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# Geotourism, a New Perspective of Post-COVID-19-Pandemic Relaunch through Travel Agencies—Case Study: Bucegi Natural Park, Romania

Mihaela-Iuliana Desculțu Grigore, Amalia Niță \*D, Ionuț-Adrian Drăguleasa \*D and Mirela Mazilu

Geography Department, Faculty of Sciences, University of Craiova, 13 A. I. Cuza Street, 200585 Craiova, Romania; mihaela.grigore@starholiday.ro (M.-I.D.G.); mirelamazilu2004@yahoo.com (M.M.)

\* Correspondence: amalia.nita@edu.ucv.ro (A.N.); draguleasa.ionut.t7h@student.ucv.ro (I.-A.D.)

Abstract: The proposed approach—geotourism, a new medium- and long-term post-pandemic recovery perspective—provides a theoretical foundation for future research regarding the interactions between tourism agencies and tourists, visitors and landforms, as well as cooperation and support between local residents and tourists, for Bucegi Natural Park. In the current context, the nature monuments and nature reserves within the park are located in rural and urban areas. These can be capitalized and included directly in the tourism agencies' supply, and they can be used for zonal and regional development without degrading the surrounding environment. The "Babele and the Sphinx" landmarks with interesting shapes offer benefits for the development of geotourism in the Romanian landscape. In addition to those listed previously, this study proposes and analyses the image of the geotourism destination and a slogan for the international promotion of the park. Thus, the research presents two sources of data collection: (1) primary data, i.e., those obtained following a questionnaire and analysed with the help of the SPSS Statistics software, version 15.0, and (2) secondary statistical data from the database of the National Institute of Statistics (NIS) that are available and constantly updated. Another method used with a significant impact on tourism analysis was represented using the Geographic Information System (GIS). With its help, we mapped the tourist routes and the two elements, nature reserves and nature monuments within the park, that constitute the basis of the geotourism relaunch after COVID-19. The final objective of the paper is to strengthen the role of travel agencies in promoting geotourism by offering visits to tourist attractions in the park.

**Keywords:** geotourism; geo-conservation; sustainable geotourism; nature reserves; travel agencies; GIS; post-COVID-19 pandemic; Bucegi Natural Park

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# 1. Introduction

The development of geotourism represents a key issue in the midst of the expansion process due to the need and implementation of new information technologies [1], which developed during the economic crisis generated by the COVID-19 virus, but also for tourism activities, which are important when travel agencies create tourism and for the socio-economic development of rural communities.

Improving the sustainability of post-pandemic tourism taking into account the needs of geotourists by using promotion techniques and effective sustainable development strategies will lead to increased economic efficiency in the context of protecting and conserving the environment; tourist resources; local plants [2,3], including those used for food [4]; and animal biodiversity [5]. Simultaneously, within the framework of ecosystem protection and conservation, the implementation of effective promotion and sustainable development strategies by the relevant authorities will contribute to the growth of policies and interests for each park [6,7].

The post-crisis challenge generated by the coronavirus in Romania is the reorganization, promotion, and valorisation of its natural and cultural resources in a variety of the

tourism products and services with a varied range of attractions for tourists, which will bring economic benefits to the country. Tourism agencies play a key role in including sustainable geotourism as part of the development of natural parks and in the geo-conservation of tourist resources, necessarily integrated in the realization of tourism products after the COVID-19 pandemic.

Geotourism is considered by researchers to be "a form of sustainable tourism" [8–13], which must follow five fundamental principles in order to stimulate visits to natural parks in Romania as well as for the geo-conservation of the tourism heritage, the basis of the geosites for the sustainable development of geotourism, the touristic geointerpretation of the territory, tourism satisfaction, and local benefits offered to tourists. Interestingly, geotourism as an integrated part of tourism development and geoconservation also includes other forms of tourism that have been present on international tourism markets for many years [14], such as speleotourism and cave tourism [15].

In developed countries, tourism agencies can foster the growth of geotourism by guiding interested participants, both tourists and the local population, toward increased responsibility and progressive involvement in tourism development [16]. This includes promoting geotourism as an integral part of sustainable tourism, achieved through the interdependence of various forms of tourism, including cultural tourism [17]. Cultural tourism represents a fundamental element of the tourism product [18] and has been developed by tourism agencies in the post-pandemic SARS-CoV-2 period. Rural tourism provides tourists with the opportunity to engage in agricultural activities and explore traditions, creating an unforgettable experience [19]. Ecotourism takes advantage of green marketing practices [20] to align with the emerging trends of engaging in sustainable activities without damaging the developing ecosystem of flora and fauna in Bucegi Natural Park. Additionally, glamping tourism represents a new metamorphosed paradigm or post-pandemic trend in tourism development [21]. Green tourism is characterised by the belvedere areas and rural landscapes in the geographical space of the park, and urban tourism attracts flows of tourists through the complexity of the cultural heritage of the cities of Brașov, Sinaia, Azuga, Bușteni, Predea, Bran, and Moieciu. Tourism from events or festivals is a tool to attract tourists to cities [22]. Cave tourism involves researching and travelling on the routes inside Ialomiței Cave, which is practiced in relatively small groups of people. Other examples of activities include hiking, cycling, canoeing, and kayaking.

Thus, according to the forms of tourism listed previously, geotourism is perceived as a new perspective for post-COVID-19 pandemic relaunching as an integrated part that can be added to the tourism product produced by tourism agencies. It also serves as a suitable means for maintaining sustainable economic growth [23] both for local communities and for managers of tourism units within and in the vicinity of Bucegi Natural Park.

According to Popescu et al. (2023) [24], tourist attractions are elements of "non-domestic" places that attract thousands of tourists away from their home residence to capitalize on the park's tourism resources [24]. The geotourist attractions within the study area, due to the attractiveness of the destinations [25], represent the most valuable components with a significant impact on the territory's development. At the same time, they play a crucial role in the emergence and development of new geotourism activities [26].

The purpose of this study was to explore the perceptions of domestic tourists, specifically Romanians, regarding the development and valorisation of geotourism in Bucegi Natural Park, Romania. This is viewed as a new perspective for the post-COVID-19 pandemic tourism relaunch through travel agencies.

The motivation for this research is driven by the importance of the tourist potential of protected areas, including natural parks, and especially geotourism. This is crucial in the context of limited post-COVID-19 pandemic natural resources and in alignment with meeting the Sustainable Development Goals of the 2030 Agenda. The United Nations (UN) introduced the Sustainable Development Goals in September 2015 with the aim of improving society by the year 2030 [27].

Therefore, UNESCO Global Geoparks (UGGp) already support the realization of the Sustainable Development Goals (SDGs) on a large scale [28,29], with a particular focus on SDGs 1: no poverty, 4: high-quality education, 5: gender equality, 8: decent work and economic growth, 11: sustainable communities, 12: responsible consumption and production, 13: climate action, and 17: partnerships to achieve the goals [30]. The actions of the geoparks are described in the seven main objectives of the UGGp, which refer to the effective conservation and promotion of the natural and human environment, awareness and training of locals and tourists for medium- and long-term sustainability and the mitigation of natural and anthropogenic disasters, effective management of natural and human resources, local economic development through geotourism and promotion of local food production [31–33], the socio-economic development of the rural areas by capitalizing on the tourist potential, and the socio-professional development of protected area managers and the promotion of area-specific traditions and customs.

In correlation with the research methodology and discussions, the following research objectives were underlined for this research: (1) to investigate the impact of geotourism on the travel decisions of individuals, focusing on key variables such as occupation, level of education, and the significance of transport infrastructure; (2) to identify the main favourable elements that form a post-COVID-19 pandemic tourist product: nature monuments, nature reserves, and tourist routes; and (3) to create and recommend a tourist image and an international tourism promotion slogan for the park.

This research paper aims to fill certain gaps related to the lack of studies on the development of geotourism, and, at the same time, to help the authorities by identifying the main elements that would develop geotourism in Bucegi Natural Park, Romania, such as transport infrastructure, accommodation and public catering structures, and tourist routes. All these elements require financial support for sustainable development, as they constitute important components of the tourist products and services offered by travel agencies in the post-COVID-19 pandemic period.

The insights gained from the aforementioned research questions will provide crucial information to the authorities. This information will aid in outlining the best plans and strategies for the socio-economic and tourism development of the natural park until 2030, both in the medium and long term.

The present study is structured in five sections which are rigorously analysed and investigated in detail in order to provide readers with information regarding the development and valorisation of geotourism, as a new perspective for relaunching in the post-COVID-19 pandemic period, through travel agencies, the tourist area of Bucegi Natural Park. The Section 1 analyses the concepts regarding the importance of sustainable geotourism and the practice of geotourism in correlation with other forms of tourism. It also discusses the purpose, motivation of the research, objectives of the study, and specific research questions. The Section 2 is dedicated to the analysis of specialised literature, more precisely the concept of the emergence and impact of COVID-19 in tourism, the analysis of geotourism as a tool for promoting natural and cultural heritage, the concept of augmented reality, and the involvement of travel agencies in the promotion of geotourism. The Section 3 describes the context and methodology of the research. The Section 4 presents the main analyses and findings of the statistical software SPSS version 15.0. The Section 5 includes a brief integration and interpretation of the elements that form a post-COVID-19 pandemic tourism product for tourism agencies within Bucegi Natural Park. In the Section 6, the general ideas are highlighted, as well as the limitations and the main research directions for an effective exploitation and promotion of geotourism.

# 2. Literature Review

### 2.1. The Emergence and Impact of COVID-19 on Tourism

COVID-19 was detected for the first time in November 2019 in the city of Wuhan [34–36]. SARS-CoV-2 has been described in the specialised literature as being contagious [37–39] and catastrophic for the tourism and hospitality industry in the period of 2020–2022 [40–44].

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The controversial COVID-19 pandemic challenged tourism and its related activities in a negative way, especially throughout the quarantine of the population and isolation, the use of masks, the alarming increase in unemployment, the suspension of flights to exotic or exclusive tourist destinations, and the stopping of the access of foreign tourists through closures of borders [45–59]. The implementation of the early measures taken by the Romanian government had as their main target the maintenance of a relatively low infection and mortality rate throughout the geographical space of Romania [60] but also quite negative effects on the economies of the countries at the global level [61].

As argued by Bernardo et al. (2023) [62], social deprivation and restricted travel beyond a country's borders, triggered by the SARS-CoV-2 epidemiological virus, generated an impact with repercussions on tourism and on the development of the souvenir industry itself [62].

When the visitors found the fait accompli, compulsory restrictions imposed by state institutions to prevent travel and visits to tourist destinations such as natural parks, they opted to explore the online "cyber" space [63]. As a result, the use of information technology began to be understood, appreciated, and applied as a possible convenient travel tool [64] for any destination on the surface of the Earth.

Moreover, during the COVID-19 pandemic, virtual reality (VR) emerged as an innovative technology that offered a different alternative to traditional tourism while at the same time ensuring safety for various tourism activities. By limiting direct human contact, VR confers, facilitates, and supports the users to enjoy a tourist destination or a tourist package in an online environment [65].

Since the onset of the pandemic caused by the contagious virus SARS-CoV-2, there has been a notable shift in the adoption and utilisation of virtual reality technology, as observed by increased purchases of virtual reality equipment [66]. Ball et al. (2021) [66] provides readers with information and empirical evidence that, from the consumer's perspective, perceptions of the consequences or repercussions of the SARS-CoV-2 virus influenced, to some extent, the intention to purchase virtual reality equipment [66].

In the tourism sector, users of tourism products and services can now enjoy experiences with less danger and increased safety through VR systems. Consequently, this innovative technology is increasingly perceived as a substitute for traditional travel and visits [63]. According to Schiopu et al. (2022) [67], tourism intention intensified as a result of the influence of COVID-19 [67]. This intensification of tourism due to the influence of COVID-19 has given rise to the practice of "revenge tourism", which is a global trend marked by an unprecedented desire for travel. These tourists are eager to quickly and deliberately regain the time and opportunities lost due to the COVID-19 pandemic. The "travel revenge" phenomenon may persist throughout the year, as many users of tourism products and services extend their winter and summer vacations or explore travel agencies for the most advantageous offers to plan future stays and vacations.

In the tourism sector, as well as in the hospitality sector, the collapse or recession caused by the emergence of SARS-CoV-2 and the effects on organisations in these sectors can be considered and appreciated as an opportunity for transformation. Embracing more information technology, these sectors can evolve into sustainable businesses, ensuring safety and practicality in the long term.

# 2.2. General Information about Geotourism

"Geotourism is a relatively new in tourism and ever-changing phenomenon" [68–70]. Firstly, it is argued that there is no universally accepted definition of geotourism [68]. Secondly, it can be considered an alternative type of tourism that combines two entirely different elements, namely tourism and geology [68]. Nevertheless, in recent years, new links have been introduced between geodiversity, biodiversity, archaeological and cultural values, and gastronomic and architectural values in correlation with geotourism [71].

In recent decades, geotourism has developed globally as a useful tool for promoting natural and cultural heritage, encouraging local, regional, and national economic develop-

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ment [72,73]. Modern geotourism is characterised by three major components known as 3G: (1) geointerpretation, (2) geodiversity, and (3) geohistory [74]. Moreover, during the period of the pandemic caused by the SARS-CoV-2 virus, the digitisation of economic activities in tourism created new strategic opportunities to promote and capitalise on the tourism potential. Thus, virtual tours and augmented reality [75] can be applied in geotourism within a park. Visitors to protected areas inside a park, but also from its vicinity, can interact with these technological tools (virtual tours), making the experience more exciting, engaging, and enjoyable [75–82].

The concept of augmented reality represents the overlay of virtual elements with a real environment, either directly or indirectly [83]. Therefore, augmented reality is very important for the evolution of the landscape and its various elements, such as protected areas, the hydrographic network, tourist landmarks, and landforms that compose a territory [84,85]. According to Jorge et al. (2023) [86], both during the deployment and in the post-COVID-19 period, tourist resorts increasingly aspire to adopt digital tools that facilitate a stronger connection between tourist destinations and potential visitors [86]. This is the main reason why VR has been systematically considered in the strategies and business models of the tourism sector [87].

Carrança et al. (2023) [88] stated that the emergence and development of an augmented reality (AR) application suitable and appropriate for administration in the mentioned context requires careful consideration of human factors as key elements. Consequently, the interaction must necessarily represent an interesting topic and take into account the feedback from tourists visiting geotourism areas [88].

Immersive technologies, whether in the form of virtual reality or not, could serve as effective marketing tools for promoting destinations. More specifically, they play a crucial role in building or enhancing the attachment and sympathy towards a place based on previous experiences with the tourist destination [89]. In our case, this applies to Bucegi Natural Park. Liking or attachment to a tourist destination is considered a significant factor influencing tourists' behavioural intentions to observe, experience, and suggest a tourist destination to future potential visitors.

The motivation of tourists to visit certain tourist attractions within Bucegi Natural Park can be limited by multiple inconveniences or obstacles that may appear in the daily life of each individual. These obstacles are usually associated with a lack of time and money, issues related to people's health, family obligations, and even the absence of a travel agency corresponding to the needs of the tourists [90]. Therefore, these tourist barriers or limitations represent constraints or obligations that restrict our existence as individuals to participate in leisure and entertainment activities [91], such as hiking or travelling within protected areas.

In 2000, the title of the protected area was changed to natural park through the adoption of law 5/2000, falling into category V of the international classification: protected terrestrial or marine landscape, which aims to preserve cultural landscapes created through the sustainable interaction between man and nature [92]. Geotourism, which has not yet been introduced in the Bucegi Mountains area, is supported as an educational tool for geo-landscape management [93].

# 2.3. Involvement of Travel Agencies in the Promotion of Geotourism

In this situation never before encountered by the Earth's population, the tourist agencies in Romania were not only constrained by circumstances and forced by the restrictions of the authorities to properly and efficiently review their tourist packages but also to find unique elements to incorporate in the post-COVID-19 pandemic tourism supply and to find marketing means to create a dialogue and promote their offers online. Thus, geotourism represents a new perspective of post-COVID-19 travel within Bucegi Natural Park.

The purpose of promoting tourist packages is to raise awareness, increase sales [94], and create loyalty towards certain geotourism brand images for major protected areas in Romania, such as national parks, natural parks, and biosphere reserves. Promotion

is one of the main components of the marketing mix, which includes personal selling, advertising, public relations between tourists and staff employed in travel agencies, and sales promotions during the summer season. Additionally, it involves advertising through direct marketing [95]. Furthermore, advertising for events, trade shows [96], symposiums, and tourism fairs is crucial.

In the context of tourism revival, extensive research [94,95,97,98] states that sales for travel agencies are achieved through tourism market research and forecasting, the use of questionnaires, geotourism product design, and the implementation of affordable pricing for all segments of tourists [99].

On the other hand, in the 21st century, the Internet has significantly changed the role of travel agencies as information providers, and the accelerated development of technology has also led to an increasing number of studies that consider its role in the search process for information [100–102] regarding the purchase of tourist products, which contain the practice of geotourism.

In the tourism economic activity sector, tour operators ensure critical communication between tourism demand and supply [103]. Tour operators unite several organisations and offer for sale to tourists a package at a single price [104]. Given the importance of the role of tour operators in promoting sustainable tourism, including sustainable geotourism, the Tour Operators Initiative (TOI) was launched in 2000. It was launched by the United Nations Environment Program (UNEP); United Nations Educational, Scientific and Cultural Organization (UNESCO); and the UN World Trade Organization (UNWTO) [105].

Before the COVD-19 epidemic, online package promotion was widely used by online retailers to increase product sales and boost brands [106]. During the COVID-19 pandemic, their promotion increased considerably, becoming a key marketing tool [107].

Managers of protected natural areas are responsible for enabling the promotion of natural destinations, for example, through the use of travel vouchers and incentives and developing post-COVID-19 reopening strategies [108–111]. At the same time, the governments of all states globally should jointly establish certain health and safety protocols in the tourism sector, such as creating travel bubbles or tourism corridors and gradually relaxing restrictions and reopening tourism businesses [112].

In his study, Vargas (2020) [113] pointed out that although tourism promotion will be imperative for tourism markets to recover from their lethargy after the devastating impact of the SARS-CoV-2 virus, the promotion should not resemble that at the start of the economic crisis [113]. Thus, it is recommended that the management strategies of tourist destinations or protected natural areas not be based only on a simple promotion of geotourism but also on the reconfiguration of the existing offers within Bucegi Natural Park.

Travel agencies, both in Romania and internationally, should concentrate on developing new tourism products and services to attract visitors interested in geotourism to various destinations. For example, concrete offerings could include packages for nature experiences, cycling adventures, or scientific exploration. Consequently, in the current post-COVID-19 era, mobile applications and virtual tours have become essential components of modern geotourism promotion sites [114].

In this post-COVID-19 period, online marketing has proven to be an effective, innovative, and useful means of promoting tourist packages. Prospective tourists are increasingly inclined to purchase goods and services that include geotourism activities. According to Molokáč et al. (2023) [114], the online space is undeniably the most significant source of information for consumers of tourism products, making it a crucial post-COVID-19 promotion solution for tourism destinations [114]. Promoting and marketing tourism goods and services through information technology, alongside good governance, will expedite the post-COVID-19 recovery and relaunch of tourism and SME business activities [115].

In the era of SARS-CoV-2, e-commerce has evolved into the newest paradigm of the 21st century. It involves linking companies, such as travel agencies and SMEs, with consumers through electronic operations to access international markets and enhance the competition among economic enterprises with a tourism profile [116,117].

Government policy plays a fundamental role in the development, improvement, and sustainability of economic enterprises in the tourism sector [115]. Close cooperation between the public and private sectors is essential for post-COVID-19 revitalisation, economic recovery, and business sustainability in the tourism and hospitality sector [118,119]. The sustainability and balance of travel agencies and other businesses in the tourism sector will be met if driven by microeconomic or macroeconomic stability. Consistent policy stability is indispensable to strengthen the post-COVID-19 competitiveness, sustainability, and mobility of tourism sector businesses [120].

A study by Tutunea (2023) [121], titled "Digital Transformation in Romanian Online Travel Agencies", revealed a more decisive presence of agencies in the category of online intermediaries compared to online organisers. Online intermediaries are more receptive to the development and introduction of new technologies and are better trained in digital transformation (DT) than online organisers [121].

According to findings from a study by Aboushouk (2022) [122], "employee absorptive capacity, particularly in the operational dimension, has a positive effect on the digital transformation of Egyptian travel agencies". Consequently, travel agencies need to enhance and optimise the absorptive capacity of their employees to assimilate technological skills, a necessary prerequisite for the digital processing of travel packages [122].

Global climate change not only physically damages elements of tourism packages such as natural and cultural resources in protected and conserved areas but may also influence tourists' behaviour, motivations, needs, choices, and visiting patterns [123,124]. It is less obvious, from the demand side, whether geotourists will notice, understand, and react to climate change and to what extent considerations for more sustainable tourism and reducing the carbon footprint [123,125] will impact their decision making when purchasing a tourist package in a natural area, such as Bucegi Natural Park, Romania. It is mandatory to account for the transformations in the image of tourist destinations due to adverse climate changes [126] and the deterioration of tourist attractions in protected areas. Gordon (2023) [127], in his study "Climate Change and Geotourism: Impacts, Challenges, and Opportunities", suggested that there are possibly committed geotourists who have a greater sustainability and justification for traveling to certain tourist destinations than casual geotourists [127].

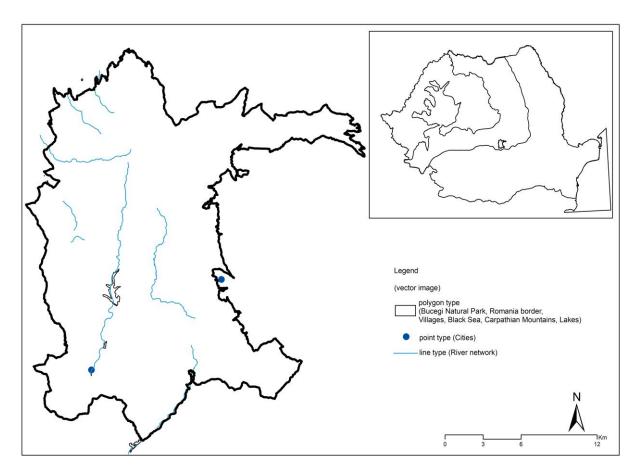
Thus, there are broader geoethical concerns and voluntary constraints that necessitate thoughtful consideration or research. Specifically, the literature highlights a tension between supporting geotourism as a catalyst for evolution and expansion in the sustainable economy, aligning with the Sustainable Development Goals (SDGs)—especially as a vital income source for many countries—and the imperative to reduce greenhouse gas emissions from tourism activities and infrastructure [128].

#### 3. Materials and Methodology

#### 3.1. Study Area

Bucegi Natural Park is situated in the eastern part of the Southern Carpathians and entirely encompasses the Bucegi Massif [129,130] (Figure 1). It represents for researchers a very interesting area from the point of view of studying the flora and fauna [131]. Bucegi Natural Park represents one of the best-known protected areas in Romania, as it is important also for the nearby areas that have been intensely damaged by the human impact on the natural environment [132].

Bucegi Natural Park is a unit administered by the National Council of Forests-Romsilva. By Order of the Minister of the Environment no. 7/1990, it was named for the first time as a national park, and by Law 5/2000, it was granted the status of natural park, the limits of which were established by Government Decision no. 230/2003 [133]. It was established with the main aim of protecting rare or endemic plant species, namely the English yew (Taxus baccata), the famous edelweiss (Leontopodium alpinum) [134], stone pine (Pinus cembra), great yellow gentian (Gentiana lutea), chervona ruta flowers (Rhododendron kotschyi), and many others.



**Figure 1.** Bucegi Natural Park's location at the national level. Source: authors' data processing in ArcGIS 10.7.2.

From an administrative point of view, the studied area includes parts of Dâmboviţa, Prahova, and Braşov counties [135]. The administrative-territorial units (Figure 2) include the towns in the Bucegi Mountains: Azuga, Buşteni, Sinaia, and Comarnic in Prahova County; Moroeni in Dâmboviţa County; and Predeal, Bran, Moieciu, and Râşnov in Braşov County [136].

When analysing the population by residence, between 1 January 2020 and 1 January 2021 (Figure 3), there was an increase of 99 people within the city of Râșnov.

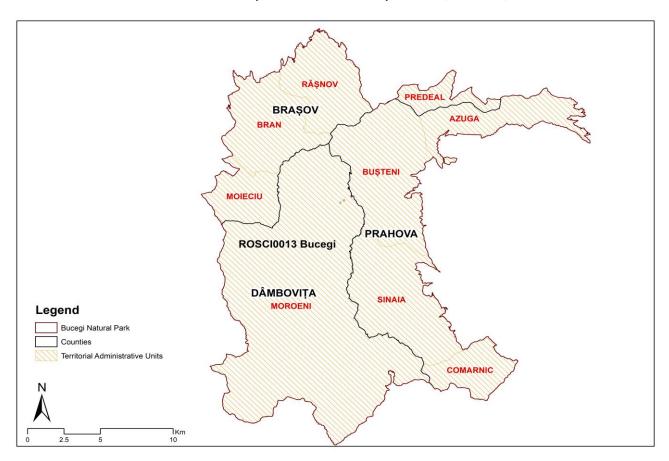
Also, comparing the two years, decreases were recorded for the year 2021 in all the administrative-territorial units, with the exception of the town of Râṣnov.

The administrative-territorial units (Figure 3) of any protected natural area are distinguished by factors such as the environment of origin of the local population to which they belong: urban or rural, the level of development, and the importance of the responsibilities assumed by each town hall or local or county council. Bucegi Massif is part of the Southern Carpathians, where altitudes reach over 2500 m. Thus, it is not a favourable area for practicing agriculture because the climate is not favourable, the temperatures are extremely low, and the slopes are very steep. Only scattered villages are found in the mountains. In comparison, in the Romanian Plain and the Western Plain, the temperatures are high and suitable for grain ripening, the soils are of a fertile chernozem type, and the population is much more compact.

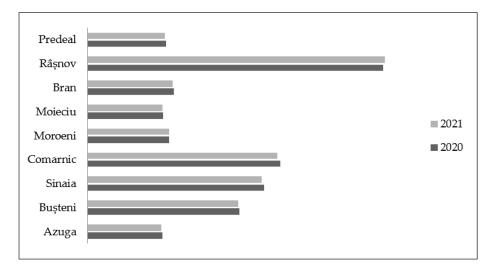
Before the COVID-19 pandemic, a total of 897,433 tourists were registered across the nine administrative-territorial units within the park. However, due to the emergence of the contagious virus SARS-CoV-2, the number dropped significantly in 2020 to 518,945 tourists. In 2021 and 2022, there was a considerable increase in tourist numbers compared to 2020. This surge can be attributed to the diverse range of tourist attractions and natural reserves available for visitation, including Babele, Sphinx, Ialomiţa Cave, Cheile Tătarului, Cheile

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Zănoagei, Crucea Heroes, Bolboci Lake, Howling Waterfall, Moara Dracilor, Bran Castle, Sinaia Monastery, Caraiman Monastery from Bușteni, Peleș Castle, and more.



**Figure 2.** The administrative-territorial units within Bucegi Natural Park. Source: authors' data processing in ArcGIS 10.7.2.



**Figure 3.** Population by domicile on 1 January 2020 and 1 January 2021. Source: data processed by authors according to NIS [137].

# 3.2. Data Sources

This research study uses a mix of methods, including the descriptive statistical method [138,139], the statistical-mathematical method, the newest method "desk research" [140–146], and the cartographic method.

The primary data of the research were collected through questionnaires, while the secondary data were collected from various institutions, especially the National Institute of Statistics and the Management Plan of Bucegi Natural Park. The secondary data focus on the specifics of post-COVID-19 pandemic geotourism development, encompassing the tourist attractions within Bucegi Natural Park, including nature monuments, nature reserves, and tourist routes.

Several sets of statistical data at the National Institute of Statistics were used. Based on them, various graphs were obtained using the descriptive statistical method. Descriptive statistics, which deal exclusively with the characteristics of observed data, can be used effectively to summarise population data in research analysis [147].

In order to successfully achieve one of the research goals, the questionnaire method was used [148].

Data collection of the questionnaire (Appendix A) applied for this research took place online in the summer (July–August) of 2023. The selection was generated by posting the questionnaire on social media pages. The participants in the poll were randomly chosen through posts on social media networks and voluntarily completed the questionnaire. The survey link was promoted mainly through Facebook. The questionnaire took approximately 5–10 min to be completed.

To assess accessibility, readability, transparency, relevance, acceptability, and average response time, the authors distributed the questionnaire. In order to reduce the potential bias introduced by personal data, participants were assured of the confidentiality of personal data by means of the following disclaimer added to the beginning of the questionnaire: "All data collected is confidential and will be used strictly for academic purposes". For the research, 143 questionnaires were randomly distributed, out of which 100 questionnaires were considered for the final analysis and investigation. The rest were excluded due to inadequate data for analysis, i.e., incomplete questionnaires. Therefore, we found it appropriate to apply a calculation formula to assess the validity of the sample.

The data sample consisted of 100 respondents determined by means of the Slovin formula, this referring to the number of geotourism visitors in Bucegi Natural Park. The Slovin formula according to researchers [149] is:

$$n = \frac{N}{1 + N(e)^2} \tag{1}$$

where

n =size of the sample group

N = size of the population in Bucegi Natural Park—74,115 as of 1 January 2022 e = error margin—0.1%

The calculation of the number of respondents is as follows:

$$n = \frac{74,115}{1 + 74,115 \ x (0,1)^2}$$

In order to increase the response rate, we specified that the research results will be published via open access, and thus each respondent would have the opportunity to view the research results.

The data of the questionnaire applied in the study area were coded, validated, processed, visualised, edited, and analysed with the help of SPSS statistics version 15.0. The methodology used in this research included the following statistical analyses, which are important for the parties interested in the practice of geotourism, particularly domestic tourists in Romania.

In the research methodology, a questionnaire was administered to a sample of 100 randomly selected individuals from a population of interest. The choice of a sample size of 100 individuals was determined to ensure an adequate level of representativeness and to provide sufficient data for statistical analysis of the results. This sample size was

considered sufficient to obtain meaningful results and confidently assess the relationships and influences among the research variables.

The random sampling of participants aimed to minimise the potential influence of selection bias on the research outcomes, ensuring the objectivity and representativeness of the collected data. This approach allowed the researchers to draw conclusions and make generalisations about the population of interest based on the results obtained from the sample of 100 individuals.

Travel and tourism have become increasingly popular activities in our modern society, with geotourism representing a specific branch that attracts more enthusiasts eager to explore and understand the geological and natural phenomena of the world. In this context, our research aims to investigate the impact of geotourism on individuals' travel decisions, focusing on key variables such as occupation, level of education, and the importance of transportation infrastructure.

To achieve this objective, we employed a rigorous research methodology involving the collection of data from a representative sample of participants. Our questionnaire included relevant questions about occupation, level of education, the importance of transportation infrastructure, and the decision to visit geotourism areas. The collected data were analysed using various statistical methods to gain a deep understanding of the relationships among the variables in question.

The research hypotheses developed in this study were carefully crafted based on the data obtained from the questionnaire administered to participants. Each standard question in the questionnaire underwent thorough analysis to identify significant correlations, patterns, and associations among the investigated variables. The process of formulating hypotheses was guided by the results obtained and the specific objectives of the research.

During the analysis of the questionnaire-collected data, potential correlations and relationships between variables were identified, providing a robust foundation for formulating research hypotheses. Each hypothesis reflects a clear and specific assumption regarding the nature of relationships among different aspects under investigation.

It is worth noting that the standard questions in the questionnaire served as a cornerstone for hypothesis development and were carefully chosen to cover significant aspects of the study subject. Thus, the hypotheses are anchored in standardised questions, ensuring coherence among the research objectives, collected data, and formulated hypotheses. This approach contributes to the robustness and relevance of interpreting the results within the context of our study.

# 3.3. Research Hypotheses

Geotourism is a branch derived from tourism, which is constantly developing, having a key role in the socio-economic, historical, cultural, geological, and geomorphological development of a region (such as a natural park). This research aims to investigate various aspects of geotourism in Bucegi Natural Park, Romania, by testing the following research hypotheses (Table 1):

Table 1. Research hypotheses.

Number	Hypotheses
H1	There is a significant correlation between gender and the frequency of visiting Bucegi Natural Park.
H2	Geotourism experience in Bucegi Natural Park varies by age.
Н3	County of residence influences the visiting season of natural monuments in Bucegi Natural Park.
H4	There is a positive correlation between the education level of visitors in Bucegi Natural Park and the contribution of geotourism to knowledge accumulation.

Table 1. Cont.

Number	Hypotheses
Н5	There is a connection between the occupation of visitors to Bucegi Natural Park and the importance of transportation infrastructure in their decision to visit the area.
Н6	There is an association between the level of education, the importance of accommodation structure, and service prices in Bucegi Natural Park.
Н7	There is a positive correlation between the place of origin and the importance of the complexity of recreational and leisure activities.
Н8	International promotion influences the exploration of karsts and caves in Bucegi Natural Park.
Н9	There is a relationship between occupation and the importance of public catering structure and service prices.
H10	There is a positive correlation between age and the importance of the presence of tourist trails.

Source: processed by authors.

Next, the manner in which the research hypotheses were formulated and developed is elaborated, highlighting each hypothesis's contribution to the research, along with the statistical methods employed for their testing.

**Hypothesis 1.** There is a significant correlation between gender and the frequency of visiting Bucegi Natural Park.

Starting from the observation that there are differences in visitation behaviours in Bucegi Natural Park based on gender, this hypothesis was formulated to explore whether there is a significant correlation between gender and visitation frequency.

The proposed hypothesis investigates the correlation between two key variables: "Gender" and "Visitation Frequency of Bucegi Natural Park". Clearly and specifically formulated, the hypothesis anticipates a significant association between gender and park visitation behaviour. The variables used are defined as follows: the first variable, "Gender", represents a nominal variable with two exclusive categories—male and female. The second variable, "Visitation of Bucegi Natural Park", is a nominal/ordinal measure indicating the frequency of park visitation. The chosen statistical method for evaluating this hypothesis is the Chi-squared test, as it is suitable for nominal variables. This choice facilitates the identification of a significant relationship between gender and visitation frequency. This hypothesis explores potential differences in the visitation behaviour at Bucegi Natural Park based on gender, providing insights for the park management and promotion tailored to the specific preferences of each gender.

The research contribution and practical implications of this hypothesis are significant. The results can optimise marketing strategies and park facilities, enhancing visitor experience and resource efficiency.

The perspectives for the development and theoretical contributions of the research are essential for understanding the factors influencing visitation preferences in natural environments. This provides both theoretical contributions and relevant practical implications for the field of natural park management.

The hypothesis highlights the relationship between gender and visitation frequency at Bucegi Natural Park, offering significant contributions to research and the efficient management of this important natural environment.

**Hypothesis 2.** Geotourism experience in Bucegi Park varies by age.

This hypothesis emerged from the interest in understanding how the geotourism experience in Bucegi Park varies across age groups. The hypothesis aims to explore whether there are significant differences in the perception and appreciation of geotourism among different age categories.

H2 proposes an analysis of the variability of the geotourism experience in Bucegi Park considering the factor of age. The hypothesis suggests that the perception and importance attributed to geotourism in this park can vary significantly based on the participants' age category.

The variables used are defined as follows: the first considered element is "Age", a numerical variable indicating the age group of the participants. The second is the "Importance of Geotourism in Bucegi Park", a numerical/ordinal variable assessing the level of importance participants attribute to geotourism in Bucegi Park.

The chosen statistical method for investigating this hypothesis is Analysis of Variance (ANOVA). This statistical test was chosen to compare the mean importance of geotourism in Bucegi Park across different age categories. ANOVA is efficient in assessing mean variation between three or more groups.

The rationale for the hypothesis focuses on understanding significant differences in the perception of geotourism among different age categories. It is assumed that age can influence how individuals perceive and appreciate the geotourism experience in Bucegi Park.

The research contribution lies in the fact that the results obtained through ANOVA can provide useful information to park managers for adapting geotourism offerings to the diverse preferences of different age groups. This brings a significant contribution to adapting marketing practices and geotourism programmes to best meet varied generational needs.

Contributions to the literature consist of providing empirical evidence regarding the influence of age on the perception and importance of geotourism. Thus, the hypothesis makes a valuable contribution to the geotourism research literature, extending existing knowledge and offering a new perspective on the factors shaping the geotourism experience in natural environments such as Bucegi Park.

**Hypothesis 3.** County of residence influences the visiting season of natural monuments in Bucegi Natural Park.

Based on the premise that the visitors' place of residence may influence the season in which they choose to visit natural landmarks, this hypothesis originated from the desire to identify a possible association between the county of origin and the visiting season.

Hypothesis H3 explores the connection between the participants' county of residence and the season in which they choose to visit the natural landmarks in Bucegi Park. It is assumed that the individuals' place of origin can play a significant role in determining the preferred time or season for exploring these natural attractions.

The variables used are defined as follows: the first, "County of Residence", is a nominal variable indicating the county in which the participants live. The second, "Season of Visiting Natural Monuments", is an ordinal variable measuring visitors' preferences regarding the time or season in which they want to explore natural monuments.

The chosen statistical method for evaluating this hypothesis is the Chi-squared test. This method is suitable for investigating associations between two nominal or ordinal variables. In the context of this hypothesis, the goal is to understand if there is a significant correlation between the participants' county of residence and the season in which they choose to visit the natural monuments in Bucegi Park.

The research contribution lies in bringing to the forefront the importance of geographical factors in shaping visitation behaviour in a natural park. The visitors' place of origin, represented by the county of residence, can significantly influence decisions regarding the optimal time to explore natural monuments.

The results of the Chi-squared test can provide valuable insights for park managers regarding the development of marketing or promotion strategies tailored to the specific

seasonal preferences of each county. Thus, the hypothesis contributes to the specialised literature by providing empirical evidence on how geographical factors can affect visitation decisions in the context of a natural park, enriching the understanding of visitor behaviour in these natural environments.

**Hypothesis 4.** There is a positive correlation between the education level of visitors in Bucegi Park and the contribution of geotourism to knowledge accumulation.

Based on the idea that the level of education can influence the perception of the contribution of geotourism to knowledge accumulation, this hypothesis was formulated to investigate if there is a positive correlation between these two variables.

Hypothesis H4 focuses on identifying a positive correlation between the education level of visitors in Bucegi Park and the contribution of geotourism to knowledge accumulation. This hypothesis assumes that individuals with a higher level of education will perceive a more significant contribution of geotourism to their knowledge accumulation.

The variables used are defined as follows: "Education Level" represents an ordinal or nominal variable indicating the education level of visitors, such as primary, secondary, or tertiary education. "Contribution of Geotourism to Knowledge Accumulation" is a continuous variable measuring visitors' perception of the impact of geotourism on their knowledge accumulation.

The chosen statistical method for evaluating the relationship between these two continuous variables is correlation analysis via Pearson's rank correlation coefficient. This test provides a measure of the degree of linear correlation between the education level and the perception of the contribution of geotourism to knowledge accumulation.

The research contribution lies in emphasising the importance of education in shaping the tourist experience, highlighting that the level of education can influence how visitors perceive the educational value of geotourism. The results obtained through the Pearson rank correlation test can provide guidance for the development of more effective educational strategies within natural parks.

By demonstrating the existence of a positive correlation, the hypothesis underscores the potential of geotourism as a valuable educational tool, especially for visitors with a higher level of education. This finding can guide efforts to promote and develop educational experiences in Bucegi Park, enriching the tourist offering and contributing to the participants' knowledge development.

**Hypothesis 5.** *There is a connection between the occupation of visitors to Bucegi Natural Park and the importance of transportation infrastructure in their decision to visit the area.* 

This hypothesis starts from the premise that the occupation of visitors can influence their perception of the importance of transportation infrastructure in the decision to visit the area. It explores the connection between the occupation of visitors in Bucegi Park and the importance of transportation infrastructure in their decision to visit this picturesque area. This hypothesis suggests that the occupation of visitors can have a significant influence on how they perceive transportation infrastructure in the decision-making process related to visiting the area.

The variables used are defined as follows: "Occupation" represents a nominal or ordinal variable identifying the field of professional occupation of visitors, such as student, employee, or entrepreneur. "Importance of Transportation Infrastructure" is an ordinal or continuous variable reflecting the level of importance visitors attribute to transportation infrastructure in making the decision to visit the area.

The chosen statistical method for evaluating whether there is a significant association between occupation and the importance of transportation infrastructure is the Chi-squared test. This statistical method is suitable for nominal variables and can highlight significant differences between observed and expected distributions, providing insights into the possible association between the two variables.

The research contribution lies in discussing important factors that can influence the decision to visit a tourist area, with a focus on the perception of transportation infrastructure based on visitors' occupations. The results obtained through the Chi-squared test can offer researchers significant insights into the complex interaction between occupation and the importance of transportation infrastructure in the context of tourist decisions.

This research not only reveals the influences of different occupational categories on visitors' transportation priorities but also provides valuable information for the development and improvement of infrastructure, aiming to attract and satisfy a more diverse audience in Bucegi Park.

**Hypothesis 6.** There is an association between the level of education, the importance of accommodation structure, and service prices in Bucegi Natural Park.

Starting from the premise that the level of education can influence the perception of the importance of accommodation structure and service prices, this hypothesis was formulated to explore the relationship between these variables. It delves into the complex connection between the education level of visitors in Bucegi Park, the importance of accommodation structure, and service prices. This hypothesis suggests that the level of education can influence the perception of the importance of accommodation structure and service prices offered in this natural area.

The variables used are defined as follows: "Education Level" represents an ordinal or nominal variable indicating the education level of visitors (e.g., high school, university, postgraduate). "Importance of Accommodation Structure" is an ordinal or continuous variable reflecting how significant visitors consider the accommodation structure in Bucegi Park. "Service Prices" is a continuous variable highlighting the perceived level of costs for services available in the area.

The chosen statistical method for evaluating whether there is a significant association between nominal variables (education level and the importance of accommodation structure) and whether the level of education is associated with service prices is the Chi-squared test. This statistical method allows researchers to identify whether there is a significant correlation between these variables, providing insights into how the level of education can influence the perceptions and preferences of visitors.

The research contribution lies in highlighting crucial aspects related to the influence of the level of education on visitors' perceptions of accommodation structure and service prices. The results obtained can provide tourism administrators and researchers with useful information for adapting the service offerings to the diversity of needs and expectations of visitors with different education levels. By understanding these associations, marketing strategies and facilities in Bucegi Park can be adjusted to better meet the preferences and requirements of a diverse audience.

**Hypothesis 7.** There is a positive correlation between the place of origin and the importance of the complexity of recreational and leisure activities.

The hypothesis originated from the idea that the visitors' place of origin can influence their perception of the importance of the complexity of recreational and leisure activities in the park. It aims to investigate a positive correlation between the visitors' place of origin and the importance attributed to the complexity of recreational and leisure activities in Bucegi Park. This hypothesis suggests that the visitors' environment of origin can significantly influence their perception of the complexity of recreational activities available in the area.

The variables used are defined as follows: "Place of Origin" is a nominal or ordinal variable indicating the visitors' place of origin, such as urban, rural, national, or international. "Importance of the Complexity of Recreational, Leisure, and Leisure Activities" is an ordinal or continuous variable reflecting the degree of importance visitors attach to the complexity of recreational activities in Bucegi Park.

The chosen statistical method for assessing the existence and intensity of the correlation between the place of origin and the importance of the complexity of recreational activities is correlation analysis via Spearman's rank correlation coefficient. This statistical method is suitable for ordinal or continuous variables, allowing for the evaluation of correlation in a robust and unbiased manner.

The research contribution lies in providing an important perspective on the influence of the place of origin on visitors' perception of the complexity of recreational and leisure activities in Bucegi Park. The obtained results can provide park administrators with valuable information about the preferences of different visitor groups regarding the diversity and complexity of available activities.

By understanding this positive correlation, marketing strategies and recreational programs tailored to the specific needs of visitors from different environments can be developed. This information contributes to personalising recreational experiences and enhancing the offerings in Bucegi Park, thereby strengthening its attractiveness for a diverse range of visitors.

**Hypothesis 8.** *International promotion influences the exploration of karsts and caves in Bucegi Natural Park.* 

This hypothesis was formulated with the idea that international promotion can impact the exploration of karst terrain and caves in Bucegi Park. It discusses the influence of international promotion on the variety of karst and cave exploration in Bucegi Park. The hypothesis suggests that the level of international promotion and exposure of the park may be associated with diversity of karst terrain and cave exploration.

The variables used are defined as follows: "International Promotion" is a nominal variable indicating the degree of international promotion of Bucegi Park. "Variety of Karst and Explored Caves" is a nominal or ordinal variable reflecting the diversity of karst and cave exploration in Bucegi Park.

The chosen statistical method for testing the hypothesis is the Chi-squared test. This method is suitable for evaluating the association between two nominal variables, in this case, between international promotion and the diversity of karst and cave exploration in the analysed park.

The research contribution lies in highlighting the importance of international promotion in drawing attention to the distinctive geotouristic features of Bucegi Park. The results obtained from the Chi-squared analysis can provide crucial information about the effectiveness of international promotion campaigns in influencing the exploration of karst terrain and caves.

By understanding how international promotion can contribute to diversifying geotouristic experiences, park administrators can develop more effective marketing strategies. These strategies could enhance the global image of Bucegi Park and attract tourists interested in exploring various forms of karst terrain and caves. Thus, the hypothesis not only brings practical contributions to park promotion but also theoretical ones, consolidating knowledge about the relationship between promotion and geotouristic diversity.

**Hypothesis 9.** *There is a relationship between occupation and the importance of public catering structure and service prices.* 

This hypothesis was formulated based on the premise that occupation can influence the perception of the importance of public catering facilities and service prices. It explores the relationship between occupation, the importance of public catering structures, and the evaluation of service prices in Bucegi Park. The hypothesis suggests that visitors' occupation type can influence both the perception of the importance of public catering facilities and the evaluation of service prices.

The variables used are defined as follows: "Occupation" is a nominal variable indicating the type of occupation or profession of visitors in Bucegi Park. "Importance of

Public Catering Structure" is an ordinal or interval variable measuring how important the public catering structure is considered by participants. "Service Prices" are measured on an interval or ratio scale, reflecting visitors' perceptions of the costs of services in Bucegi Park.

The chosen statistical method for testing the hypothesis is the Chi-squared test. This method is suitable for evaluating the existence of a significant association between occupation and the two nominal or ordered variables, namely the importance of the public catering structure and service prices.

The research contribution lies in bringing attention to the impact of visitors' occupations on their perception of public catering facilities and service prices in Bucegi Park. The results obtained can provide valuable information for park managers and service providers, contributing to adapting the offer to different visitor categories based on occupation type.

By understanding how occupation can influence visitors' preferences and evaluations, park administrators can develop marketing strategies and facilities tailored to the specific needs of different visitor groups. Thus, the hypothesis not only brings practical contributions to improve the offerings in Bucegi Park but also theoretical contributions regarding the influence of occupation on the tourist experience and the evaluation of services offered in a natural park.

**Hypothesis 10.** There is a positive correlation between age and the importance of the presence of tourist trails.

This hypothesis was formulated with the aim of understanding how age can influence visitors' perception of the importance of the presence of tourist trails in Bucegi Park. Researchers created this hypothesis to explore whether there is a positive correlation between these two variables.

The hypothesis focuses on the relationship between age and the importance of the presence of tourist trails in Bucegi Park. We suggest that the age of visitors may exert a significant influence on how they perceive the importance of the existence of tourist trails.

The variables used are defined as follows: "Age" is a rational or ordinal variable indicating the age group of research participants. "Importance of the Presence of Tourist Trails" is an ordinal or interval variable measuring how important the presence of tourist trails is considered by participants.

The chosen statistical method for testing the hypothesis is correlation analysis via Spearman's rank correlation coefficient. This method is suitable for evaluating whether there is a statistically significant correlation between the two ordinal variables. It provides a measure of the relationship and direction of the correlation between age and the importance of the presence of tourist trails.

The research contribution lies in clarifying how age can influence visitors' perception of the importance of tourist trails in Bucegi Park. The obtained results can provide essential information for the development and management of tourist trail infrastructure.

By understanding the correlation between age and the importance of tourist trails, park administrators can adapt and personalise the tourist experience based on the specific needs and preferences of different age groups. This not only contributes to improving the tourist offering but also enhances visitor satisfaction and creates a memorable experience for all age categories. Thus, the hypothesis not only contributes to understanding the dynamics of visitors in Bucegi Park but also provides a solid foundation for optimising tourist facilities in accordance with age diversity.

By testing the previously listed hypotheses, the research aims to identify and evaluate the relationships and differences between various variables studied in the context of geotourism within Bucegi Natural Park (Table 2). One of the statistical methods we used in the data analysis was the Chi-squared test. This test allowed us to assess whether there is a significant association between occupation and the importance of transportation infrastructure in participants' travel decisions. The results of this test provided valuable insights into how occupation may influence travel preferences. Additionally, we applied Analysis

of Variance (ANOVA) to investigate the variation in the importance of transportation infrastructure based on participants' level of education. This method allowed us to assess whether there are significant differences in the perception of transportation infrastructure among education categories. To examine the correlations between our variables, we used Pearson's correlation and Spearman's correlation. The former was used to determine if there is a linear correlation between the importance of transportation infrastructure and other variables, such as occupation. The latter helped us assess non-linear or ordinal correlations between the variables of interest.

**Table 2.** The variables and statistical methods used in the research.

Hypotheses	Variables	<b>Statistical Method Used</b>
H1	Gender Visiting BNP statistical	Chi-squared test
H2	Age Importance of geotourism in BNP	Analysis of Variance (ANOVA)
НЗ	County of residence Season of visiting natural monuments	Chi-squared test
H4	Education level Contribution of geotourism to	Correlation analysis via Pearson's rank correlation coefficient
H5	knowledge accumulation Occupation Importance of transportation	Chi-squared test
Н6	infrastructure Education level Importance of accommodation	Chi-squared test
H7	structure Service prices Place of origin Importance of the complexity of recreational, leisure, and leisure activities	Correlation analysis via Spearman's rank correlation coefficient
Н8	International promotion Variety and number of karsts and caves explored Occupation	Chi-squared test
Н9	Importance of public catering structure Service prices	Chi-squared test Correlation analysis via Spearman's rank correlation coefficient

Source: data processed by the authors in Microsoft Excel 2010 Spreadsheet Software.

Each hypothesis reflects a potential relationship or association between the studied variables. The results of our tests will reveal whether these relationships are significant or not.

Following the analysis, we will draw conclusions regarding each hypothesis and discuss the implications of these findings in the context of our research. These results will contribute to a deeper understanding of the relationships and influences between our variables of interest, shedding light on key aspects of geotourism in Bucegi Natural Park.

#### 3.4. Research Questions

Research questions are essential to define and delimit the scope of the research, identify relevant variables, and develop data collection and analysis strategies. They can have a significant impact on the success and relevance of the research, helping to focus efforts and resources on the most important aspects of the study. In this analysis of research questions, we will explore and dissect each question individually, aiming to understand their objectives and relevance in the context of the conducted research. We will examine how these questions relate to the research hypotheses and contribute to the development of knowledge in the specific field.

**RQ1:** How does the gender of tourists influence the frequency of visiting Bucegi Natural Park?

This research question explores the relationship between the gender of tourists and how often they visit Bucegi Natural Park. The research could focus on gender differences in motivations for visiting, preferred activities in the park, or their perception of it. By analysing the data, it can be determined whether there is a significant correlation between gender and the frequency of visits to this park.

**RQ2:** Does the geotourism experience in Bucegi Natural Park vary depending on age?

This research question aims to assess how the age of visitors influences the geotourism experience in Bucegi Park. It can be analysed whether preferences and geotourism-related activities vary among different age groups. By collecting and analysing data, it can be determined whether there are significant differences between the ages of visitors and their level of involvement in geotourism.

**RQ3:** How does the county of residence affect the season of visiting the natural monuments in Bucegi Natural Park?

This research question focuses on the influence of the county of residence on the season in which tourists choose to visit the natural landmarks in Bucegi Park. The research can investigate whether geographical factors, such as distance from the park or the region of origin, have a significant impact on the visiting season. The collected data will help identify any patterns or trends in this regard.

**RQ4:** Is there a positive correlation between the level of education of visitors to Bucegi Natural Park and the contribution of geotourism to knowledge accumulation?

This research question pertains to the relationship between the educational level of visitors and how they perceive the contribution of geotourism to knowledge acquisition. It can be analysed whether individuals with a higher level of education have a deeper understanding and appreciation of the geotouristic aspects of the park. By applying statistical methods, it can be determined whether there is a significant correlation in this regard.

**RQ5:** How is the importance of transportation infrastructure influenced by the occupation of visitors to Bucegi Natural Park?

This research question examines how the occupation of visitors in the Bucegi Park may influence their perception of the importance of transportation infrastructure in their decision to visit the area. It can investigate whether certain occupational categories, such as those working in the tourism industry or those with professions related to the environment, place a higher importance on transportation infrastructure for a better tourist experience.

**RQ6:** How does the level of education interact with the importance of tourist accommodation facilities and service prices in Bucegi Natural Park?

This research question focuses on analysing the interaction between tourists' level of education and how they perceive the importance of accommodation facilities and service prices. The research can reveal whether there is a balance between the level of education and accommodation facilities in the area and whether service prices influence visitors' decisions.

**RQ7:** *Is there a positive correlation between the place of origin and the importance of the complexity of recreational, relaxation, and leisure activities?* 

This research question pertains to the potential positive correlation between the visitors' background environment and the importance they place on the complexity of leisure and recreational activities. It can investigate whether visitors from different environments (urban, rural, suburban) have different preferences regarding the types of activities they seek in the park.

**RQ8:** How does international promotion influence the variety of karst and cave exploration in Bucegi Natural Park?

This research question focuses on the impact of international promotion on the diversity of karst and cave exploration in Bucegi Park. The research can assess whether international promotional efforts have contributed to attracting tourists interested in exploring and conserving the karsts and caves in the area.

**RQ9:** *Is there a relationship between occupation and the importance of public food service structures and service prices in Bucegi Natural Park?* 

This research question explores the relationship between the occupation of visitors and how they perceive the importance of the public dining structure and the prices of services in Bucegi Park. It can investigate whether occupation influences tourists' preferences and budgets regarding dining options and available tourist services in the area.

**RQ10:** Is the presence of tourist trails influenced by the age of visitors in Bucegi Natural Park?

This research question pertains to how the age of visitors can influence the existence and development of tourist trails in Bucegi Park. The research can examine whether young and elderly visitors have different preferences regarding hiking trails and whether the park administration should adapt its offerings accordingly.

Each research question has been carefully formulated to identify relationships, trends, and influences in the context of our study on geotourism in Bucegi Park. Throughout this section, we have detailed each research question and discussed the specific statistical methods used to investigate these aspects.

The results obtained through the application of these research questions and appropriate statistical methods will be revealed and discussed in the subsequent sections of our research work. These findings will provide a deeper understanding of the interactions between different variables within Bucegi Park and contribute to the development of a stronger knowledge base in the field of geotourism and tourism management.

#### 4. Results

4.1. Socio-Demographic Characteristics of the Stakeholders (Domestic Tourists—Romanians)

The data presented in the research study indicate that 42 male and 58 female respondents were questioned regarding their gender. The results do not show a significant difference in the gender distribution among the respondents, with women predominating in the analysed sample group.

According to the distribution of answers, 4% of the respondents were under 18 years old, 37% fell into the age category of 19–30 years, 20% were between 31 and 45 years old, 38% were between 46 and 65 years old, and 1% were over 65 years old.

These data show the age distribution among the respondents in the study and can be used to draw conclusions or perform statistical analyses based on the research objectives. For example, it can be observed that the majority of respondents (37%) fall into the 19–30 age group.

This is a commonly used question in research and opinion surveys to segment respondents and gather important demographic data. Respondents are asked to choose the age category that matches their current age range, with the age range predefined and included in the list of options to make the response process easier and more efficient.

According to the distribution of answers, 28% of the respondents came from rural areas, and 72% came from urban areas. These figures indicate the proportion of respondents living in rural and urban environments within the studied population. This type of information is used to understand the geographic composition of the sample or to assess the differences and similarities between urban and rural groups within the study or survey.

Regarding the distribution of answers on residence, 32% of the respondents lived in Bucharest, 17% lived in Dolj County, and 9% lived in Vâlcea County. These data are useful

for assessing the geographic distribution of the respondents and can help understand the differences or similarities among different regions or counties within the study or survey.

According to the distribution of answers, 3% of the respondents had completed primary education, 4% had completed secondary education, and 93% had completed higher education. These figures show the proportion of respondents based on their educational level and can be used to understand the educational composition of the studied population. For example, in this sample, the majority of respondents (93%) had completed higher education.

In further detail:

- 26% of respondents were students.
- 66% of respondents were employed.
- 2% of respondents were retirees.
- 1% of respondents were unemployed.
- 5% fell into the "others" category.

These data reflect the variety of occupations among the respondents and can be used to understand the composition of the workforce or the educational status of the population studied within the survey.

# 4.2. Questionnaire Results

In this section, we analyse and evaluate the research hypotheses formulated earlier. The purpose of this section is to provide a detailed presentation of each hypothesis, the variables involved, and the statistical methods used to test their validity.

During the research process, we gathered relevant data from a sample of 100 participants, allowing us to accurately evaluate each hypothesis and draw solid conclusions. Each hypothesis reflects a possible relationship or association between the studied variables, and the results of our tests will reveal whether these relationships are significant or not.

Following the analysis, we draw conclusions regarding each hypothesis and discuss the implications of these findings in the context of our research. These results will contribute to a deeper understanding of the relationships and influences between our variables of interest, shedding light on key aspects of geotourism in Bucegi Park.

One of the statistical methods we used in data analysis was the Chi-squared test, representing a continuous distribution with k degrees of freedom. This test allowed us to assess whether there is a significant association between occupation and the importance of transportation infrastructure in participants' travel decisions. The results of this test provided valuable insights into how occupation may influence travel preferences.

Additionally, we applied Analysis of Variance (ANOVA) to investigate the variation in the importance of transportation infrastructure based on participants' level of education. This method, which uses the F-distribution governed by two values for the degrees of freedom, allowed us to assess whether there are significant differences in the perception of transportation infrastructure among education categories.

**Hypothesis 1.** There is a significant correlation between gender and the frequency of visiting Bucegi Natural Park.

This research hypothesis investigates whether there is a significant correlation between two variables: "Gender" and "Frequency of visiting the Bucegi Natural Park". The hypothesis suggests that gender (male or female) may significantly influence how often people visit Bucegi Natural Park.

To test this hypothesis, we will use the Chi-squared test, a statistical method suitable for assessing the association between two nominal or ordinal variables- in this case, "Gender" and "Frequency of visiting the Bucegi Natural Park". The Chi-squared test will help us determine if there is a significant relationship between participants' gender and how often they visit the park.

The data collected from our sample of participants will be analysed using the Chisquared test, and the results will be interpreted to determine whether there is a significant correlation between gender and the frequency of visiting Bucegi Natural Park. This analysis will provide information on how the "Gender" factor may influence park visiting behaviour and contribute to a deeper understanding of travel preferences and habits within our study population.

Table 3 indicates that the analysis was conducted on a sample of 100 valid cases, with no missing cases for the variables "Gender" and "Visiting the Bucegi Natural Park".

**Table 3.** Summary of Case Processing for Hypothesis H1.

Cases		
		Valid
Condense Viction Boson's National Book	N	100
Gender × Visiting Bucegi Natural Park	Percent	100.0%
		Missing
Condense Witter Book Noticed B. 1	N	0
Gender × Visiting Bucegi Natural Park	Percent	0.0%
		Total
Control West and Decision of D	N	100
Gender × Visiting Bucegi Natural Park	Percent	100.0%

Source: data processed using SPSS statistical software version 15.0.

Pearson's Chi-squared (Table 4): Pearson's Chi-squared statistic has a value of 2.208 with 1 degree of freedom (df). The *p*-value is 0.137 (Asymp. Sig.—two-tailed), indicating that there is not enough statistical evidence to reject the null hypothesis. This suggests that there is no significant correlation between respondents' gender and their frequency of visiting Bucegi Natural Park at a conventional level of significance (such as 0.05).

Table 4. Chi-squared tests for hypothesis H1.

	Value	df	Asymp. Sig. (2-Sided)	Exact Sig. (2-Sided)	Exact Sig. (1-Sided)
Pearson's Chi-Squared	2.208 (b)	1	0.137		
Continuity Correction (a)	1.318	1	0.251		
Likelihood Ratio	2.397	1	0.122		
Fisher's Exact Test				0.185	0.124
N of Valid Cases	100				

(a) Computed only for a  $2 \times 2$  table. (b) One cell (0.0%) had an expected count less than 5. The minimum expected count is 4.20. Source: data processed using the SPSS statistical software version 15.0.

Continuity correction: Another result of Pearson's Chi-squared test, applying a continuity correction, had a value of 1.318 with 1 degree of freedom and a *p*-value of 0.251 (Table 4). This result supports the conclusion from the first test, indicating that there is not enough evidence to reject the null hypothesis.

Likelihood ratio: The likelihood ratio test statistic has a value of 2.397 with 1 degree of freedom and a p-value of 0.122 (Table 4). This test does not provide enough evidence to reject the null hypothesis, indicating that there is no significant correlation.

Fisher's exact test (Table 4): This test has a *p*-value of 0.185 (two-tailed) and 0.124 (one-tailed). Fisher's exact test is another way to assess the correlation between categorical variables. In this case, the *p*-value suggests that there is not enough evidence to reject the null hypothesis.

In conclusion, based on these results, there is not enough statistical evidence to support the existence of a significant correlation between respondents' gender and their frequency of

visiting Bucegi Natural Park. The null hypothesis, which assumes no significant correlation, cannot be rejected.

**Hypothesis 2.** Geotourism experience in Bucegi Natural Park varies by age.

This research hypothesis explores the relationship between two variables: "Age" and "Importance of geotourism in Bucegi Park". The hypothesis suggests that an individual's age may influence their perception and appreciation of geotourism in Bucegi Park.

To test this hypothesis, we used the Analysis of Variance (ANOVA) test, a statistical method suitable for comparing the means of three or more groups based on an independent variable (in this case, "Age"). The ANOVA test helped determine significant differences in the importance of geotourism in Bucegi Park among different age groups.

The collected data in our research were grouped into categories corresponding to each age group, and the ANOVA test was applied to assess significant variations between these groups regarding the perception of the importance of geotourism. The test results provide insights into how age can affect the geotourism experience in Bucegi Park, contributing to an understanding of the different preferences and perceptions of age groups in this type of tourism.

"N" represents the number of observations in each group or category. "Mean" is the average or mean value of the measurement for that group. For example, for group 1, the mean is 2.5. "Std. Deviation" measures the variability or spread of the data in that group. The larger this number, the more variable the data are. For group 1, the standard deviation is 0.5774. "Std. Error" is the standard error of the mean. The smaller this number, the more precise the mean is. For group 1, the standard error is 0.2887. "95% Confidence Interval for Mean" indicates the range within which the true mean value of the measurement for that group is believed to have 95% confidence (Table 5).

**Table 5.** Basic statistics for evaluating the importance of the complexity of recreational and leisure activities in Bucegi Natural Park by level of education.

No. Crt.	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	95% Confidence Interval for Mean Upper Bound	Min.	Max
1.	4	2.5	0.5774	0.2887	1.5813	3.4187	2	3
2.	37	2.1081	0.6986	0.1148	1.8752	2.3410	1	3
3.	20	2.45	0.6863	0.1535	2.1288	2.7712	1	3
4.	38	2.4737	0.7255	0.1177	2.2352	2.7121	0	3
5.	1	2	0	0	0	0	2	2
Total	100	2.33	0.7115	0.0711	2.1888	2.4712	0	3

Source: data processed using SPSS statistical software version 15.0.

The interval includes the lower bound and upper bound. "Minimum" indicates the smallest value in that group. "Maximum" indicates the largest value in that group. For example, in group 2, the mean is approximately 2.1081 with a standard deviation of approximately 0.6986. The 95% confidence interval for the mean ranges from approximately 1.8752 to 2.3410, with a minimum value in this group of 1 and the maximum value of 3 (Table 5).

In conclusion, this table provides information about the descriptive statistics of the data for different groups or categories, including means, standard deviations, standard errors, and confidence intervals for the mean. This information can be used to better understand the distribution and characteristics of the data.

Between groups represents the sum of squares of the mean differences between the age groups. In this case, the sum of squares is 3.119. Within groups indicates the variability or dispersion within each age group. The sum of squares for the variability within the groups

is 46.991. Total represents the total sum of dispersion, which is the sum of the dispersion between groups and the dispersion within groups (Table 6).

Table 6. Analysis of Variance (ANOVA) for the importance of geotourism in Bucegi Natural Park.

	Sum of Squares	df	Mean Square	F	Sig.
between Groups	3.119	4	0.780	1.576	0.187
within Group	46.991	95	0.495		
Total	50.110	99			

Source: data processed using SPSS statistical software version 15.0.

In this case, the total sum is 50.110. Degrees of freedom (df) indicates the number of degrees of freedom associated with each source of variation (Table 6). For between groups, there were 4 degrees of freedom, and for within groups, there were 95 degrees of freedom. Mean square is the result of dividing the sum of squares by the corresponding degrees of freedom. For between groups, the mean square is 0.780, and it is not specified for within groups. F (F-ratio) is a measure of the variation between groups compared to the variation within groups. In this case, the F-ratio is 1.576. Sig. (Significance) is the *p*-value associated with the ANOVA test and indicates how significant the differences between groups are. In this case, the *p*-value is 0.187 (Table 6). The *p*-value (0.187) is greater than the common significance level of 0.05. This suggests that there are no significant differences between the age groups regarding the importance of geotourism in Bucegi Park at a 95% confidence level. In conclusion, based on the results of the ANOVA test, there is not enough evidence to support the hypothesis that there are significant differences in the importance of geotourism in Bucegi Park based on the tested age groups.

**Hypothesis 3.** County of residence influences the visiting season of natural monuments in Bucegi Natural Park.

This research hypothesis focuses on examining the relationship between two variables: "County of Residence" and "Season of Visiting the Natural Monuments in the Bucegi Park". The hypothesis suggests that individuals' county of residence may influence the timing or season in which they choose to visit the natural monuments in Bucegi Park.

In order to test this hypothesis, we uses the Chi-squared test, a suitable statistical method for assessing associations between two nominal or ordinal variables. In this case, "County of Residence" and "Season of Visiting the Natural Monuments" are the variables taken into consideration. The Chi-squared test helps us determine if there is a significant correlation between these two variables and identify whether the county of residence of participants influences the season they prefer to visit the natural monuments in the park.

The data collected from research participants were analysed using the Chi-squared test, and the obtained results were interpreted to determine whether there is or is not a significant correlation between the county of residence and the season of visiting the natural monuments. This analysis provides insights into how the place of residence can influence the visiting behaviour of the natural monuments in Bucegi Park and contribute to developing a more comprehensive understanding of the preferences and travel habits of participants from different counties.

The case processing summary indicates that for the analysis regarding the influence of the county of residence on the visiting season of natural monuments in Bucegi Park, all 100 available cases were used (Table 7). There were no missing data, meaning that all respondents provided the necessary information for this analysis. This ensures that the analysis was based on a complete dataset without any missing values.

The results of the Chi-squared test indicate that there is no significant relationship between the county of residence and the season of visiting the natural monuments in Bucegi Park (Table 8). In both cases, the *p*-value is well above the usual significance level of 0.05. This suggests that there is not enough statistical evidence to support hypothesis H3, which

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suggests that the county of residence influences the visiting season. It is important to note that in this test, 84 out of 100 cells have expected values less than 5, with the minimum expected value being 0.10 (Table 8). This may affect the validity of the test and might necessitate a closer examination of the data or suggest that there is not enough data to draw significant conclusions regarding the influence of the county of residence on the visiting season.

**Table 7.** Summary of case processing for hypothesis H3.

Cases		
		Valid
Country of Davidson and The Winterline Country of Nature Managements	N	100
County of Residence × The Visitation Season of Nature Monuments	Percent	100.0%
		Missing
Control Della Control Della Vicinia Control Della Manageria	N	0
County of Residence × The Visitation Season of Nature Monuments	Percent	0.0%
		Total
Control Della Control Della Vicinia Control Della Manageria	N	100
County of Residence × The Visitation Season of Nature Monuments	Percent	100.0%

Source: data processed using SPSS statistical software version 15.0.

Table 8. Chi-squared tests for hypothesis H3.

	Value	df	Asymp. Sig. (2-Sided)
Pearson's Chi-Squared	49.178 (a)	63	0.899
Likelihood Ratio	49.868	63	0.885
N of Valid Cases	100		

(a) 84 cells (95.5%) have an expected count less than 5. The minimum expected count is 0.10. Source: data processed using SPSS statistical software version 15.0.

**Hypothesis 4.** There is a positive correlation between the education level of visitors in Bucegi Natural Park and the contribution of geotourism to knowledge accumulation.

This research hypothesis focuses on the relationship between two variables: "Education Level" and "Contribution of geotourism to knowledge accumulation". The hypothesis suggests that there is a positive correlation between the education level of visitors in Bucegi Park and the extent to which geotourism contributes to their knowledge accumulation.

In order to test this hypothesis, we used Pearson's correlation coefficient, a statistical method suitable for evaluating the linear relationship between two continuous variables, in this case, "Education Level" and "Contribution of geotourism to knowledge accumulation". Pearson's correlation coefficient helped us determine if there is a significant positive correlation between these two variables and measure the degree of relationship between them.

The data collected from visitors in Bucegi Park included information about their education level and their perception of how geotourism contributes to knowledge accumulation. By applying Pearson's correlation coefficient to this data, we were able to assess whether there is a significant positive correlation between the education level and the contribution of geotourism to the knowledge of visitors. The results of this test helped us understand the extent to which education influences the perception and geotourism experience of visitors in Bucegi Park.

This correlation analysis indicates a significant negative correlation at the 0.05 level (two-tailed) between the education level of visitors in Bucegi Park and the contribution of geotourism to knowledge accumulation. This means that, in general, people with a higher level of education tended to perceive a lower contribution of geotourism to knowledge accumulation compared to those with a lower level of education.

More specifically, Pearson's correlation coefficient (r) is -0.217, indicating a moderate negative correlation between the two variables (Table 9). The negative sign indicates that as the education level increases, the perception of the contribution of geotourism to knowledge accumulation tends to decrease.

Table 9. Pearson's correlation between level of education and the impact of geotourism on knowledge.

		Level of Education	The Contribution of Geotourism to Knowledge Accumulation
Level of Education	Pearson Correlation Sig. (2-tailed)	1	-0.217 (*) 0.030
Devel of Education	N N	100	100
		Level of Education	The Contribution of Geotourism to Knowledge Accumulation
The Contribution of	Pearson Correlation	0.217 (*)	1
Geotourism to Knowledge Accumulation	Sig. (2-tailed) N	0.030 100	100

Source: data processed using SPSS statistical software version 15.0. \* Pearson's correlation coefficient (r) is -0.217, indicating a moderate negative correlation between the two variables.

**Hypothesis 5.** There is a connection between the occupation of visitors to Bucegi Natural Park and the importance of transportation infrastructure in their decision to visit the area.

This research hypothesis focuses on the relationship between two variables: "Occupation" and "The Importance of Transportation Infrastructure in the Decision to Visit the Area". The hypothesis suggests that the occupation of visitors in Bucegi Park may influence the degree of importance they attach to transportation infrastructure in their decision to visit the area.

In order to test this hypothesis, we used the Chi-squared test, which is a suitable statistical method for assessing associations between two nominal or ordinal variables, in this case, "Occupation" and "The Importance of Transportation Infrastructure". The Chi-squared test helped us determine if there is a significant correlation between these two variables and assess whether visitors' occupations influence the importance they place on transportation infrastructure in their decision to visit Bucegi Park.

The data collected from visitors were grouped based on their occupations, and then the Chi-squared test was applied to examine if there are significant differences between these groups regarding their perception of the importance of transportation infrastructure. The results of this test provide insights into how occupation may influence visitors' perceptions of transportation infrastructure and contribute to understanding the different preferences and needs of these groups in the context of the decision to visit the Bucegi Park. It indicates a total of 100 valid cases (Table 10), meaning there were no missing data for the variables "Occupation" and "Importance of Transportation Infrastructure".

**Table 10.** Summary of case processing for hypothesis H5.

		Cases		
		Valid	Missing	Total
Occupation × The Importance of	N	100	0	100
Transportation Infrastructure	Percent	100.0%	0.0%	100.0%

Source: data processed using SPSS statistical software version 15.0.

The results of the Chi-squared test for this hypothesis are as follows (Table 11). Pearson's Chi-squared value is 30.790, with 32 degrees of freedom. The likelihood ratio-based Chi-squared value is 24.094, also with 32 degrees of freedom. The asymptotic significance

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(two-sided) for both tests is above 0.05, specifically 0.528 for Pearson's Chi-squared and 0.841 for the likelihood ratio.

**Table 11.** Chi-squared tests for hypothesis H5.

	Value	df	Asymp. Sig. (2-Sided)
Pearson's Chi-Squared	30.790 (a)	32	0.528
Likelihood Ratio	24.094	32	0.841
N of Valid Cases	100		

(a) 40 cells (88.9%) have expected counts less than 5. The minimum expected count is 0.02. Source: data processed using SPSS statistical software version 15.0.

These significance values above 0.05 indicate that there is no significant relationship between the occupation of visitors to Bucegi Park and the importance they attribute to transportation infrastructure in their decision to visit the area. Essentially, this suggests that the occupation of visitors does not significantly influence the importance of transportation infrastructure in their choice to visit or not visit Bucegi Park.

**Hypothesis 6.** There is an association between the level of education, the importance of accommodation structure, and service prices in Bucegi Natural Park.

This research hypothesis focuses on identifying an association between three variables: "Geotourism Potential", "Importance of Accommodation Facilities", and "Price of Services" within Bucegi Park. The hypothesis suggests that the geotourism potential of the area may influence how tourists perceive the importance of accommodation facilities and the prices of services offered in the park.

In order to test this hypothesis, we used the Chi-squared test, a suitable statistical method for assessing associations between nominal or ordinal variables, in this case, "Geotourism Potential", "Importance of Accommodation Facilities", and "Price of Services". The Chi-squared test helped us determine if there is a significant correlation between these three variables and evaluate whether the perception of the geotourism potential of the area influences the importance and prices of tourist services.

The data collected from tourists in Bucegi Park included information about their perception of the geotourism potential of the area as well as their assessment of the importance of accommodation facilities and the prices of services. By applying the Chi-squared test to this data, we were able to assess whether there is a significant association between these variables or not. The results of this test provide insights into how the perception of geotourism potential can influence the preferences and perceptions of tourists regarding accommodation facilities and the prices of tourist services in Bucegi Park. The case processing summary results indicate that there were 100 valid cases, and there were no missing cases for this hypothesis (Table 12). This means that data were collected for all variables, and all participants provided the necessary information for analysis.

**Table 12.** Summary of case processing for hypothesis H6.

		Cases		
		Valid	Missing	Total
Education Level × The Importance of Accommodation Infrastructure and Service Prices	N Percent	100 100.0%	0 0.0%	100 100.0%

Source: data processed using SPSS statistical software version 15.0.

Pearson's Chi-squared (Table 13) result is 14.750, with 3 degrees of freedom. The asymptotic significance (two-sided) is 0.002. The likelihood ratio is 10.523, with 3 degrees of freedom. The asymptotic significance (two-sided) is 0.015.

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Table 13. Chi-squ	ıared tests foı	r hypot	hesis H6.
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	Value	df	Asymp. Sig. (2-Sided)
Pearson's Chi-Squared	14.750 (a)	3	0.002
Likelihood Ratio	10.523	3	0.015
N of Valid Cases	100		

(a) Three cells (37.5%) have expected counts less than 5. The minimum expected count is 0.56. Source: data processed using SPSS statistical software version 15.0.

These results indicate that there is a significant association between geotourism potential and the importance attributed to accommodation facilities and service prices in Bucegi Natural Park. The low asymptotic significance (*p*-value) in both tests suggests that the association is not due to chance and is statistically significant. However, it is important to note that three cells (out of the eight possible) have expected values less than 5, indicating a potential limitation of the Chi-squared test in this case. This can lead to a more cautious interpretation of the results, as the test may not be as robust in such situations.

In conclusion, hypothesis H6 is accepted, suggesting that there is a significant association between geotourism potential and the importance attributed to accommodation facilities and service prices in Bucegi Natural Park.

**Hypothesis 7.** There is a positive correlation between the place of origin and the importance of the complexity of recreational and leisure activities.

This research hypothesis explores the relationship between two variables: "Source Environment" and "The Importance of the Complexity of Recreational, Relaxation, and Leisure Activities". The hypothesis suggests that there is a significant positive correlation between the source environment and the importance attributed to the complexity of recreational, relaxation, and leisure activities.

In order to test this hypothesis, we used Spearman's rank correlation coefficient, a suitable statistical method for evaluating the relationship between two ordinal or ranked variables, in this case, "Source Environment" and "The Importance of the Complexity of Recreational, Relaxation, and Leisure Activities". Spearman's rank correlation coefficient helped us determine if there is a significant positive correlation between these variables and measure the strength of the relationship between them.

By applying Spearman's rank correlation coefficient to this data, we were able to assess whether there is or is not a significant positive correlation between the source environment and the importance attributed to the complexity of activities.

The results of this test provide insights into how the source environment may influence visitors' preferences and perceptions regarding recreational, relaxation, and leisure activities in a natural or tourist park. This can contribute to tailoring the tourist offering for different visitor groups based on their source environment and creating a more personalised experience in the park.

Spearman's rho for source environment and the importance of the complexity of recreational, relaxation, and leisure activities is 0.112. The two-tailed significance for this correlation is 0.266 (Table 14). These results indicate a very weak and statistically nonsignificant correlation between the source environment and the importance of the complexity of recreational, relaxation, and leisure activities in Bucegi Park. The correlation coefficient's value is very close to zero, suggesting that there is no significant correlation between these two variables within the studied sample.

In conclusion, hypothesis H7 is not supported by the analysed data, as there is no significant correlation between the source environment and the importance of the complexity of recreational, relaxation, and leisure activities in Bucegi Park.

**Table 14.** Relationship between place of origin and the importance of the complexity of recreational, relaxation, and leisure activities in Bucegi Natural Park.

Spearman's Rho		Source Environment	The Importance of the Complexity of Recreational, Relaxation, and Leisure Activities
	Correlation Coefficient	1.000	0.112
Source Environment	Sig. (2-tailed)	0	0.266
	N	100	100
		Level of Education	The Contribution of Geotourism to Knowledge Accumulation
The Importance of the Complexity	Correlation Coefficient	0.112	1.000
of Recreational, Relaxation, and	Sig. (2-tailed)	0.266	0
Leisure Activities	N	100	100

Source: data processed using SPSS statistical software version 15.0.

**Hypothesis 8.** International promotion influences the exploration of karsts and caves in Bucegi Natural Park.

This research hypothesis investigates the relationship between two variables: "International Promotion" and the "Variety of Karst and Explored Caves" in Bucegi Park. The hypothesis suggests that the level of international promotion may have a significant influence on the diversity of karst and cave exploration in the park.

In order to test this hypothesis, we used the Chi-squared test, an appropriate statistical method for assessing associations between two nominal or ordinal variables, in this case, "International Promotion" and the "Variety of Karst and Explored Caves". The Chi-squared test helped us determine if there is a significant correlation between these two variables and evaluate whether international promotion influences the variety of karst and cave exploration in the park.

The data collected from our research include information about the level of international promotion of Bucegi Park and the variety of karst and cave exploration in the area. By applying the Chi-squared test to these data, we were able to assess whether there is or is not a significant association between these variables. The results of this test provide insights into how international promotion may influence the exploration of karst formations and caves in Bucegi Park, contributing to the development of promotion and tourism management strategies.

The results for hypothesis H8, based on the case processing summary analysis, show that in the sample of 100 cases (Table 15), all were considered valid for the analysis regarding the relationship between "International Promotion" and the "Variety of Karst and Explored Caves in Bucegi Park". This means that all study participants provided the necessary information for this analysis, and there are no missing data or invalid cases in this context. To obtain specific results of the statistical analysis, we performed the appropriate statistical test (e.g., Chi-squared test or another suitable method) to assess whether there was a significant association between "International Promotion" and the "Variety of Karst and Explored Caves in Bucegi Park".

**Table 15.** Summary of sase processing for hypothesis H8.

		Cases		
		Valid	Missing	Total
International Promotion × the Variety of Karst and Cave Exploration	N Percent	100 100.0%	0 0.0%	100 100.0%

Source: data processed using SPSS statistical software version 15.0.

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The results of the Chi-squared test for hypothesis H8, which explores the relationship between "International Promotion" and "Variety of Karst and Explored Caves in the Bucegi Park" are as follows (Table 16). Pearson's Chi-squared statistic was 2.253. The degrees of freedom (df) was 4. The *p*-value (Asymp. Sig. two-sided) was 0.689. The results do not indicate a significant correlation between "International Promotion" and the "Variety of Karst and Explored Caves". The *p*-value (0.689) is greater than the common significance level of 0.05, suggesting that there is not enough statistical evidence to reject the null hypothesis. Therefore, there is not enough evidence to support that "International Promotion" significantly influences the "Variety of Karst and Explored Caves in Bucegi Park".

**Table 16.** Chi-squared tests for hypothesis H8.

	Value	df	Asymp. Sig. (2-Sided)
Pearson's Chi-Squared	2.253 (a)	4	0.689
Likelihood Ratio	2.370	4	0.668
N of Valid Cases	100		

(a) Five cells (55.6%) have expected counts less than 5. The minimum expected count is 0.19. Source: data processed using SPSS statistical software version 15.0.

**Hypothesis 9.** *There is a relationship between occupation and the importance of public catering structure and service prices.* 

This research hypothesis focuses on evaluating the relationship between three variables: "Occupation", "Importance of Public Dining Structure", and "Service Prices" within a tourist destination. The hypothesis suggests that the occupation of tourists may influence how they perceive the importance of the public dining structure and service prices.

In order to test this hypothesis, we used the Chi-squared test, an appropriate statistical method for assessing associations between two nominal or ordinal variables, in this case, "Occupation", "Importance of Public Dining Structure", and "Service Prices". The Chi-squared test helped us determine if there is a significant correlation between these variables and evaluate whether tourists' occupation influenced their perception of the public dining structure and service prices.

The data collected in our research include information about the occupation of tourists as well as their assessment of the importance of the public dining structure and service prices. By applying the Chi-squared test to these data, we were able to assess whether there is or is not a significant association between these variables. The results of this test provided insights into how tourists' occupation may influence their preferences and perceptions related to the public dining structure and service prices, thus contributing to the development and adaptation of offerings for various segments of tourists.

The case processing summary results for hypothesis H9, which examines the relationship between "Occupation" and "Importance of Public Dining Structure and Service Prices", indicated that there were 100 valid cases (Table 17), and there were no missing data or invalid cases in the dataset. This means that all the necessary data for conducting the analysis were collected and processed correctly. Therefore, we proceeded with the statistical analysis to test hypothesis H9.

**Table 17.** Summary of case processing for hypothesis H9.

		Cases		
		Valid	Missing	Total
International Promotion $\times$ The Variety of Karst and Cave Exploration	N Percent	100 100.0%	0 0.0%	100 100.0%

Source: data processed using the SPSS statistical software version 15.0.

The results of the Chi-squared test for hypothesis H9, which examines the relationship between "Occupation" and the "Importance of public catering and service price", are as follows. Pearson's Chi-squared test value (Table 18) was 20.882 with 24 degrees of freedom. The likelihood ratio was 19.978 with 24 degrees of freedom. The *p*-value (Asymp. Sig. (two-sided)) for Pearson's Chi-squared was 0.646, and for the likelihood ratio it was 0.698.

Table 18. Chi-squared tests for hypothesis H9.

	Value	df	Asymp. Sig. (2-Sided)
Pearson's Chi-Squared	20.882 (a)	24	0.646
Likelihood Ratio	19.978	24	0.698
N of Valid Cases	100		

Source: data processed using SPSS statistical software version 15.0. (a) at the value of 20.882 in the "Pearson Chi-Square" column indicates that this value was estimated or adjusted to account for the sample size, low frequencies in certain data categories, or other specific conditions related to the dataset or the Chi-Square test itself.

These results indicate that there is no significant association between occupation and the importance of public catering and service prices in Bucegi Natural Park. In other words, there is no strong statistical evidence to support hypothesis H9, which suggested a relationship between these two variables. The high p-value (approximately 0.646 and 0.698) indicates a lack of statistical significance. The results show that visitors' occupations do not significantly influence the importance attributed to public catering structures and service prices in Bucegi Natural Park, at least based on the data and test used in the analysis.

**Hypothesis 10.** There is a positive correlation between age and the importance of the presence of tourist trails.

This research hypothesis examines the relationship between two variables: "Age" and the "Importance of the presence of tourist trails" in the context of a tourist destination. The hypothesis suggests that there is a significant positive correlation between age and the level of importance attributed to the presence of tourist trails.

In order to test this hypothesis, we used Spearman's rank correlation coefficient, a statistical method suitable for assessing the relationship between two ordinal or rank-ordered variables, in this case, "Age" and the "Importance of the presence of tourist trails". Spearman's rank correlation coefficient helped us determine whether there is a significant positive correlation between these two variables and measure the degree of relationship between them.

The data collected in our research included information about the age of participants and their assessment of the importance of the presence of tourist trails at the destination. By applying Spearman's rank correlation coefficient to this data, we were able to evaluate whether or not there is a significant correlation between age and the importance attributed to tourist trails.

The results of this test helped us understand whether tourists' preferences and priorities regarding tourist trails varied by age, which can be useful in the results for hypothesis H10, which explores the relationship between "Age" and the "Importance of the presence of tourist trails" (Table 19). Spearman's rho correlation coefficient for these two variables is -0.129. The p-value (Sig. (two-tailed)) associated with the correlation coefficient is 0.200. These results indicate that there is a slight negative correlation, but it is not statistically significant, between age and the importance of the presence of tourist trails in Bucegi Park. In other words, there is not enough statistical evidence to support hypothesis H10, which suggested a significant positive correlation between age and the importance of the presence of tourist trails. The high p-value (approximately 0.200) indicates a lack of statistical significance for developing marketing strategies and planning the tourist offering.

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**Table 19.** Relationship between age and the importance of the presence of tourist trails in Bucegi Natural Park.

Spearman's Rho		Age	The Importance of the Presence of Tourist Trails
Ago	Correlation Coefficient	1.000	-0.129
Age	Sig. (2-tailed)	0	0.200
	N	100	100
		Age	The Importance of the Presence of Tourist Trails
The importance of the	Correlation Coefficient	-0.129	1.000
presence of tourist trails	Sig. (2-tailed)	0.200	0
	N	100	100

Source: data processed using SPSS statistical software version 15.0.

#### 5. Discussion

The uniqueness of the geomorphological and geological elements, coupled with the presence of natural reserves and monuments, positions Bucegi Natural Park as a brand capitalising on various forms of tourism, including geotourism. This interdependence extends to ecological tourism, adventure tourism, ecotourism, ecumenical tourism, hunting tourism, and more. Beyond the captivating landmarks such as Babele and the Sphinx that contribute to the aesthetic appeal, the promotion and exploitation of geotourism gain additional significance when considering the geological and geomorphological marvels in the Ialomița basin. This includes sinkholes, caves, stone slabs, chimneys, and gorges, providing a rich geological and geomorphological experience.

A notable feature within the Bucegilor Plateau is the country's largest rocky wall, the Wall of the White Valley on Mount Coștila. This geological formation not only adds to the park's allure but also presents an exciting opportunity for adrenaline enthusiasts. The availability of climbing routes in this area serves as an added value to the natural park, attracting adventure seekers and enhancing the overall diversity of experiences offered within the park.

Summarising information from specialised literature, geotourism focuses on interpretation, promotion, and conservation [150] as essential pathways for the development, originality, innovation, and sustainability of geotourism in Romania's major protected areas, including national parks, natural parks, and nature reserves. Geotourism has the potential to positively impact the socio-economic development of rural areas and reduce unemployment [151]. However, like any other form of tourism, it can also contribute to the development of tourism potential and foster dialogue between the resident population and tourists. Conversely, in the natural environment of Bucegi Natural Park, where ecosystems have flourished, the increase in the number of vehicles poses a threat to the degradation of protected areas and the quality of life for resident inhabitants [152].

In the post-COVID-19 context, there is an opportunity to capitalise on geotourism for tourist routes that traverse protected natural areas. Therefore, it is pertinent to incorporate the economic, social, and environmental dimensions of human activity. This approach can offer excellent new possibilities, using protected natural areas as reference prototypes to stimulate and promote the development of sustainable tourism within broader geographical spaces [153]. Meini et al. (2018) [154] suggested that naturally protected areas can indeed be considered models of sustainable viability, wherein the value of cultural heritage can be more easily investigated and managed in the context of natural and anthropic tourism resource management [154].

According to López-Sanz et al. (2021) [155], from a managerial perspective, the social, economic, and environmental sustainability of a tourist destination is crucial for its development [155]. In relation to sustainable regional development and the expansion of a

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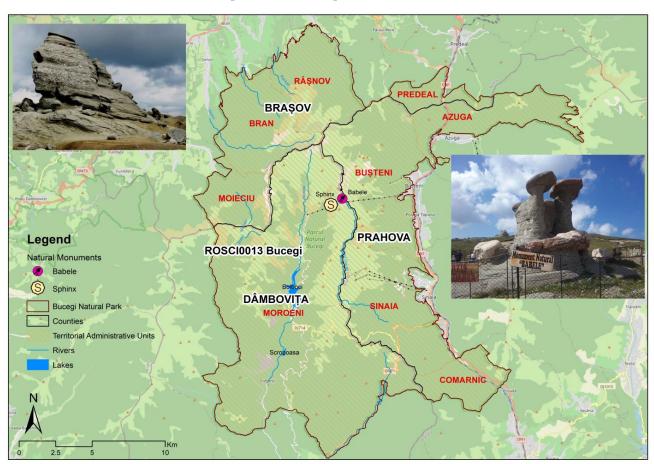
geographical space, the more tourists visit and spend time in a natural protected area, the more income will continuously grow [156]. An essential solution for administrators and managers of protected areas would be to enhance tourist satisfaction in the Bucegi Natural Park area.

Concerning the management and exploitation of geotourism, organisers and managers of all categories of natural protected areas must provide tourists/visitors with rest, recreation, and entertainment options. These options naturally maximise visitors' ability to gain recreational advantages in correlation with experiential attractions, specifically the exploitation of the natural environment. This, in turn, leads to improved emotional attachment and a desire to revisit for tourists [157].

According to Xu and Wu (2022) [158], in certain regions practicing traditional tourism or areas in the process of expansion or development, distinguishing the difference between activities in geotourism and traditional tourism activities can be very complicated, especially when there is an overlap in the territory with other tourism brands [158].

The tourist image of the Southern Carpathians and Bucegi Natural Park is formed by interesting landmarks created by nature on the Bucegi plateau—the Sphinx and the Babele; thus, these tourist attractions constitute the basic foundation of the practice of geotourism and, at the same time, they represent an additional income source for the locals from the tourists who visit these geological and geomorphological landforms.

The tourist destination image is often characterised as impressions of a geographic space or perceptions of an area. It is usually considered as the result of tourists' previous experiences [159]. In the research, 89% of the respondents (89 Romanian tourists) agreed that the Babele and the Sphinx (Figure 4) represent an element of the tourist image for the international promotion of the park.



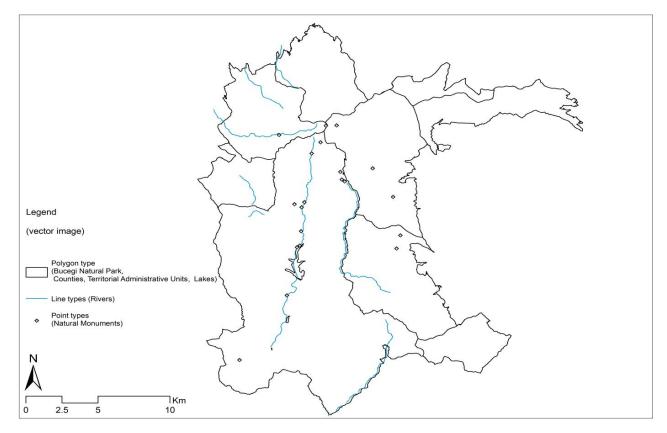
**Figure 4.** The main elements of the tourist image of Bucegi Natural Park. Source: authors' data processing in ArcGIS 10.7.2 using OpenStreetMap (OSM) (open source) [160].

We define a geotourism destination's image as visitors' memories, thoughts, feelings, and behavioural interests toward natural environment resources, geotourism travel activities, and general tourism infrastructure. The image of the geotourism destination includes cognitive images [161,162]: photos consisting of landscapes and lookout areas, activities that can be carried out within the protected areas (hiking, climbing, following tourist routes, etc.), the availability of tourist services in the park area, the behaviour of tourists, their willingness to return within the protected areas inside the park, and the recommendation of the tourist destination. It also includes affective images [161,162]: passion for culture and gastronomy, emotions, joy and respect for the archaeological and architectural values, etc.

The proposed slogan for the international promotion of Bucegi Natural Park is the following: "Visit the park and discover geotourism—Babele and the Sphinx".

Statistical data can be explored, viewed, and edited for nature monuments, nature reserves, tourist routes, and the location of tourist agencies in Bucegi Natural Park using data from the GIS software 10.7.2 [163,164] and ArcGIS (Escri, Redlands, CA, USA) [165].

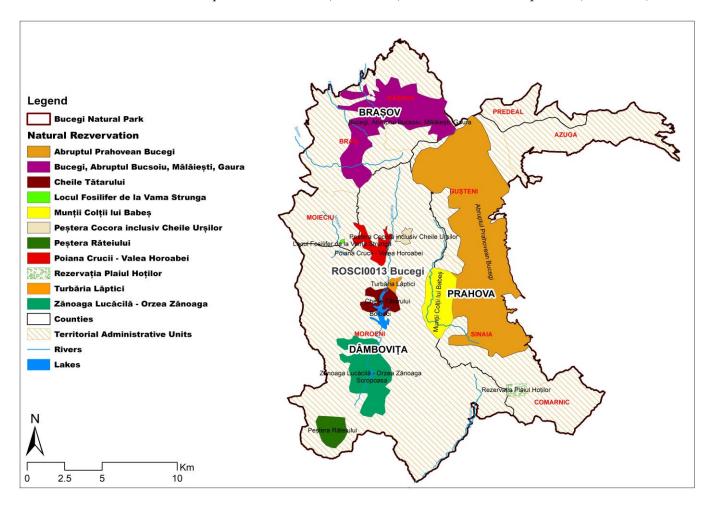
Natural monuments are part of IUCN category III and are defined as restricted natural areas (Figure 5) represented by a special land feature form, an area with rare geological characteristics, a floristic unity, etc. [92]. According to the criterion of origin/cause of appearance, natural monuments can be geological, paleontological, speleological, geomorphological, hydrological, botanical, zoological, etc. In the PNB, there are 46 natural monuments [166], among which are microrelief forms formed on conglomerates (Sphinx, Babele), landforms resulting from the erosion and degradation of rocks (Colții Morarului, Hornurile Mălăestilor), forms of karst relief (Răteiului Cave, Ialomiței Cave), sections of gorges on the course of the Ialomița River (Tătarului Gorges, Orzei Gorges, Urșilor Gorges, Zănoagei Gorges), rocky walls/cliffs (Cerdacul Văii Cerbului, Mecetul Turcesc, Claia Mare, Peretele Văii Albe), and waterfalls (Obârșiei Waterfall, Urlătoarea Waterfall, Vânturiș Waterfall, Doamnele Waterfall). Other tourist attractions include Seven Springs Waterfall, recognised for the purity of its water; artificial dam lakes; and valleys shaped by glaciers.



**Figure 5.** Location of the nature monuments in Bucegi Natural Park. Source: authors' data processing in ArcGIS 10.7.2.

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Nature reserves (Figure 6) correspond to category IV of the IUCN, and they aim to protect some habitats or species through their active management [92]. Fourteen such protected areas have been demarcated in the PNB (Table 20), among which are Turbăria Lăptici, Abruptul Prahovean, Colții lui Barbeș Mountains, and Abruptul Bucșoiu-Mălăești-Gaura.



**Figure 6.** Nature reserves within Bucegi Natural Park. Source: authors' data processing in ArcGIS 10.7.2 [167].

Table 20. Travel agencies within Bucegi Natural Park.

Ref. No.	Name of the Travel Agency	
1.	Even Tour Travel Agency	
2.	Diversis Business Travel	
3.	Imont Travel S.R.L.	
4.	Actual Turism S.R.L.	
5.	Optimus Ali Tour	
6.	Tourism and Information Centre Busteni	
7.	Excursii Montane Busteni Off-Road Tour	
8.	Advanced Travel	

Source: processing according to My Maps.

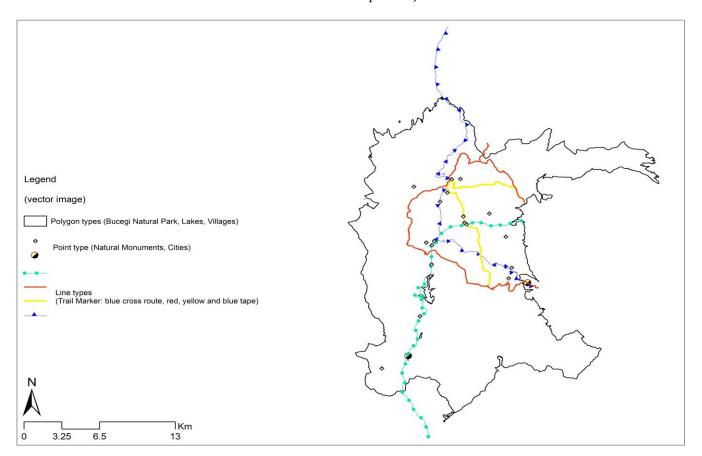
Bucegi Natural Park has four main tourist routes that cross it, classified according to the degree of difficulty (Figure 7; [168]):

1. Red band: Sinaia—Elevation 1400—Elevation 2000—Valea Izvorul Dorului—Şaua Lăptici—Şaua Lăptici—Şaua Strunga—Omu Peak—Bucşoiu Peak—Poiana Pichetul Roşu—Poiana Izvoarelor cabin—Gura Diham cabin—Buşteni.

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2. Blue band: Sinaia—Poiana Stânii—Piciorul Pietrei Arse—Piatra Arsă cabin—Piciorul Cocorei—Hotelul Peștera—Obârșiei Valley—Omu Peak—Mălăiești refuge—Glejăriei Valley—Râșnov.

- 3. Blue cross: Pucheni—Dobreşti—Scropoasa cabin—Zănoaga cabin—Bolboci cabin—Padina cabin—Hotelul Peştera—Piciorul Babelor—Babele cabin—Caraiman cabin—Jepilor Valley—Buşteni.
- 4. Yellow band: Buşteni—Plaiul Fânului—Cerbului Valley—Omu peak- Babele cabin—Piatra Arsă cabin—Furnica peak—Şaua Vârful Cu Dor.



**Figure 7.** Tourist routes within Bucegi Natural Park. Source: authors' data processing in ArcGIS 10.7.2.

Tourist routes are characterised in the specialised literature as "important components of the tourist infrastructure" [169], playing a primary role in leisure activities in nature, such as hiking and cycling [170]. Also, tourist trails are absolutely necessary for combating tourists' uncontrolled wandering all over the place [171,172] and provide them with ample opportunities for recreation and rest [173].

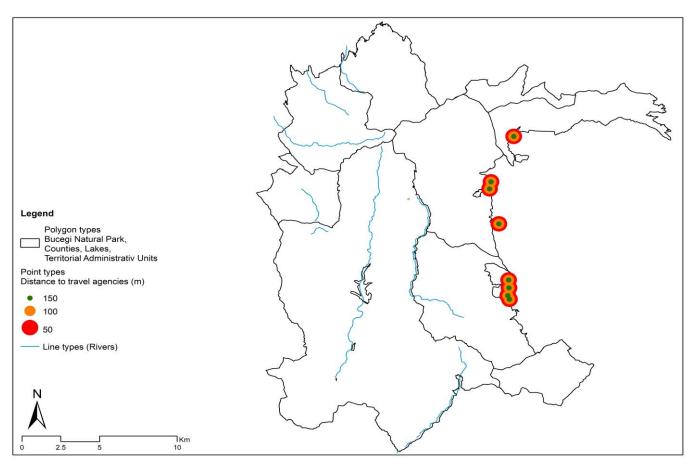
To conclude, the previously analysed elements represent the characteristics that form a unique tourist product for consumers of tourist services and products.

A key element in the geotourism revitalisation equation is travel agencies. These entities have the capacity to shape and promote authentic geotourism experiences, thus contributing to attracting tourists to lesser-known but naturally and culturally charming destinations. Additionally, they can play a crucial role in educating and raising awareness among tourists about the importance of environmental conservation and sustainability in tourism.

For the tourism agencies within Bucegi Natural Park (Figure 8), geotourism represents a new perspective for a relaunching in the post-COVID-19 pandemic period; they have at their disposal all the elements (e.g., nature monuments, nature reserves, tourist routes,

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accommodation units, and public food supplies) that create a sustainable and ecological geotourism product in the medium and long term.



**Figure 8.** Travel agencies within Bucegi Natural Park. Source: authors' data processing in ArcGIS 10.7.2.

The map of the location of the tourist agencies within Bucegi Natural Park was created using the programs ArcMap 10.7.2, Google Earth, and Google My Maps. The map above was generated using the Buffer function, with the chosen distance being 50, 100, and 150 m. "Buffer" represents the function by which the buffer zone of an analysed object is determined; in our case, the digitised points are the travel agencies.

Eight tourism agencies located within the park were digitised (Table 20).

The digitisation procedure was carried out in Google My Maps, after which it was exported as a kml file in Google Earth, filled in the database, and imported into ArcMap. In ArcMap, the kml time file was transformed into an shp-type layer and further processed according to the classical cartography steps.

## 6. Conclusions

The conclusions drawn from the data analysis and testing of research hypotheses highlight several key aspects. Firstly, it was observed that the gender of visitors does not seem to have a significant impact on the frequency of visits to Bucegi Park, indicating an equal attraction of the park for both genders. This finding can influence marketing and promotional strategies.

Secondly, variability in the geotourism experience based on age was identified, with younger individuals showing a greater interest in geotourism activities. This discovery emphasises the need for the development of specific educational programs for different age groups to enhance understanding and engagement in geotourism.

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Research hypothesis H1, which suggested a significant correlation between gender and visitation frequency in the Bucegi Natural Park, was not confirmed following the Chi-squared analysis. The results of tests, including Pearson's Chi-squared, continuity correction, likelihood ratio, and Fisher's exact test, did not provide sufficient statistical evidence to reject the null hypothesis. Therefore, there is no statistically significant argument supporting the existence of a correlation between the gender of participants and visitation frequency in the mentioned park. The analysis was conducted on a sample of 100 valid cases, with no missing data for the "Sex" and "Visiting the Bucegi Natural Park" variables.

Research hypothesis H2, suggesting that the geotourism experience in Bucegi Park varies with age, was not confirmed following the ANOVA analysis. The analysis involved categorising data into age groups and applying the ANOVA test to assess whether there are significant differences in the importance of geotourism in Bucegi Park among different age groups.

Therefore, based on the ANOVA test results, there is not enough evidence to support the hypothesis that there are significant differences in the importance of geotourism in Bucegi Park based on the tested age groups.

Research hypothesis H3, which suggested that the county of residence influences the visiting season of natural monuments in Bucegi Park, was not confirmed following the Chi-squared analysis. The analysis focused on the relationship between the variables "County of Residence" and "Season of Visiting Natural Monuments in Bucegi Park", and the Chi-squared test did not provide sufficient statistical evidence to support the hypothesis of a significant correlation between these two variables.

It is important to note that in this test, 84 out of the 100 cells had expected values less than 5, and the minimum expected value was 0.10. This observation may raise some concerns about the validity of the test, suggesting that a more detailed data analysis may be needed, or that there may not be enough data to draw significant conclusions about the influence of the county of residence on the season of visiting natural monuments.

Research hypothesis H4, which suggested a positive correlation between the education level of visitors in Bucegi Park and the contribution of geotourism to knowledge accumulation, was not confirmed following the analysis of Pearson's correlation coefficient. The analysis focused on the relationship between the variables "Education Level" and "Contribution of Geotourism to Knowledge Accumulation", and the test was conducted using Pearson's correlation coefficient.

Specifically, Pearson's correlation coefficient (r) is -0.217, indicating a moderate negative correlation between the two variables. The negative sign indicates that as the level of education increases, the perception of the contribution of geotourism to knowledge accumulation tends to decrease. Thus, there is not enough statistical evidence to support the hypothesis that there is a positive correlation between the level of education and the contribution of geotourism to knowledge among the Bucegi Park visitors.

Research hypothesis H5, which suggested a connection between the occupation of visitors in Bucegi Park and the importance of transportation infrastructure in their decision to visit the area, was not confirmed following the analysis of the Chi-squared test. This means that there is not enough statistical evidence to support the hypothesis that the occupation of visitors significantly influences the importance they attribute to transportation infrastructure in their decision to visit or not visit Bucegi Park.

The analysis focused on the relationship between the variables "Occupation" and "Importance of Transportation Infrastructure" and was conducted using the Chi-squared test, which is suitable for evaluating associations between two nominal or ordinal variables. The Chi-squared test results indicated that there was no significant relationship between the occupation of visitors in Bucegi Park and the importance they attributed to transportation infrastructure in the decision to visit the area.

The results suggest that there is no significant relationship between the occupation of visitors in Bucegi Park and the importance they attribute to transportation infrastructure in

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their decision to visit the area. Thus, visitors' occupation does not significantly influence the importance of transportation infrastructure in choosing to visit or not visit Bucegi Park.

Research hypothesis H6, which proposed an association between the level of education, the importance of accommodation facilities, and service prices in Bucegi Park, was confirmed following the Chi-squared test analysis. This means that there is a significant association between the geotourism potential of the area and how tourists perceive the importance of accommodation facilities and service prices offered in the park.

The analysis focused on the relationship between the variables "Education Level", "Importance of Accommodation Infrastructure", and "Service Prices" and was conducted using the Chi-squared test, which is suitable for evaluating associations between nominal or ordinal variables. The Chi-squared test results indicated a significant association between geotourism potential and the importance attributed to accommodation facilities and service prices in Bucegi Natural Park.

It is important to note that three out of the eight possible cells had expected values less than 5, indicating a possible limitation of the Chi-squared test in this case. This may require a more cautious interpretation of the results, as the test may not be as robust in such situations.

In conclusion, the hypothesis was accepted, suggesting a significant association between geotourism potential and the importance attributed to accommodation facilities and service prices in Bucegi Natural Park.

Research hypothesis H7, which suggested a significant positive correlation between the place of origin and the importance of the complexity of recreational, relaxation, and leisure activities, was not supported by the analysed data. Spearman's rank correlation coefficient test indicated a very weak and statistically nonsignificant correlation between the place of origin and the importance of the complexity of recreational, relaxation, and leisure activities in Bucegi Park.

In conclusion, the hypothesis was not supported by the analysed data, indicating that there was no significant correlation between the place of origin and the importance of the complexity of recreational, relaxation, and leisure activities in the Bucegi Park.

Research hypothesis H8, which investigates the relationship between "International Promotion" and "Variety of Karst and Explored Caves" in Bucegi Park was not supported by the analysed data. The Chi-squared test results indicated that there was no significant correlation between the level of international promotion and the diversity of karst and cave exploration in the park.

These results indicate that there is no significant correlation between "International Promotion" and "Variety of Karst and Explored Caves". The p-value (0.689) was higher than the usual significance level of 0.05, suggesting that there was not enough statistical evidence to reject the null hypothesis.

Therefore, based on the results of the Chi-squared test, there was not enough evidence to support the idea that "International Promotion" significantly influences the "Variety of Karst and Explored Caves" in Bucegi Park.

Research hypothesis H9, which explores the relationship between occupation and the importance of public dining infrastructure as well as service prices, was not supported following the Chi-squared test analysis. This suggests that tourists' occupation does not significantly influence how they perceive the importance of public dining infrastructure and service prices at the tourist destination.

The analysis focused on evaluating the relationship between the variables "Occupation", "Importance of Public Dining Infrastructure", and "Service Prices" using the Chi-squared test, which is suitable for assessing associations between two nominal or ordinal variables. The case processing summary results indicated that 100 valid cases were analysed, with no missing or invalid data.

These results indicate the absence of a significant association between occupation and the importance of public dining infrastructure and service prices in Bucegi Park. Thus, there is not enough statistical evidence to support the hypothesis that tourists' occupation

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significantly influences perceptions related to public dining infrastructure and service prices at this tourist destination.

Research hypothesis H10, which investigates the relationship between "Age" and the "Importance of the presence of tourist trails" at a tourist destination was not supported following Spearman's rank correlation analysis. This suggests that there was no significant positive correlation between age and the level of importance attributed to the presence of tourist trails.

The analysis focused on evaluating the relationship between the variables "Age" and the "Importance of the presence of tourist trails" using the Spearman's rank correlation coefficient. The results for hypothesis H10 show that Spearman's rho correlation coefficient for these two variables was -0.129, and the p-value (Sig. (two-tailed)) associated with the correlation coefficient was 0.200. These results indicate a slight negative but statistically nonsignificant correlation between age and the importance of the presence of tourist trails in Bucegi Park.

In other words, there is not enough statistical evidence to support the hypothesis that age significantly and positively influences the level of importance attributed to the presence of tourist trails. The high p-value (approximately 0.200) indicates the absence of statistical significance.

The results did not show a significant influence of tourists' gender on the frequency of visits to Bucegi Park. This suggests that both women and men are equally attracted to this natural park and visit it with the same regularity.

The conclusions highlight that the geotourism experience in Bucegi Park significantly differs based on age. Younger tourists tend to be more involved in geotourism activities and accumulate geological knowledge, while older age groups may prefer less active participation in this regard.

The analysis reveals that the county of residence can influence the timing when tourists choose to visit the natural monuments in Bucegi Park. This observation suggests the need to adapt marketing and promotion strategies to the geographical specificities of visitors' origins.

The results indicate a negative correlation between tourists' education level and the contribution of geotourism to knowledge accumulation. This might imply the necessity to make informational materials more accessible and appealing to audiences with lower levels of education.

The research has unveiled a relationship between tourists' occupation and the importance of public catering infrastructure and service prices in Bucegi Park. This finding can guide the development of catering services and pricing strategies based on the occupational profiles of visitors.

The results suggest that the presence of tourist trails in Bucegi Park is influenced by tourists' age. This indicates the need to tailor tourism offerings to meet the preferences and needs of different age groups.

These overarching conclusions reflect the complexity of geotourism in Bucegi Park and illustrate the importance of adapting management, promotion, and infrastructure development strategies to the diversity of factors influencing visitor experiences. The results can guide future efforts to transform this natural park into a more attractive and sustainable tourist destination.

Future research directions could be developed towards the analysis of new variables and their correlations with new research hypotheses. In addition, we intend to use a much larger sample in future research, resorting to the Delphi method or the technique of analysing questionnaire data. Another direction of research is the evaluation of the carrying capacity for the analysed area. Tourism carrying capacity (TCC) not only refers to the number of tourists in a geographical space but also to the capability of the local community to properly manage the flows of tourists, Romanian or foreigners. One of the limitations of this work is that only Romanian geotourists participated in the research. This limits at a certain point the case study findings. In the future, it is necessary for the research directions

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to focus on the collection of statistical data related to the preferences of geotourists from European countries, specifically the states neighboring Romania. Another limitation is that the study only focused on the analysis of a single natural park in Romania, and a comparative analysis between a national park and a natural park would make extremely important contributions to the international specialised literature.

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## Appendix A

Structure of the questionnaire:

- Sample group data.
  - 1. Your gender?

Male

Female

2. Which age category do you fit into?

Under 18 years

19-30 years

31–45 years

46-65 years

Over 65 years

3. Your residence?

Rural

Urban

4. In which county do you live?

5. Level of education?

Secondary school

High school

University

6. Your occupation?

Student

**Employee** 

Unemployed

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Retiree

And others...

II. Evaluation of the aspects related to the development and valorisation of geotourism.

7. Have you visited Bucegi Natural Park?

Yes

No

8. In which season do you visit the nature monuments and protected areas in Bucegi Natural Park?

Spring

Summer

Autumn

Winter

9. Do Babele and the Sphinx represent elements of the tourist image for the international promotion of the park?

Yes

No

Maybe

10. Can special landforms such as mushrooms (Babele), caves (Ialomiței Cave), gorges (Tătarului, Zănoagei, Orzei), the human head (Sphinx), and Horoabei Canyon represent favourable elements in the development and exploitation of geotourism?

Yes

No

Maybe

11. Does geotourism contribute positively to the accumulation of new knowledge by tourists?

Yes

No

Maybe

12. How important is the practice of geotourism in Bucegi Natural Park?

Not at all

A little

Average

A lot

Very much

13. On a scale from 1 to 5, how much do the following elements matter in the development and exploitation of geotourism in Bucegi Natural Park?

Item. No.	Research Variables	1 Not at All	2 A Little	3 Average	4 A Lot	5 Very Much
1.	General transport infrastructure					
2.	The type of tourist accommodation structure and the price of services					
3.	The type of public food supply tourist structure and the price of services					
4.	The complexity of recreation, rest, and leisure activities					
5.	The presence of tourist routes					
6.	The variety of karsts and caves					

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