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User's Profile of a Portuguese Thermal Establishment: Empirical Study

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Abstract: The thermal tradition plays an important role for society by naturally promoting and improving individuals' well-being. Thermal treatments help cure diseases and prevent pathologies, including mental and social ones, providing users with a better quality of life. At the same time, such a wellness activity introduces leisure components resulting from a more holistic perspective on health and well-being. Given the importance of this topic, which just recently started to be the object of empirical studies in Portugal, the present study aims to identify the profile of those who attend a thermal spa. For this purpose, a self-administrated questionnaire was applied to the Termas de Chaves' users during the 2021 thermal season, i.e., between August and November. A convenience method of non-probability sampling allowed to obtain a sample of 220 thermal users. This establishment, located in the sub-region of Alto Tâmega, North of Portugal, has 300 years of history and vast experience in providing thermal services for different audiences. To better understand and identify the features of the thermal spa user, sociodemographic data were analysed and identified the characteristics, motivations, behaviours, preferences, and perceptions of the thermal spa users under study. The data collected was submitted to treatment through an exploratory quantitative analysis. The distribution data analysis was elaborated using frequencies, centrality and variability descriptive measures complemented by TwoStep cluster analysis. The results showed that most of the participants in Chaves thermal spa are women, with an average age of 69 years ($SD=12.556$), married, retired, and living in the northern region of Portugal. They seek these services in the season between summer and autumn, for medical advice, mainly for therapeutic reasons, and stay in the thermal spa, on average, for 14 days ($SD=2.667$). Moreover, the cluster analysis identifies three different groups of users to which thermal stakeholders should consider different policy approaches. By defining the users' profile, this empirical research presents a practical contribution since it provides a strategic orientation for the thermal establishments' stakeholders aiming, essentially, at the (re)qualification of supply and the increase of demand, thus contributing to the sectoral and regional competitiveness.

Keywords: thermal spa, thermal spa users' profile, North Portugal, TwoStep cluster

1. Introduction

Tourism has shown a clear evolution over time, accompanied by the demand for new forms of tourism, as is the case of health and wellness tourism (Arias-Aragones, Caraballo-Payares and Matos-Navas, 2012). Proof of this is the increase, since 2017, in demand for thermal spas' treatments related to health and relaxation. In 2019, the spa establishments had registered 135,259 users (DGEG, 2020). In this sense, thermalism has increasingly been an option for tourists seeking to improve health in its broad dimension. The emphasis lays on physical and mental well-being to increase the quality of life, where relaxation, relieving daily stress, anxieties, and energy renewal are included (Pereira, 2021).

Due to the remarkable evolution of demand, thermalism has gained some visibility in the literature. However, the low volume of scientific production still raises some doubts and uncertainties, namely about users' profiles. Thermal tourism is often associated with health and well-being tourism segments. Several studies address these segments, such as thermal tourism (Brandão et al., 2021; Maseda et al., 2018), wellness tourism (Smith and Kelly, 2006; Wang, Xu and Huang, 2020), health tourism (Jagyasi, 2008), and even medical tourism (Hoz-Correa, Muñoz-Leiva and Bakucz, 2018; Connel, 2006). It is noteworthy the contribution of these typologies to the

tourism development of many worldwide destinations, such as Portugal. According to Dimitrovski and Todorović (2015), those who seek these tourism typologies are interested in the medicinal properties of the destination natural resources (thermal mineral waters, clean air, a healthy natural environment, favourable climatic conditions, etc.). This is the possibility of enjoying adequate medical and health services within the tourism supply of a given territory. Thermalism and tourism have a strong connection. However, by itself, thermalism provides quality of life (Lopes et al., 2018). The literature refers to the leisure dimension, implicit in several activities, such as tourism, that enhance health and well-being. Indeed, the relationship between leisure and health is known. For instance, Young, Maxwell and Peel (2021) refer to a need to move beyond simple descriptions of the general benefits of leisure to more robust understandings that encompass more complete definitions of health. Therefore, the demand for spa establishments is also due to leisure and recreation issues (Valeriani, Margarucci and Spica, 2018). In addition, individuals seek to benefit from spa services for health issues, in general, and, in particular, for treatment of specific diseases/pathologies. Indeed, the health dimension has, in fact, long been the main reason for attending thermal spas. Silvério (2020) indicates that thermalism has been used for health promotion and treatment of inflammatory and chronic processes. Also, Hanzel et al. (2018) report clinical improvements in patients suffering from rheumatic diseases treated with thermal mineral water.

Users tend to seek this type of establishment with the core goal of restoring themselves physically and mentally. For that reason, thermal spas supply a vast set of services that focus on users' well-being and quality of life. Indeed, thermal tourism is a sector attentive to the population's way of life and therefore concerned with helping to minimise individuals' illnesses and stress. Regarding the abovementioned, this research's main objective is to outline the profile of the user who attends the Chaves thermal spa, hereafter called *Termas de Chaves*, one of the most representative thermal establishments in the North of Portugal and analyse their experience when visiting this space. The study's relevance lies in its contribution to developing a diversified supply based on the customer's characteristics, which allows the creation of future strategic measures to be implemented by thermal stakeholders concerned with the well-being and quality of life of individuals. The study is structured in three more sections following this brief theoretical framework. The first focuses on the research methods and methodology. The second presents and analyses the results of the collected data. Final remarks close the study.

2. Methodology

For achieving the study's purpose, exploratory research of quantitative nature was carried out, with the application of a questionnaire to the users of *Termas de Chaves*. This questionnaire was applied on-site through sampling by convenience to the thermal spa users during the 2021 thermal season, i.e. between August and November. As health and wellness tourism is a seasonal activity, these months were chosen to cover an extensive period of the thermal season. No indicative data was obtained concerning the total population frequenting *Termas de Chaves* during the data collection period. Still, a final sample consisting of 220 participants who agreed to participate voluntarily in the study has been reached. All participants received an explanation of the study's objectives, its duration, and its voluntary and confidential nature. Accordingly, all participants gave their informed consent.

After the questionnaires' application and data collection, data was processed through an exploratory, quantitative and descriptive analysis. Univariate and multivariate statistical techniques were applied to process the data collected. First, to assist in analysing and characterising the study sample, an exploratory, descriptive statistical analysis was performed on the sociodemographic data and the data describing the participants' experience. After, a cluster analysis was performed. Cluster techniques, commonly used in the social and human sciences, identify subgroups of users with similar characteristics within the sample collected. Such analysis allowed the achievement of a better segmentation of the users who attend *Termas de Chaves*. Given its usefulness, cluster analysis has emerged as one of the preferred methods in multivariate analysis, and its evolution has been documented in diverse and vast literature (Aldenderfer and Blashfield, 1984; Kettenring, 2006; Murtagh, 2015; Dimitrovski and Todorović, 2015; Wierzchoń and Kłopotek, 2018). The relevance of this multivariate technique has been determined by the availability of large databases, software development for data processing and theoretical research on clustering algorithms.

The TwoStep cluster analysis technique has been adopted. This technique, initially presented by Aldenderfer and Blashfield (1984) and Zhang, Ramakrishnan and Livny (1986), and included in the SPSS software following the procedures explained by Norusis (2004; 2011), is considered appropriate when multiple indicators

(measured either categorically or continuously) are involved in a large database. Literature mentions its advantages: (i) the possibility of applying it to a large database, where a high number of explanatory continuous and categorical variables are simultaneously present; (ii) the selection by the algorithm itself of the optimal number of clusters; and (iii) the straightforward interpretation of the results. Cluster formation becomes sharper and structural analysis more rational (Estevão and Ferreira, 2012; Rundle-Thiele, 2015; Tkaczynski, 2017; Benassi et al., 2020). As the name infers, the TwoStep technique implies that two steps are implemented. In the first step, a set of pre-clusters is created to reduce the size of the distance matrix between observations. In a second step, a hierarchical grouping of the pre-defined clusters is performed according to the number of clusters considered optimal. This technique presents a hybrid approach that first uses a distance measure to separate clusters and then a probabilistic approach (similar to latent class analysis) to choose the optimal subgroup model.

3. Results and discussion

3.1 Spa users' profile: Descriptive analysis

The sample under study allowed to obtain a broad range set of sociodemographic information, fundamental to define the profile of the thermal spa user. The sample considered for analysis includes 220 individuals, but not all of them answered all the questions. Table 1 presents the absolute and relative distribution of the sociodemographic data and provides information on the number of individuals that responded to each question. With the sample under study, it was also possible to assemble specific information characterising the users' experience (Table 2).

To understand the relevance of the thermal spa experience, in the perspective of both those who seek it and those who already know it, users were asked if it was the first time they visited this establishment. More than half of the sample (63.7%) said it was not the first time they attended *Termas de Chaves* while the remaining 36.3% were doing it for the first time. These data may indicate that the users are satisfied with the experience and therefore revisit it. In this sense, it was central to understand if the participants keep loyalty or if they are looking for other thermal spas. The majority of the respondents declare not to frequent other thermal spas (75.6%). However, near 24.4% admit to looking for other thermal establishments.

Additionally, the questionnaire allows understanding they do not attend the thermal spa alone. Other people accompanied most users (64.5%) to perform the thermal treatments. At least one person, in most cases, escorts the users during the period of stay. Just 82 (37.4%) thermal bathers prefer to enjoy these services alone. It is possible to conclude that most of the users choose to use the thermal spa services of Chaves for an average period of 14 ($\pm 2,67$) days. This long period of stay together with an average age more pronounced and the fact that most users are married or in a consensual union may explain the previous observation about the importance of attending the thermal spa accompanied by one person. An extended period of stay may indicate the need to find accommodation near the establishment. However, just a bit more than half of the users (56.2% of the sample) looked for accommodation during their stay. The observation that most users live in the same district where the *Termas de Chaves* is located (Vila Real) may explain that almost half of the users did not look for accommodation during their stay. About the thermal spa users' forecasted expenditure during the experience, only 48 of the 220 respondents answered. Sixty-eight per cent of the respondents indicated that they expected to spend between 501 and 1,000 euros, followed by 27.1% who intended to spend between 1,001 and 1,500 euros. Less than 4.2% indicated the option up to 500 euros. Knowing the thermal activity is a seasonal one, the questionnaire look to understand which time of the year respondents choose to attend the thermal spa of Chaves. The summer season (July-September) and the autumn option (October-November) are preferred – 44,4% and 42,5% of the users selected it, respectively. The winter (December-March) and spring (April-June) were indicated by just 7.7% and 5.4% of the sample, respectively.

Regarding the type of service that they most look for in the establishment, it is significant to note that therapeutic thermalism is the one that predominates - 64.5% of users seek *Termas de Chaves* for this purpose. Wellness purpose is indicated by just a little more than one third (35,2%) of the respondents. One person referred to seek the thermal spa for sports. The previous results are in line with the type of services provided. Most of the respondents (57.7%) seek the thermal spa for health reasons followed by prevention associated with health (38.1%). Just a small number of respondents (4.2%) see the thermal spa as a place of leisure where they can relax. In addition to this data, it is important to understand the driving source which leads someone to

attend the thermal spa. More than half the users (55.9%) got to know the thermal programme of Chaves through medical advice.

Table 1: Summary of the distribution of users' characteristics

Variable	Category	Absolute distribution	Relative distribution
		n	%
Gender (n=220)	Male	74	33.6
	Female	146	66.4
Age group (n=218)	<=35	4	1.8
	36 - 45	6	2.8
	46 – 55	20	9.2
	56 – 65	40	18.3
	66 – 75	77	35.3
	78 – 85	58	26.6
	86+	13	6.0
Marital status (n=213)	Single	16	7.5
	Married/Consensual union	155	72.7
	Divorced	16	7.5
	Widow	26	12.3
Education level (n=220)	No academic qualification	6	2.9
	Primary school	125	58.6
	High school	33	15.5
	Higher education	49	23.0
Nationality (n=214)	Angola	1	0.5
	Brazil	1	0.5
	Spain	2	0.9
	Paraguay	1	0.5
	Portugal	208	97.1
	Romania	1	0.5
Country of origin (n= 220)	Spain	1	0.5
	France	1	0.5
	Portugal	218	99.0
Residence (n=217)	Aveiro	17	7.8
	Braga	15	7.0
	Bragança	8	3.6
	Coimbra	4	1.8
	Évora	2	0.9
	Faro	2	0.9
	Guarda	1	0.5
	Leiria	3	1.4
	Lisboa	16	7.4
	Porto	51	23.5
	Santarém	4	1.8
	Setúbal	1	0.5
	Viana do Castelo	3	1.4
	Vila Real	87	40.1
Viseu	3	1.4	
Household dimension (n=213)	1	41	19.3
	2	133	62.4
	3	29	13.6
	4	6	2.8
	5 or more	4	1.9
Professional status (n=220)	Employee	38	17.3
	Self-employed	7	3.2
	Student	0	0
	Retired	164	74.5
	Housekeeper	6	2.7
	Unemployed	5	2.3
Net household income (n=209)	Until 665€	46	22.0
	666 – 1300€	93	44.5
	1300 – 2000€	46	22.0
	2001 – 3000€	20	9.6
	3001€ or more	4	1.9

Source: Authors' elaboration

The results corroborate literature that identifies thermal spa users. Strack and Raffay-Danyi (2020) found that the most frequent users in Hungary are elderly and attend establishments in couples without dependent children or more enlarged families. Young people comprise the least common segment. Moreover, the most significant group includes users who enjoy healing services funded by social security due to a doctor's recommendation. Dryglas and Rózycki's (2017) work focuses on Polish medical (therapeutic) spas also report the users are older and predominately women with chronic diseases benefiting from health insurance or social security plans. Similarly, Esiyok, Kurtuluşoğlu and Özdemir (2018) mention that the elderly are more likely to participate in spa tourism. However, Aleksijevit (2019), besides the so-called Baby Boomers (the generation of

55-74 years), found that Generation X (users aged 35-54 years) are also a market to consider. This market comprises people with a high level of education, higher average income and a preference for travelling with friends or family.

Table 2: Thermal experience related data

Variable	Category	Absolute distribution	Relative distribution
		n	%
First time in thermal spa (n=218)	No	139	63.7
	Yes	79	36.3
Frequency of other thermal spas (n=217)	No	164	75.6
	Yes	53	24.4
Type of service required (n=299)	Therapeutic thermalism	193	64.5
	Wellness	105	35.2
	Other Services	1	0.3
Reasons for using the thermal spa (n=352)	Health - Prevention	134	38.1
	Health - Healing	203	57.7
	Leisure/Relaxation	15	4.2
Reasons to choose the thermal spa (n=218)	Medical advice	122	55.9
	Recommendation from family and friends	78	36.0
	Promotion made by thermal spa	13	5.9
	Other source	5	2.2
Season (n=261)	Summer (July-September)	116	44.4
	Fall (October-November)	111	42.5
	Spring (April-June)	14	5.4
	Winter (December-March)	20	7.7
The user is accompanied by others (n=219)	No	82	37.4
	Yes	137	62.6
How many persons join the user (n= 134)	1	116	86.6
	2	15	11.2
	3	3	2.2
Accommodation booking (n = 201)	No	88	43.8
	Yes	113	56.2
Expenditure forecast (n=48)	Until 500€	2	4.2
	501 – 1000€	30	68.7
	1001 – 1500€	13	27.1

Source: Authors' elaboration

The presented research results seem to go in the same direction by identifying users in a middle-age and with a higher education diploma. In Spain, a set of research works reached very similar conclusions. Pinos Navarrete, Shaw and Martos (2020) analysed the customer profile of the Alhama de Granada spa in Andalusia. They found that spa-goers are supported by social programmes for older adults that enjoy an extended stay, between 10 and 12 days. Also, Anaya-Aguilar, Gemar and Anaya-Aguilar (2021) analysed the profile of clients attending spas in Andalusia and found that women are the clear majority of users. They are over 56 years old, are retired, and have an average income of fewer than one thousand euros. Liberato et al. (2021) recently conducted research in the North and Centre of Portugal in a pandemic context (COVID'19). They found that most spa users are female, the percentage of respondents aged 45-54 years or older is increasing. As seen for *Termas de Chaves*, older users have a basic education, but secondary education and university degrees dominate. Moreover, around 50% of users are retired. As in Spain, half of the users present a net monthly income of up to a thousand euros. Almost all users of thermal spas in the North and Centre of Portugal are Portuguese. Foreign users are just residual. Finally, Silvério, Fernandes, and Alves (2021a; 2021b) focused the research on the North of Portugal and *Termas de Chaves*, when the pandemic started. The results obtained indicate that most users were women, Portuguese, married, with an average age of 58 years. They are residents in the North of Portugal, have completed a higher education level, and are inactive or retired. Participants are familiar with Chaves thermal spa and seek therapeutic treatments for a period of 12 days during the summer season.

The findings of the present research analysis confirm most of the findings of the published literature contributing to consolidating the knowledge on the thermal spa users' profile. Finally, to better understand the reasons behind the preference for this thermal spa, a 5-points Likert scale of importance was applied for the users to rate each of the eleven attributes defined. On the scale, 1 indicates "not at all important" and 5 indicates "extremely important".

The results presented in Table 3 reveal that the medicinal quality of the thermal water and the quality of the facilities are the attributes that most influence the users' choice. The first one obtained an average of 4.50 (± 0.53) and the second 4.50 (± 0.52). Around half of the users (51.4%) consider this attribute extremely important, and almost half (47.3% for the first attribute and 47.7% for the second) believe it is very important. The results for the remaining attributes are not very different. On average, the importance given to each attribute goes

around 4.4 and 4.5 points. The most significant differences among them are in the division of answers between the extremely importance of the attribute and its very importance. Just one attribute presents results indicating it is not important at all or it is not important – the one that refers to the presence of family and/or friends. Their presence is not determinant to attend the thermal spa for some users. Still, most users consider the company of family and friends during the period of stay as extremely important. Also, rest and tranquillity is an attribute recognised as extremely important in these thermal spas. Recognised for the majority of users as very important are: (i) the equipment's quality; (ii) the quality of services supplied; (iii) the service's diversity but also (iv) the customisation of the supplied services (this is the supply of a tailor-made service); (v) the service specialisation and techniques used; (vi) the knowledge and competencies of human resources and also (vii) the availability of the human resources.

Table 3: Motivational factors of the visit to the thermal spa of Chaves.

Attributes	1 Not at all important	2 Not important	3 Indifferent	4 Very important	5 Extremely important	Mean	Standard Deviation
Medicinal quality of thermal water (n=220)	-	-	3 1.3%	104 47.3%	113 51.4%	4.50	0.528
Installations' quality (n=220)	-	-	2 0.9%	105 47.7%	113 51.4%	4.50	0.519
Equipment' quality (n=220)	-	-	4 1.8%	112 50.9%	104 47.3%	4.45	0.534
Quality of services provided (n=220)	-	-	3 1.4%	111 50.5%	106 48.1%	4.47	0.527
Diversity of services provided (n=220)	-	-	4 1.8%	119 54.1%	97 44.1%	4.42	0.531
Expertise and techniques used (n=219)	-	-	5 2.3%	111 50.7%	103 47.0%	4.45	0.542
Knowledge and skills of human resources (n=219)	-	-	4 1.8%	117 53.5%	98 44.7%	4.43	0.532
Availability and assistance provided by human resources (n=220)	-	-	4 1.8%	114 51.8%	102 46.4%	4.45	0.534
Service customisation (n=220)	-	-	4 1.8%	116 52.7%	100 45.5%	4.44	0.533
Rest and tranquility (n=220)	-	-	3 1.4%	107 48.6%	110 50%	4.49	0.528
Presence of friends and/or family (n=220)	2 0.9%	1 0.5%	11 5.0%	94 42.7%	112 50.9%	4.42	0.695

Source: Authors' elaboration

3.2 Policy target groups: TwoStep cluster analysis

The research study is concerned not only to find the *persona* that best describes the user of the thermal spa establishment but also with the possible users' target groups according to sociodemographic characteristics and motifs to seek the service of the thermal spa. As Dimitrovski and Todorović (2015) mentioned, the idea is to reveal the target groups which tailor-made policies and measures should aim at. The target groups to which the different stakeholders should look carefully.

The starting point for the cluster analysis implied selecting the variables that showed to be fundamental to describe the users. Therefore, variables as gender, marital and professional status, education level, Portuguese residence, household dimension and net income, frequency of the analysed thermal spa and other thermal spas, type of service demanded and reasons for choosing *Termas de Chaves*. Moreover, the season of attendance, the persons accompanying the user, and the accommodation booking were also included. A continuous variable, measuring the age of the users, has been added to the 15 previous categorical variables included. The Log-likelihood distance measure has been adopted and the number of clusters to be retained was not fixed. Akaike's Information Criteria (AIC) and Schwarz's Bayesian Information Criteria (BIC) tests allowed choosing the optimal number of clusters. Both tests indicated the best solution is to divide the sample into three clusters. The silhouette measure of cohesion and separation, a measure of the clustering quality based on the average distances between objects, indicates it is a reasonable solution since its value stays between 0.20 and 0.50. Information on the number of clusters, their final frequencies and descriptive cluster statistics were obtained at the end of the process.

Table 4 presents the results for each cluster, showing the absolute and relative number of observations by cluster for each input variable. It should be noted that only 172 observations were considered for the analysis since the cluster technique considers the observations for which there are no missing values. In the total of all variables included in the analysis, 48 observations were lost. Cluster 2 and cluster 3 are the most significant

clusters, including 74 observations each (43% of the valid sample). The cluster with fewer observations is cluster 1 (nearly 14% of the valid sample).

Table 4: TwoStep clusters distribution.

Variable	Category	Cluster 1 (n=24)		Cluster 2 (n=74)		Cluster 3 (n=74)		Combined (n=172)	
Age (continuous)	Average	52,7		67,8		73,9		68,3	
Variable	Category	n	%	n	%	n	%	n	%
Gender	Male	4	6.9	21	36.2	33	56.9	58	100
	Female	20	17.5	53	46.5	41	36.0	114	100
Marital status	Single	2	15.4	8	61.5	3	23.1	13	100
	Married/Consensual union	17	13.7	49	39.5	58	46.8	124	100
	Divorced	4	28.6	10	71.4	0	0.0	14	100
	Widow	1	4.8	7	33.3	13	61.9	21	100
Education level	No academic qualification	0	0.0	2	33.3	4	66.7	6	100
	Primary school	7	7.3	46	47.9	43	44.8	96	100
	High school	9	29.0	13	41.9	9	29.0	31	100
	Higher education	8	20.5	13	33.3	18	46.2	39	100
Residence	Aveiro	1	7.1	1	7.0	12	85.7	14	100
	Braga	0	0.0	9	60.0	6	40.0	15	100
	Bragança	0	0.0	1	33.3	2	66.7	3	100
	Coimbra	0	0.0	1	33.3	2	66.7	3	100
	Évora	0	0.0	0	0.0	1	100.0	1	100
	Faro	0	0.0	0	0.0	2	100.0	2	100
	Leiria	0	0.0	0	0.0	2	100.0	2	100
	Lisboa	0	0.0	7	46.7	8	53.3	15	100
	Porto	0	0.0	11	30.6	25	69.4	36	100
	Santarém	0	0.0	3	100	0	0.0	3	100
	Setúbal	0	0.0	1	100	0	0.0	1	100
	Viana do Castelo	0	0.0	1	50	1	50.0	2	100
	Vila Real	23	32.9	35	50	12	17.1	70	100
Viseu	0	0.0	3	100	0	0.0	3	100	
Household dimension	1	1	3.3	16	53.3	13	43.3	30	100
	2	11	9.9	48	43.2	52	46.8	111	100
	3	10	43.5	8	34.8	5	21.7	23	100
	4	2	50.0	0	0.0	2	50.0	4	100
	5 or more	0	0.0	2	50.0	2	50.0	4	100
Professional status	Employee	16	48.5	10	30.3	7	21.2	33	100
	Self-employed	4	66.7	0	0.0	2	33.3	6	100
	Retired	2	1.6	56	45.5	65	52.8	123	100
	Housekeeper	0	0.0	6	100.0	0	0.0	6	100
	Unemployed	2	50.0	2	50.0	0	0.0	4	100
	Net household income	Until 665€	4	11.8	18	52.9	12	35.3	34
666 – 1300€	3	3.9	36	47.4	37	48.7	76	100	
1300 – 2000€	8	20.5	17	43.6	14	35.9	39	100	
2001 – 3000€	7	36.8	2	10.5	10	52.6	19	100	
3001€ or more	2	50.0	1	25.0	1	25.0	4	100	
First time in thermal spa	No	10	9.3	49	45.4	49	45.4	108	100
	Yes	14	21.9	25	39.1	25	39.1	64	100
Frequency of other thermal spas	No	19	14.7	66	51.2	44	34.1	129	100
	Yes	5	11.6	8	18.6	30	69.8	43	100
Type of service required	Therapeutic thermalism	16	10.0	70	43.8	74	46.3	160	100
	Wellness	15	15.3	63	64.3	20	20.4	98	100
Reasons for using the thermal spa	Health - Prevention	9	8.0	64	57.1	39	34.8	112	100
	Health - Healing	20	12.5	69	43.1	71	44.4	160	100
	Leisure/Relaxation	5	35.7	4	28.6	5	35.7	14	100
Reasons to choose the thermal spa	Medical advice	22	22.2	42	42.4	35	35.4	99	100
	Recommendation of family and	2	3.6	20	35.7	34	60.7	56	100
	Promotion made by thermal spa	0	0.0	10	76.9	3	23.1	13	100
	Other source	0	0.0	2	50.0	2	50.0	4	100
Season	Summer (July-September)	18	20.7	1	1.1	68	78.2	87	100
	Fall (October-November)	14	14.6	73	76.0	9	9.4	96	100
	Spring (April-June)	10	83.3	1	8.3	1	8.3	12	100
	Winter (December-March)	14	93.3	1	6.7	0	0.0	15	100
The user is accompanied by others	No	17	25.8	30	45.5	19	28.8	66	100
	Yes	7	6.6	44	41.5	55	51.9	106	100
Accommodation booking	No	24	29.3	39	47.6	19	23.2	82	100
	Yes	0	0.0	35	38.9	55	61.1	90	100

Source: Authors' elaboration

Cluster 1 is the younger age cluster. The observation of the results indicates that age may define the remaining characteristics of the group of users in this cluster. Users with a middle-age are predominantly women, married and do not have a specific level of education. However, they have some formal level of qualification. Most of them live near the *Termas de Chaves* in families with 2 or 3 members. The place of residence near the establishment may explain they attend it without any company and do not need to book accommodation. They

are new clients, and most of them never used a thermal spa. Due to medical advice, they look most for therapeutic thermalism seeking to heal some health problems. Since this is the main reason for looking for thermal spas, they attend it throughout the year without any preferable season.

Cluster 2 includes the users near the retirement age (average age of 68 years old). The users in this cluster are also predominantly women, but the distinction by sex is not so obvious. They live alone because they are mostly single or divorced, and therefore when attending the spa, they are also alone. Even if their residence place is mainly Vila Real or Porto, it is in this cluster that it is possible to find people living in other Portuguese districts like Braga or Lisbon. The ones from more far away book accommodation. They essentially have a primary or basic education qualification level. In this group are found retired, employed or working at home (housekeepers). Since they live alone, their net average monthly income is relatively low – most of the cluster's members earn until 1,300 euros. It is not the first time they have attended *Termas de Chaves* and are loyal. They use during the Fall season. It is the group of users seeking wellness services to prevent health problems. Even if the medical advice is important to choose the establishment, the ones in this cluster are sensible to the marketing promotion made by the spa.

Cluster 3 is the one that includes elderly users. Due to their average age (74 years old), they are retired and even some are married is here that we found the most significant number of widows. It is the group where more men are found. Therefore, they live alone or with their wives. Most of them are retired, but it is possible to find a large number of self-employed persons. They have no formal education but can be here found a large number of members with a higher education diploma. The level of education and the professional status may explain this is the group where it is possible to find higher levels of net monthly incomes – higher than 2,000 euros. These users already know *Termas de Chaves* and have tried other spas, mainly during summer. They look for therapeutic thermalism to prevent and heal health problems but also for leisure. They attend the thermal spa accompanied and book accommodation. This is the cluster where leisure reasons are more common. For them, the family and friends' advice is important, but it is also the group that looks for other sources of information.

4. Final considerations

This research work found that the *persona* that uses one of the most vital and recognised thermal spas in the North of Portugal is a Portuguese woman with an average age of 69 years old. She is married, just attended a basic level of education and lives close to the thermal establishment – or in the same district or neighbourhood districts. Such a *persona* lives with her husband and is retired, receiving a net monthly income between 666 – 1300€. The *Termas de Chaves*' user is familiar with its services and does not frequent other thermal spas, which indicates that users are satisfied with the experience and therefore revisit the establishment. Therapeutic thermalism, related to health, and a clinical recommendation, is the primary motivation to attend the thermal spa. This reason justifies the duration of the stay – users stay for an average period of 14 days, mainly in the summer and autumn seasons, spending between 501 and 1000 euros. The users recognise the medicinal quality of the thermal water and the quality of the facilities. These attributes have extreme importance to them. The sociodemographic characteristics of thermal users in this study confirm the literature's findings. The traditional thermal demand is found in this research work – users are predominantly female, retired individuals and an older population. Most users are between 50 and 75 years old and have health problems, so they seek the thermal spa due to medical advice.

If the potential user of the establishment is defined as the *persona* described above, it is essential to understand if different segments of users can be identified. Only a clear identification of the segments of users may help stakeholders act with policies and measures that enhance and develop the thermal spa establishment itself, the well-being of tourism activity and, therefore, the region. The TwoStep cluster technique allowed dividing the original sample into three main groups, presenting a different characterisation. The first cluster includes a middle-aged set of users seeking the thermal spa by medical advice and do not book other services (as accommodation) in the region. A second cluster includes users near the retirement age and who live mostly alone. They also seek the thermal spa services due to medical advice but come from further afield needing the book accommodation and, therefore, generating economic externalities. They are loyal to *Termas de Chaves*. The more diverse cluster is cluster 3, including older adults and the one in which more men are found. This cluster also gathers people from all over the country, with a higher income and more diverse reasons to attend thermal spas. They are regular users of thermal spas in the summer.

The analysis reveals vital aspects of the *persona* using the thermal spa and the groups of users with common characteristics. Therefore, this research study provides detailed information about the target users, such as their features, perceptions, and motivations, allowing the thermal spa to redefine priorities and redirect their activity to the needs of those who already frequent the space and forthcoming target users.

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