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EVOLUTION OF THERMAL REGISTERS AND EARNINGS: THE CASE OF THE PORTUGUESE MARKET

This study highlights the importance of thermal spas and the reasons that lead individuals towards thermal tourism. Because thermal spas are very important to the economy of the regions where they are located, this study analyses the personnel and frequencies of thermal spas in Portugal using descriptive statistical analysis. The results show the demand for Portuguese thermal spas is developing in a progressive trend and that the frequency of thermal spas is increasing annually despite the decrease during the pandemic due to covid 19. The analysis also shows that the demand for thermal spas is higher for Portuguese inhabitants than foreigners. We can conclude that the importance of thermal tourism in Portugal is very significant and plays a vital role in the local economy.

Keywords: Thermalism, Tourism, User's registers, Portugal.

Н.Моутиньо¹, А.Нунес², С.Султана³**ЭВОЛЮЦИЯ ТЕПЛОВЫХ РЕГИСТРОВ И ПРИБЫЛИ: НА ПРИМЕРЕ ПОРТУГАЛЬСКОГО РЫНКА**

Это исследование подчёркивает важность термальных курортов и причины, которые побуждают людей к термальному туризму. Поскольку термальные курорты очень важны для экономики регионов, в которых они расположены, в данном исследовании анализируется персонал и частота посещения термальных курортов в Португалии с использованием описательного статистического анализа. Результаты показывают, что спрос на португальские термальные курорты развивается прогрессивной тенденцией и что частота посещения термальных курортов ежегодно увеличивается, несмотря на снижение во время пандемии из-за covid 19. Анализ также показывает, что спрос на термальные курорты у жителей Португалии выше, чем у иностранцев. Мы можем сделать вывод, что значение термального туризма в Португалии очень велико и играет жизненно важную роль в местной экономике.

Ключевые слова: Термализм, Туризм, Реестры пользователей, Португалия.

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INTRODUCTION

Portugal is one of the wealthiest European countries in terms of thermal waters, where most of the spas are in the northern and central regions of the country (Araujo et al., 2015). Many areas in Portugal are on underground basins of thermal water.

The Ancient Romans built thermal baths in Portugal about 2,000 years ago. However, many thermal spas in Portugal were built about two centuries ago, and many were reformed. Since then, thermal baths and spas have been considered important parts of Portugal's health and wellness culture. Portugal recognises these spas as "Termas" (Costa et al., 2015). They are mainly located in the Northern Region, for example, in Chaves, Central Region, in Luso and Curia, both popular treatment centres for people suffering from rheumatism, hypertension, gout, kidney ailments, gastric ailments, disturbances, and stress. Also, Madeira and Azores Region have bubbling springs, like Furnas on São Miguel Island.

Thermalism has a therapeutic component based on disease prevention and health promotion – wellness thermalism – and a tourism component. Thermal waters, such as dermatology, may have several therapeutic indications based on their physio-chemical features. Using these waters in dermo-cosmetic formulations can be one of the most relevant applications of novelty tools in the thermal spa sector. Thermal spa treatment is also a good touristic product with the opportunity to use endogenous regional resources. In this sense, using thermal spas as

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a touristic offer can mitigate economic development problems and the wealth of local thermal communities in less prosperous regions (Araujo et al., 2015). Thermal tourism is often connected with health and well-being tourism. Several studies address related tourism segments, such as thermal, wellness, health, and even medical. These tourism typologies can improve the country's tourism offer, such as in Portugal (Yoon & Uysal, 2005).

Thermal tourism, as a part of health tourism, is one of the oldest touristic segments and has undergone many dynamic changes over time (Asadi & Daryaei, 2011). Thermal springs and spas are not only important to people's health, but it is also a component of fashion for many people. Thermalism is very helpful to individuals in a way to improve health issues, emphasising well-being, including relaxation, stress relief, depression, and even recovery and energy reserve (Pereira et al., 2021). In addition, nowadays, people are taking healthy lifestyles and wellness routines everywhere and are more interested in health prevention (Quintela, 2021).

Thermal tourism grants health and well-being services to individuals and has great social and economic importance in any country, namely Portugal. Tourism-related experiences positively impact psychological and physical states by improving users' sense of well-being, happiness, quality of life and satisfaction with life in general. Thermal and health and wellness tourism seem to be increasing in the number of tourists and in the economic benefits related to leisure through growth in the demand for treatments in classical thermalism or its extension (Uysal et al., 2016). It is also important to highlight that thermal spring tourism has expanded to environmental issues, aesthetics, quality of life, and prevention. Based on it, the health and wellness tourism segment has also become more interesting and challenging for businesses (Erfurt-Cooper & Cooper, 2009).

This study aims to understand the importance of thermal spas and the motives of thermal tourism. It will also analyse the personnel and frequencies of thermal spas in Portugal. Quintela et al. (2010) studied the evolution of users and revenues in this sector, but since then, it was not possible to find any other study about it. The study explains why an individual chooses to receive a thermal spa service and that thermal tourism renders health and well-being services to individuals and has great social and economic importance in any country or region. The study also reveals some reasons why people are motivated to thermal tourism, such as health issues. Some people are influenced by the destination's characteristics that respond to the expectations and desires of potential visitors. The study also analysed the personnel and frequencies of Portuguese spas in terms of the evolution of thermal spas in Portugal, the frequencies of spas, the demand for thermal spas among users of different ages and also verified the comparison in the frequency of Portuguese inhabitants with foreigners.

Accompanied by the demand for a new tourism figure, Portugal has shown a clear evolution over time in the case of health and wellness tourism. Proof of this statement is the increasing demand for thermal spa treatments related to health and relaxation since 2017. In 2019, the spa establishments of Portugal registered 135,259 users, much more than the previous years. It notifies that the demand for thermalism has been increasingly an essential option for tourists seeking to improve health in its wide dimension.

The study is organised in the following sections. First, the literature review is presented, addressing fundamental concepts related to thermalism, health and wellness thermal, the importance of thermalism and spas, motivations for thermalism and the impact of the covid-19 pandemic. Then, the methodology section presents the procedures related to data collection and results. The third section presents the results and discussions of the analysis of our collected data. Finally, conclusions about the study are presented.

1. LITERATURE REVIEW

1.1. THERMALISM

The Global Wellness Institute (GWI, 2021) identifies the thermal/mineral springs sector as a profit-earning business establishment linked with the recreational, wellness and therapeutic uses of waters with particular properties. GWI (2021) considers thermal/mineral springs establishments that operate as a business, but exclude springs that do not have any built facilities or do not charge any fee for access and also do not include establishments that use heated water instead of naturally sourced thermal/mineral water.

The perspective of thermal tourism has changed over time and has expanded to environmental issues, aesthetics, quality of life, and prevention. Based on the evolution of thermalism in Portugal, it is possible to define two different demand divisions. In the classical segment, the offer is organised based on the pathologies and therapeutic intentions of restoring balance and functional recovery that respond to demand motivations. On the other hand, in the wellness segment, the offer is geared toward customers' choices whose demand is simultaneously playful, touristic and therapeutic in the sense of organic, functional, and mental replacement (Quintela, 2021). Spa therapy or thermalism has also been used for health promotion and in

treating inflammatory and chronic diseases, where the effect is related to the properties and formation of thermal mineral water (Pereira et al., 2010).

In recent years, the health and wellness tourism sector has become more interesting and challenging for business managers. Recently, the idea of a health resort has been expanded, which expands the concept of Thermal Tourism. Note that thermal springs' operational activity has expanded to environmental issues, aesthetics, quality of life, and prevention (Erfurt-Cooper & Cooper, 2009). The thermal activities of Portugal were highlighted in the "Tourism Strategy 2027" as means of economically flourishing the country's regions (Araujo et al., 2015). It seems that the demand for thermalism has been increasing, which is related to tourists seeking to improve health, mainly associated with physical and mental well-being, to increase the quality of life, where relaxation, relieving daily stress, anxieties, and energy renewal (Pereira et al., 2021).

This industry Liberato et al. (2021) states that Portugal can improve its tourism offer by using health tourism as a factor in the Portugal Destination offer, complemented with spa services and well-being and enriched with other tourist services.

1.2. THERMAL HEALTH AND WELLNESS

Wellness tourism starts with the idea of health involving body, mind, spirit, and one's immediate environment or surroundings. However, wellness tourism is not medical tourism since it performs in different fields and meets different consumer needs (Phakdeephrot, 2021). Still, nowadays, it is recognised as a travel associated with maintaining or enhancing one's well-being (GWI, 2021).

GWI (2021) identify two types of wellness travellers. The primary wellness traveller is a traveller who is primarily motivated by wellness while arranging a trip or choosing a destination. The secondary wellness traveller is a traveller who wants to maintain wellness during travelling or takes part in wellness experiences while taking any kind of trip for leisure or business purposes.

Pyke et al. (2016) add that wellness has been identified as a societal need and desire, so wellness has the potential to play a crucial role in consumer decision-making concerning destination options and vacation typology. In this sense, vacations seem to contribute to an individual's wellness and do not need to focus on luxury spas or upscale consumer accommodations.

Wellness tourism is broadly recognised as tourism activities are undertaken to achieve a particular state of health, which can fulfil all aspects of the state of wellness like physical, emotional, spiritual, psychological, and intellectual. The supply and demand related to health and wellness tourism have experienced significant development because the focus is not only on physical health but wellness and physical appearance. Agrodimou (2019) explain that around the world, wellness tourism takes higher revenues, growing more than twice as fast as general tourism. Also, GWI (2021) have similar forecasts for future evolution. In Portugal, since health and wellness tourism has been historically significant, and based on the improvements in bathing establishments and water use, it seems that health and wellness is a strategic product for tourism development.

1.3. IMPORTANCE OF THERMALISM

The thermalism industry has been of great importance to an individual and society, at least since Antunes's (2014) study recognised that thermal spa products have high growth potential in Portugal. Thermalism has an important role in society by naturally flourishing and improving individuals' well-being. It can be used for health promotion and treating inflammatory and chronic processes, which also benefits sleep quality and life. The activity helps to cure diseases and prevent pathologies, including mental and social ones, thus providing users with a better quality of life. All these benefits potentially attract tourists seeking the benefits of thermal waters (Pereira et al., 2021).

Smith & Puczkó (2015) justify the increasing thermal therapies to health tourism with the increase in the average longevity of populations and, simultaneously, the rise in the number of older people travelling, the proliferation of psychosomatic problems like stress, anxiety and depression, and, finally, the growth of unhealthy eating habits, incorrect body postures and the rise of loneliness with impact on affective, emotional, and spiritual crises. Thermal spas are not only physically and emotionally important but also can have a positive effect on socialisation, lifestyles, and social identities.

According to the Global Wellness Institute, wellness improves public health by preventing the rising cost of health care. It also enhances health equity by addressing the growing mental health epidemic and attracting wellness professionals to the community. It also helps the protection of natural and cultural assets and environmental protection and enhances culture and local heritage. Wellness also supports workforce development and workers' well-being, thus

improving the quality of life and social capital through urban and community planning and infrastructure. People's lifestyles, behaviour, health outcomes and longevity are destined mainly by social and environmental aspects beyond the reach of health systems. Expanding the wellness sector can help fight the growing global health epidemic and develop public health and the health systems' financial sustainability (GWI, 2021).

The Portuguese National Strategic Plan of Tourism highlighted the importance of developing and diversifying tourism offerings and using a joint promotion of medical and tourism aspects with medical, thermal, spa and thalassotherapy. Using naturally heated thermal pools or relaxing therapeutic treatments is an important resource in some Portuguese regions as a tourist experience. In the northern and Centre of Portugal, tourists can be involved in an atmosphere of tranquillity in a setting of incomparable beauty and energising body, mind, and spirit. They can also benefit from the preventive characteristics of mineral waters (Liberato et al., 2021). In the Thermal spas, users can benefit from wellness and tourism activities. Thermal tourism offers health and well-being services to individuals and society and has substantial economic importance in any country or region, like Portugal.

Tourism is one of the potential sectors of the global economy, with a positive trend in recent years. This is also a fundamental economic activity for generating wealth and employment in Portugal but it was negatively affected by the covid-19 pandemic (Estatísticas do Turismo, 2020). Different studies show that tourism-related experiences lead people to positive psychological and physical states improving the sense of well-being, happiness, quality of life and satisfaction with life in general. Thermal and health and wellness tourism has a strong position in terms of the gradual growth rates concerning both the number of tourists and the economic benefits in the leisure and relaxation-oriented side through the need for treatments in classical thermalism (Brandão et al., 2021). Based on the supply side, an essential amount of demand has appeared in the spa and wellness sector, both domestic and international, due to the new propensity of tourism (Csapó & Marton, 2017). So, it can be said that the tourism sector has strategic importance for any future national or regional economy (Estevão & Ferreira, 2012) as well as Portugal.

1.4. MOTIVATIONS FOR THERMAL TOURISM

People can travel for multiple reasons, such as religious, sport, cultural, and professional, associated with physical and mental well-being. In the context of thermal tourism, the importance of ascertaining travellers' motivation to improve their quality of life through vacation activities has been emphasised (Hsu et al., 2007). Motivation narrates psychological or biological needs and wants, including internal forces that stir up, direct and integrate an individual's behaviour (Yoon & Uysal, 2005). As a comprehensive concept for medical and wellness tourism, health tourism is a branch of tourism where the tourist's central motivation is to improve or maintain their health. In this case, during the stay, health tourism services or services are requested (Csapó & Marton, 2017). Kim (2017) stated that the motives for wellness tourism are related not only with self-development to attain personal growth or have learning experiences, relaxation, and escape, but also with factors that attract tourists to visit spas or have wellness tourism experiences, which include relaxation and relief, escape, self-reward and indulgence, health and beauty.

Only personal causes do not influence the tourists' motivations. They are influenced by the characteristics of the destinations that respond to the expectations and pleasure of potential visitors. The way the information is reached to the tourist and the way the tourist operates the information play a troublesome role in building the tourist's appreciation, which may vary from the actual attributes of the touristic offering. Business objectives should serve the tourist's pre-travel desires and maximise genuine travel contentment. Also, to enhance tourist satisfaction and destination loyalty, promoting the physical attributes of the destination with an accurate description of its characteristics and attractiveness for tourists is necessary (Chrobak et al., 2020).

There are internal and external motivation factors for health and wellness tourism. About the first, Azman and Chan (2010) stated that social and psychological needs, unique personal desires, attitudes connected to health and health perception, spa and wellness, escape or getting out of routine, rejuvenation, and relaxation. Then, as external factors, various goals or social relationships, where changes in the external environment can activate motivation. Azman and Chan (2010) added that some wellness tourism activities are connected to beauty therapy experiences, massage, relaxation or energy-balancing classes, art, music, and understanding of nature. So, this idea allows concluding that the link between tourism and health is reducing and that tourism is more related to personal experiences and satisfaction. Note that aged people are the main tourists seeking health and spa services, followed by immensely health-conscious professionals who maintain a healthy lifestyle (Azman & Chan, 2010).

In summary, there are several reasons why people are motivated by tourism related to well-being or thermal tourism. Regarding the Portuguese thermal tourists, the main motivations seem to be stress relief and relaxation and improving physical health (Brandão et al., 2021).

1.5. THERMAL TOURISM AND THE EFFECTS OF THE COVID-19 PANDEMIC

The COVID-19 pandemic has greatly impacted travel and tourism (Lew et al., 2020), but also have affected other industries indirectly linked to tourism, such as transport, fuel, accommodation, and restaurants (Navarrete & Shaw, 2021). The widespread crisis had a lot of different impacts on companies, businesses and people. COVID-19 affected the economy and people's physical and mental health (Ma et al., 2021). Taking into account the restrictive measures imposed by governments to control and fight COVID-19, which have gone through blockades and restrictions on travel both locally and abroad (Abbaspour et al., 2021), tourism decreased to shallow levels in that period.

Ma et al. (2021) explain that the tourism industry should introduce alternative products focusing on travellers' well-being, such as "healing tourism", as an opportunity to achieve mental comfort through travel. This makes perfect sense in the post-pandemic. The tourism industry must offer recovery plans that focus mostly on mental healing.

2. METHODOLOGY

This study aims to understand the evolution of thermal tourism in Portugal, mainly by analysing the number of registered users and the persons employed in spas. The study will also examine the number of foreign thermal tourists (users) to understand the difference between the Portuguese and Foreigners.

To conduct this study, data used for the analyses were collected from Estatística de Recursos Hidrogeológicos e Geotérmicos on the Direção Geral de Economia e Geologia (DGEG) website. The data collected refer to the period between 2012 and 2020, although there are some missing data in the first years. The analysis follows with descriptive analysis and intends to give a general overview of this sector.

3. RESULTS AND DISCUSSIONS

This part will present the results of the data that were analysed to understand the evolution of Portuguese thermalism. The investigation analyses the classical and wellness sectors of Portuguese thermal spas and the distribution of acquisitions by age groups in the case of both classical and wellness thermal spas. Then, it follows with the evidence of foreign thermal frequency to understand the difference in the frequency of thermal users by Portuguese people and foreigners. Moreover, this study shows different personnel affected by the thermal in the case of adequate personnel and temporary staff.

Figure 1 and 2, together, represents the evolution of thermal frequency in Portugal from the year 2000 to 2020. The first figure represents the number of users, and the second illustrates the earnings from the registers.

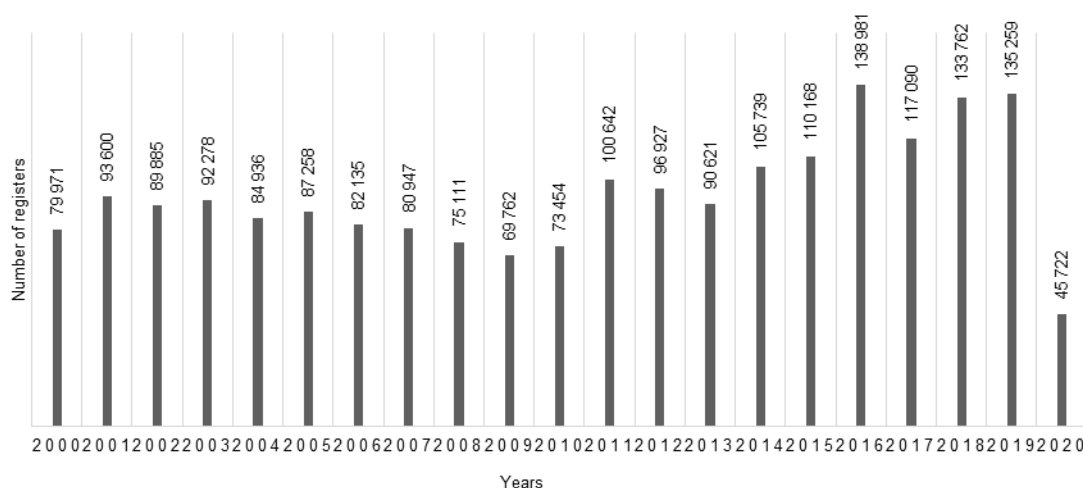


Figure 1 – Evolution of Thermal Frequency (number of registers)

Source: Own elaboration

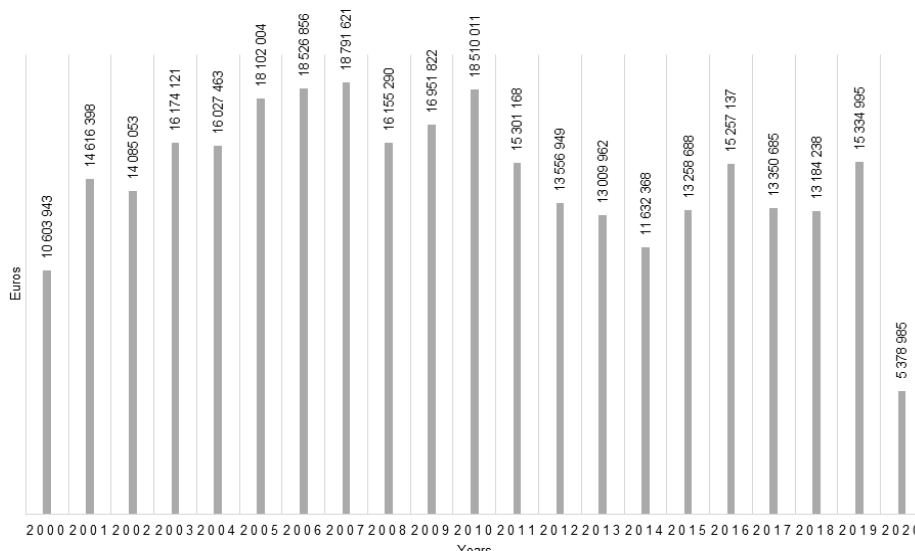


Figure 2 – Evolution of thermal frequency (total earnings)

Source: Own elaboration

Here we notice that from 2000 till 2020, Portugal had the highest number of registers in 2016, which was about 138,981 persons with a variation of approximately 26.15%. The earnings were 15,257,137 euros. In 2020, the lowest number of registers was 45,722, with a variation of -66.20%, and the earnings were 5,378,985 euros. These numbers seem to be related to the negative impact of COVID-19. In 2007, the highest amount of euros was earned, amounting to 18,791,621 euros with a variation of 1,43%. The second highest earnings were in 2006, with an amount of 18,526,856 euros, while this year, the number of users was 80,947. The third highest earnings were in 2010, with 18,510,011 euros; this year, the number of users was 73,454. In 2020, the lowest amount of euros was earned, amounting to 5,378,985 euros with a variation of -64,90%.

It is noticeable that in 2020, both the number of registers and earnings both decreased drastically and were the lowest than in any other year, and it can be anticipated that this negative impact was due to the pandemic resulting from covid 19.

Figure 3 shows the effective personnel working on all Portuguese Thermal spas in 2019 and 2020. Here the effective personnel section was categorised by sex - male and female. In 2019, we can see the personnel working on the thermal spas were 133 males and 278 females. In the following year, we noticed that the personnel working in thermal spas was 127 men and 260 women.

It is noticeable in both the years that female staff is in a more significant number than the male personnel. The difference seen here is easily perceptible.

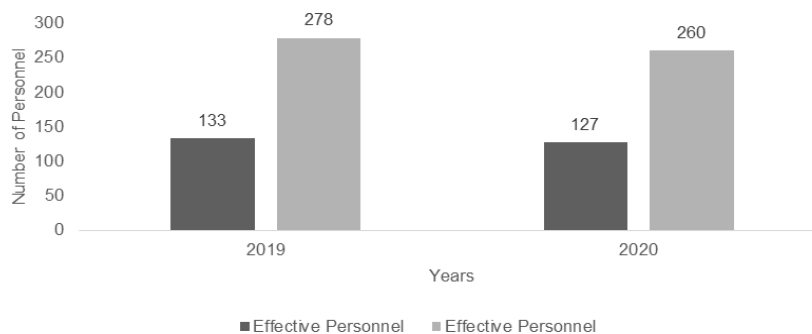


Figure 3 – Effective personnel in Portuguese thermal spas

Source: Own elaboration

Figure 4 shows the temporary staff used by the thermal in 2019 and 2020. Here the staff was also categorised by sex - male and female. In 2019, the temporary personnel working in thermal spas was 128, in the case of males and 461, in the case of females. In 2020, we noticed the temporary personnel affected by the thermal was 90 in the case of males and 283 in the case of females. Therefore, because there is a higher decrease, the temporary female workers were more affected than the temporary male personnel were.

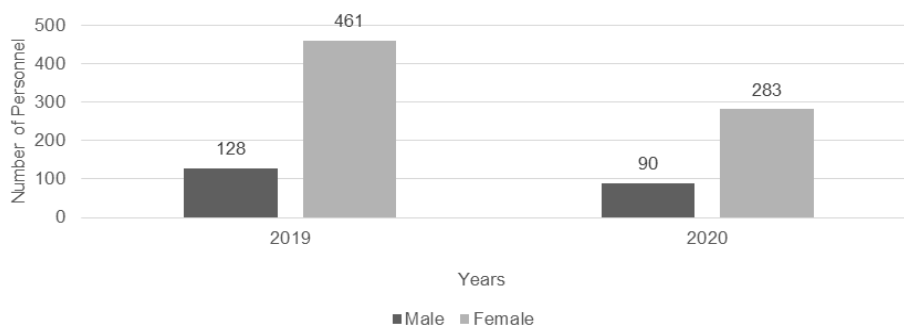


Figure 4 – Temporary staff in Portuguese thermal spas
Source: Own elaboration

In Figure 5, we analysed the Thermal Frequency of both Classical and Wellness Thermalism. The data collected are from the years 2012 to 2020.

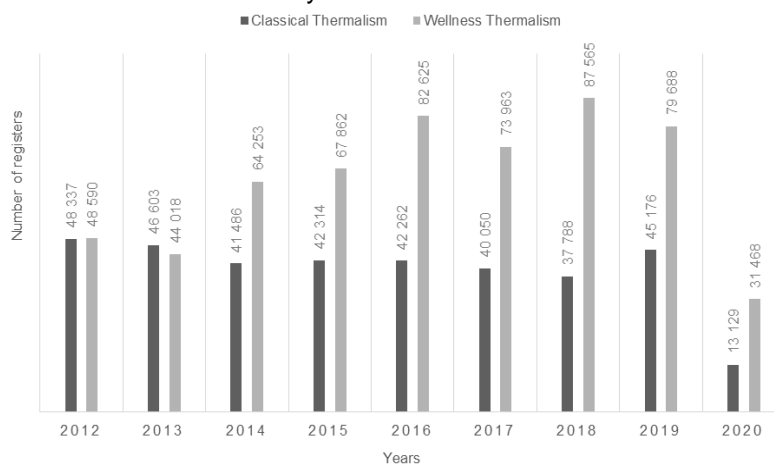


Figure 5 – Thermal Frequency (Number of Registers in classical and wellness thermalism)
Source: Own elaboration

We conclude from the analysis that in 2012 the number of registers in the classical thermal spas was 48,337, and in wellness thermalism, is 48,590 - a total of 96,927 users. In 2016 the number of registers in the classical thermal spas was 42,262, and wellness thermal spas were 82,625, a total of 124,887 users, with a considerable increase in the number of registers than the previous years. In 2018 the number of registers in the classical thermal spa was 37,788, and in wellness thermal spa, 87,565, a total of 125,353 users, representing the highest number of records from 2012 to 2020. In 2020 the number of registers in the classical thermal spa was 13,129, and in wellness thermal spa was 31,468, a total of 44,597 users, representing the lowest number of records.

In 2018 classical and wellness thermalism jointly had the highest number of records and, in 2020, had the lowest total registers. In the period of available data, in 2012, the classical thermal spa had the highest number of registers, and in 2020 had the lowest number. In 2018 wellness thermal spa had the highest registers, and in 2020 has the lowest records. From the figure above, we notice that the number of registers in both types of thermalism decreased remarkably in 2020 - more remarkably than in any other year. It is assumed that it happened due to the adverse effects of the Covid 19 pandemic.

In Figure 6, we analysed the total earnings of classical and wellness thermalism from 2012 until 2020.

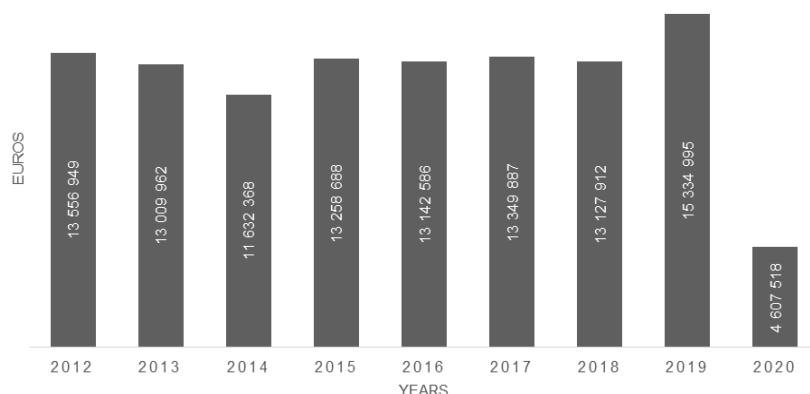


Figure 6 – Thermal frequency (total earnings of classical and wellness thermalism)
Source: Own elaboration

We conclude from the analysis that in 2012 the total earnings from classical and wellness thermalism was 13,556,949 euros. In 2013 the revenues were 13,009,962 euros, a slight decrease from the previous year. In 2014 the earnings decreased more to 11,632,368 than in 2013. In 2015 the earnings again increased, which was 13,258,688 euros. In the following year, both thermals faced a small decrease again, amounting to 13,142,586 euros which grew in the next year, 2017, to 13,349,887 euros. In 2018 the total earnings were 13,127,912 euros. The following year in 2019, the highest earnings were received, increasing to 15,334,995 in 2018. 2020 presents the lowest earnings, with a value of 4,607,518 euros, a massive decrease from 2019. It is anticipated that a considerable decrease in 2020 will happen due to the pandemic caused by covid 19.

In Figure 7, the distribution of registers by age groups in classical thermalism was analysed. Based on the available data from 2014 to 2020, the people were divided from below 15 to over 75 years old into seven categories according to their ages.

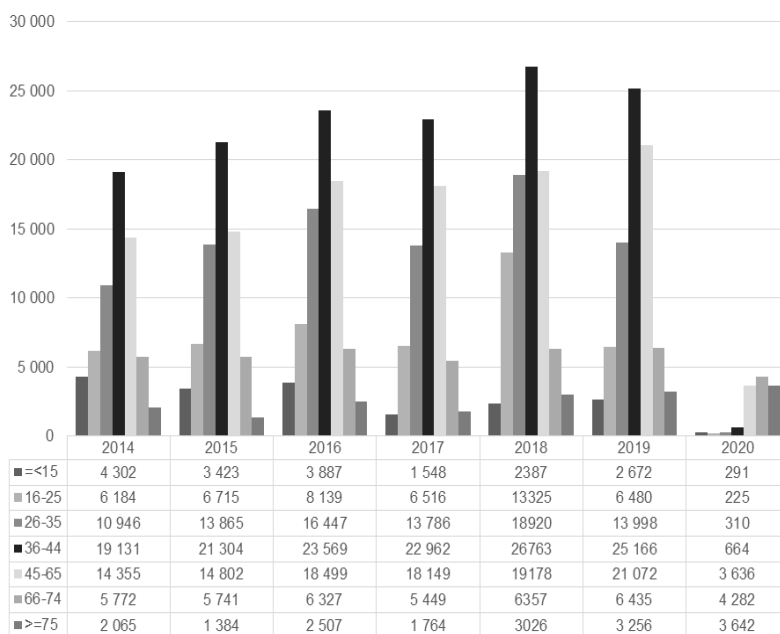


Figure 7 – Classical thermalism by age groups
Source: Own elaboration

From the analysis in 2014, it is possible to figure out that the highest value is from 19,131 persons between 36 to 44 years old, representing nearly 30% of the sample. Then, people aged between 45 to 65 years old rank second with a value of 14,355. People aged between 26 to 35 years old rank third with a value of 10,946, and those aged 75 or more have the lowest registers in classical thermal with 2,065. Then in the next five years, the registers increased and

sometimes decreased with a little difference and then increased. But in 2020, we noticed drastically reduce in the records from the people of all the categories. Among the years from 2014 to 2020, in 2018, we observe that people aged 36 to 44 have the highest registers with 26,763 users, which in the next year decreases to 25,166 users and in 2020 have the lowest registers from this category, people with only 664 users. This year people aged between 66 to 74 years old have the highest records, with 4,282.

Looking at the figure, we can easily understand that from 2014 to 2019, people aged between 36 to 44 years old used classical thermal more than any other category. People aged 75 or older used classical thermal the least than any other category users.

In 2020 the scenario was different. People aged between 66 to 74 used the classical thermals the highest with 4,282 registers, and people aged between 16 to 25 used the classical thermal the least times, having only 225 records. This year the registers from people ages 36 to 44 years old decreased remarkably from any other year. And the registers between 66 to 74 years old increased this year more than any other year. This falling down is anticipated because of the pandemic caused by the covid 19.

In Figure 8, the distribution of registers by age groups in Wellness thermalism was analysed using the data available from 2014 to 2020. For the convenience of the analysis, people are divided by age from below 15 to more than 75 into seven different categories.

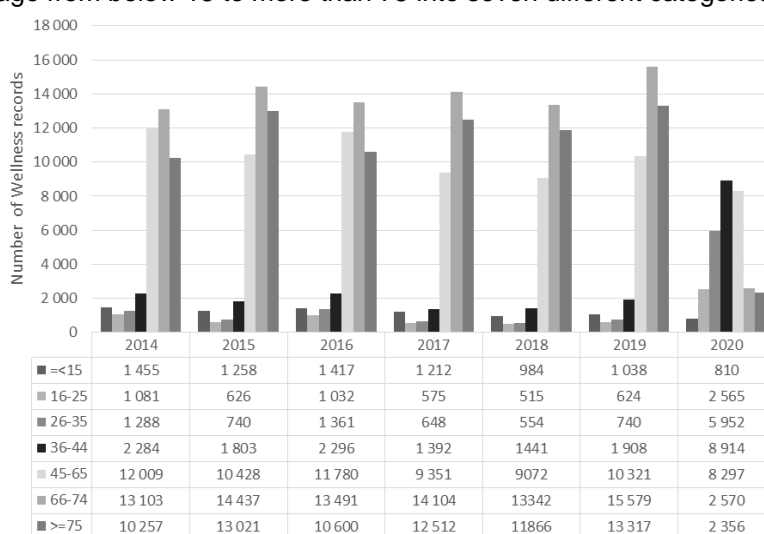


Figure 8 – Wellness thermalism by age groups
Source: Own elaboration

In 2014, there were 10,103 users between the ages of 66 to 74 years old who used wellness thermalism, resulting in the highest number of registers. In the same year, wellness thermal was used by 12,009 users aged between 45 to 65 years old, 10,257 users who have 75 or more years old, 2,284 users between the ages of 36 to 44 years old, 1,288 users between the ages of 26 to 35 years old, 1,081 people between the ages of 16 to 25 years old and 1,455 people who are 15 or fewer years old. This year people aged between 16 to 25 used wellness thermal the least.

The registers show almost the same figures in the next five years with little increase or decrease. But in 2020, we noticed a drastic reduction in the records of all the categories. This year people aged between 36 to 44 years old have the highest registers with 8,914 registers. Among the years from 2014 to 2020, in 2019, we observe that people aged 66 to 74 have the highest registers with 15,579 registers, which decreases to only 2,570 users in the next year—in 2020, wellness thermalism had the lowest records from people aged 15 or fewer years old, with only 810 registers. Looking at the figure, we can understand that from 2014 to 2019, people aged between 66 to 74 used the wellness thermal more than any other category. People aged 16 to 25 used the wellness thermal the least times than any other category users. In 2020 the scenario was different. While 8,914 registers aged between 36 and 44 years old used the wellness thermals, only 810 registers aged 15 or less used the wellness thermal the least. This year the registers from people ages 66 to 74 decreased remarkably more than in any other year. And the records between 36 to 44 years old also increased this year more than any other year.

Figure 9 shows the foreign thermal frequency with data collected from 2012 to 2020.

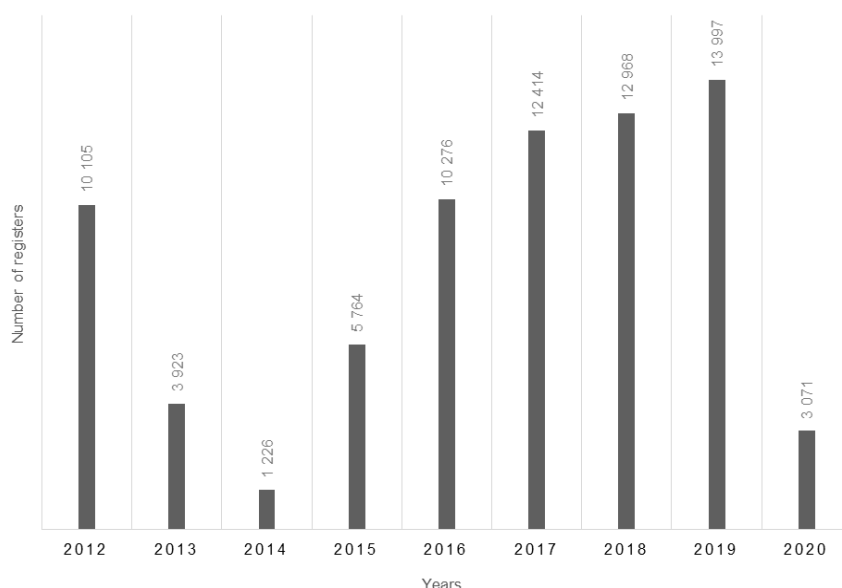


Figure 9 – Foreign Thermal Frequency
Source: Own elaboration

In 2012 the number of foreign registers was 10,105. In the following year, these registers decreased a lot to 3,923, which is one-third of the previous year. As a result of the continuous decrease in 2014, the number of registers was only 1,226, which is one-third of the last year. In 2015 the number of registers increased to 5,764, five times more than in 2014. Then, in 2016, the number of registers was 10,276 - an increase almost doubled the previous year. In the following years until 2019, foreign thermal has increased in registers. As a result, in 2017, the number of foreign records was 12,414, that increased to 12,968 in the following year. In 2019 the number of foreigners registered was 13,997, the highest. The number of registers decreased in 2020 to 3,071, three-fourths of the previous year. It is noticeable that 2019 foreign thermalism had the highest number of foreigner registers, and 2014 had the lowest number of records.

Figure 10 shows the difference between the number of registers in foreign and Portuguese thermal users with the data collected from 2012 to 2020.

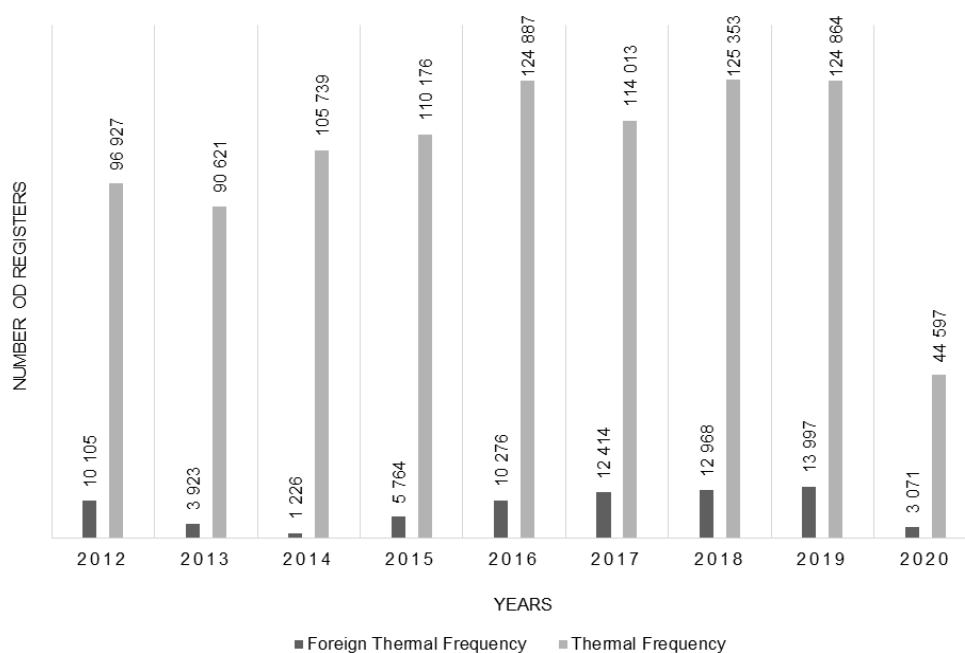


Figure 10 – Foreign and Portuguese number of registers
Source: Own elaboration

From Figure 10, we can conclude that in 2012, the number of registers in Portuguese thermal spas was 96,927, and those in foreign thermal were 10,105 users. In 2013, the number of registers in Portuguese thermal was 90,621 and the number of registers in foreign thermal was 3,923 users. In 2014, the number of records in Portuguese thermal was 105,739, and the number of foreign thermal registers in foreign thermal was 1,226. In 2015, the number of registers in Portuguese thermal was 110,176, and the number of registers in foreign thermal was 5,764. In 2016, the number of registers in Portuguese thermal was 124,887, and the number of registers in foreign thermal was 10,276 users. In 2017, the number of registers in Portuguese thermal was 114,013, and the number of Registers in foreign thermal was 12,414 users. In 2018, the number of registers in Portuguese thermal was 125,353, and the number of registers in foreign thermal was 12,968. In 2019, the number of registers in Portuguese thermal was 124,864, and the number of registers in foreign thermal was 13,997. In 2020, it was the period of the pandemic of Covid 19. During this year, the number of records in both the thermals faced a considerable decrease, and the number of registers in Portuguese thermal spas was 44,597, which was one-third of the previous year, and the number of records in foreign thermal was 3,071, which was almost one-fourth of the last year.

Here it is easily noticeable from the figure that the number of registers in Portuguese users always has a higher value between the Portuguese and the foreign thermal users.

4. CONCLUSION

Thermalism is associated with individuals improving their well-being and quality of life. It can also contribute to any country's economy, especially in highly privileged countries like Portugal. There are many reasons for tourists going to thermalism, which can be related to stress relief, relaxation, and improving physical health. Psychological and physical well-being are important reasons tourists decide to use thermals. This study aims to analyse the evolution of thermalism, the frequencies of thermals in Portugal, and the personnel working on thermal and foreign thermalism.

This study analysed the evolution of thermal frequency, showing that the demand for thermal tourism is increasing annually, except for the COVID-19 year. It was found that among the effective and temporary staff, female staff were affected by the thermal more than the male personnel. Females are more affected by poor indoor environmental quality than males. Women are also more sensitive to departures from an ideal comfort setting and are more troublesome with the indoor thermal temperature.

In Portugal, classical thermalism is more popular than wellness thermalism. The country's young generation prefers to receive classical thermal more than wellness thermal. And among people of different ages, people between 36 to 44 years old used the classical thermal more, while those between 66 to 74 years old preferred to receive wellness thermal more. Though in 2020, Portuguese thermal was significantly affected, resulting in fewer registers and fewer earnings. But analysing the results obtained from the other years, the thermal tourism industry in Portugal seems to go on the right track and presents opportunities for the country's economic development.

In the development of this research study, some limitations were found. The data that were collected for the analysis is very limited in the case of the years. The data sample needed to be wider to understand the results better. For future research, it can be proposed to understand the factors that can affect the number of registers and revenues of classical and wellness thermal spas.

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