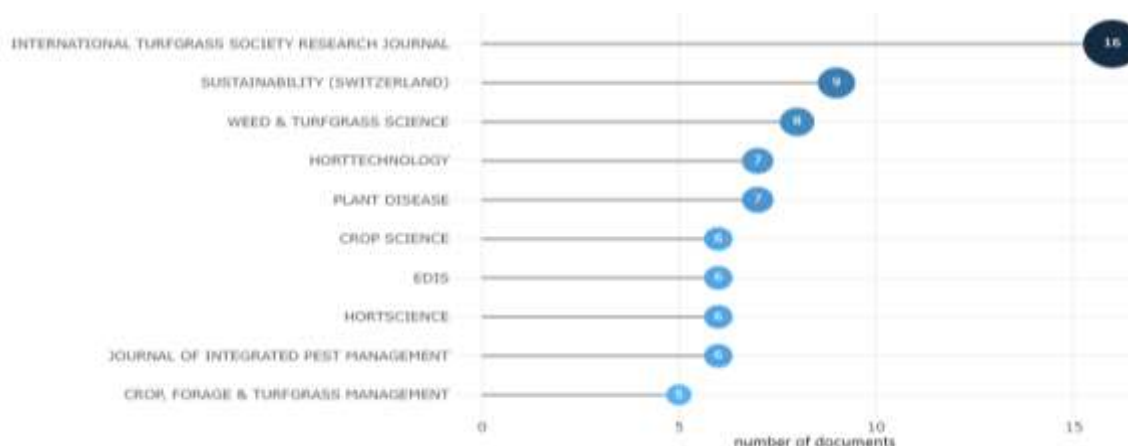


Figure 3. Production of articles from relevant sources.

Source: own elaboration in R Studio.

The most prominent source in the period under review was the Research Journal of the International Turfgrass Society of the United States, which published 16 articles. This journal has a four-year periodicity and presents research that is discussed at its quadrennial conference.

The second most productive source was the Swiss journal Sustainability, with 9 articles. The journal Weed & Turfgrass Science also stood out, contributing 8 articles. On the other hand, journals such as Horttechnology and Plant Disease generated 7 articles each, while Crop Science, Edis, Hortscience and the Journal of Integrated Pest Management contributed 6 articles each.

In total, 779 authors have produced at least one publication related to the topic. Figure 4 illustrates the productivity, number of citations and h-index of the 10 most relevant authors in the period studied.

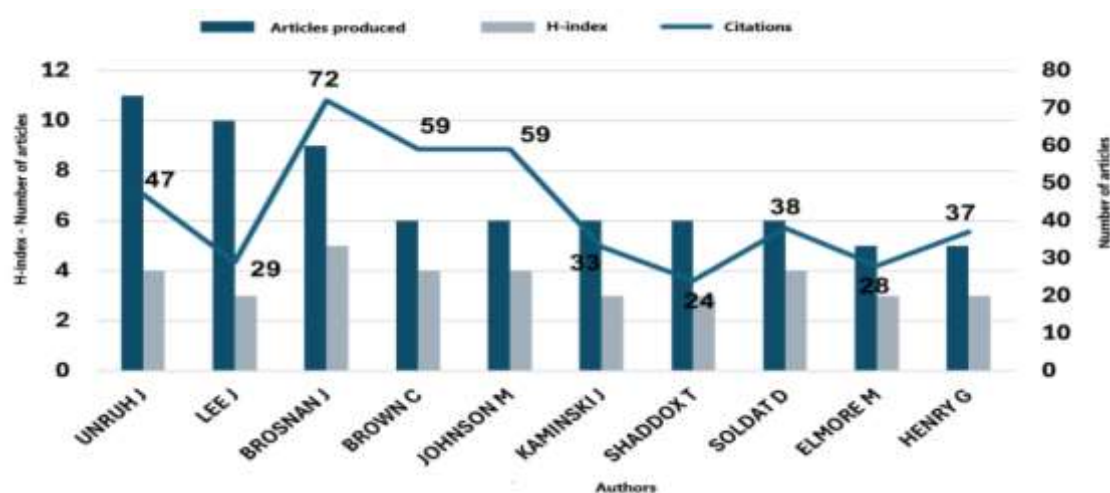


Figure 4. List of articles, citations and h-index of authors.

Source: own elaboration.

The most prominent author was Brosnan J., who achieved an H-index of 5, reflecting remarkable productivity and significant impact, with 72 citations, being the most cited author in his 9 articles. In contrast, both Brown C. and Johnson M. have 59 citations each, also a considerable number; however, their H-index is lower, with a value of 4, and despite having highly cited articles, each of them has published only 6 papers. However, compared to the first one, they have a very similar H-index.

On the other hand, authors Lee J., Kaminski J., Elmore M., Shaddox T. and Henry G. have an H-index of 3, indicating a moderate academic output and impact, although there is variability in the number of citations their papers receive. In contrast, Unruh J. has an h-index of 4, supported by 47 citations from the publication of 11 articles, indicating higher productivity compared to the other authors mentioned.

Figure 5 illustrates the academic output of these authors over the years. Kaminski J. and Brosnan J. have the longest track record, with publications from 2015 and 2017, respectively, to the current date. In contrast, Soldat D. and Elmore M. have emerged more recently in the field, with a track record of just 4 years (from 2020 to the present). Despite their lesser experience compared to Brosnan J. and Kaminski J., both authors have achieved a comparable number of

articles produced. This indicates that, although their period of activity is shorter, they have maintained a significantly high productivity in their research.

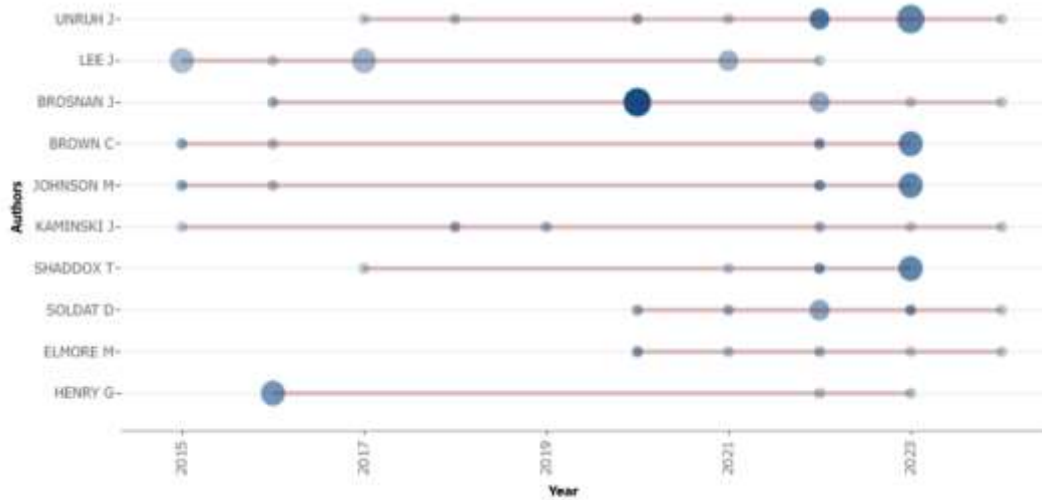


Figure 5. Scientific production of the authors over time.

Source: own elaboration in R Studio.

In relation to the countries of the authors mentioned, researchers from 12 different nations have published at least one article, as illustrated in Figure 6. The production on the management of golf courses as recreational sports centres is most notable in the United States, with 143 articles, followed by Spain and Cuba, which have 10 articles each. Brazil, Norway, China, Indonesia and Sweden have between 3 and 6 articles each. However, countries such as the UK, Mexico, New Zealand and Germany show between 1 and 2 articles each, reflecting varying levels of interest and activity in this area.

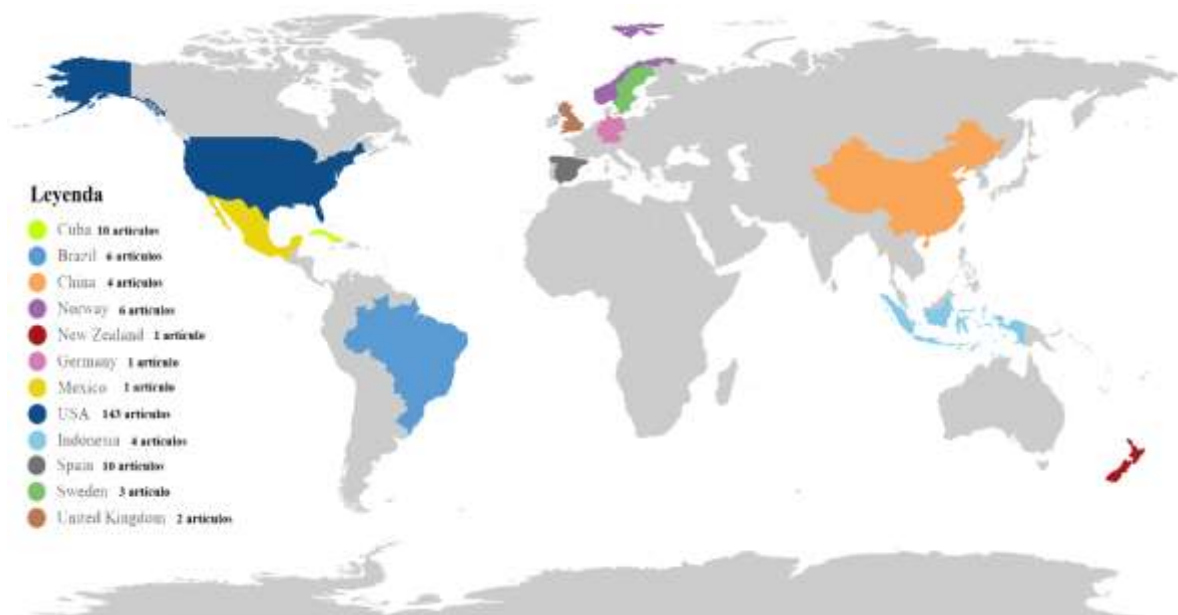


Figure 6. Scientific production by country.

Source: own elaboration in R Studio.

In terms of institutional affiliations, Figure 7 illustrates that the University of Florida and the University of Georgia are the most prominent in generating scientific research on golf course management, with a total of 24 and 23 published articles, respectively.

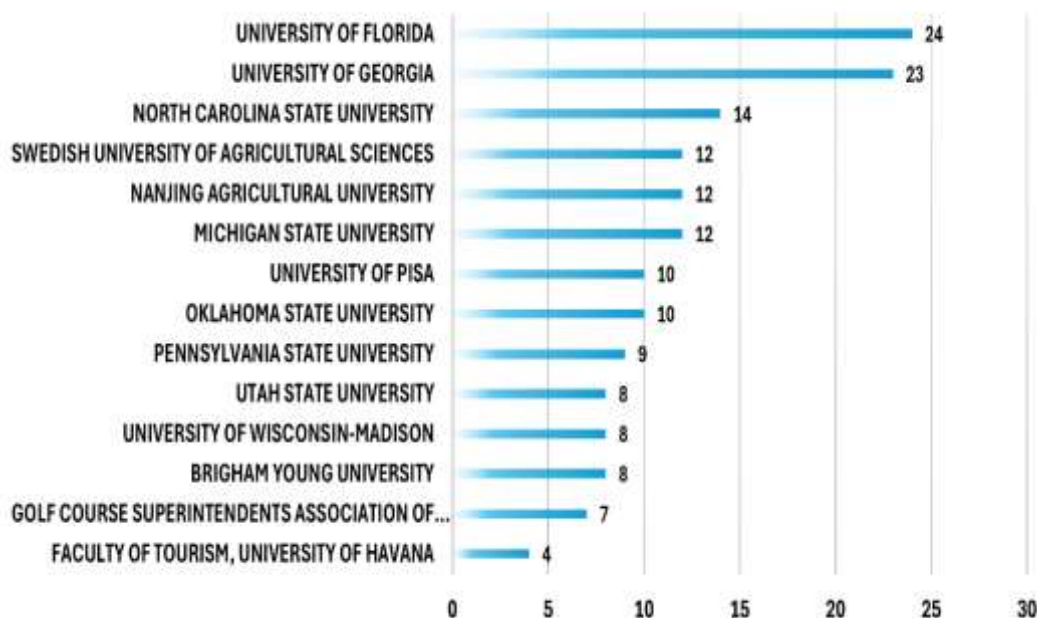


Figure 7. Most relevant affiliations.

Source: own elaboration in Microsoft Excel.

Similarly, institutions such as North Carolina State University, the Swedish University of Agricultural Sciences, Nanjing University of Agricultural Sciences, Michigan State University, the University of Pisa and the University of Oklahoma have published between 10 and 15 articles. In a smaller group is the Faculty of Tourism of the University of Havana, Cuba, which, despite having a small number of publications, has produced articles focused on optimising the management of its golf courses for tourism activity.

At the international level, a network of collaboration has been established for this type of studies, as illustrated in Figure 8. The United States stands out for its strong links with all the institutions represented in the network. Collaborations between the United States and Brazil can be identified, facilitated by the University of Tennessee, the University of Florida and North Carolina State University. US-China partnerships are also evident through the University of Tennessee. These collaborations are related to academic networks and mobility programmes that promote international cooperation, taking advantage of the scientific and technological strengths of each country and providing access to resources and joint funding that enrich research in this sector.

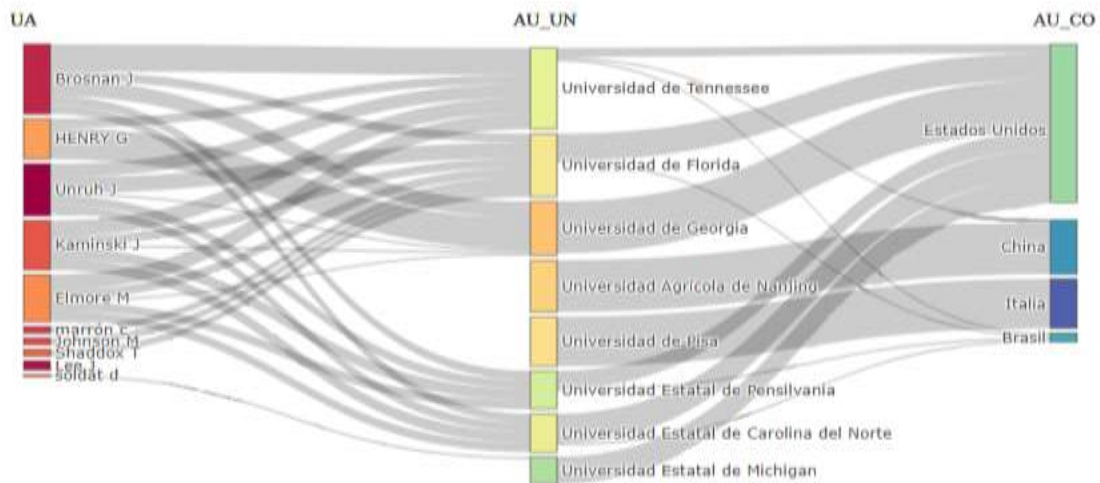


Figure 8. Relationship between Authors, Countries and Institutions of note.

Source: own elaboration in R-Studio.

The thematic analysis of the relationships between the most significant keywords in the literature used 41 different terms, which were organised into clusters, as shown in figure 9. Since these clusters do not overlap in VOSviewer, each term belongs to only one. Thus, four groups were identified between 2014 and 2024, in which each term has been linked to a specific cluster, differentiated by colours and lines (red, green, blue and yellow).

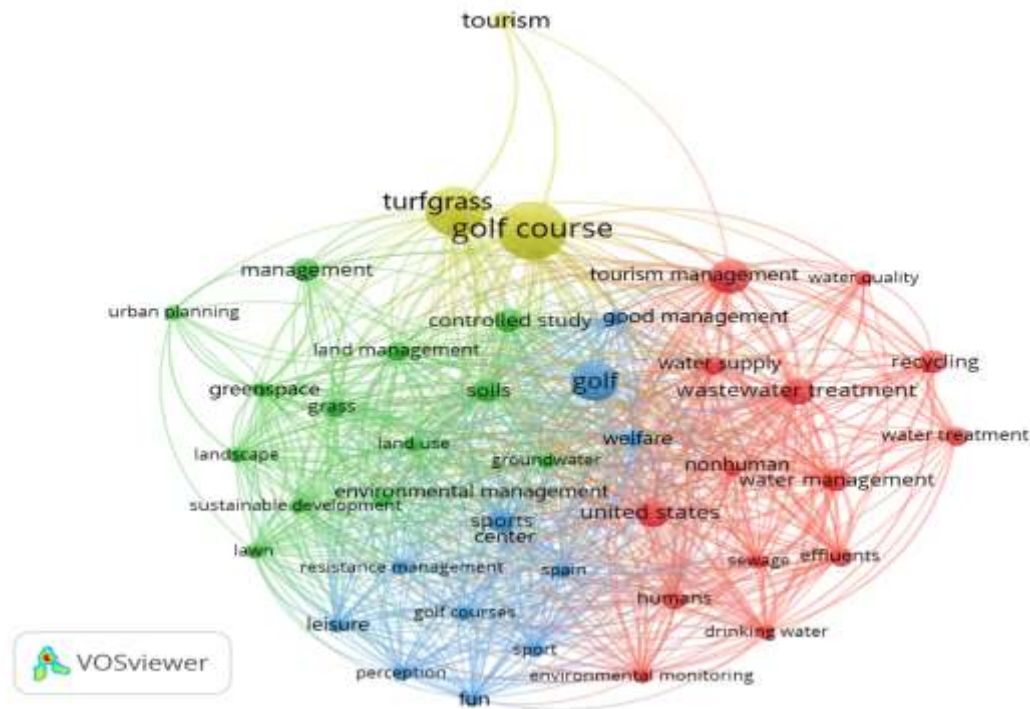


Figure 9. Relationships between the most relevant terms in the literature.

Source: own elaboration in VOSviewer.

The green cluster, consisting of the terms ‘management’, ‘urban planning’, ‘land management’, ‘greenspace’, ‘controlled study’, ‘soils’, ‘land use’, ‘groundwater’, ‘environmental management’, ‘sustainable development’, ‘landscape’, ‘grass’, and ‘lawn’.

The red cluster, which includes terms such as ‘tourism management’, ‘water quality’, ‘water supply’, ‘recycling’, ‘wastewater treatment’, ‘water treatment’, ‘nonhuman’, ‘water management’, ‘United States’, ‘sewage’, ‘effluents’, ‘humans’, ‘drinking water’ and ‘environmental monitoring’.

The blue cluster, consisting of terms such as ‘good management’, ‘golf’, ‘welfare’, ‘sports centre’, ‘Spain’, ‘resistance management’, ‘golf courses’, ‘sport’, ‘leisure’, ‘perception’ and ‘fun’.

On the other hand, the yellow cluster which covers terms such as ‘turfgrass’, ‘tourism’ and ‘golf course’.

In general, the identified clusters interrelate different key aspects of golf course management. The red cluster focuses on water management and water quality, which is essential for the sustainable operation of golf courses. The yellow cluster highlights the importance of turf and its care, which influences the attraction of tourism. The blue cluster focuses on effective management as recreational centres, prioritising the well-being of users. Finally, the green cluster addresses environmental planning and management, ensuring that all these practices are integrated into a sustainable approach that conserves natural resources and enhances the overall experience in these spaces.

Qualitative analysis.

Golf courses as international recreational sports centres.

According to Gómez Hoyos & Londoño Salom (2023) golf is a sport that has had different motives and intentions beyond exercise over the years. Different players around the world take advantage of the sport for many things, such as closing business deals, social gatherings, meeting people, getting attached to someone or simply for fun.

Golf is not only considered a sport, but also an activity with a considerable economic impact. With approximately 66 million players and nearly 40,000 facilities in 209 countries, the sheer scale and diversity of the game is evident. As golf has spread globally, the game has evolved. The ways of participating, initiating into the sport, the associated culture and consumer behaviour have changed over time (Martín García, 2023).

Golf courses have undergone a remarkable evolution, becoming recreational sports centres offering a variety of activities that transcend the traditional game.

Over time, golf has evolved and has become one of the most successful and lucrative sporting activities (Breitbarth *et al.*, 2017). This has strengthened its presence in the perception of tourist destinations, especially in those places that stand out for their landscapes with elements of great natural and cultural value (Grumo & Ivona, 2017).

The interaction between golf and tourism has created a remarkable positive effect in many regions. Andalusia stands out as the region with the highest concentration of golf courses in

Europe, with a total of 108. The construction of a golf course involves the occupation of a considerable extension of land (between 50 and 60 hectares for an 18-hole course) and the use of large volumes of water for its maintenance, although these needs may vary according to the characteristics of the land where it is located, such as the availability of drainage to nearby rivers or tributaries, as well as the type of soil (Fuentes Collado, 2024).

According to Alejandre Cervel *et al.* (2022), golf in Spain generates 12,769 million euros annually and creates 121,393 jobs, both direct and indirect. The sport is a key element in the choice of Spain as a tourist destination, attracting 1.2 million foreign visitors each year and benefiting other sectors, which receive 7 out of every 8 euros generated.

Other countries have established themselves in golf tourism, capitalising on this trend to attract visitors and enrich their tourism offer. According to Svendsen-Maza (2014), the United States occupies a prominent position in golf, with more than 27 million players and 17,000 courses, representing 60% of the world's offer. Japan follows with 13 million players, while Canada has 5 million. In Europe, there are approximately 6,800 golf courses, which corresponds to 17% of the global total, and the number of players reaches 4.4 million. From a statistical perspective, it can be stated that one out of every ten people in the United States plays golf. Furthermore, the study indicates that this activity generates a total annual income of 47,456 million euros, of which 29,605 million are direct income and 17,850 million come from indirect activities.

Tourism in Portugal is an essential and strategic element for boosting the country's economic growth and for this reason, they have launched an online platform called 'Portugal Golf Membership' with the aim of promoting the practice of this sport internationally and supporting the association of Portuguese golf courses with nearby accommodation facilities, as well as complementary services such as those offered by car rental and flight booking companies (Iglesias Madrigal & Sanz Lara, 2019). Another destination offering sports facilities of this type is Turkey, with a growing supply of modern, high-quality accommodation that allows for very competitive prices.

While there has been extensive debate on the impact of golf courses on the environment and landscape, highlighting the many critical issues that exist (Mercatanti, 2017), the recent trend towards greater attention to sustainability principles has extended to their construction and the conservation of the biodiversity of the ecosystems involved. In addition, innovative and greener methodologies are being applied to the care and irrigation of the greens. All this represents a fundamental objective to position the sport in a more sustainable dimension, highlighting also several good practices at national level (Sorrentini, 2022).

Golf courses as recreational sports centres in Cuba.

In Cuba, golf has its roots in the dawn of the neo-colonial period, when a group of North Americans and Englishmen living in Havana set out to establish the sport on the island. In 1911,

they acquired the land of the 'Lola' estate in the municipality of Marianao and founded the 'Country Club Realty Co.', marking the beginning of the construction of the first golf course in the country. Curiously, this location corresponds to what today is the Instituto Superior de Arte (ISA), which adds a layer of history and culture to the practice of this sport in Cuba (González *et al.*, 2022).

At present, Cuba has only two recognised golf courses: the 'Habana Golf Club' and the 'Varadero Golf Club'. However, initiatives are being carried out to encourage the creation of new mixed investments in the real estate sector related to golf, with the aim of boosting the country's attractiveness as a tourist destination for this sport. These actions seek to diversify the tourist offer and attract more visitors.

Each year, calls for international competitions are made, with open registrations. These are: European Commonwealth Tournament (April), Canada Cup (April), Africa Day (May), Indonesian Festivities (August), Columbus Day (October) and the End of Year Tournament (December).

According to Llanes Sosa (2018) Varadero Golf Club is a recreational tourism product made up of all the facilities, services, equipment and access associated with the practice of golf offered by the Golf Course and its Club House, the Xanadu Mansion. The Varadero Golf Club is located in the province of Matanzas, on the Varadero peninsula, in the Las Américas district, on the 'Las Américas' road at Km. 8 ½ of the Southern Highway. It occupies a narrow strip of 3.5 km long bordering the hotels Sol Club las Sirenas, Los Cactus, Tuxpan, Bella Costa, Meliá Las Américas, Centro comercial Plaza América, Meliá Varadero and Sol Elite Palmeras.

On the other hand, the Habana Golf sports-recreation centre belongs to the company Palmares S.A., which in turn is subordinated to OSDE Cubasol and therefore to Mintur. It has 10 areas: party room, restaurant, swimming pool, 9-hole golf course, Hoyo 19 bar-cafeteria, club house, tennis court areas, markets, caddy house (golf clubs are kept), proshop (services are charged and golf items are sold), of which the party room is not providing services at the moment because it is being repaired, it does not have the resources and supplies to maintain this type of area from the gastronomic point of view; However, the intention is to organise a varied programme with different activities once the hall can be opened. In the case of the Hoyo 19 bar-cafeteria, it is conceived for the golf player, that is to say, it is intended to be a complementary activity to the practice of golf, although on many occasions it does happen in this way; on other occasions the clients only visit the bar.

It is crucial to build new golf courses in Cuba in order to quickly diversify tourist services and increase income per tourist. Golfers are distinguished by their high purchasing power and loyalty, devote a large part of their stay to golf and enjoy playing multiple courses. In addition,

they seek to combine their passion for golf with other activities, such as gastronomy and excursions, in a comfortable and safe environment, which Cuba can offer.

According to Fuentes Collado (2024), the advantages that the construction of new golf courses would bring to Cuba include:

- Landscape restoration and conservation: in the construction of golf courses in recent decades, priority has been given to respecting and conserving the environment, either by preserving native species or repopulating the area as appropriate, thus seeking harmony with the surrounding landscape.
- Recovery of deteriorated landscapes: the construction of golf courses in very degraded areas has a significant positive impact, as well as offering aesthetic and landscape benefits, as they act as a lung for these regions.
- Beneficial impacts on flora and fauna: golf courses represent an ideal environment for the promotion of new species, enriching the biodiversity of the area and providing refuge and breeding sites for various species, including migratory birds. In this context, promoting projects that focus on the conservation of native migratory bird species by using golf courses as sanctuaries for these animals would be a key idea.
- The use of wastewater: The use of wastewater that is not fit for human consumption or agricultural irrigation is increasingly common in the irrigation of golf courses.

Conclusions

The analysis of the selected articles between 2014 and 2024 shows an increase in the number of publications since 2020, which highlights the growing trend of research in this topic and countries such as the United States, Spain and Cuba stand out as leaders in the production of research in this field.

At the international level, an extensive network of collaboration between studies dealing with golf course management stands out, with the United States being the country with the strongest connections with all the institutions identified in the study.

The management of golf courses is very complex, given the number of resources and infrastructure required for the practice of this sport.

Despite the fact that golf tourism in Cuba is not highly developed in comparison with other countries in the world, actions are being taken to promote its progress.

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Author contribution

The authors Sandro Felipe Acosta Mesa, Emilio Enrique Guerra Castellón and Jorge Felix Quintana Cala designed the research jointly.

Sandro Felipe Acosta Mesa and Jorge Félix Quintana Cala analyzed and interpreted the quantitative and qualitative data, as well as wrote and corrected the manuscript.

Emilio Enrique Guerra Castellón provided the bibliometric data used and critically reviewed intellectually important aspects of the manuscript.

Conflict of interest

The authors declare that there is no conflict of interest.