

SPA TOURISM IN SPAIN NOWADAYS: CURRENT STATE AND OPPORTUNITIES

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ABSTRACT

This research aims to analyze the current state of the thermal tourism product in Spain. Although the literature has reported some research efforts in this direction, most of them are focused on providing partial analyses and, therefore, there is still a lack of works focused on a more comprehensive view and analyzed from different perspectives. Our work fills this gap by presenting a two-way methodology. First, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach is used for the identification and analysis of relevant research papers focused on Spanish thermal centers. In addition, data provided by the Spanish Association of Spas (ANBAL) are used as a base to contrast such relevant research with the information coming from the social network tool TripAdvisor. From the

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above, it is intended to provide a regional characterization of Spanish spas. A further discussion is also presented, as well as the theoretical and practical implications of the contribution.

Keywords: Health tourism; wellbeing; territorial touristic resources; social networks.

El turismo de balnearios en España: Estado actual y oportunidades

RESUMEN

Esta investigación pretende analizar el estado actual del producto turístico termal en España. Aunque la literatura ha reportado algunos esfuerzos de investigación en esta dirección, la mayoría de ellos se centran en ofrecer análisis parciales y, por tanto, aún faltan trabajos enfocados a una visión más integral y estudiada desde diferentes perspectivas. Nuestro trabajo pretende cubrir esta brecha presentando una metodología bidireccional. En primer lugar, se utiliza el enfoque Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) para la identificación y análisis de los trabajos de investigación relevantes centrados en los centros termales españoles. Por otro lado, se utilizan como base los datos proporcionados por la Asociación Española de Balnearios (ANBAL) para contrastar dichas investigaciones relevantes con la información procedente de la herramienta de red social TripAdvisor. A partir de lo anterior, se pretende ofrecer una caracterización regional de los balnearios españoles. Asimismo, se presenta una discusión adicional, así como las implicaciones teóricas y prácticas de la contribución.

Palabras clave: Turismo de salud; bienestar; recursos turísticos territoriales; redes sociales.

1. INTRODUCTION

The business model and geographical patterns that define thermalism in Western Europe have undergone, as an adaptive response to globalization and post-tourism, profound changes in recent decades (Pinos, Sánchez and Maroto, 2021). Some of these changes are associated with the accelerated demographic aging of societies, which has led administrations to actively promote this process as a means of reducing the health costs derived from sedentary lifestyles and to promote rural development.

Spain is internationally recognized for its abundant mineral-medicinal resources, its tradition in the practice of thermalism for therapeutic purposes and more recently, for its commitment to diversify its offer to orient it to the tourist functionality. In recent decades, treatments based on mineral-medicinal waters with salutary properties have had as their main motivation the cure and/or prevention of health, recovering more recently, other purposes that they had in the 19th century among the wealthy classes that frequented the spas: rest, promoting personal/social relations, recreational and cultural character and even aesthetic improvement. Nowadays for Maroto and Pinos (2019) in Spain there are more than 100 active spas, distributed in 16 Autonomous Communities, demonstrating that the country is an important thermal destination in Europe. The spas have a large associated

hotel offer, around 20,000 beds, which positions them as an engine of rural development as they are located, most of them, in rural municipalities.

However, beyond these recognized interest over spa and thermalism in Spain as a touristic product, as far as we know there is a lack of a comprehensive analysis on the development of innovative touristic offering around spas. Herein, it is important to take into account that instead of focusing on the physical environment, in this case we are interest on studying the spa context as a proper touristic product. According to UNWTO, the touristic product is a combination of tangible and intangible elements, such as natural, cultural and man-made resources, attractions, facilities, services and activities around a specific center of interest which represents the core of the destination marketing mix and creates an overall visitor experience including emotional aspects for the potential customers¹.

Over the last years, some authors have attempted to perform a global characterization of spa and thermal tourism and touristic products in Spain. Formerly, Piquilmán (2013) discussed new horizons for the spa tourism in Spain and their implications for the rural world, indicating that the current demand and the public-private collaboration have led to the reactivation of the spa tourism as a way for boosting the rural world in Spain. More recently, Sánchez (2021) was focused on the online reputation in the Spanish spa tourism inside the Covid-19 context. Furthermore, Pinos and Shaw (2021) examine the function and potential that spas have as health agents, identifying the opportunities for boosting this activity in the tourism dynamics in the case of Spain.

Taking into account the lack of a comprehensive analysis on the spa and thermalism touristic product in Spain, the first aim of the current work is to provide a literature review in this direction. Subsequently, the ultimate objective of this work is to contrast this analysis performed by the literature, with the actual status of thermalism and spa in Spain as represented as recognized national-related associations and the overall opinions in TripAdvisor, in order to propose improvement directions. The novelty of our work is then three-fold:

- Overall, as far as we know it is the first literature review focused on screening the research done around the spa and thermal tourist product in Spain.
- An analysis of the regional distribution of the spa and thermal offering across Spain, built over the performed literature review.
- The processing of information coming from reviews in social media, as a way for contrasting the findings identified in the performed literature review.

The paper is structured as follows. Section 2 presents a general background required for the proposal's understanding. Section 3 illustrates the mentioned methodology centered on exploring Spanish spas. Section 4 develops the results of this methodology by at first discussing the literature review obtained as output of the PRISMA-supported systematic review, the characterization of the Spanish thermal product in the frame of the Spanish National Association of Spas, and the territorial characterization of Spanish thermal centers according to TripAdvisor reviews. A further discussion and the theoretical and practical implications are also provided (Section 5). Finally, conclusions and future works are pointed out (Section 6).

1 <https://www.unwto.org/tourism-development-products>

2. BACKGROUND

Geographical studies and health tourism studies are those that have dealt most profusely with the importance of spas for the socioeconomic development of territories. These studies include research in countries such as Portugal, Argentina, the United States, Ecuador and Brazil (Rodrigues *et al.*, 2022; Patiño and Cabanilla, 2022; Kumar and Sharma, 2020; Gambarota and Lorda, 2019). In other Latin American countries such as Peru and Mexico, some inventories on their thermal resources have been developed (Coyopol *et al.*, 2020; Ministerio del Ambiente, 2024). In Spain, geographical studies predominate and these are focused on rural areas, mainly in those with demographic problems and tend to depopulation (Maroto and Pinos, 2019).

Thermal tourism in Spain has had different stages. At the end of the 80s of the last century, a reactivation of the same took place, to a large extent, related to the promotion of social thermalism by the IMSERSO (Pilquimán-Vera, 2014). This public institution has implemented social tourism programs, mainly oriented to older adults and has set guidelines in the establishment of collaborative relationships between the public and private sector for the reactivation of thermal tourism.

According to Maroto and Pinos (2019), there are more than 100 active spas in Spain, distributed in 16 Autonomous Communities, demonstrating that the country is an important thermal destination in Europe. The spas have a large associated hotel offer, around 20,000 beds, which positions them as an engine of rural development as they are located, most of them, in rural municipalities.

These centers use mineral-medicinal waters to combat different pathologies, to which are added contemporary health and beauty techniques. Their main demand is made up of different user profiles (Pinos, Shaw and Martos, 2020).

With the emergence and expansion of COVID-19, the thermal sector in Spain suffered a significant stagnation, like tourism in general; however, the pandemic evidenced the importance of innovation in tourism companies to stay in the market and generated opportunities for them to show their commitment to social and health responsibility (Pinos and Shaw, 2021). Herein, the renovation of these establishments, the diversification of supply and demand, the new modalities of thermalism and the consideration of the territory as a space for endogenous development; evidence the necessary reactivation of thermal tourism through tourism innovation.

This paper focuses on characterizing the thermal tourism product in Spain, based on the review of the literature, its mineral-medicinal resources and from the point of view of travelers and tourists on TripAdvisor. In this way, it is important to remark that while we will use the spa term for characterizing several research works and scenarios, in our case it will be referring to places that make use of thermal/mineral waters. We think that this quotation is important in order to differentiate the scope of our work in relation to those related to the common spa (Pinos and Maroto, 2023).

3. METHODOLOGY

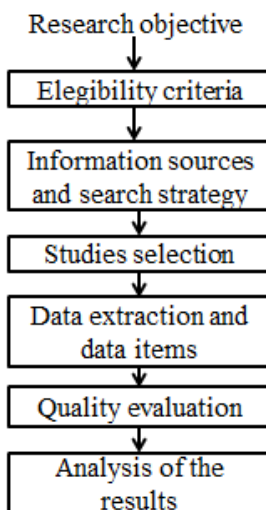
The current research work will be based on a mixed methodology combining a qualitative and a quantitative approach (Tashakkori and Teddlie, 1998; Hernández-Samp-

ieri, R, 2018) for characterizing the thermal touristic product in Spain. The qualitative approach is developed through the literature review of research works on thermalism in Spain. On the other hand, the quantitative approach is carried out through the analysis of the distribution of spa and thermal sources built over these reviews, and through the processing of information from social media for contrasting the findings obtained in the previous steps.

In this article a systematic bibliographic analysis is carried out. With this purpose in mind, it is taken as base the PRISMA methodology (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) (Page *et al.* 2021). Specifically, it will be adopted the first stages of this methodology, in a similar way to several reviews, previously identified and focused across diverse domains such as construction (Chung *et al.*, 2023), financial risks (Akomea-Frimpong, I. *et al.* 2023), or education (Leles *et al.*, 2024). These first stages are focused on a more general purpose, and that helps us on conducting the systematic review on thermalism in Spain. Section 4.1 will screen the methodology used for performing this review. Furthermore, Section 5 will analyse the obtained results.

Figure 1 introduces the steps accomplished for performing the systematic review on thermalism in Spain, based on the initial stage of the PRISMA methodology. These steps are eligibility criteria, information sources and search strategy, the studies selection, data extraction and data items, quality evaluation, and finally the analysis of the obtained results. Below we provide some details on how each of these steps was developed, for obtaining the final results.

Figure 1
SEARCH PROCESS FOR SUPPORTING THE SYSTEMATIC LITERATURE REVIEW



Research objective: The objective of the search process is to obtain a set of representative research works characterizing the thermal touristic product in Spain.

Eligibility criteria: Our search process will be driven by the following eligibility criteria:

Inclusion criteria:

- Papers discussing touristic products that are contextualized into thermalism and spa-related features.
- Papers exploring perceptions and opinions of users about thermal centers, regarding it can lead to a direct characterization of such centers.

Exclusion criteria:

- Papers that characterize thermal centers, but mainly focused on the physical characteristics and not focused on presenting it as touristic product.
- Papers focused on other countries, different from Spain.
- Paper focused on past thermal facilities and historical issues, but not focused in the present.

Information sources and search strategy. Selecting the correct information source for literature analysis is always a challenge task. In this case we choose the Web of Science Core Collection dataset, that in addition to be composed of traditional sources such as Science Citation Index, Social Science Citation Index, Arts and Humanities Citation Index, etc; it also covers the Emerging Source Citation Index, which is a source composed of high-quality emerging journals and with an inclusive nature.

We use the following search queries:

- tourism AND thermal AND spain
- tourism AND spa AND spain

Studies selection: Based on these search queries, Figure 2 illustrates the PRISMA-based methodology used for selecting the studies for developing a detailed analysis according to the initial goal.

At first, the referred search queries lead to the reaching of 291 results from Web of Science Core Collection. 61 duplicated results were removed, being screened in more detail 230 registers. After analysing title, abstract, and keywords, 192 papers were discarded. Finally, 38 papers, all of them successfully retrieved, were checked in more detail.

After discarding some papers due to their main focus on physical issues of the thermal installations and processes, on historical issues, or on other countries different from Spain, it is obtained a final set of 17 representative papers used for characterizing the thermal tourism and spas in Spain.

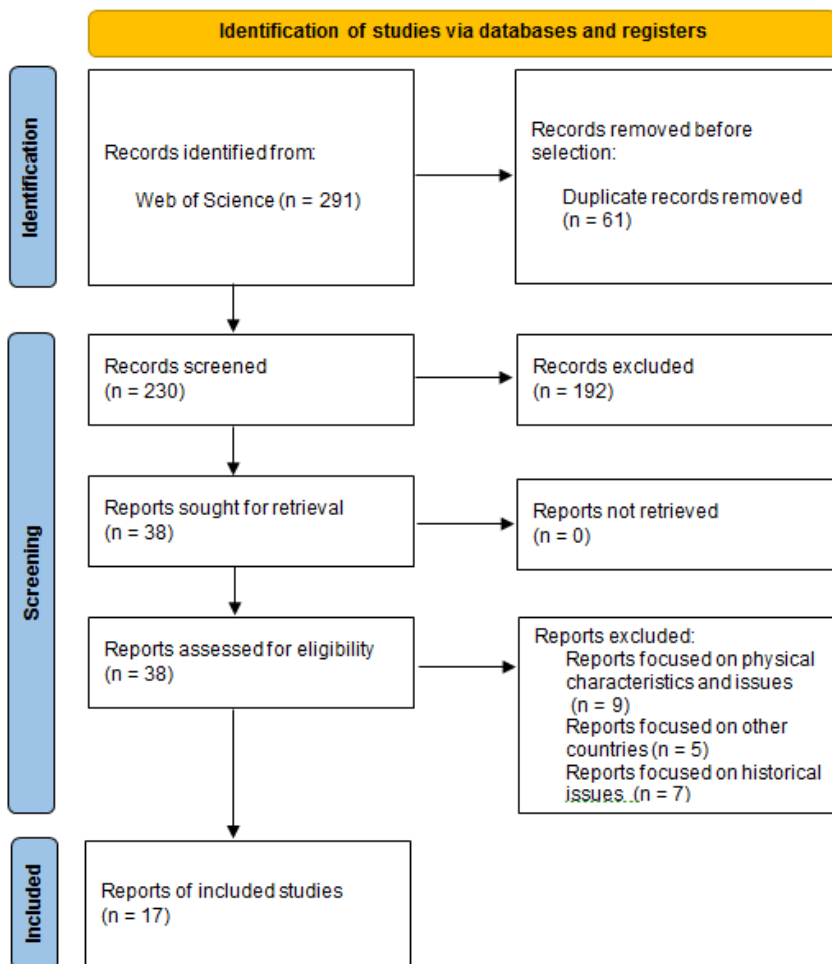
Data extraction and data items: In this stage, several data were extracted from the selected papers, including title, authors, year, journal/conference, keywords, and main-referred Spanish territory. This information is used later in the step related to Analysis of the Results.

Quality evaluation: The quality evaluation of the identified manuscripts was performed through a specific checklist formerly developed by Ataei and Litchfield (2022), used across diverse research fields, in the frame of the PRISMA methodology. The checklist is developed through a set of criteria made up of 7 elements, and informed by those proposed

by CASP for assessing qualitative research (Programme CAS, 2018). The quality was agreed if at least 75% of the responses were positive for any considered work.

Analysis of the results: A detailed analysis of the 17 obtained papers is presented in the following section.

Figure 2
PRISMA METHODOLOGY USED FOR STUDIES SELECTION



Second, in this research information from social media, such as TripAdvisor. The selection of TripAdvisor is justified due to its overall use as the leading platform for reviews of hotels, restaurants, attractions and travel experiences, highlighted by several

authors (Gretzel and Yoo, 2008; Banerjee and Chua, 2016; Sangkaew and Zhu, 2022; Mokgehle and Fitchett, 2024). Therefore, TripAdvisor is analyzed to contrast the conclusions obtained in the previous steps from the point of view of tourists or travelers. To accomplish this task, the following steps are followed (done at June 2024). At first, they are identified in TripAdvisor the hotels associated to a group of thermal centers registered at the National Association of Spas (ANBAL) in Spain. In the cases where there is not a direct associated hotel, then it is analyzed the profile of the thermal center itself. We also point out that there were some eventual cases we did not find a reference in TripAdvisor of ANBAL's referred centers.

For each scenario, it is retrieved the amount of reviews and the average rating. Furthermore, it is retrieved the amount of reviews with their associated rating in each of the values of the rating scale Excellent (5), Very Good (4), Good (3), OK (2), Awful (1). Afterwards, for presenting synthesized results, for each autonomous community we average all the values associated to each thermal center.

4. RESULTS

This section is focused on developing the methodology presented at the previous section. Herein, Section 4.1 presents the literature review focused on thermalism in Spain. Section 4.2 develops a territorial characterization of thermal centers in Spain according to TripAdvisor reviews.

4.1. A literature review of research works focused on thermalism in Spain

When analyzing the final sample of articles identified using the PRISMA methodology, it is concluded that most of the papers are linked to Galicia and Andalucía, although there are also some references to Aragón, the Islas Canarias and Cataluña. Finally, some papers focused on global analysis and not centered on a specific region were also detected.

In the case of *Galicia*, an initial work was developed by Henn-Bonfada *et al.* (2011), focused on identifying the importance of thermal cosmetic in Galician spas, as well as the marketing issues related to these centers. It is used a structured questionnaire as data gathering tool. It is obtained as main conclusions that the thermal cosmetic is the main resource of such spas as a new business unit, strengthening the image and creating a competitive advantage in relation to other competitors.

Alén *et al.* (2014) focused on the use of quantitative techniques for exploring the level of well-defined differentiation strategies across Galician thermal establishments, including health resorts, spa, and thalassotherapy centers. Here the authors synthesize an analysis of 15 thermal centers, 4 thalassotherapy centers, and 7 hotels with spas. Their specific goal is to determine which services were offered with greater or lesser frequency in these establishments. Furthermore, it develops an analytic procedure for measuring the differences between these centers using a Euclidean distance matrix and clustering procedures. The results indicate that thalassotherapy centers and spas offer on average a lower number of services among the different analysed categories. This difference in relation to thermal centers, become larger regarding therapeutic indications, but is lower in the case

of techniques. The authors suggest that Thalassotherapy centres and spas should decide carefully whether to increase the number and quality of techniques offered.

Amboage *et al.* (2015) are centered on the study of the most representative Spa of Galicia in Facebook, using the Fanpage Karma tool, which provide data on the situation of such centers according to social media. Herein, the analysis focused on characterizing these establishments is driven by the following indicators: content, engagement, channel updating for each week, and publicity values. The selected spas were Guitiriz, Caldaria, Compostela, and Mondariz, being appreciated for each case, specific strengths and weaknesses according to each indicator. Other work focused on the same direction, was the developed by Rodríguez-Fernández *et al.* (2017).

In a different direction, Barros *et al.* (2021) attempt to explore the relationship with thermal tourism consumers, suggesting a conceptual model that relates relational marketing and the result of innovation in tourism, boosting trust, commitment, quality of service, satisfaction and loyalty. Specifically, they point out the proposal of a model that would connect the relationship marketing dimensions (i.e. commitment, trust and cooperation) with the consequent satisfaction with the thermal tourist and the behavioural intention of repeating the experience or reinforcing the experience with a euroregion marketing and niche tourism perspective. The necessity of this model is screened from the context of the Galicia and Northern Portugal euroregion.

In *Andalucía*, Anaya-Aguilar *et al.* (2021a) develop a usability analysis of their spa websites, by conducting an exploratory investigation of the associated content. With this aim in mind, several criteria were considered, grouped by categories based on Home Page, Contents of Website Information, Languages, Contents of Reservation Information, Other Marketing-related Content, Position in Search Engines, and Social Network following. Ten spas were selected for this analysis, overall proving that the use of new technologies in these contexts is underdeveloped, even though they have reached good positions in search engines due to the synergistic effect of the official tourism websites. In parallel, Anaya-Aguilar *et al.* (2021b) screen the main challenges of spa tourism in *Andalucía*. Specifically, the objective of the work is to understand the structural and operational dimensions of tourism's spa, and to assess the current situation of this sector. The authors recover information from experts through a questionnaire that using the Delphi method, explores spas in relation to the legal, natural, and heritage environments, available services such as treatments, human resources and new technologies, facilities and equipment, competitive advantages, position strategies, and new images. The results suggest in *Andalucía* a lack of community laws regarding spas, an inadequate protection of natural results related to spas, as well as a lack of consensus on the necessity of strategies from preventing the popular imagination from relating spas with diseases or large populations. Finally, the authors also suggest that policies designed to guide this type of tourism's expansion are still scarce in *Andalucía*. Anaya-Aguilar *et al.* (2021c) also characterizes spa-goers in *Andalucía*. From 725 valid survey questionnaires, it is shown that 44.6% of users are between 65 and 88 years old, that approximately 50% of respondents are retired and 60% has a monthly income of less than 1000 euros. The authors also suggest that this kind of health tourism may be also spreading among young people with less free time and financial resources, or in individuals more affected by the recent economic crisis.

Pinos and Shaw (2021) examines the function and potential that spas have as health agents, presenting the opportunities for repositioning this activity in tourism dynamic that arises during and after a crisis period such as the related to covid-19. The authors consider their current situation opens new opportunities for hydrotherapy and research associated with the sector. Furthermore, being focused on reorienting their functions linked to aesthetics, recreational use and the overall concepts of well-being or wellness.

Pinos *et al.* (2024), more specifically, analyse the Alhama de Granada spa both from the historical and from their legislative framework, in order to draw conclusions related to the current situation of the result in relation to local development. The authors suggest that a higher synergy between the spa center and the local government, is a necessary goal for an appropriate exploitation of the natural resource.

In a different scenario, Pinos *et al.* (2022) is based on a field work and a questionnaire developed at Archena spa over 1406 clients, in Murcia, centered on analysing whether the behaviors and necessities of spa clients in Spain, have experienced changes across the covid-19 pandemic. The results show that clients have new needs that represent an opportunity to spa for positioning as a strategic touristic modality in a sanitary crisis context.

Torres *et al.* (2022) also explores the economic and social value of the spa tourism in the case of the balneotherapy in Maresme, a region of *Cataluña* in Spain; through a quantitative study and analysis. The authors conclude that a positive and significant effect is generated by the presence of spas in a region in terms of economic and social value. Furthermore, it is concluded that spa tourism can be considered another product to be sold by destinations, which should be complemented with other touristic products such as gastronomic and sporting, towards the creation of a health tourism package. Overall, it is pointed out that Maresme can be considered a successful case and an example to be imitated by other counties that want to change their tourism models.

Carreno *et al.* (2008) developed several interviews among the clients of diverse thalassotherapy centers, focused on exploring service, facilities, price-quality ratio, purpose of visit, etc; and suggest some strategic actions for introducing this product inside the Lanzarote environment, in *Canarias Islands*.

Instead of focusing the study in a specific context, several of the identified research works have been performed overall analyses across the different regions in Spain.

Martínez-Moure *et al.* (2013) provides an overall analysis of the social thermalism of the IMSERSO program in Spain. This program is focused on potentiating health and social integration of old people and their active ageing. The paper characterizes the 2010-2013 period, based on the data published by the Social Services Institute about the number of spas associated to IMSERSO across such years. It is exposed the number of the capacities of this kind of spas by autonomous regions in Spain, identifying variations and tendencies across such analysed years.

Pilquiman-Vera (2013a) discusses new horizons for spa tourism in Spain as well as their implication for the rural world. The author characterizes the Spanish spa offer, represented by around 115 spas in that moment, classifying it in three groups. The group 1 is linked to a high offer, and includes Galicia and Cataluña. Group 2 represents an intermediate offer, and is composed of Andalucía, Aragón, Castilla La Mancha, Castilla y León, Extremadura, Cantabria, and C. Valenciana. Group 3 are those characterized by

a low offer, being Region of Murcia, País Vasco, Navarra, Principado de Asturias, Islas Baleares, Canarias, La Rioja, and C. de Madrid. The contribution also analyses several figures characterizing spa tourism in Spain in the period 2005-2010, such as number of visitors, origin of the visitors, number of visits of the main recipient communities, etc. A special attention to rural municipalities is also taken.

Pilquiman-Vera (2014) developed a further analysis with a similar objective in mind, being closely focused on discussing the offers of social thermalism for each Autonomous Community in Spain. It concludes that the reactivation of thermalism in Spain has been benefitted by the boosting of social thermalism, contributing then to an economic dynamization of rural municipalities with thermal resources. Furthermore, the non-stational nature of this touristic modality has contributed to maintaining a successful economy of such territories, and the growing of opportunities in terms of income and employment generation.

In a similar direction, Sánchez (2021) presents an analysis of the online reputation management in the Spanish thermal tourism in the frame of Covid-19 pandemic. The paper highlights the necessity of a daily management of the information about such centers in the web 2.0 platforms, for creating a high online reputation. Furthermore, the author selects 62 centers from Galicia, Cataluña, Andalucía and Aragón for performing a characterization in this direction, taking as reference the platforms Booking, TripAdvisor, Facebook, Instagram, and Twitter. It concludes that most of the half of centers is not registered in Booking and TripAdvisor, there is a preference for promotion on Facebook over Instagram or Twitter, implying an insufficient attraction of younger people profiles, and that the centers of Andalucía and Aragón are those that attempt to cover most of the existing strategies and tactics related to web technologies and social networking. The author then suggests that these two regions would have the best visibility in the next few years.

Summarizing, the performed analysis leads to the following conclusions:

- The Galician territory has been widely covered by the identified research. In this case, it can be identified works focused on characterizing the Galician thermal products (Alén *et al.*, 2014), describing some of their main strengths and features (Henn-Bonfada *et al.*, 2011), or characterizing their online presence of their related information in platforms such as Facebook (Amboage *et al.*, 2015).
- In Andalucía, Anaya-Aguilar *et al.* (2021a, 2021b, 2021c) present a three-fold characterization of spas in Andalucía, identifying overall challenges, usability of their websites, and typology of spa goers. Pinos-Navarrete *et al.* (2024) have also developed some analysis on the potential and legislative framework of specific thermal scenarios such as Alhama de Granada.
- Beyond these two main territories covered by research, it was identified other specific research efforts focused on characterizing the thermal product and their future perspective from the client and product, covered in locations such as Archena (Murcia), and Maresme (Cataluña).
- Finally, some identified research were focused on objectives not centered on specific regions, and instead discussing new horizons, opportunities, or online reputation of Spanish spas and thermal scenarios.

The next section will contrast these research findings, with the official information coming from the National Association of Spas (ANBAL) in Spain, which is an association

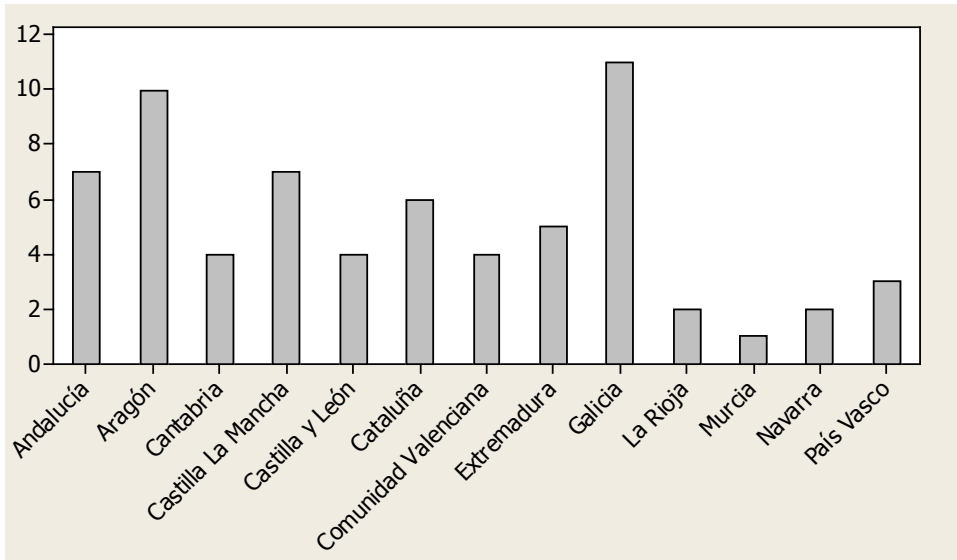
of thermal centers were all its members must have mineral-medicinal waters which have been declared to be of public utility. This is an important association of its kind in Spain, and has been previously used as reference in previous research analyses (Pinos-Navarrete *et al.* 2021).

4.2. Territorial characterization of thermal centers in Spain according to TripAdvisor reviews

In the analysis performed in this section, it will be considered the spas included in ANBAL as a representative sample for characterizing their most important attributes as an overall characterization of the Spanish thermal product.

General overview: Taking as main information source the ANBAL web platform (<https://www.balnearios.org>), currently there are registered 66 thermal centers in ANBAL. Figure 3 illustrates the territorial distribution of such spas in Spain.

Figure 3
TERRITORIAL DISTRIBUTION OF REPRESENTATIVE SPAS IN SPAIN



Overall, it can be appreciated a positive correlation between the communities with a larger presence of representative spas, and those that have focused with a larger extent by the research community, according to the previous section. In this way, Galicia has up to 11 spas centers in this list, having as coincidence that most of research efforts previously identified, are focused on this region. Furthermore, as expected based on the same reasoning, Andalucía (7) and Cataluña (6) are among the communities with larger

numbers of spa here. In other direction, it is interesting the case of Aragón, that while in the previous section there was not identified research works exclusively tailored to this region, some survey-focused works such as Sánchez (2021) identified it as relevance for the Spanish spa context.

As explained in section 3 of the methodology, this section analyzes the opinions of tourists or travelers about the thermal centers or hotels associated with them. This is done considering the centers mentioned by means of the ANBAL references; for each scenario, the number of opinions and the average rating are retrieved. In addition, the number of opinions with their associated rating in each of the values of the rating scale considered is retrieved and the synthesized results are presented for each autonomous community. These averaged values are then discussed in this section.

Table 1 presents the average numbers of reviews and average ratings for the thermal centers of each community. Regarding the number of reviews, the larger number of reviews are usually associated to those communities with a larger amount of spas, such as Aragón, Cataluña, and Cantabria. Nevertheless, it is also takes the attention the fact that a community such as Galicia with a larger number of spas, presents a lower number of reviews. This average is biased by some spas with a very small number of reviews, and in addition to the fact that some spas in this region could not be found in TripAdvisor. A similar situation is associated to the case of Extremadura. Another curious case is Murcia, which only has one spa center in ANBAL (Archena), but that has associated three different hotels, and therefore has the largest amount of comments by region, with 1000+ comments.

Table 1
AVERAGE NUMBERS OF REVIEWS AND AVERAGE RATINGS FOR THE THERMAL CENTERS OF EACH COMMUNITY

Region	Average number of reviews	Average ratings	Region	Average number of reviews	Average ratings
Andalucía	104.5	3.71	Extremadura	166.8	3.8
Aragón	393.7	3.45	Galicia	113.4	3.6
Cataluña	333.6	3.3	La Rioja	290.6	3.5
Cantabria	332	3.63	Murcia	1013	3.33
Castilla La Mancha	90.4	3.71	Navarra	281.5	3.75
Castilla y León	105	3.83	País Vasco	257.3	3.16
Comunidad Valenciana	53.8	3			

In relation to the average rating in the same table, it is interesting that it is in the range [3,4] for all regions. Here for almost all cases, we identified positive and negative comments, that could be inserted as the result of punctual positive or negative experiences of the clients. Furthermore, even though the small average rating is the community of the lower number of reviews (Comunidad Valenciana), disregarding this particular case, the higher average rating was identified for regions with a lower amount of comments. As

example, Galicia and Extremadura respectively have an average rating of 3.8 and 3.6, having a number of reviews of 166.8 and 113.4. On the other hand, Aragón and Cataluña have ratings of 3.45 and 3.3, but 393.7 and 333.6 reviews.

For Andalucía and Cataluña, most of the votes were linked to the highest possible classification of Excellent. Furthermore, for most of scenarios the majority of the votes were associated to the Very Good category, receiving the Excellent rating also a relevant amount of opinions. Finally, some regions such as (Comunidad Valenciana, Murcia and País Vasco), has their ratings concentrated on the Good-Very Good range. Herein even though could be regarded as a positive evaluation, taking into account that Good has been codified as 3 stars, they can be catalogued in one step down in relation to the other regions. It is important to mention here that two of these three scenarios are atypical cases, considering that in the case of Murcia there is only one thermal center, and in the case of Comunidad Valenciana it has by large, the lesser amount of ratings. Therefore, it can be concluded that all the regions have a similar rating pattern over their associated spas. In the next future, it will be applied opinion mining over the identified reviews, for finding more detailed peculiarities across the different communities.

5. FURTHER DISCUSSION

This section presents an additional analysis of the findings obtained across the current contribution.

5.1. Analysis of the obtained results

In the case of Galicia, at first the systematic literature review using the PRISMA methodology illustrates that most of the research works done in Spain around thermalism and tourism were focused on this region. Furthermore, the analysis of the properties of their thermal waters illustrates its singularity, regarding that there is a high similarity among all the thermal centers in such as region, as well as a remarkable difference with the centers of other communities. However, the analysis across TripAdvisor shows a relative small average number of reviews in relation to other communities. It could suggest that even though Galician spas are in a consolidate stage, their positioning in TripAdvisor could be improved and can contribute to a higher popularity.

A similar conclusion can be reached at Andalucía. In this case, having several research works centered on characterizing the spas, as well as a compactness regarding the unique properties of their mineral waters, the thermal centers of Andalucía only have around 100 reviews as average, which is under the amount of reviews of other regions such as Aragón, Cataluña and Cantabria, which are over 300. Furthermore, a similar characterization can be conducted at Castilla La Mancha. Herein, even though the literature does not report research contributions in this region, in a similar way to Andalucía.

In the case of Aragón, it is interesting to note that the development of spa tourism in this autonomous community is not a current event (Pilquiman, 2013). The region presents a clear differentiation based on the characteristics of its thermal waters and the history of balneotherapy in the region, which dates back to the very origin of the first tourist move-

ments (Callizo, 1995). Correspondingly, Aragón is the region with the highest average number of reviews on TripAdvisor, with about 393. However, a detailed analysis of these comments also identified some negative opinions, which shows that its thermal product needs to evolve to remain sustainable.

Another interesting region to be focused is Cataluña. The performed literature review finds a reference to the spas in Cataluña, and it is one of the regions with the larger amount of comments in TripAdvisor. However, the inner similarity degree between the spas in Cataluña, is not larger than the similarity with the spas of other regions, which suggests a lower particularity of their thermal waters comparing with other contexts in Spain. This could be associated with the slightly lower average rating of the spas in Cataluña, which is 3.3.

Finally it also worthy to mention the case of Extremadura, which presents as peculiarity that their thermal centers are more similar to centers from other regions, in relation to those that are in the same region of Extremadura. However, this region has the larger average rating (3.8) according to TripAdvisor, being associated more than 166 reviews as average, which can be also considered a relatively high number taking into account the number of reviews associated to other relevant regions previously discussed.

Beyond the mentioned territories, the analysis also finds other interesting cases in other autonomous communities, having as common feature their number of spas not larger than 4. For example, in the case of Murcia, there is only one spa according to the National Association of Spas, but it has associated three hotels and therefore contains the larger number of reviews (more than 1000). Comunidad Valenciana has the smaller amount of reviews and average rating, but it is biased by one spa that has negative comments in TripAdvisor. In a different direction, we have also identified in the performed survey a work centered on Lanzarote at Islas Canarias; however later we did not find any spa recognized by the Spanish Association of Spas at such a region.

5.2. Theoretical implications

As far as we know, the presented research work is one of the first efforts focused on introducing a holistic characterization of spas in Spain, by combining a systematic review using the PRISMA methodology, information coming from a national association that contains a representative sample of such centers, and also the use of a social media tool such as TripAdvisor as information source. This pioneer aim of our work has been corroborated by the research literature which has not identified any previous work with this global aim, as far as we consider.

We think that this methodology can be extrapolated to other countries for characterizing their thermal centers, as well as other touristic products. In this way, even though at the European level it can be identified recent works discussing strategies for boosting spas (Dryglas and Smith, 2023; Faroldi *et al.*, 2019; Nistoreanu and Aluculesei, 2021), as far as we consider there is a lack of a global diagnosis of the thermal offering.

Beyond this methodological contribution, this work also obtains some insights with theoretical value about the Spanish thermal centers. Herein, it suggested that the most recognized regions in Spain regarding thermal centers (Galicia, Andalucía, etc), do not

necessarily have the best positioning in TripAdvisor. Furthermore, even though most of the regions have a larger average similar among their own spas in relation to other regions, there are some scenarios that do not verify this issue but keep a larger amount of reviews and a high rating. Overall, it can be concluded that Spanish spas are characterized by a high diversity linked to the different associated contexts.

On the other hand, some current limitations of this methodology are connected to the exclusive use of TripAdvisor for analyzing the client's preferences, that even though this platform has been recognized as the leading one in this domain (Gretzel and Yoo, 2008), it could lead to some bias in the developed analysis. Another issue is the focus on the thermal centers linked to the National Association of Spas (ANBAL), that could also limit the reached findings. These issues will be regarded as starting point for the evolution of the current research.

5.3. Practical implications

The developed research also leads to several implications from the managerial and practical viewpoint. In this case, the main value is the demonstration for decision makers that it is necessary a multi-view management of the spa as touristic attraction, for working towards an overall acceptance of the final users. Furthermore, the performed analysis can be considered as a diagnosis of the former potential of each region and therefore could be used as base for drawing strategies to potentiate the strengths of the territory and mitigating their weaknesses.

At second, the results obtained from the TripAdvisor analysis can be taken into account for a better promotion and positioning of the corresponding regions.

Finally, the discovered relationships between the research done, the inner characteristics of spas, and the TripAdvisor analysis, can be used as reference by overall spas stakeholders across different countries in order to consolidate the presence and success of their respective centers.

6. CONCLUSIONS AND FUTURE WORKS

This work have developed a two-fold analysis of Spanish spas by considering a literature analysis using the PRISMA methodology, and a characterization of their presence in social media considering TripAdvisor as source.

This analysis allows the discovery of several particularities of Spanish spas across different regions, having as main conclusion the presence of a high diversity with strengths and weakness in the different territories. The theoretical and practical implications have been also discussed in this context.

As future work it will be considered the following research directions: 1) Incorporating information related to facilities and additional services for analyzing the strengths and weakness of each region; 2) The use of natural language computational tools for processing the TripAdvisor reviews as extra source in addition to the currently used ratings; 3) Developing a similar study for characterizing thermal centers of other regions out of Spain, and 4) The use of previously considered tools for generating competitive touristic advantages (Carballo *et al.*, 2023), in this scenario of thermal centers.

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