

How to determine the tourism carrying capacity in a Spring SPA? The Termas de Alcafache case

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Objectives | The phenomenon of Thermalism (Spring SPA Industry), situated within the domain of health and well-being tourism, holds the potential to facilitate the revitalization of specific tourist destinations and mitigate regional disparities in less economically developed areas. However, growth above a certain level can lead to a deterioration of available resources and a decrease in the quality of the visitor's experience. To help control the disproportionate growth of villages and contribute to the sustainability of tourism activity, the determination of tourism carrying capacity (TCC) is used. However, only a few studies present and apply methodologies to calculate this indicator (Neves & Eusébio, 2021). Carrying capacity represents the largest number of individuals who can visit a given tourist destination, simultaneously, without causing physical, sociocultural and/or economic damage, without decreasing, to the point of becoming unacceptable, the quality of visitor satisfaction in relation to the experience (UNTWO, 2018). Tourist carrying capacity is also the capacity that a certain environment can support without losing the characteristics of its originality or having its integrity threatened (Pires, 2005), which points in the same direction. If this level is exceeded, deterioration of resources, less visitor satisfaction and adverse impacts on local society, culture and economy may occur (Ceballos-Lascurain, 1996). In this sense, the objective of this study is to determine the tourist load capacity of a thermal resort, in an unprecedented approach and centered on an active thermal resort.

Methodology | A literature review was carried out, analysing the most recent scientific content published on the topic. In Termas de Alcafache, during September, after emails of preparation, two interviews were held with the general managers of the Spring SPA and the Hotel of Alcafache, to gather information to better analyse the capacity. The carrying capacity was then calculated.

Main Results and Contributions | Spring Spas have been advertised as natural, non-replaceable resources, in places of natural beauty and located, in most cases, in low-density regions. Tourist Density is an indicator that allows us to measure tourist pressure in territories and

represents the quotient between the number of overnight stays and the geographical area, measured overnight stays/Km². Our study focuses on *Termas de Alcafache*, in Viseu area, with a tourist density, in 2021, of 0.78 overnight stays per km², clearly lower than the national average of 1.10 overnight stays per km² (TravelBI, 2023). The decrease in traditional medical clients felt in recent years and their replacement by Wellness clients, with short stays or even, for the most part, with practices carried out on an outpatient basis, leads us to consider that an exaggerated growth of this last segment, despite being far from phenomena such as gentrification, or over-tourism, can lead to a mischaracterization of places, in terms of search motivation. After the pandemic, the pressure of domestic visitors has increased in many rural and natural areas (Pásková, M., Wall, G., Zejda, D., & Zelenka, J., 2021), and for sure can contribute to increase the number of tourists in SPA territories like the Spring SPAs.

Since the hydromineral resource – mineral water – has defined and controlled exploration flows, springs will hardly be over-explored, so we will neglect this very important aspect, but far from our focus. Our research is centred on accommodation capacity and the capacity of the spa that all clients use to carry out their programs. We also consider that half of spa clients no longer stay at the destination, but rather carry out their programs on an outpatient basis or look for accommodation nearby (Ramos et al., 2021). The load capacity of the SPA territories will therefore be determined by the capacity of these two structures, fundamental in the Spring SPAs. Considering that the spa's operating period is from April to November, in 2023 it was opened 242 days, the period that we will consider for our research. The SPA has the physical capacity to simultaneously receive 107 individuals undergoing treatments and, according to the information provided, it can receive a maximum of 550 persons per day, considering the management that the effective capacity is 200 persons per day. The relaxation periods after daily treatments, carried out in the Spring Spa, and the waiting time for medical appointments, on the first day of each medical cure, were considered. So, the effective usability capacity, which maximizes users' comfort, corresponds to around 36.3% of maximum physical capacity. In this context, with the usual 242 days of operation with an average duration of 12 days for treatments and 2 days for well-being stays, the SPA would annually accommodate a total of 6,914 clients. Considering that only around 50% of visitors spent the night in the thermal resort's accommodation, the corresponding total number of overnight stays was about 24,891. Will this number be absorbed by the local hotel industry? What occupation corresponds to? There is a hotel in the resort with 38 double rooms, during the same period of operation it can provide 18,392 overnight stays. There is also Pensão Alzira, a B&B in the SPA village with 39 rooms, in the time range assures 18,876 overnight stays. The total represents a potential of 37,268 overnight stays. These two hotels assure the lodging in the resort of Alcafache.

In summary, the hotels' capacity is adequate for an even distribution of guests throughout the year; however, it's important to note that thermal spas, like many segments of the tourism

industry, experience seasonality. Therefore, peaks in demand must be identified so that we can compare them with the available hotel capacity and better assess the carrying capacity of the territory.

Limitations | One limitation of this study is the challenge of accurately identifying occupancy or demand peaks for spas. Additionally, acquiring precise data regarding the occupancy rates within the local hotel industry has proven to be a challenging endeavour. As this is also a case study, we have no evidence that the same research procedure can be carried out in other spa resorts, reason why it would be important to study, at least, another spa resort or, preferably sort of SPAs in a region, as Center of Portugal.

Conclusions | In a first approach, with 1,676 registered SPA clients in 2022, it seems to us that this thermal territory is far from reaching its limit, in terms of carrying capacity. However, it is necessary to assess the seasonality of demand and repeat the analysis monthly, to check whether, in any of the months of activity, demand exceeds the installed capacity, either of the resort itself or all the hotels on site.

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