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Water, health and well-being, and tourism: analysis of a triangular relationship in Portugal

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ABSTRACT

The relationship between water, health, and well-being has been a topic of interest since ancient times. When combined with tourism, the term health and well-being tourism is often applied, but this relationship is more complex. Water in its various forms, such as oceans, seas, rivers, and reservoirs, provides a basis for activities that positively impact human physical and mental health. This concept of blue tourism emerged, aiming to assess whether people's relationship with water and its impacts on their health and well-being constitute tourist attraction factors and if these can be monetised through the development of blue spaces. A survey was conducted, obtaining 2930 valid responses, to assess the relationship between proximity and contact with water and the health and well-being of individuals. The data collected revealed that the presence of water in visited areas influences the type of activities undertaken, and there is a strong conviction that blue spaces positively impact health and mental well-being. This empirical study reinforces the theoretical construction around blue tourism and blue space, providing information for planning and developing tourism in blue spaces based on this intense, multidimensional relationship between water, health, and well-being.

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Water; health and well-being; blue tourism; blue space

Introduction

Blue spaces are water-based areas that positively impact human health and well-being, as indicated by the results of studies by numerous researchers from various scientific areas, all with a focus on residents (Ashbullby et al., 2013; Foley & Kistemman, 2015; White et al., 2020, 2021). However, there is no research that extrapolates the conclusions drawn from the residential perspective to tourism; the intention of this article is to contribute to filling that gap.

Based on the assumption that areas that are good to live in will also be good to visit, it can be posited that the salutogenic effects of blue spaces on residents may extend to visitors, and although they are subject to them for shorter periods, this will occur with greater intensity, as in leisure time, particularly on holiday, there may be greater availability for and intentionality in this exposure, making greater use and gaining greater benefit from these territorial resources.

On the other hand, from a touristic point of view, water is a factor of attraction for destinations, not only because of its very presence and the activities it accommodates, but because of the landscape and climatic characteristics of the surrounding areas. It constitutes a differentiating element, pondered by many in the decision-making process about a destination for a holiday or to visit. This preference is corroborated by tourist demand figures for coastal and other areas with water, in one or more of its various forms (sea, ocean, river, lake, reservoir, etc.). In Portugal in 2022 for example, 83.7% of total overnight stays were concentrated in coastal areas (INE, 2023), and although there is no information on the demand for other areas with water, the facts point to a high demand for river beaches and other aquatic resources.

This tourist demand for blue spaces is stimulated by natural elements, the activities associated with them and the perception, albeit often unconscious, that they are healthy areas which positively affect health and well-being. This forms the basis of the concept of blue tourism, defined as all tourist practices (both more and less conventional) carried out on or in water and in areas adjacent to it that promote health and well-being, the practice of which is guided by sustainability.

In short, due to the profile of blue spaces, they are the natural setting for developing blue tourism. Due to its characteristics, this product can constitute a path towards sustainable development in these areas and

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contribute to high-quality tourist experiences and high-quality living conditions for the resident population. The positioning of these destinations and this product depend largely on the existence of a tourism development strategy that sustainably values and monetises their aquatic resources, and on the construction of a collective awareness about the salutogenic effects, inducing informed demand. In order to do this, it is necessary to produce knowledge that guides supply and demand behaviour, which is one of the aims of this research. To this end, the intention of this article is to determine the influence of the presence of water on the choice of places to visit and its (water's) impact on health and well-being.

Literature review

Blue tourism: the triangular relationship between water, tourism, and health and well-being

Our journey into this concept begins by clarifying the concepts of health and well-being, to gain a greater understanding of their relationship with water and the guiding concept of this research: blue tourism. Health is defined in the Constitution of the World Health Organization (WHO) as a 'state of complete physical, mental and social well-being and not simply the absence of disease' (WHO, 1948, p. 1). This definition presupposes that health initiatives should not only be aimed at controlling symptoms, reducing mortality or increasing life expectancy, but also at enhancing well-being and quality of life (WHO, 1948). In 1984, the WHO decided to revisit the concept and advanced the view that health is a positive concept, which should be translated into the capacity of the individual or group to realise aspirations, satisfy needs and interact with the environment, and should be perceived as an everyday resource and not as a life goal (WHO, 1984). In turn, well-being has been a philosophical and sociological concern since the beginning of time, and has been the subject of research by sciences such as psychology, health sciences or economics. In recent decades, the field of tourism has also focused its attention on these themes, from a theoretical, methodological and practical perspective (Yu et al., 2021). Indeed, the acceptance and internalisation of this concept, as well as being evidenced in values, attitudes and behaviours, have currently culminated in a cult of the body and mind in which new paths to well-being and health are sought, which returns to the concept of wellness.

The concept of wellness (the term was born from the combination of the terms 'well-being' introduced by the WHO in its definition of health (WHO, 1948, p. 1) and 'fitness', introduced in the 1950s by the Sport for All movement) (Nahrstedt, 1999), was referred to by Dunn in 1959, when he wrote about a special state of health that was reflected in a person's total well-being, made up of body and mind and dependent on the surrounding environment (Dunn, 1959), becoming a philosophy of life. This concept has been worked on by countless authors and has evolved over time. Travis (1984), who highlighted its dynamic aspect – defining it as a state, an attitude and a process of evolution, and not as a static process – considered the existence of different degrees of well-being, as is the case with illness. In turn, Ardell (1986) perceived it as a state of health resulting from harmony between body and mind, achieved through self-reliance, care for physical appearance and condition, a healthy diet, relaxation and meditation (to combat stress), mental activity and education, environmental sensitivity and social contact. In addition, there are countless other definitions, all of which have some aspects in common: the importance of lifestyle, responsibility for one's own health, the multiple paths to health and the potential for better quality of life.

Despite this awareness of the etymological roots of the word and the evolution of this concept, it must be remembered that the concept of wellness is difficult to define, due to its dynamic nature and the need for social context (Voigt, 2014). Even so, the definition of the Global Wellness Institute (GWI) (2024, p. 5), which defines wellness as 'the active pursuit of activities, choices, and lifestyles that lead to a state of holistic health' is regarded as consensual. This definition emphasises well-being as resulting from an active personal search, associated with each person's intentions, choices and actions. Each of us is responsible for our own choices, behaviours and lifestyles, although these may be significantly influenced by physical, social and social environments and the cultures of which we are part. On the other hand, it also highlights that well-being arises from holistic health; that is, it includes physical, mental, emotional, spiritual, social and environmental dimensions (GWI, 2024, p. 5). Thus, activities carried out in the context of wellness aim to contribute to bringing about the holistic conception of health: to keep the body and mind healthy; to shape and/or reorient lifestyles; and to view the subject as a whole and not with the exclusive concern of resolving disease. A state of balance of body, spirit and mind should be sought, achieved through multiple means of care, which may involve aesthetics, healthy nutrition, education, relaxation and mental activity (Messerli & Oyama, 2004). Thus, in a broad sense, all practices associated with leisure as well as tourism (the latter perceived as leisure outside of everyday leisure activities) can be

framed within the concept of wellness, as they can have positive impacts on health as a holistic concept.

In this equation between water, in its various forms (oceans, seas, rivers, etc.), and the countless activities it facilitates, as well as in the areas adjacent to it, the question may arise of whether this contribution has been maximised, given the proven positive relationship between water and health (Campón-Cerro et al., 2020; Folgado-Fernández et al., 2019; Grellier et al., 2017; Nichols, 2014). Evidence from the distant past points in this direction, as does recent and current research.

In fact, water has an ancestral relationship with health and well-being. In ancient Greece, pilgrims and patients from the Mediterranean travelled to the sanctuary of Asklēpiós (the Greek and Roman god of medicine and healing), in Epidaurus. It was also in Greece that the first hydromineral resorts appeared. Famous poets such as Homer, Euripides or Pindar praised the properties of water, and the first inns were built to respond to the needs of those who sought healing through water, as well as the 'summer retreats' of the aristocracy. At the height of the Roman Empire, Roman aristocrats escaped the overcrowded cities and relocated to coastal cities to take the waters. Thalassotherapy dates back to 500 BC, when the first spas in recorded history appeared. In these baths, the Romans fulfilled the philosophical ideal: '*Mens sana in corpore sano*', purifying their bodies in the bathing rooms and with physical exercise, and nourishing their spirit in libraries and areas dedicated to gatherings, readings and debates (Ignarra, 2003 cited in Brito, 2015, p. 205).

Equally ancient is the relationship between water, health and well-being in the context of tourism. The practice of bathing between the eighteenth and mid-twentieth centuries was spurred by a search for a cure for diseases or as a health precaution. Therapeutic issues were at the root of the use of seawater in some European countries (England, Belgium, Germany), based on the assumption that they had characteristics similar to those of some thermal springs located inland. One of the pioneers of these theories related to the usefulness of sea water for therapeutic effects was Dr Richard Russell, who in his 1753 work *The Use of Sea Water*, endorsed the use of sea water to treat various diseases. William Buchan also furthered this trend with his book *Domestic Medicine*, written in 1769, advocating winter sea bathing as more effective. His recommendations had a great impact on society at the time and led many people to the sea to reap the benefits of its water (Gouveia, 2022).

In the nineteenth century, Ramalho Ortigão, a Portuguese writer and journalist, wrote a book, *As Praias de Portugal – Guia do Banhista e do Viajante* (The Beaches of Portugal – A Guide for Bathers and Travellers), in which he describes bathing practices on the Portuguese coast, focusing on the natural characteristics of the beaches and their waters. It encompasses the social, cultural and historical dimensions, but also refers to the maritime treatments sought by visitors in these coastal areas. Based on the French dictionary of medical hydrology by Durand-Fardel and Le Bret, Ortigão claims that this demand is motivated by three factors: (1) the maritime atmosphere, or the sea air, which impacts health at the level of the digestive, respiratory and nervous systems, and which is particularly favourable for children, albeit under certain conditions; (2) sea water as a drink, due to its rich chemical composition, a practice rarely recommended by Portuguese doctors; and (3) bathing, with its dual hygienic and therapeutic functions. In addition to these dimensions, the therapeutic aspect may also include sand bathing and eating seafood, all of which are associated with healthy lifestyle habits, particularly with regard to diet and physical activity. It should also be noted that the author further emphasises the benefits associated with bathing in rivers, more easily accessible for some than bathing in the sea, although less often embraced; Ortigão advised the councils of rural municipalities to create facilities for this purpose, after consulting local doctors about its hydrotherapeutic function (Ortigão, 2014).

The historian António Quaresma, in his book *O turismo no litoral alentejano – do início aos anos 60 do século XX. O Exemplo de Milfontes* (Tourism on the Alentejo Coast – from its beginnings to the 1960s. The Example of Milfontes), refers to beaches in these areas being used from the first half of the nineteenth century, as the practice of thalassotherapy spread in association with new naturalistic concepts applied to medicine. Visits to the beach, in particular saltwater baths, were initially only made for prophylactic and therapeutic purposes, but later it became a place for the municipality's elite to socialise (Quaresma, 2003).

The practice of therapeutic bathing, which preceded that for leisure, steadily established itself despite a hesitant start, and gained followers among the opinion leaders of the time, who consequently influenced the rest of the highest social strata of society. In addition to its sociological relevance, it is worth highlighting how this portrait of the time demonstrates a search for certain coastal areas for reasons of health and well-being, whether for replenishment or as a health precaution.

More recently, studies in different scientific areas have shown that ocean sounds activate the prefrontal cortex, an area of the brain associated with emotion and self-reflection (in addition to other functions);

these sounds also generate molecular changes that accelerate our body's ability to absorb oxygen, increase the level of serotonin (a chemical substance known as the happiness molecule, related to mood, well-being and sleep) and decrease the level of cortisol (a hormone directly related to the body's stress response). In other words, there is a succession of chemical changes in the human body caused by seeing and hearing the ocean which contribute to health and well-being (Grellier et al., 2017; Nichols, 2014). The aromas associated with the ocean – sea air, evoking memories of childhood or past holidays – can also be added to the above-mentioned stimuli, as sensing water, particularly the ocean but not only, with various senses can be a synesthetic experience (Brito & Silveira, 2023a).

As concerns tourism, the relationship between water, health, and well-being is, as a rule, referred to as health and well-being tourism, and is related to thermal baths and spas, and the innumerable treatments associated with them (crenotherapy, hydrotherapy, thalassotherapy, etc.) (Smith & Puczkó, 2014, 2018). However, while this tourist product and its contribution to the development of tourism in certain areas are not undervalued, it is considered that this relationship can be intensified and made more multifaceted. The impacts of water on health and well-being within the scope of tourist practices may, directly or indirectly, result from all the activities that can be undertaken on or in water (in any of its forms) and in areas adjacent to it. Furthermore, these impacts are considered to outweigh those caused by contact with and/or ingestion of water, and may result from a set of multisensory experiences that appeal to all the senses, benefitting from factors such as its aroma and visual aspect, thus favouring physical, mental, emotional, spiritual, social and environmental health and well-being, thus returning to the concept of wellness.

The concept of blue tourism emerges from these lessons in conjunction with evidence from the past and present; it comprises all tourist practices undertaken in aquatic environments and adjacent areas and which intrinsically involve the concept of wellness; that is, they contribute to health and well-being, with their planning and development being based on a model of sustainability (Brito & Silveira, 2023a, 2023b). Blue tourism is the outcome of a triangular relationship between water, tourism, and health and well-being and combines a set of multisensory experiences and activities to increase the attractiveness of an area and ensure its sustainable development. This process takes place in areas which have water as a central feature, with proven positive effects on residents' health and well-being (Ashbullby et al., 2013; Foley & Kistemman, 2015; Gascon et al., 2017; Hooyberg et al., 2020; Jarvis et al., 2020; Mishra et al., 2023; Vert et al., 2020; Völker & Kistemann, 2011; White et al., 2020, 2021). These effects can be extended to visitors; their exposure time may be shorter, but the intensity can be greater when their visits are guided by this objective (Brito & Silveira, 2023a). These areas, the so-called blue spaces, consist of both coastal and inland regions with aquatic features (rivers, lakes, reservoirs and streams, etc.), and the assumption is that they are not only good to live in, but equally good to visit (Brito & Silveira, 2023a, 2023b).

Methodology

A literature review was carried out with the focus on the concepts of blue tourism, blue space, health and well-being, *per se* and on the relationship dictated by the present context. This theoretical framework supports the partial analysis of the results of an empirical study carried out on residents in Portugal.

This study was based on the assumption that water, in its various forms, promotes (positive) multisensory experiences in humans, that these experiences induce health and physical and mental well-being, and that this positive relationship with nature contributes to the attractiveness of blue spaces for residents and tourists. A questionnaire was therefore designed with the aim of: (1) examining the relationship between people and water in its various forms (sea, rivers, reservoirs, streams, natural pools, etc.); (2) analysing the role of aquatic features (sea, rivers, reservoirs, streams, natural pools) in motivations and decision-making about where to live and to go on holiday; (3) evaluating the effects of water on the health and well-being of people who reside in and visit areas where this resource is present in one or more forms. The questionnaire consisted of multiple-choice and single-choice questions, and was divided into five parts: (1) the role played by water in choosing a place of residence; (2) the role played by water in choosing locations to visit; (3) an examination of the relationship with water; (4) the impacts of water on health and well-being; and (5) the respondent profile. This questionnaire was applied via the LimeSurvey platform to residents in Portuguese territory (born in 2008 or before), with responses collected in a five-month period from 23 November 2022 to 26 April 2023. A total of 2930 valid responses was obtained, which constituted the sample for analysis.

The choice of a questionnaire survey (quantitative method) proved suitable for the objectives of the study: it is a technique that can be completed autonomously, which given the means of application was an

important characteristic; it is an instrument that allows measurable variables to be ascertained; and, above all, it allows processable information to be objectively collected from a large number of respondents. This was fundamental to the study, as even if the group of respondents was unpredictable, the intention was to achieve a high response rate (Freixo, 2009). Given the extensive target demographic, the questionnaire was identified as the most appropriate technique for gathering data on tourism metrics, a crucial instrument for understanding dynamics within sizable populations (Beaman et al., 2004). Surveys are effective at gauging public sentiments and perspectives, thus offering insights into trends and preferences in tourism (Ali et al., 2022). This survey utilised a non-probabilistic sampling approach and was distributed through social media with support from various public and private entities, including municipal offices, higher education institutions, and senior universities, which helped promote the survey tool to their staff and across their networks. The information generated by means of the questionnaire was introduced into SPSS (Statistical Package for the Social Sciences) and, based on the statistical treatment of the numerous variables, responses were compiled in order to achieve the objectives.

Discussion and results

Sample

The biographical data of the sample can be seen in Table 1, showing the sociodemographic profile of the respondents. They are mostly women aged 35 or over, with higher education, in employment with an average monthly income between €801 and €1200, married and part of households with more than three members. Geographically, the sample has representatives from all regions of mainland Portugal and the archipelagos of Madeira and the Azores.

The role played by water in choosing a place to visit and/or spend holidays

Respondents unequivocally opt for coastal areas to spend their holidays, as stated by 2118 respondents (75.5%) in their answer to this multiple-choice question (Table 2). This fact leads to the conclusion that the sea and adjacent areas have a strong power of attraction concerning decision-making about destinations for holidays and/or to visit.

In the last twelve months, the vast majority of respondents holidayed in or visited blue spaces, that is, areas where water is present, according to 92.8% of the 2912 individuals who provided information when answering this question. This fact is corroborated by the value of the frequency index (weighted average) which points to the overall predominance of the category Often (Table 3). Compared to the Always and Often categories, and compared to three regions where contact with water is predominantly intrinsic, namely the Azores and

Table 2. Typology of areas chosen for holidays

		N	%
Places to visit	Coastal areas	2118	**75.5**
	City centres	992	35.4
	Rural areas	881	31.4
	Islands	798	28.4
	Mountains	699	24.9
	Inland natural parks	618	22.0
	Coastal natural parks	547	19.5
	No. of answers	2805	
	No answer	125	
	Total respondents	2930	

Source: Created by the authors from the survey.

Table 1. Biographic data of respondents.

Biographic data								
Age groups (%)	NA	15–24 years old	25–34	35–44	45–54	55–64	65 years or older	
	0.3	6.2	8.0	23.0	38.9	20.0	3.7	
Gender (%)	NA	Male	Female	Other				
	0.5	33.2	66.1	0.1				
Education (%)	NA	Basic	Secondary	CTeSP[a]	Bachelor's	Master's/PhD		
	0.3	3.5	30.8	2.7	45.9	16.8		
Employment situation (%)	NA	Retired	Student	Domestic/Carer	Unemployed	Self-employed	Employee	
	0.7	1.4	5.9	0.1	0.6	2.8	88.4	
Monthly income (%)	NA	Not app.	Up to €800	€801–1200	€1201–1600	€1601–2000	€2001–3000	Over €3000
	3.4	5.7	19.8	33.5	22.4	8.9	5.1	1.3
Household members (%)	NA	One	Two	Three	Four	Five or more		
	0.3	14.1	22.4	28.7	28.9	5.6		
Marital status (%)	NA	Single	Married	Divorced/ Separated	De facto union	Widowed		
	0.3	24.3	48.3	11.2	14.8	1.2		
Region of residence (%)	NA	North	Centre	Lisbon	Alentejo	Algarve	Azores	Madeira
	0.3	16.9	27	12	21.5	13.5	7.1	1.7

[a]CTeSP = Higher educational professional courses.
Source: Created by the authors from the survey.

Table 3. Frequency of holidays in or visits to places with the presence of water in the last 12 months.

Frequency of holidays	N	%
Never	74	2.5
Rarely	137	4.7
Occasionally	638	**21.9**
Often	1351	**46.4**
Always	712	**24.5**
Total answers	2912	100.0
Don't know/No answer	18	0.6
Total respondents	2930	
Frequency index	3.9	

Source: Created by the authors from the survey.

Madeira archipelagos and the Algarve tourist region (a sun and sea destination), it turns out that the residents of these regions, despite already living in territories with these characteristics, even have slightly higher percentages than the residents of the other regions (Always 26.7% and Often 47.3%).

For the vast majority, the presence of water in the area is the determining factor when choosing destinations for a holiday and/or to visit, as can be seen in Table 4. The influence index (weighted average) is 4.2, which reinforces this conclusion.

Those who choose to visit or spend holidays in blue spaces mainly spend their leisure time walking and bathing (sunbathing and bathing in the sea) (Table 5). However, the number of responses in the remaining categories leads to the conclusion that, with regard to the practice of activities, the respondents engage with the full potential of these areas, albeit with different degrees of intensity.

Cross-analysis of the information in the above tables shows that water clearly plays an extremely important role in the choice of places to visit or for a holiday and that the activities carried out during this leisure time are also closely linked to it, whether in a direct relationship in the form of seaside activities or walking around the surrounding areas. The significance of the numbers corroborates one of the guiding assumptions of this study, that the presence of water contributes to making blue spaces attractive to tourists.

Table 5. Activities carried out during visits to areas where water is present (adapted from Elliott, 2017).

Activities		N	%
What are your typical activities in these visits?	Going for a walk	2286	**81.5**
	Sunbathing/Seaside activities	1941	**69.2**
	Bathing/Swimming	1532	**54.6**
	Socializing	1077	38.4
	Visiting a natural or cultural attraction	1053	37.5
	Walking/Hiking	1043	37.2
	Eating or drinking/Picnics	857	30.6
	Calm activities/Relaxation	782	27.9
	Playing with children	778	27.7
	Enjoying the scenery from the car	676	24.1
	Boat trips	388	13.8
	Watching wildlife	308	11.0
	Walking pets	284	10.1
	Trips in tourist sea boats	284	10.1
	Group games and sport	235	8.4
	Running	211	7.5
	Adventure sports	190	6.8
	Paddling (rowing)	186	6.6
	Recreational diving	152	5.4
	Fishing	125	4.5
	Water sports	117	4.2
	Cycling	109	3.9
	Environmental activities	96	3.4
	Catching seafood	76	2.7
	Hunting	16	0.6
	Horse riding	15	0.5
	Golf	4	0.1

Source: Created by the authors from the survey.

The impact of water on health and well-being

The vast majority of respondents either totally or partially consider that visiting places where water is present contributes to their health and well-being (94.9%), while 67.4% have no doubt about this impact and fully consider this to be the case. The agreement index value is 4.6, corroborating respondents' high degree of agreement with this fact (Table 6).

One multiple choice question responded to the need for more detailed analysis of the way in which water contributes to health and well-being; respondents stated that when visiting places where water is present, the impacts of water on health and well-being are mainly

Table 4. The influence of the presence of water in the area on the choice of holiday destination.

Influence of water	N	%
No, never	60	2.1
Rarely	68	2.4
Indifferent/Irrelevant	170	5.9
Partly/Sometimes	1627	**5.3**
Yes, always	964	**33.4**
Total answers	2889	100.0
No answer	41	1.4
Total respondents	2930	
Frequency index	4.2	

Source: Created by the authors from the survey.

Table 6. The impact of visiting places with water on health and well-being.

Impact	N	%
I dismiss it	3	0.1
I partially dismiss it	7	0.2
I neither dismiss nor consider it	140	4.8
I partially consider it	800	**27.5**
I fully consider it	1961	**67.4**
Total answers	2911	100.0
Don't know/No opinion	19	0.6
Total respondents	2930	
Agreement index	4.6	

Source: Created by the authors from the survey.

Table 7. The level of impact on health and well-being from visiting areas with water.

Level of impact		N	%
Level(s) of the contribution of water to health and well-being	Mental	2652	96.4
	Physical	2061	74.9
	Spiritual	1508	54.8
	Social	1037	37.7
	Intellectual	848	30.8

Source: Created by the authors from the survey.

Table 8. Health and well-being treatments using water (whether recommended by a doctor or not).

Treatments with water	N	%
Yes	854	29.7
No	2025	**70.3**
Total answers	2879	100.0
Don't know	50	1.7
No answer	1	0.0
Total respondents	2930	100.0

Source: Created by the authors from the survey.

Table 9. Types of water-based health and well-being treatments (whether recommended by a doctor or not).

		N	%
Water-based treatments	Spa (non-prescribed)	435	56.9
	Hydrotherapy	379	49.5
	Spa (prescribed)	140	18.3
	Thalassotherapy	126	16.5
	Crenotherapy	10	1.3

Source: Created by the authors from the survey. Note: Out of 854, only 765 respondents replied about types of water-based well-being treatment.

mental (96.4%) and physical (74.9%). Despite the preponderance of these levels, the remaining levels should also be highlighted, as they were all significant (Table 7).

Even though water is considered to have a positive impact on health and well-being in the context of holidays and/or visits, and these effects occur on different levels, the majority of respondents (70.3%) have not, to date, undertaken a water-based health or well-being treatment. It can therefore be concluded that there is a perception that is not materialised in formal, intentional behaviours, and is mainly associated with leisure activities (Table 8). However, in view of the answers to the previous questions, it is still evident that the choice of blue spaces for destinations for a holiday and/or visit is also influenced by the conviction that they have beneficial effects on health and well-being.

Respondents who said they had already undertaken health and well-being treatments using water, whether recommended by a doctor or not, mostly chose spas (without a medical prescription) (56.9%) and hydrotherapy (49.5%) for this purpose, according to the information in Table 9.

From analysis of the information at this point, it can be concluded that water contributes positively to the health and well-being of individuals at different levels, but above all at the physical and mental level. This positive relationship may constitute a justification for deciding on blue spaces for destinations to visit and/or spend holidays, confirming yet another assumptions of this study.

Taking the dimensions of analysis into account, Figure 1 presents the statistical information collected from the sample, indicating the categories that received the most responses.

A reading of this information provides a clear view of the profile of the respondents and their positioning

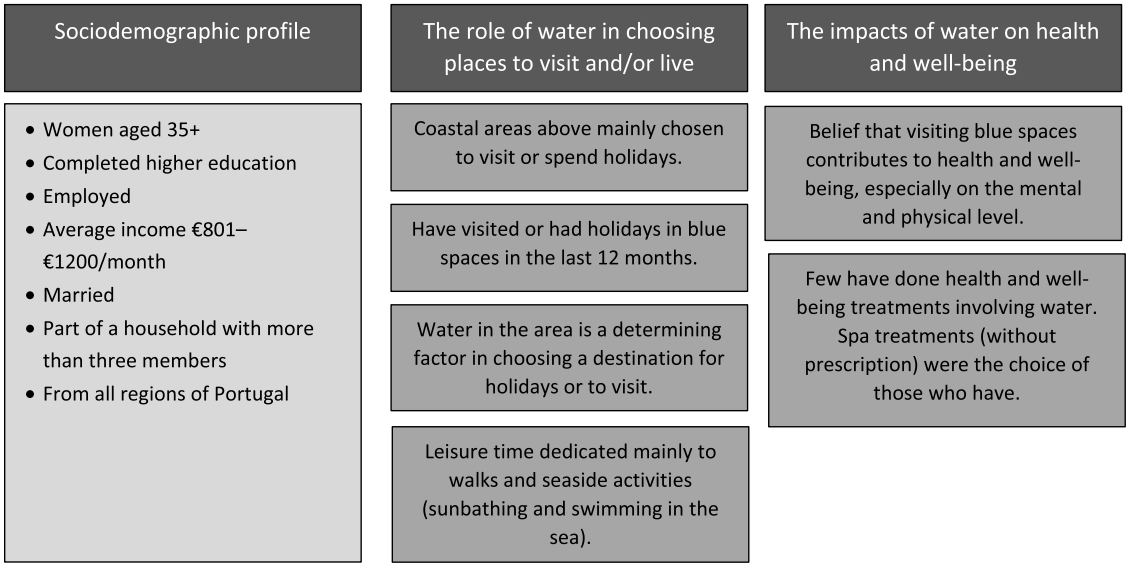

Figure 1. Information by dimensions of analysis.
Source: Created by the authors from the survey.

regarding each of the questions. It can thus be concluded that the presence of water is a determining factor in choosing areas to visit and influences the type of activities carried out, with a strong conviction existing that blue spaces positively impact physical and mental health and well-being. Although there is awareness that water has health benefits, respondents are not in the habit of undertaking health and well-being treatments with it, while those who do so generally opt for thermal treatments.

Conclusion

Information was gathered via a questionnaire carried out among the Portuguese population, born in 2008 or later, on how water influences the choice of places to visit, the activities carried out there, and the impacts on health and well-being associated with visiting blue spaces. In light of the conceptual framework headed by the concepts of blue tourism, blue space and health and well-being, by analysing and reflecting on this information, the assumptions guided this study can be confirmed.

The presence of water in its various forms in an area is a factor which carries great weight in decisions about destinations for a holiday or to visit. This is proved by the choice of coastal destinations, where the sea plays a leading role and by the high number of people who went on holiday or visited blue spaces in the last twelve months. Activities carried out in these areas are essentially related to water or the characteristics of the areas adjacent to it.

There is a high degree of awareness among respondents that the presence of water in the areas visited positively impacts their health and well-being, with these effects being mainly at the physical and mental level. Even so, there is no significant practice of seeking water-based health and well-being treatments, with those who do so mainly going to spas. This could represent an opportunity for growth in this segment of demand with investment from the supply side in blue space settings.

Upon reading and interpreting the information collected, in conjunction with the conceptual framework, it can be concluded that the salutogenic effects of blue spaces on residents can be extrapolated to visitors; they are subjected to them for shorter periods, but in a more intense fashion, arising as it does from intentional search and exposure.

In view of the above, blue spaces should incorporate strategies, policies and practices into their tourism development with the aim of positioning themselves as places that promote health and well-being. This process should include direct offers of products and activities, but also their salutogenic heritage can also be appreciated, monetised and disseminated. This heritage consists of the territorial characteristics associated with water and their impacts on health and well-being, both during formal and intentional exposure from the moment visitors arrive at their destination.

Theoretical implications

This study revisited theoretical knowledge about the concepts of blue tourism, introduced by Brito and Silveira (2023a, 2023b) and blue space (Ashbullby et al., 2013; Foley & Kistemman, 2015; Gascon et al., 2017; Hooyberg et al., 2020; Jarvis et al., 2020; Mishra et al., 2023; Vert et al., 2020; Völker & Kistemann, 2011; White et al., 2020, 2021) and contributed to advancing practical knowledge of the role of blue tourism in public health and well-being. Going into greater detail, it should be noted that the present study was carried out with the implicit objective of developing empirical work to support the concept of blue tourism. The need arose to put this concept, formulated mainly based on theoretical evidence, into practice in a model that could tested and to analyse the applicability of its different dimensions. Previous research carried out by several authors on blues spaces has focused solely on the residential perspective. Starting from the premise that areas which are good to live in are also good to visit, this study focused on the tourist angle, complementing the residential perspective.

Practical implications

One assumption of the present study is that water, in its various forms, positively impacts health and physical and mental well-being, and that this positive relationship contributes to making blue spaces attractive to tourists. Confirming this assumption, even with the limitations described below, opens the way for tourism planning and development in these areas, based on the awareness that the presence of water in an area influences decision-making about destinations for holidays or to visit. This perception of the positive impacts of water on health and well-being can also constitute a fundamental factor in defining a tourism development strategy and effective positioning for blue spaces, but also from the point of view of communication and marketing. From a more practical perspective with a focus on tourist activities, knowledge about activities linked to water and the areas adjacent to it can also contribute to making these touristic resources profitable. In short, the present study provides information of significant

value that can be incorporated into the tourism planning and development strategy of blue spaces in Portugal, within a sustainability model, and with a view to enhancing their competitiveness.

In the current post-pandemic context, in which there is a growing tendency to value health and well-being, governments and decision-makers (local, regional and national) may see this trend as a development opportunity for their territories. This study aims to contribute to knowledge about the value that the population living in Portugal places on water and the territories where this element is present, and can therefore support tourism development policies and practices that make the most of this knowledge. At a more operational level, it could even guide the structuring of the offer by public and private agents. In terms of communication and marketing, positioning as a health and wellness destination could also be an opportunity, as it is an element that is still underutilised, at least in Portugal.

Limitations and future research

One of the limitations of this study is the fact that the conclusions are based on information provided by a non-random sample, which prevents generalisations from being made to a wider population. However, given the size and profile of the population and the available resources, obtaining a random sample would not have been feasible. Also regarding the sample, it should be noted that, despite efforts to ensure the representativeness of the strata regarding the geographic and sociodemographic profile of the respondents, this objective was not fully achieved; there was, for example, a significant discrepancy in the representation of the different geographic regions. Despite these limitations, it is considered that the sample size (2930 cases) allows the assumptions guiding the study to be confirmed. This research involves a second phase in which the use of inferential statistical analyses, such as correlation or regression, will be further developed, and interviews with regional decision-makers will be carried out. These results will be analysed together with the aim of defining policies and practices for the sustainable development of blue spaces through blue tourism.

The current study paves the way for a more refined geographic analysis of blue spaces in Portugal, with a particular focus on each region and its specific characteristics. Furthermore, the research can be scaled internationally, similar to studies carried out from a residential perspective on blue spaces, and thus allows for broader conclusions, but also comparative analyses and benchmarking processes. Studies that examine the salutogenic effects of blue spaces on visitors should also be carried out from the perspective of different scientific areas, thus producing knowledge that supports making these areas touristically profitable as areas of health and well-being.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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