

THE TOURISTIC POTENTIAL OF RELIEF BY ANALYZING THE DIVERSITY OF PHYSICAL ACTIVITIES. CASE STUDY: TURDA GORGE

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ABSTRACT. The research's aim is to identify the way relief can influence tourism and the physical activities which can be done in Turda Gorge. To conduct this study, we have analyzed the geodeclivity of relief expressed by sexagesimal degree of Earth's tilt surface in relation with the horizontal. This research presents the areas with great favorability to perform physical activities, but also areas with limitation for physical activities. Thus, the relief becomes a true oasis full of energy for more complex activities like climbing, alpinism or Via Ferrata. Our research is not based only on geodeclivity and therefore, is in conjunction with the sociological research which has been done in the studied area to identify the physical activities. Therefore, we have applied a questionnaire for 250 tourists, structured in two different sections: the first one indicates the relation of people with Turda Gorge, while the second one shows the relation of people with physical activities. The results of geodeclivity and sociological research express the type of physical activities done by tourists and also, proposals to develop more possibilities to practice activities.

Keywords: *Turda Gorge, mountain tourism, geodeclivity, sociological research, physical activities.*

REZUMAT. *Potențialul turistic al reliefului prin diversitatea de activități fizice. Studiu de caz: Cheile Turzii.* Studiul își propune identificarea modului prin care relieful influențează și modelează turismul și activitățile fizice care se pot

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desfășura în Cheile Turzii. La realizarea cercetării se află analiza geodeclivității reliefului, printr-o exprimare în grade sexagesimale a înclinării suprafeței terestre cu orizontala. Această analiză conturează arealele de favorabilitate pentru desfășurarea activităților fizice de tip drumeție, trasee montane, prezentând și arealele cu limitări în realizarea activităților fizice de agrement. Astfel, acestea, pe de altă parte, devin adevărate oaze de energie pentru activitățile mai complexe, precum: escaladă, alpinism, cățărare sau Via Ferrata. Cercetarea noastră nu se rezumă doar la analiza geodeclivității, astfel că aceasta se află într-o strânsă conexiune cu cercetarea sociologică efectuată în arealul de studiu, pentru a identifica activitățile fizice ce pot fi efectuate. Așadar, am aplicat chestionarul unui număr de 250 de turiști, care a fost structurat pe două mari direcții: prima vizează relația oamenilor cu Cheile Turzii în general, în timp ce a doua deplasează accentul asupra activităților fizice pe care le realizează oamenii în arealul de studiu.

***Cuvinte cheie:** Cheile Turzii, turism montan, geodeclivitate, cercetare sociologică, activități fizice.*

INTRODUCTION

Since ancient times of human existence, relief has represented an essential factor which influences tourism and also physical activities. Relief is crucial for tourism because it shapes the landscape and provides diverse attractions for travelers (Hall & Page, 1999). Mountains, coastlines, valleys, and unique geological formations offer scenic beauty and recreational opportunities.

Tourism, which is expressed by the bilateral relation with the anthropic component of the geospheres, it is defined as “activity with sporty character, consisting of walking on picturesque or interesting scientific regions” (Frazzei, 2004). We need to mention that the human as part of the anthroposphere through tourism shows the role of physical activity, which consists in different ways of body movements with energy expenditure. In this context, the physical activities of the human body should be analyzed and interpretate as a recreational way of movements and as a leisure activity, remarked by multiple benefits for our health.

Turda Gorge is located 6 km west from Turda, in the Trascău Mountains of Apuseni. It represents a protected area, part of the Category IV by International Union for Conservation of Nature (IUCN) known as habitat management area, which “aim is to protect particular species or habitats and management reflects this priority” (Dudley, 2008). Represented by Jurassic limestones old by 150 million years ago, Turda Gorge is dubbed “the grandest

landform of Petrești Ridge” (Cocean, 1988) due to the rare beauty of landscapes, which exemplify a mosaic diversity of physical activities, starting from different levels of hiking until climbing and alpinism.

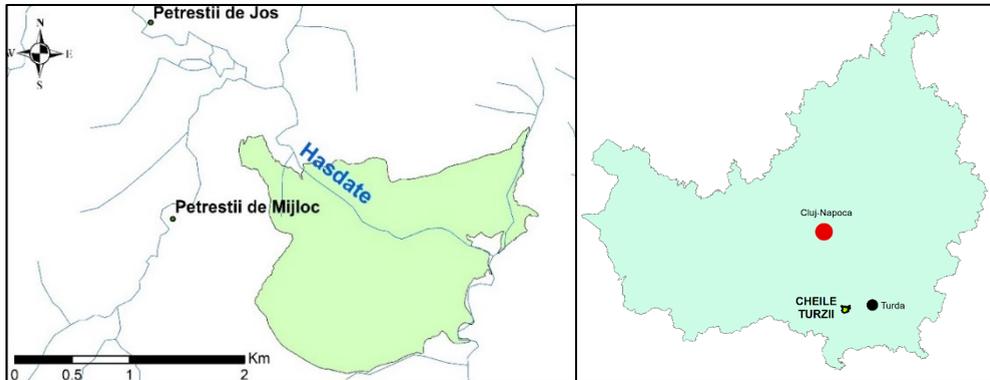


Figure 1. The localization of Turda Gorge

Because of the proximity with 2 important cities in the county and also at regional level (Cluj-Napoca and Turda), it can be truly mentioned the favorable position of Turda Gorge for an analysis and comprehensive study, taking in consideration the geodeclivity of relief and also the sports which can be done.

Through our research we want to create an interdisciplinary analysis between geography and physical education, expressing the way the relief can create different areas to practice specific sports and activities, but also the way the relief can become a restriction factor for some activities.

METHODS

The research is expressed by two different parts: the theoretical analyzed by the geodeclivity and on the other hand the practical part, by applying a questionnaire to the tourists of Turda Gorge.

Firstly, this study reflects the analyses and interpretation of geodeclivity of Turda Gorge by taking into account the physical activities which can be done. Thus, we took part at geomorphological observations on site, and we also used the database for the Digital Elevation Model of Romania. All the data obtained has been analyzed by using the ArcMap 10.08.

Secondly, to identify the physical activities which can be done in Turda Gorge, we have enforced sociological research by applying a questionnaire to 250 people, including 12 questions. They had the opportunity to fill in on site when we went there and also online, for those who have been asked to fill it in, but couldn't do it because of the lack of time.

The responses provided by the participants have been entered into the Statistical Package for the Social Sciences (SPSS) software. In SPSS, the data has been subjected to a comprehensive analysis that involved various criteria. These criteria encompassed factors such as gender, age, and place of residence. The utilization of SPSS has allowed for a systematic examination of the data, providing the ability to generate summary statistics and produce graphical representations. By analyzing the data through these multiple lenses, the research team was able to gain a more nuanced understanding of the respondents' perspectives and discern any significant correlations or differences based on the specified criteria.

RESULTS

Tourism is considered an essential activity in the big family of human activities which has to be analyzed in relation to the relief, because it represents the most important element in developing the touristic activities. The relief presents a series of advantages and also disadvantages while talking about tourism. If the same area can be described with steep slopes which shows a restriction factor for people, the same area can become an advantage to practice different sports which are less known by the majority. These aspects can be identified in our space research, and we can mention that Turda Gorge act as a complex area.

Geodeclivity

The geodeclivity map shows the tilt of Earth's surface in relation to the horizontal and it is expressed by sexagesimal degree. The aim of geodeclivity is to identify the areas with great favorability for physical activities in conjunction with the conditions to perform it. Following the data processing the geodeclivity of Turda Gorge has values between 7° and 55°. We classified the results based on 6 classes, which are shown on the map with gradual colors starting from dark green for those less than 8° and dark red for those higher than 45°. To continue, "the slope is not a natural geomorphological component, it meets the function of geometric part" (Grigore, 1979). Hence, the slope represents just a geometric expression of the relief.

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In our research area in the center part there is a visible growing of slopes on a West-East arrangement, which identify the area with maximum geodeclivity. Therefore, along the Hășdate River there is a steep relief, which leads to identify a specific area for mountain sports and are used utilitarian-applicative motor skills. In this category we can mention climbing, alpinism or Via Ferrata. On the other hand, in Turda Gorge there are slopes with less than 25°, therefore ideal conditions for hiking. In this context, the predominant activity for tourists is hiking and below it will be explained in the questionnaire.

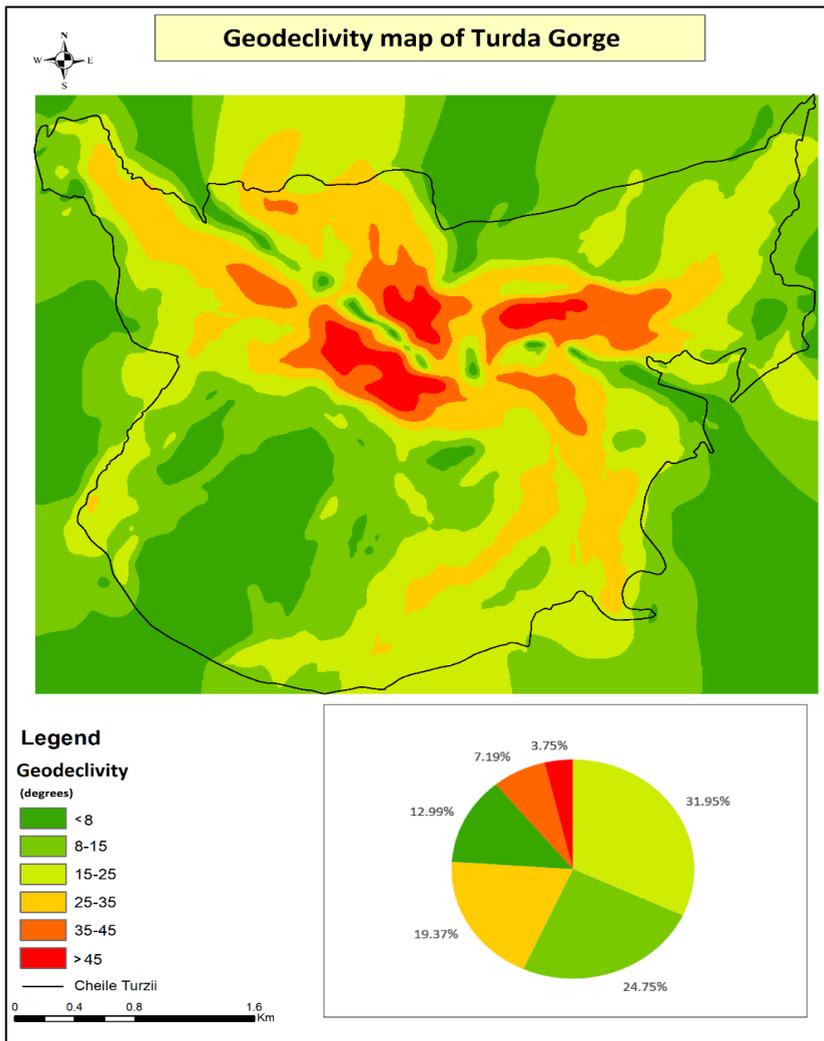


Figure 2. Geodeclivity map.

SOCIOLOGICAL RESEARCH

While the analyses of geodeclivity gives the answers just from the theoretical part about the physical activities which can be done, the questionnaire treats the practical part by taking into consideration the opinions of people.

Thus, it has been established sociological research in Turda Gorge to find out how often the tourists go there, but also what activities they do. During 1st of October and 5th of November 2022 we applied the questionnaire to 250 tourists with ages over 15. It contained several categories of questions and in total there have been 12 questions. Our goal has been to collect quantitative data by asking questions with unique answers, but also qualitative data where tourists had the chance to come up with their own ideas or opinions. We have decided to apply it face to face for a better interpretation of the answers, especially for the opened questions. But during the time spent there we have met multiple cases where the tourists have been out of time. In this context, we have anticipated this problem by creating an online version of the questionnaire.

It has been followed the relevance representativeness of the answers given and therefore the research has been applied by taking into account different aspects: age, gender, residence, level of studies, occupation, which can be find in the tables below.

Table 1. Distribution based on gender.

Gender	Value
Male	147
Female	103

Table 2. Distribution based on age group.

Age group	Value
15-25	22
26-35	57
36-45	73
46-55	46
56-65	31
Over 65	21

Table 3. Distribution based on residence.

Residence	Value
Cluj-Napoca	109
Turda	31
Settlement in Cluj county, but less than 50 km far away	34
Settlement in Cluj county, but more than 50 km far away	15
Neighboring county	53
Not neighboring county	8

The fundamental part of the questionnaire has been divided into two different directions. So, the first one studies the relation of people with Turda Gorge, while the second one shows the relation of people with physical activities.

The first question consists in finding the tourists who are just for their first time there or if they have been before. In this context, 197 of them have responded they have been before there which means almost 80%. By analyzing group ages, we can find out that all the people over 45 years old have responded positively, while 60% of those between 15-25 are there for their first time.

The frequency analysis of Turda Gorge explains that the majority of people visit the place at least once per year (79%). The number tourists who visit monthly is similar to those who visit only one time per year. For the purpose of this question, to establish the frequency the respondents have been asked to disregard the cold periods of the year when snow and low temperature are restriction factors.

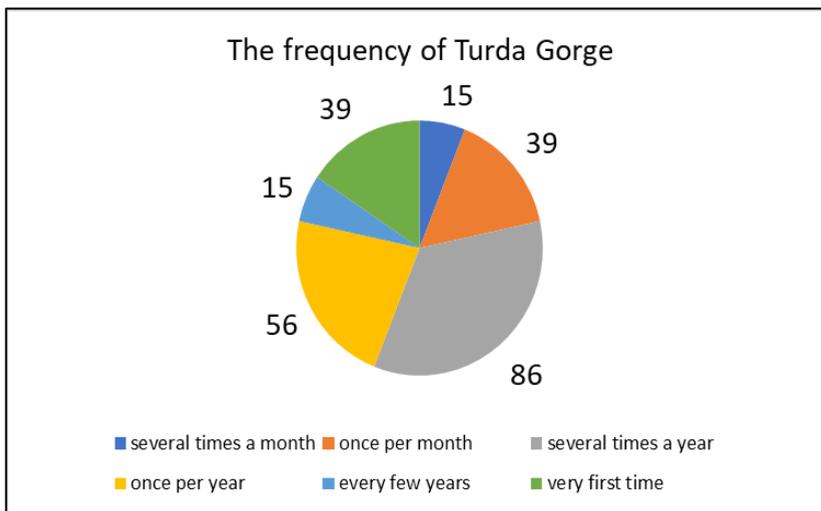


Figure 3. The frequency of Turda Gorge.

Moreover, they have answered they come with their family (58.5%), friends (31.5%), alone (5%) or with animals (5%) having different goals: walking, socialization, sports, etc.

The second part debuted with the choice of physical activities and sports which people know can be done in Turda Gorge. All of them have answered they know about hiking, but on the other hand, only a few of them have heard about paragliding or mountain biking. To avoid false answers when

the tourists say they know about it and actually they don't, we have decided to introduce 10 sports for these questions, even if some of them cannot be done in this area: kayaking, paint ball or rafting and, if selected a sport which cannot be done in the area, the tourist should have been asked to respond again, to ensure the validity of the answers.

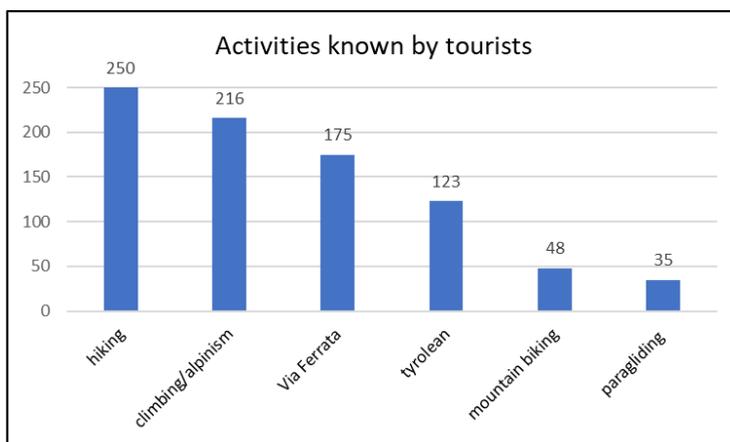


Figure 4. Activities known by tourists.

Moreover, the 250 tourists had the opportunity to answer what kind of activities they do in the area. We have thus established that most of them come for hiking (80%). In our current research, we need to mention that we have also met a group of people who have been there for Via Ferrata and therefore, we concluded that this activity covers 7%.

The last one was an open question which required respondents to come up with proposals regarding the type of physical activities and sports they thought could be done in the future around Turda Gorge. In this context, we can mention some of the ideas our respondents suggested, such as a sports ground at the entrance of Petreștii de Jos, next to the camping area, or a motor sports circuit in the area.

CONCLUSION

Our research presents aspects related to the ways geography and physical education can join together by analyzing the geodeclivity as an essential factor enhancing the potential of relief in promoting tourism and

various tourism-related activities. The database could have been developed only in connection with the sociological research which identifies the opinions of tourists regarding physical activities.

All these results intertwine, giving the background image of the physical activities which can be done in Turda Gorge. After thorough observations, we can state that the relief has become a true precursor of the evolution and development of mountain tourism. The relief characteristics have created different conditions for people to undertake activities for recreation or leisure in the areas with low geodeclivity, but also complex activities, such as mountain biking, climbing, Via Ferrata or even paragliding.

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