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Content

Ivana Janković, Miloš Ćirić, Igor Stamenković

Employee Satisfaction as a Key Factor for their Retention:
a Case Study of Serbian Hospitality and Tourism Employees..... 1

DOI: [10.5937/turizam27-31736](https://doi.org/10.5937/turizam27-31736)

Sonja Nikolić, Isidora Radonjić, Zorana Miloradović

What do Mountaineers and their Guides in Serbia Know about Venomous Snakes?
A Pilot Questionnaire Analysis 12

DOI: [10.5937/turizam27-37069](https://doi.org/10.5937/turizam27-37069)

Bettina Tóth, György Vida, Sándor Papp, Gyula Nagy

Differentiation of the Hungarian Food Festival Offer According to the Thematic,
Spatial and Temporal Characteristics Before the COVID-19 Pandemic33

DOI: [10.5937/turizam27-33958](https://doi.org/10.5937/turizam27-33958)

*Marija Cimbalević, Aleksa Panić, Danijel Pavlović, Vanja Pavluković,
Tatjana Pivac, Sanja Kovačić, Uglješa Stankov*

Systematic Literature Review on Tourism Destination Competitiveness Research51

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Employee Satisfaction as a Key Factor for their Retention: a Case Study of Serbian Hospitality and Tourism Employees

Ivana Janković^A, Miloš Ćirić^B, Igor Stamenković^A

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Abstract

Professional satisfaction of employees is certainly one of the factors towards the success of catering and tourism companies. The aim of this paper is to determine level of job satisfaction and see the key reasons for termination of employment in the hospitality and tourism sector. The methodology used in this paper is based on a questionnaire. The target group for this research are employees in the hospitality and tourism sector of the Republic of Serbia. 136 respondents participated in the research, the results are presented using descriptive statistics. The obtained results show that the positive aspects of work are monetary stimulation, while the negative aspects are generally insufficient funds for work. As for the reasons for leaving the organization, the focus is mainly on employee dissatisfaction with the salary or some health problem.

Keywords: job satisfaction, quitting the job, hospitality, tourism, Serbia.

Introduction

In the hospitality and tourism sector more than half of the workforce is unhappy and consider a move, which certainly explains the aspiration of employees to leave this sector and move to another (Stamolampros et al., 2019). The main factors influencing the low level of job satisfaction are work position and unprofessional management (Jovanović et al., 2019) as well as high physical and/or emotional stress at work (Khantimirov, Karande, 2018). Job satisfaction is a very important factor for providing high quality of service in the hospitality and tourism sector, since it is a very important condition for determining organizational success (Navajas-Romero et al., 2020). The human element plays a major role in the overall success of any organization, but especially in the service sector: tourism, many members of the workforce (waiters, maids, receptionists) are in direct contact with consumers and are directly respon-

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sible for tourist satisfaction and business goals of the firm (Parveen et al., 2020). Characteristics due to which the hospitality and tourism sector is declared to have a low level of job satisfaction compared to other sectors are influenced by low level of wages, long working hours, job insecurity and insufficient promotion and personal promotion (Zopiatis et al., 2014), and too many working hours per week, rotating shift, night shifts (Lillo-Bañuls et al., 2018). Many scholars have fully verified the significant positive correlation between professional identity and job satisfaction through a large number of empirical studies; enhancing professional identity can improve job satisfaction (Wang et al., 2020). The subject of the paper is to see job satisfaction as well as to determine the key reasons for termination of employment among employees in the hospitality and tourism sector of Serbia.

The task of the paper is to answer the following research questions:

- What are the positive aspects of work;
- What are the reasons for leaving and turnover of employment;
- To what extent are the employees satisfied with the job.

Literature Review

In the past few years, the job in hospitality industry has become increasingly important. This trend occurs due to the excessive promotion of this profession through the media, creating an image of an impeccably popular job in which, after graduating from school, you immediately get the position. In practice, however, it looks completely different, this profession stands out as one with overwork, with too many stressful situations (Murray-Gibbons, Gibbons, 2007). Burrow et al., (2015) states that the life of a hospitality employee can be exciting and rewarding, but also humiliating. Certainly, often work in an aggressive environment (Kang et al., 2010), where physical and verbal communication is abused, and abuse is attributed as part of the work culture in the kitchen. It is known around the world that support from the employer guarantees job satisfaction and employee commitment (Akin et al., 2019).

Employees in tourism provide quality services, absorb and convey to new needs of guests and tourists, develop new skills all in order to improve their work and personal satisfaction (Tadić, 2021). It is impossible to generalize the motivation of employees in tourism, even if the employees are in the same city or in the same destination (Gutić, Martinčić, 2017).

The term turnover of employment can be defined as leaving a business organization and moving to another employment organization (Kaya, Abdioğlu, 2010). According to Brown et al., (2015) employees in the hotel industry most often leave their job due to dissatisfaction caused by insufficient earnings, finding a better job or better working conditions, working hours and lack of social life and inability to progress. Due to the fact that employees in the hospitality and tourism sector consider their monthly income as equivalent to their work (Berg, Frost, 2005), monthly income significantly affects the decision to leave job and job satisfaction, thus an adequate reward system in hotels is effective to encourage employees for work, increasing their loyalty to the company, providing motivation and achievement, as well as productive work performance of employees (Kline, Hsieh, 2007). The promotion of employees to a higher position is reflected, among other things, in giving autonomy and responsibility (Pekershen, Tugay, 2020). Employees who work in the same positions for a longer period of time become less satisfied with certain aspects of work and their commitment to work and organization declines significantly (Androniceanu, 2019).

Discrimination in employment can be manifested as the fact that employees with the same or similar abilities, experience and education remain deprived compared to other employees in terms of demographic characteristics, in terms of better positioning and earnings in the work organization (Mura et al., 2019). As an important fact, the conditions in the work environment should be pointed out, since they affect employee satisfaction (Ciobanu et al., 2019). Stress at work is manifested due to long working hours, low salaries and layoffs. (Genç et al., 2016). The level of job satisfaction is influenced by factors such as gratitude, satisfaction (Yeh, 2013), while employees with a high level of satisfaction are responsible in fulfilling their business obligations, dissatisfied employees are upset, unhappy and tense (Vveinhardt, Gulbovaite, 2018). The level of job satisfaction depends on many factors. As the employee's educational status increases, the level of job satisfaction decreases, for example, employees with higher education tend to receive promotions that will provide them with financial and psychological satisfaction such as higher personal income, authority (Eskildsen et al., 2004). Factors such as fair play management, clear organizational policy, participation in decision-making significantly influence the reduction of employee turnover (Felicita, 2016).

The nine most important factors influencing job satisfaction are salary, benefits, advancement and growth, work itself, leadership, communication, performance feedback and recognition, peer relationship and stress (Amissah et al., 2016). Employee satisfaction is an important component of the success of any business organization. The level of professional satisfaction depends on many factors such as: type of work, working conditions, organizational factors, demographic factors and employee expectations (Tütüncü, Kozak, 2007), while working conditions significantly affect the level of employee satisfaction, (Horváth, Hollósy, 2019). Working conditions such as salary, promotion opportunities, job security and work climate affect job satisfaction (Dalkrani, Dimitriadis, 2018), as it is essential for gaining a competitive advantage in all sectors (Karamar, 2014). Job satisfaction is an emotional state of an individual that is influenced by numerous factors, among which stand out work experience, quality of working life and other characteristics related to the way they work and manage (Gorenak et al., 2019). Based on numerous studies that have confirmed that job satisfaction is influenced by several factors, among which stand out the content of work (McPhail et al., 2015), cash benefits and bonuses (Sarwar, Abugre, 2013), employee engagement (Yeh, 2013), working conditions and work environment (Pan, 2015), career development opportunity (Ko, 2012), relationship with supervisors (Jang, George, 2012) as well as leadership style (Kara et al., 2013). Hryhorczuk et al., (2019) states that engaging in tourism and engaging in various positions can lead to a change in personality traits.

Methodology

A questionnaire consisting of seven thematic sections was used in this research. Respondents filled in the questionnaire electronically. The first part of the questionnaire refers to demographic characteristics (gender, age, marital status, educational status and how long they have been employed in the hospitality and tourism sector). The second part of the questionnaire includes items that measure the best aspects of work in the hospitality and tourism sector. The third part focuses on the reasons for leaving the previous job. The fourth part consists of elements that create the satisfaction of the catering and tourism staff, the desire for progress in the workplace. The questionnaire was modified, based on various previous studies (Pekerşen, Tugay, 2020) that dealt with professional satisfaction as a key to retaining employees in the hos-

pitality industry. For the purposes of this research statistical data processing was performed in the SPSS program using descriptive statistics.

The work hypothesis is:

Xo: The catering and tourism industry has more positive aspects compared to the negative ones

Sample research

The study involved 136 respondents in the period from 01.11.2020 - 17.12.2020. The research was conducted in hotels and restaurants on the territory of Serbia. In order to obtain more relevant data, the data were processed using descriptive statistics. The sample consists of employees in the tourism and hospitality sector (receptionists, managers, cooks, waiters, support staff). The questionnaire was chosen because it deals with both the pros and cons of working in the hospitality and tourism sector.

Results

Analysis of socio-demographic characteristics of respondents

The following section presents the results of sociodemographic characteristics of the respondents. These characteristics are very important for obtaining relevant research results.

Table 1. *Socio-demographic characteristics of the respondents*

		Frequency (N=136)	
		N	%
Gender	Male	82	60,3
	Female	54	39,7
Age	18-24 years-old	20	14,7
	25-34 years-old	59	43,4
	35-44 years-old	40	29,4
	45 or more	17	12,5
Marital Status	Married	71	52,2
	Single	65	47,8
Education	High School	58	42,6
	Vocational School	50	36,8
	Bachelor Studies	18	13,2
	Postgraduate Studies	10	7,4
How long have you been working in hospitality sector	Less than 1 year	5	3,7
	1-5 years	30	22,1
	6-10 years	37	27,2
	11-15 years	25	18,4
	16 and years	39	28,7

The table shows the gender structure of the respondents. In this sample, it was shown that there were more male respondents. A very important socio-demographic characteristic when working in other sectors as well as in the hospitality and tourism industry is certainly age. Namely, companies in hospitality industry employ people of all ages. Respondents aged 18-45 and older participated in the research. Based on the obtained results, it can be stated that respondents of all ages are represented in this sample. Regarding the marital status of the respondents, with a share of 52.2% they were married, with a slightly smaller share of 47.8% they were single. In this part, the share of respondents who are in a marital union and those who are not is almost equal. One of the important elements in employment is education. In order to see the work experience and the length of work in the hospitality and tourism industry, the respondents were asked the question: how long have you been employed in the hospitality and tourism sector?

Analysis of the best aspects of work in the hospitality and tourism sector

Job satisfaction is a very important factor in the hospitality industry, given that the human factor has an irreplaceable role in providing services to guests (Nogueira, Mondo, 2017). In the hospitality and tourism sector, according to Tutuncu, Kozak (2007), they identified work and career development as a factor influencing business satisfaction, while working conditions were identified as the main factor of business satisfaction (Yeh, 2013).

Table 2. *Analysis of the best aspects of work in the hospitality and tourism sector*

Questions	I completely disagree	I disagree	I agree nor disagree	I agree	I agree completely
I do job i love	2,9	2,2	6,6	21,3	66,9
Satisfactory monetary compensation	9,6	21,3	36	19,9	13,2
Double salary on certain days	55,1	14	11	8,1	11,8
World Cuisine Knowledge	5,	8,1	23,5	36,8	26,5
It is not a static job	4,4	1,5	13,2	22,8	58,1
Option of participating in competitions and festivals	24,3	16,	22,8	12,5	23,5
I have the opportunity to find a job anywhere in the world	8,8	11	25	19,9	35,3
I am always in contact with people	2,2	5,9	9,6	16,2	66,2

In order to see which are the best sides, several statements were offered to the respondents where they had the opportunity to express at what extent they agree or disagree with them. I do the job I love is one of the statements that has a leading position with 66.9%. The following statement satisfactory monetary compensation has a wide variety of answers 36% neither agree nor disagree, 21.3% disagree, 19.9% agree, other answers have very similar shares. A job in the hospitality industry can always provide an opportunity to find a job anywhere in the world, a positive answer is completely agreed by 35.3%, while a completely disagreed answer was given by 8.8%, also the answer I agree was very high share of 25%. The last statement as an important factor in communication was always alone in contact with people where a very high percentage of respondents answered I completely agree with 66.2% which is certainly a positive side of the work.

Analysis of the reasons for leaving the previous job

If employees are dissatisfied with the job or position where they work, consequently they do not want to stay there to work (Aşık,2010), dissatisfaction at work can cause psychological and physical illness, while in the business sphere it is manifested through pessimism (Koyuncu, Sevin, 2017). Employees with a lower level of satisfaction will not do their job properly, and thus the company will directly suffer damage (Gajić et al., 2014). Job insecurity can be reflected in two dimensions, both short-term and long-term. Short-term insecurity has an impact on factors such as professional satisfaction, job loyalty, attitudes and trust, while in the long run it causes deterioration in the physical and psychological health of employees, poor job results and unwanted situations related to leaving the company (Kot-Radojewska, Timenko, 2018).

Table 3. *Analysis of the reasons for leaving the previous job*

Questions	I completely disagree	I disagree	I agree nor disagree	I agree	I agree completely
Unsatisfactory Salary	3,7	8,8	15,4	21,3	50,7
Monotonous work	6,6	11,8	23,5	21,3	36,8
Hard working conditions	6,6	16,2	22,8	19,9	34,6
Grouping among Employees	14,7	14,7	24,3	14	32,4
Problems with Superiors	21,3	14	24,3	16,2	24,3
Psychological pressure/Mobbing	27,2	15,4	16,2	13,2	27,9
I didn't leave the job	40,4	9,6	17,6	2,9	29,4

Dissatisfaction at work is not good at all in any sector, so it is very important to know the reason for leaving the previous job, whether it was a salary or some other factor, which we will explain through a couple of claims. On the claim that the salary was not at a satisfactory level, 50.7% - half of the respondents completely agreed and a very small part of 3.7% do not agree, which shows that the salary is very important. Difficult working conditions are certainly something that can at least make everyone think of leaving their job, where the majority said I completely agree with 34.6%, while 6.6% said I completely disagree. Superiors are a frequent case of leaving the job, which is good in other segments, so the statement as the reason for leaving due to problems with superiors I completely agree and neither agree nor disagree is 24.7% and completely disagree 21.3% which shows that opinions are very divided. Mobbing is very difficult to experience in any aspect of life and 27.9% respondents completely agree to leave work in this circumstances only a few estimates said they completely disagree with the share of 27.2% which is worrisome because points out that people are willing to suffer mobbing in order to be employed and as an option that they still did not leave the job 40.4% of respondents said I completely disagree, while 29.4% said I completely agree.

An analysis of the circumstances that would contribute to them leaving their jobs without thinking at all, risking unemployment

Risks at work are large and frequent in order to see what are the factors that would leave the job without thinking, risking unemployment, respondents had the opportunity to answer several claims.

Table 4. *Analysis of circumstances that would contribute to leaving the job without any thinking, risking unemployment*

Questions	I completely disagree	I do not agree	I agree nor disagree	I agree	I completely agree
in cases when the earned salary is low according to the work done	4,4	6,6	19,1	14,7	55,1
Discrimination	6,6	2,9	13,2	11,8	65,4
Injustice	1,5	2,9	15,4	16,9	63,2
Disrespectful behavior and words	2,9	3,7	18,4	12,5	62,5
No regular payments	8,8	8,8	22,8	13,2	46,3
Verbal and physical violence	11	2,9	11	4,4	70,6
Serious medical problems	5,1	0,7	10,3	11	72,8
Pregnancy	16,9	3,7	11	7,4	61

One of the claims was the low monetary compensation for the work done where the largest number of respondents, 55.1% said that they completely agree with this. One theory of motivation, the theory of justice, among other things, states that employees are ready to leave the organization, if they have an intense sense of injustice for a long period of time. Cash incentives are always a good indicator to see if people are willing to leave work if there are no regular payments - 46.3% said they completely agree, but also a very high percentage of 22.8% said I agree nor do I disagree, where this could be interpreted as the people's acceptance to irregular incomes before remaining unemployed. Considering the circumstances and the crisis situation in the hospitality sector caused by the COVID-19 pandemic, a large part of the respondents also lost their jobs. Verbal and physical violence, serious health problems, pregnancy are all related elements concerning the health of workers and their current condition. In order to leave work due to violence, as many as 70.6% said I completely agree, in order to leave due to health problems a very high percentage of 72.8% and due to pregnancy, 61% of respondents also said I completely agree. This is very important information since people, in addition to their positions, are ready to leave their jobs without thinking for the sake of their health, risking unemployment.

Satisfaction analysis of the hospitality and tourism sector, the desire for improvement

In the next part of the research, we have presented factors that are both the satisfaction of the hospitality and tourism sector and the desire to improve.

Every day, the number of qualified catering workers looking for better job conditions that will provide them with better living conditions, way of working is increasing (Kalenjuk et al., 2020). Desire and will in the hospitality sector play a big role, so the answers from the respondents that stimulate employees to the factors from Figure 1 are shown. A very high percentage among others have a factor trying to learn new things about their job with a share of 14.88%, while the lowest of 3.31% has a factor doing the job that suits my training. Other factors are in very approximate percentages. Based on the answers of the respondents, it can be stated that there are different opportunities and interests in addition to working in the same sectors.

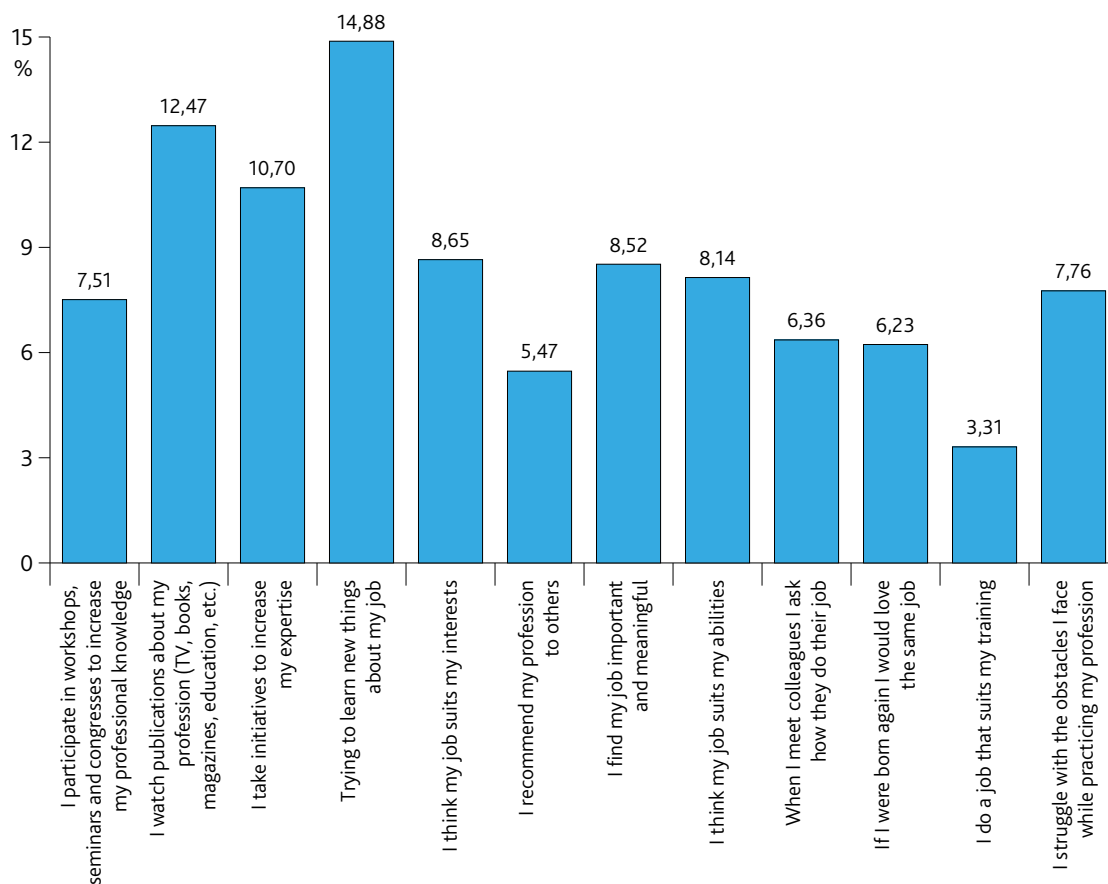


Figure 1. Satisfaction analysis of the hospitality and tourism sector, the desire for improvement

Conclusion

Positive aspects and satisfaction are a very important element when performing daily activities, even at work. As stated, the aim of this paper was to see job satisfaction. As one of the very important elements that stands out in the hospitality sector is that you always have the opportunity to find a job anywhere in the world. Based on the results, it can be concluded that workers emphasize the positive aspects of work more than the negative ones. Some elements that are important for the retention of workers and their progress for the future are highlighted as positive, which can guarantee some kind of commitment to work and loyalty of workers. On the other hand, mobbing, discrimination that are usually considered normal working conditions not only in the hospitality sector but any other are described as negative elements.

One of the main dissatisfactions with work is the insufficient time spent with the family and the impossibility of using the annual leave which is directly related to the insufficient number of employees in the catering and tourism sector. As future intentions, it is necessary to examine what are the acceptable conditions in terms of negative aspects in order to improve the conditions and thus provide better work efficiency.

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What do Mountaineers and their Guides in Serbia Know about Venomous Snakes? A Pilot Questionnaire Analysis

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Abstract

More and more people go/return to nature seeking recreation, relaxation, stress/anxiety relief, socializing with like-minded persons, etc. Not all of them know what they can stumble upon walking through various terrains. We wanted to check how much hikers/mountaineers and those who took a course for excursion and hiking guides know about venomous snakes present in Serbia and the basic first aid in the case of a bite. For this purpose, we designed a questionnaire containing 20 simple questions that addressed recognition, ecology, distribution, the basics of venomous snakes' conservation, first-aid measures, and people's feelings regarding these reptiles. Results suggest that our target group is agreeably well informed given the amount and quality of easily accessible data for Serbia. However, some misconceptions were detected that must be corrected. There are indications of an increase in mountain/adventure tourism in Serbia, which is partially conditioned by the COVID-19 pandemic. Therefore, we must invest additional effort in examining and educating both mountaineers and "plain" tourists so both the people and snakes would stay safe. To achieve this long-term goal, we should exchange knowledge and experiences with experts from various fields, i.e. biology, medicine, tourism, economics, geography, etc.

Keywords: Outdoor recreation; Mountaineering; Serbia; Snakebites; First aid.

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Introduction

It was shown that even short periods spent in natural surroundings or urban green spaces, but also exposure to virtual-reality nature are beneficial to emotions and performance, i.e. physical and mental health and that connectedness to nature has numerous positive effects on humans (Taylor, Kuo, 2009; Howell et al., 2011; Pearson, Craig, 2014; Browning et al., 2020; Meredith et al., 2020). In accord with changes in the general public understanding and attitude regarding nature and its significance for overall human well-being (Mayer et al., 2009), nature trips are becoming increasingly popular. We are witnessing “The huge increase in outdoor leisure in recent decades” (Bartlett, 2013), but “The stay of tourists in the mountains affects the quality and quantity of protected areas” (Vujadinović et al., 2013).

Visits to more or less undisturbed nature and urban green spaces became more important (Sachs, 2020) and intensified during the COVID-19 pandemic when people could not travel as much as in previous times. Instead of travelling abroad, many people started “discovering” Serbian mountains, spas, villages, etc. (Damnjanović, 2020). The influence of the pandemic on tourism has already been analysed in numerous papers (e.g. Humagain, Singleton, 2021).

After a strong decline during 2020 (Đorđević, Milićević, 2021), the numbers of both domestic and foreign tourists who visited the Serbian mountains increased during July 2021 compared to the same periods of 2020 and 2018/9 (Figure 1).

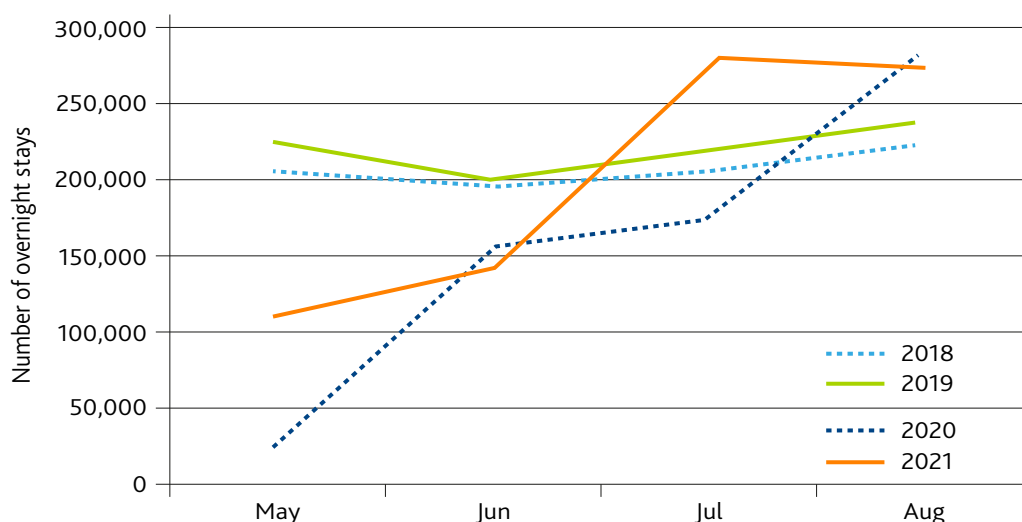


Figure 1. Total numbers of overnight stays in Serbian mountains between May and August, from 2018 to 2021.

Source: Statistical Office of the Republic of Serbia

We could not obtain the number of mountaineers who visited Serbian mountains in the same period, but as an illustration of the changes in the numbers of hikers, climbers, and other mountaineers during the last 13 years, we got the numbers of members of the Mountaineering Association of Serbia, MAS. This number doubled between 2013 and 2021 (Figure 2).

Mountaineering/hiking is one of the disciplines that is changing and adapting to new circumstances: “The traditional mountaineer is an amateur and the modern a professional...” (Beedie, Hudson, 2003; Bartlett, 2013). In recent years, adventure tourism is gaining popu-

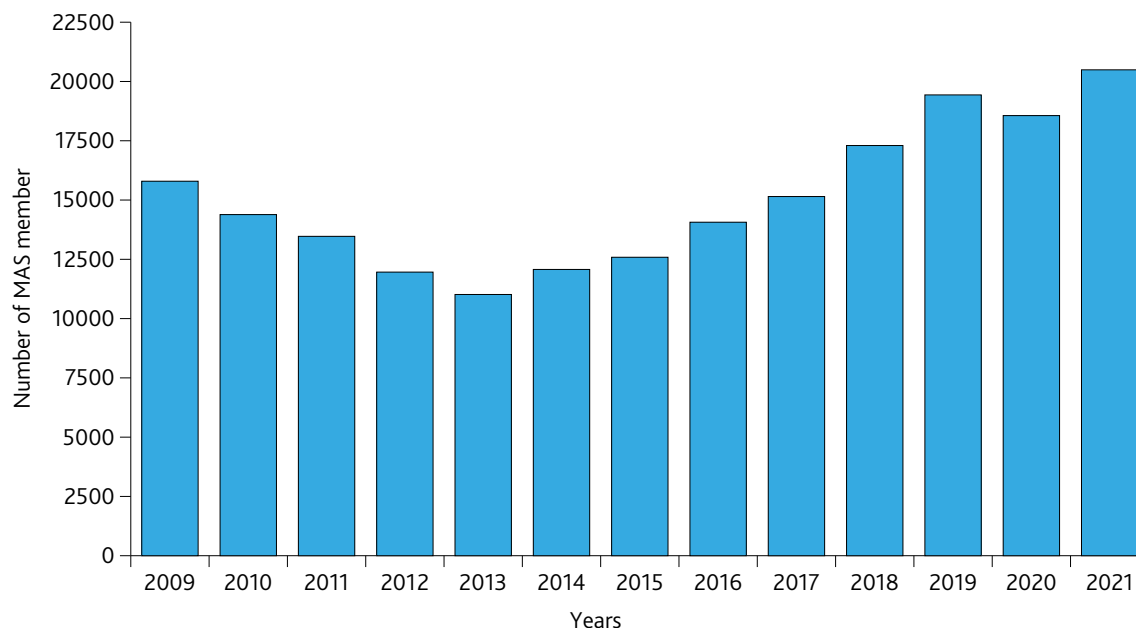


Figure 2. The number of MAS members from 2009 to 2021.

Source: Mountaineering Association of Serbia

larity: it was included in the Serbian Tourism Development Strategy (Vujadinović et al., 2013). This type of tourism can be risky because not all tourists are skilled enough to overcome all challenges professional sportsmen can. Importantly, destinations targeted by adventure tourism are often remote and isolated: high mountains are especially attractive, many with gorges and canyons (*ibid.*).

Among the potential perils “lurking” in the wilderness are venomous snakes, poorly understood creatures that provoke unfounded fear and disgust in many people (Prokop, 2016), including those who have never seen a living serpent.

In Serbia, there are ten species of snakes; only three of these are venomous, all from the genus *Vipera*. Since the beginning of this manuscript preparation, another, eleventh species was recorded in the territory of Serbia (Simović et al.), but this finding has still not been published hence it is unknown outside the expert circles. All snake species in Serbia are protected by law, nine (10) strictly (including two of the three vipers) (Tomović et al., 2015). The largest and potentially the most dangerous of the vipers is widely distributed in Serbia (nose-horned/sand viper, *Vipera ammodytes*); the second (adder, *V. berus*) can be found in several both high-mountain (common knowledge) and lowland habitats (the fact that many are not aware of), and the third (meadow viper, *V. ursinii*) is extremely rare and restricted to only a few localities in high mountains at the margins of our country and in several other places (Tomović et al., 2019; Lakušić et al. 2022). Despite their rarity and secretive lifestyle, all three can be encountered by (inexperienced) people. Because vipers are well camouflaged and often remain motionless even when closely approached, sometimes people do not see them and risk being bitten; however, some try to catch or kill them (Častven et al., 2000; Boyd et al., 2007). Information regarding venomous snakebites (to people and domestic animals), their prevention, first aid measures and later treatment are available for the neighbouring countries and other parts of the world (Anlén, 2008; Di Nicola et al., 2021; overview for the Balkans in Niko-

lić, 2020). For Serbia, such information was almost completely inexistent until recently (Nikolić et al., 2019, 2021).

Due to the increase in the number of people who spend time in mountainous terrains, the risk of venomous snakebites potentially rises. Because mountaineers are in a position to get in the closest touch with nature, we found this group ideal for our pilot analysis: how well do they know venomous snakes and first aid measures in the case of a bite. We found only one study similar to the one we performed (Čubrić, Crnobrnja-Isailović, 2022). Although very simple in the means of design, distribution, and analysis, our investigation did yield satisfying and useful results. Therefore, we concluded that it might be used in wider contexts, with appropriate modifications. Once we get a more complete picture of the state of knowledge and interest in snakes (and nature in general), we will be able to design and conduct appropriate educational activities.

Methods and data

The questionnaire we used was a part of the exam for an excursion and hiking guide taken by Isidora Radonjić (IR). It was designed *ad hoc*, as a pilot survey, by Sonja Nikolić (SN); SN and Zorana Miloradović (ZM) analysed it.

All 20 questions were closed-ended: we offered between two and six potential answers, with no possibility for the respondents to express their own opinions. The questionnaire was fully anonymous. Of personal information, we needed only gender and approximate age (10-year age categories from “10–20” to “41–50”, and “over 51”). The questionnaire was distributed as a free online Google survey. It was sent to other people who took the guide course and to IR’s acquaintances from mountaineering societies and clubs. The participants filled it in between June 22nd and July 6th 2021.

The data were analysed in Microsoft Excel and with a free online calculator available at www.quirks.com (t-tests between percent). Google forms provided percentages and graphs. To obtain sequences of respondents with similar opinions/knowledge regarding venomous snakes and first aid in a case of a bite, a hierarchical cluster analysis was performed in SPSS Statistics 21. Respondents were divided into three clusters using Ward’s method (squared Euclidean distance interval). Significant differences between clusters ($p < 0.05$) were determined by the Mann-Whitney U test, using the same software.

Results

Ninety-six respondents completed the questionnaire. Only one question – the effectiveness of the antivenom produced in the national Institute – remained unanswered by two persons. The percentages of all answers are given in the Appendix, Table 1.

Descriptive analyses – percentages of answers

All our examinees were older than 20 years, and almost 71% were people older than 41. More women filled out the questionnaire, 63.54% ($t_{95}=2.747$, $p=0.007$). The majority of our participants were members of mountaineering societies (66.70%); 10.40% were guides (six men and four women), and approximately 20% only occasionally go on excursions. Regarding the number of years spent among mountaineers/hikers, 11.50% of people go on excursions only occa-

sionally; in the other four categories (“less than five years” to “more than 20 years”) we had between 17.70% and 28.10% (Figure 3).

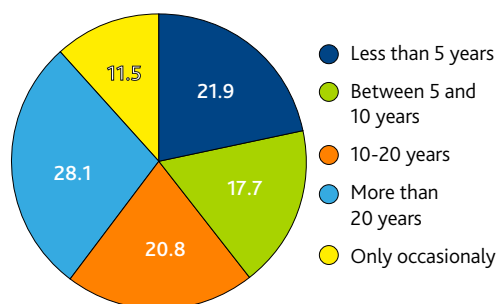


Figure 3. Numbers of years our participants have spent in or near mountaineering societies/clubs

The largest percentage of respondents (41.70%) answered correctly that in Serbia there are 10 snake species in total, but as many as 37.50% thought that there were only seven. Regarding venomous snake species, approximately equal numbers of respondents (43.75% and 50.00%, respectively) thought that there were two, i.e. three species (the latter is correct: Figure 4).

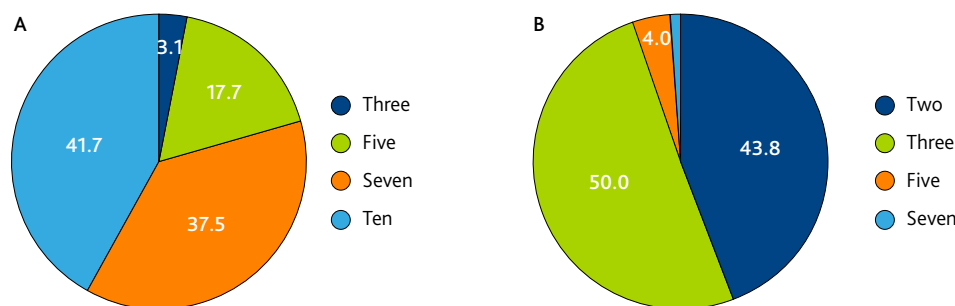


Figure 4. Responses regarding the total number of snake species (A) and the number of venomous snake species in Serbia (B)

Several questions regarded the snakes’ ecology and distribution. The majority of our respondents (67.71%) knew that the snakes are not active only during the warmest periods of the day. Also, almost all (90.63%) correctly answered in which types of habitats venomous snakes can (not) be found. On the other hand, almost one-third (26.04%) thought that there were no venomous snake species north of the Sava and Danube rivers, while 67.71% did answer correctly that venomous snakes can be found in the Vojvodina province as well (Figure 5A). Regarding the conservation status of our snakes, 46.88% of the respondents knew that all our species are protected by law; still, high percentages (33.33 and 19.79, respectively) thought that only some or none are under legal protection (Figure 5B).

Another important result is the fact that exactly half of the respondents thought that all our venomous snakes have triangular heads, which is not correct. More women knew the right answer, 37.50% compared to 12.50% of men ($t_{95}=3.703$, $p<0.001$).

Almost all respondents have met some snake in nature more than once: 2–5 times 40.63% and 6–10 times 50.00%. Only two persons (from Clusters 2 and 3, see later) have never met a

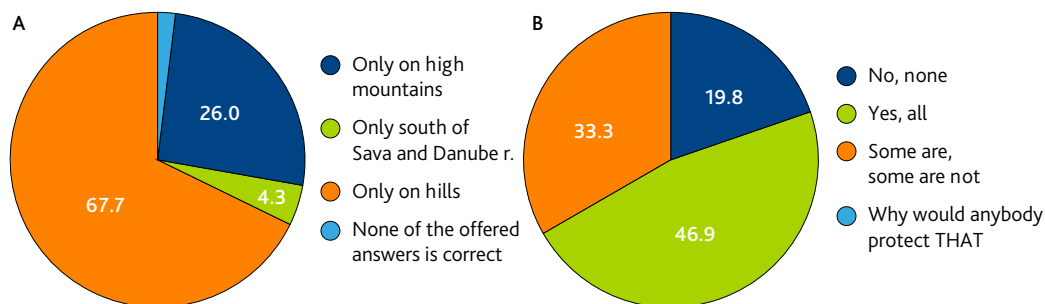


Figure 5. Percentages of answers regarding the venomous snakes' distribution (A) and snake species conservation status (B)

snake in nature (one of these two is a member of a mountaineering society for over 20 years). Seven respondents met a snake only once (of these, one is a guide with more than 20 years of mountaineering).

One of the positive and encouraging results of our questionnaire is that 96.88% of respondents correctly answered that snakes do not attack people but only defend themselves when provoked. Also, a high percentage (73.96%) was aware that mortality due to our venomous snake-bites is very low (0–2%) (Figure 6A).

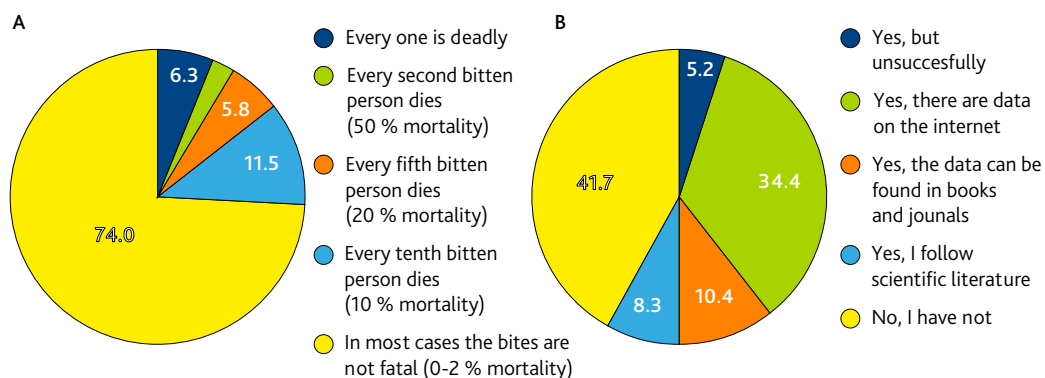


Figure 6. Opinions regarding the deadliness of our venomous snakes' bites (A), and attempts to find information (B)

One of the interesting results was the fact that 40 of 96 respondents (41.67%) have never tried to find information regarding snake species present in Serbia, and 33 (34.38%) were convinced that there is information on the internet. The rest sought information from books/magazines and scientific journals (Figure 6B). Interestingly, more than half (23 of 40) of the people who admitted that they have not tried to find information regarding snakes thought that the available data is adequate regarding quality, clarity, and usefulness (60.40% of all respondents: Appendix, Table 1).

The following questions were the most important: first aid measures, the effectiveness of the available antivenom, and antivenom administration. Regarding first aid, we made four combinations of actions that should (not) be taken: sucking (by mouth) vs. squeezing the wound/venom, and firm vs. gentle tying of the tourniquet around the bitten limb. A substantial percentage of respondents answered correctly (squeezing + gently tied elastic tourniquet,

41.67%) but, regrettably, slightly more (43.75%) thought that the tourniquet should be firmly tied around the bitten extremity after the venom is squeezed from the wound (Figure 7A). Importantly, nine of the ten guides responded correctly. Almost all respondents (85.42%) knew that the antivenom produced in Serbia is effective in the treatment of our autochthonous venomous snake bites. Unfortunately, many (as much as 40.63%) thought that antivenom has to be administered in the field (Figure 7B); nevertheless, all ten guides knew that it must not be administered that way.

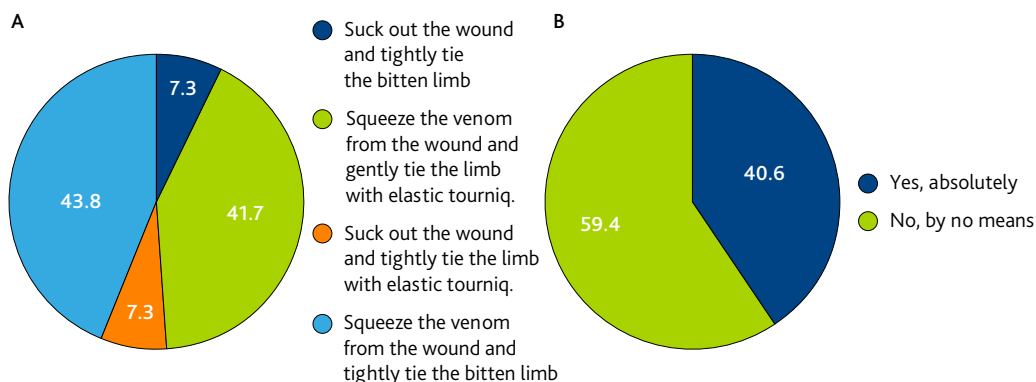


Figure 7. Opinions regarding first aid measures (A) and administration of antivenom (B)

Finally, we wanted to know what our respondents felt towards snakes: a total of 26.04% felt fear, disgust or both, 34.38% checked awe and 8.34% admiration, and 31.26% stated they had no specific feeling regarding snakes (Figure 8).

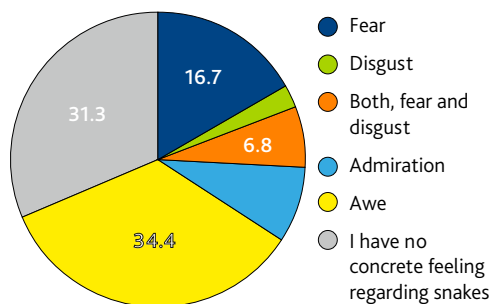


Figure 8. Percentages of different feelings towards snakes

We checked for differences between the sexes regarding these feelings (one-sample t-test between percentages): fear was felt by 1.04% of males and 15.63% of females ($t_{95}=3.749$, $p<0.001$), and both fear and disgust by 1.04% of males and 5.21% of females ($t_{95}=1.658$, $p=0.101$). Other differences between the genders in this respect were not significant; admiration and nothing specific were checked by identical percentages of men and women (Appendix, Table 1).

Cluster analysis

Our cluster analysis classified the respondents into three clusters. The Mann-Whitney U-test revealed that the largest number of significant differences existed between clusters 1 and 2;

the differences between clusters 2 and 3 were significant for only three answer frequencies (Appendix, Table 1).

The first cluster singled out the people (35 participants, 36.46% of the entire sample; 16 women, 19 men) who had the longest mountaineering experience (16.67% over 20 years), the most 6–10 encounters with snakes (25.00% of all respondents), who were informed regarding the first aid measures better than the people in other two clusters (although we had wrong answers here as well). All of them have previously tried to find information regarding snakes, the majority knew the basics of snakes' preferred habitats and activity periods, and almost 23% felt admiration and/or awe towards snakes (of 19 men, nobody felt fear ± disgust, which was checked by only one woman). Nine of ten guides fell in this cluster. However, the proportions of wrong answers regarding the overall number of snakes and venomous snake recognition, i.e. wrong opinion regarding triangular head shape were high, 21.88% each, but a decent percentage knew that all our snake species are protected by law, 19.79% (Appendix, Table 2). This cluster could be defined as *Well-informed, courageous active mountaineers*. This cluster was the only one that contained a little more men than women (shown by significant differences revealed by Mann-Witney U-test: Appendix, Table 1).

The second cluster (26 women, 12 men) contained the highest percentage of people who are members of mountaineering clubs (28.13%) and who only occasionally go on excursions (Appendix, Table 2), but many have been doing this between 11 and 20 years (10.42%). Numerous were the wrong answers regarding the numbers of all and venomous snakes (22.92% and 20.83%, respectively). In this cluster, equal percentages of respondents (19.79% of the entire sample) thought that all venomous snakes do and do not have triangular heads and 18.75% that snakes are active only during the warmest periods of the days (20.83% did answer correctly). Also, 25.00% did not know that all snakes are protected. In addition, 31.25% have never tried to find information regarding snakes, 22 women and 8 men (10 of 22 women thought that available information is sufficient). Importantly, 28.13% of these people did not know the proper first aid measures (8 men and 19 women), and 22.92% thought that antivenom must be given in the field, six men and 16 women. Only one woman felt fear and disgust, 19.79% of people checked admiration/awe, and 18.75% had no concrete feeling regarding snakes (Appendix, Table 2). This group can be termed *Long-term facultative hikers, uninterested, not well informed*.

The third cluster contained only 23 respondents, one of whom was a guide. The percentages of most of the answers were between the first two clusters. Here, the majority has been hiking for less than 10 years. In this cluster, more people thought that there were two venomous snakes in Serbia, but the majority knew that their heads are not all triangular (15.63% vs. 8.33%). However, more respondents did answer correctly regarding the antivenom administration. What did emerge was the fact that all participants in this cluster (19 women, 4 men) felt fear and/or disgust (23.96% of the entire sample) (Appendix, Table 2). This group could be characterized as *Timid, moderately informed, occasionally hiking people*.

Discussion

Depending on the mountain, tourist presence peaks in different seasons, i.e. some are popular during winter, but others are crowded in spring and summer months. All-year-round activity is what tourist workers wish for and plan – but that would negatively influence the environment, including protected areas (Vujadinović et al., 2013; Bratić et al., 2019). The impacts of an increase in human presence on nature and wildlife are still not fully investigated and understood. “With

the exception of certain protected areas, most destinations have been caught off-guard regarding the negative environmental impacts such as littering or overvisitation of fragile ecosystems resulting from the sheer volume of tourists. Those places might be years and budgets away from recovery” (Damnjanović, 2020). Mountain and, especially, adventure tourism is yet to be appropriately regulated and organized (Milićević et al., 2021). One of the aims of nature-oriented tourism development must be the long-term protection of the environment, which can be achieved through adequate education. To the best of our knowledge, our questionnaire is the second of this kind, but can be adapted and more widely used, not only for snakes.

Numerous people who were not spending time out of the cities earlier started travelling to more or less “wild” parts of our country, often without proper preparation (corresponding to our Clusters 2 and 3). To adventure tourists especially attractive are high mountains, many with gorges and canyons – which are often populated by venomous snakes (Vujadinović et al., 2013; Tomović et al., 2019).

Although they are not too frequent, venomous snakebites in Serbia occur every year and can cause complications (Milićević, 1968; Popović et al., 1998; Častven et al., 2000; Nikolić et al., 2021). Contrary to the popular belief, they are rarely fatal (Chippaux, 2012). Medical doctors in Serbia are successful in treating this medical condition (Nikolić et al., 2021).

The “season of venomous snakebites” (in Western Serbia from May to August, with a peak in June or July in Milićević, 1968 and Nikolić et al., 2021) coincides with the increase of overnight stays in mountain resorts, i.e. July and August (Figure 1, and Vujadinović et al., 2013). A recent study (Nikolić et al., 2021) showed that hikers/tourists usually received bites to the legs, compared to agricultural workers who were the most affected but most often received bites to the hands/arms. This difference probably resulted merely from the difference in the main activity of these two groups, not from the intention to tamper with snakes or the lack of it. We assume that most of the mountaineers/hikers got bitten when they unintentionally provoked snakes. Therefore, all mountain visitors need to be better informed before venturing into the “wilderness” (Boyd et al., 2007).

In Serbia, it is not unusual that people confuse non-venomous snakes (most often *Natrix tessellata* or *Coronella austriaca*) with venomous species, although Balkan vipers usually clearly differ from non-venomous species. Neither laypeople (local or visiting) nor medical workers are always well informed regarding the species of snakes present in their surroundings or holiday destinations, hence sometimes the species in the cases of bites are erroneously reported (Nikolić et al., 2021). In Serbia, this is not a serious problem because the antivenom produced by the national Institute of Virology, Vaccines and Sera is efficient in the cases of bites by both our medically important venomous snakes (“Torlak”), and the administered symptomatic therapy is appropriate. Nevertheless, the venom compositions do differ between the species and their effects are distinguishable so snakebite patients should be treated accordingly (Latinović et al., 2016).

The fact that many of our respondents did not know how many snake species live in Serbia is not surprising; that is a fact one has to search for intentionally, not something that is regularly mentioned e.g. in mass media. In addition, three (four) of the ten (11) species are extremely rare and restricted to small regions of our country (Tomović et al., 2014; Simović et al. unpublished) hence not many people are in a position to see them in nature. Nevertheless, mountaineers should be properly educated regarding snake fauna. Many in our sample (26.04%) were not aware that venomous snakes are present in Vojvodina (predominantly lowland area north of the Sava and Danube rivers). Adders were recorded in several localities in this province, both hilly and lowland (Nikolić, Simović, 2017; Tomović et al., 2019), and nose-horned vipers were

also reported (Džukić, Kalezić, 2005). Also, the possibility of meadow viper's presence in the "northern lowlands of Serbia" has not been fully rejected, because "known favourable meadow habitats" persist there (Jelić et al., 2013). In several localities in Serbia, two or even all three species of vipers can be found together, in sympatry (Tomović et al., 2019).

Among our examinees, more people knew that snakes are not active only during the warmest periods of the day, 67.70% vs. 32.30% ($t_{95} = 3.709$, $p < 0.001$). Indeed, snakes can be active at temperatures as low as 9–10°C and were documented e.g. during mid-autumn nights (Dyug-medzhiev et al., 2021). Some can be found even under a thin layer of snow and agitated in a very short time (Đorđević, 2015).

Many people think that all our venomous snakes have triangular/heart-shaped heads, i.e. that any snake with a triangular head is venomous (such a statement is present in some old mountain guides, e.g. Smerke, 1989). This common misbelief has to be changed. Only the nose-horned viper's head is triangular/heart-shaped – and even that is not always clearly noticeable (Figure 9A). On the other hand, non-venomous snakes can spread their jaws and make their heads look triangular (Figure 9B) – which serves to scare off potential predators.



Figure 9. A) The nose-horned viper (Photo: Aleksandar Simović) and B) the non-venomous grass snake in a defensive posture (Photo: Marko Anđelković)

The heads of the other two venomous snakes in Serbia are oval (Figure 10). In other words, head shape is not a reliable character in snake recognition.



Figure 10. A) The adder and B) the meadow viper (Photos: Aleksandar Simović)

Venomous snakes do not attack people: humans are too large to be their prey; also, venom is metabolically costly and it cannot kill immediately, so snakes cannot use it to deter a potential

predator (Pucca et al., 2020). In addition, the amount of venom our vipers produce cannot kill a healthy adult human (Achille, 2015). Snakes perceive people as threats/predators, so they try either to stay motionless and 'invisible' or to flee if there is any chance of escape; if approached/cornered, they often hiss and try to appear bigger than they are, to frighten and deter a human; some, including vipers, feign death to avoid attack (Hodges, 2013). Snakes bite only in self-defence and sometimes deliver a 'dry' bite (Pucca et al., 2020).

Regarding first aid measures, fortunately, only 14.60% of our examinees thought that the venom should be sucked out from the wound. Based on current knowledge, even mechanical suction is not recommended (Boyd et al., 2007). Of those who knew that this is the wrong approach (85.50%), still more people thought that the tourniquet should be tightly tied around the bitten limb (43.80%) after the venom is squeezed from the wound. This is wrong and can lead to serious complications (Boyd et al., 2007; WHO, 2016). Also, 40.60% of respondents thought that antivenom should be administered in the field (Appendix, Table 1). In the producer's manual, it is clearly stated that the antivenom must be kept at 2°C–8°C, and that proper medical treatment should be available for reacting to a potential anaphylactic shock ("Torlak"). That is usually not achievable in the field. Incorrect ideas regarding first aid (the correct ones were described e.g. by Boyd et al., 2007) and antivenom administration might result either from not searching for information or from incorrect recommendations that can be found in some mountaineering manuals based on outdated information (Smerke, 1989).

In the basic education programs and mass media in our country, information regarding (venomous) snakes is scarce, partly due to the lack of reliable facts specific to Serbia that would be properly presented and disseminated. Even the comprehensive expert analysis of the past and present distribution of venomous snakes in our country was published only recently, and that was in a scientific journal (Tomović et al., 2019).

Boyd et al. (2007) analysed the prevention and management of snakebites in mountainous terrain. They compiled the data and "presented the core knowledge and recommendations made by the Medical Commissions of the International Committee for Alpine Rescue (ICAR) and the International Mountaineering and Climbing Federation (UIAA MEDCOMS)". Such texts are very valuable. They should be analysed by local experts and adapted to circumstances in the Balkans. For example, Boyd and co-authors (2007) omitted *Vipera ammodytes* from the list of vipers occurring in mountains, but this species can be found up to 2,500 m altitude (Crnobrnja-Isailović, Haxhiu, 1997; Đorđević, 2015). The main conclusions and recommendations should be presented publicly, in a way laymen can easily comprehend.

All Serbian mountain and tourist guides, i.e. tour leaders should be properly educated and prepared to efficiently respond to encounters with venomous snakes and potential snakebites in remote locations. Training and teaching aids of the Mountain Rescue Service of Serbia do include the treatment of snakebites that is regularly updated and improved by the Service's medical commission (pers. comm. J. Đoković, M. Mrkonjić, MRSS, November 2021). We suggest that tour leaders should also know the basics of the snakes' distribution, ecology, and behaviour (Crnobrnja-Isailović et al., 2007; Bauwens, Claus, 2019; Tomović et al., 2019) so they could properly instruct the people they take outdoors to walks and adventures. This information should also be added to online/printed guides for (beginner) mountaineers, in addition to the crucial data regarding the terrain, weather, equipment etc. In return, properly educated mountaineers and tourists could make a significant contribution to scientists' knowledge regarding the distribution, abundance, variability, ecology and phenology of our venomous snakes and other wildlife, but also regarding the pressures imposed on their populations and habitats by human presence and activities (Durso et al., 2021). All this is especially important

in light of hopes and intentions of intensifying mountain tourism in Serbia (Milićević et al., 2021; Žerajić, 2021).

Conclusion

Compared to some other open-air sports (Ouren et al., 2007; Ristić et al., 2012), mountaineering is a non-invasive outdoor activity and it should be well-promoted and further developed. Being aware of all the benefits nature has on human emotional and physical health, we do support and encourage new beginnings in hiking/mountaineering/adventurism, but not at any cost, i.e. not without proper preparation and education, “mountaineering apprenticeship” (Beedie, 2003; Mykletun et al., 2021). To avoid any inconveniences, before venturing to a chosen destination, people should be properly informed not only of the terrain and weather but also of the presence of venomous snakes and all should be instructed on how to behave if they meet one. Regarding long-term education, snakebite prevention and numerous conservation issues, a transdisciplinary approach should be adopted (Alcoba et al., 2021).

A questionnaire such as the one presented herein (with necessary changes and improvements, i.e. adaptations to specific target groups) should be disseminated to a larger sample of mountaineers/tourists so we could get a better picture of their knowledge regarding venomous snakes and snakebite treatment to properly design future educational activities. We intend to give lectures regarding venomous snakes in mountaineering societies or online. Also, similar questionnaires could be designed for other parts of the world: an increase in nature-oriented tourism and a supposed rise in the numbers of tourists once the pandemic finishes are global phenomena.

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Appendix

Table 1. All questions and possible answers with percentages of men and women who answered them. Presented as % in the entire sample, N (96 respondents), and within genders (Nm = number of men, Nw = number of women). Significant differences between the Clusters are indicated in superscript lower case letters: a (between clusters 1 and 2), b (clusters 2 and 3), and c (clusters 1 and 3).

Questions	Possible answers	Percent in entire sample N = 96	Men		Nw = 61	Women	
			Nm = 35	% of 96 36.46		% of 96 63.54	% of women
1. How old are you?	i) 10–20	0.00	0	0.00	0	0.00	0.00
	ii) 21–30	3.10	2	2.08	1	1.04	1.64
	iii) 31–40	26.00	7	7.29	18	18.75	29.51
	iv) 41–50	36.50	15	15.63	20	20.83	32.79
	v) >51	34.40	11	11.46	22	22.92	36.07
2. You are: a, b	i) Male	36.50					
	ii) Female	63.50					
3. You are	i) member of the mountaineering club	66.70	20	20.83	44	45.83	72.13
	ii) excursion and hiking guide	10.40	6	6.25	4	4.17	6.56
	iii) I go to excursions only occasionally	20.80	8	8.33	12	12.50	19.67
	iv) My child(ren) go, I do not	2.10	1	1.04	1	1.04	1.64
4. How long have you been hiking?	i) less than five years	21.90	3	3.13	18	18.75	29.51
	ii) between five and 10 years	17.70	7	7.29	10	10.42	16.39
	iii) 11–20 years	20.80	7	7.29	13	13.54	21.31
	iv) over 20 years	28.10	15	15.63	12	12.50	19.67
5. How many snakes in total are there in Serbia?	v) I go to excursions only occasionally	11.50	3	3.13	8	8.33	13.11
	i) three	3.10	1	1.04	2	2.08	3.28
	ii) five	17.70	4	4.17	13	13.54	21.31
	iii) seven	37.50	16	16.67	20	20.83	32.79
6. How many venomous snakes are there in Serbia?	iv) 10	41.70	14	14.58	26	27.08	42.62
	i) two	43.80	16	16.67	26	27.08	42.62
	ii) three	50.00	18	18.75	30	31.25	49.18
	iii) five	5.21	1	1.04	4	4.17	6.56
	iv) seven	1.04	0	0.00	1	1.04	1.64

Questions	Possible answers	Percent in entire sample N = 96	Men		Women	
			Nm = 35	% of 96 36.46	Nw = 61	% of 96 63.54
7. Snakes are active only during the warmest periods of day ^a	i) True	32.30	8	8.33	23	37.70
	ii) False	67.70	27	28.13	38	62.30
8. In which habitats do Serbian venomous snakes live? ^a	i) Exclusively in rocky terrain.	9.40	1	1.04	8	13.11
	ii) Exclusively on high mountains.	0.00	0	0.00	0	0.00
	iii) Exclusively in forest edges.	0.00	0	0.00	0	0.00
	iv) In all of the above and in some other habitats.	90.60	34	35.42	53	86.89
9. In which parts of Serbia do venomous snakes live?	i) Only on high mountains.	2.08	1	1.04	1	1.64
	ii) Only south of the Sava and Danube rivers (no venomous snakes live in Vojvodina)	26.00	10	10.42	15	24.59
	iii) Only on hills.	4.17	0	0.00	4	6.56
	iv) None of the offered answers is correct.	67.70	24	25.00	41	67.21
10. All our venomous snakes have triangular head.	i) True	50.00	23	23.96	25	40.98
	ii) False	50.00	12	12.50	36	59.02
11. Are snakes in Serbia protected by law?	i) No, none.	19.80	3	3.13	16	26.23
	ii) Yes, all.	46.90	22	22.92	23	37.70
	iii) Some are, some are not.	33.30	10	10.42	22	36.07
	iv) Why would anybody protect THAT?!	0.00	0	0.00	0	0.00
12. Do snakes attack people?	i) Yes, without cause.	3.10	1	1.04	2	3.28
	ii) No, they only defend themselves when provoked.	96.90	34	35.42	59	96.72
13. How dangerous are the bites of our venomous snakes? ^{a,c}	i) Every one is deadly.	6.25	2	2.08	4	6.56
	ii) Every second person dies (50% mortality).	2.08	0	0.00	2	3.28
	iii) Every fifth person dies (20% mortality).	6.25	3	3.13	3	4.92
	iv) Every tenth person dies (10% mortality).	11.50	5	5.21	6	9.84
	v) In most cases the bites are not fatal (0%-2% mortality).	74.00	25	26.04	46	75.41

Questions	Possible answers	Percent in entire sample N = 96	Men		Women	
			Nm = 35	% of 96 36.46	Nw = 61	% of 96 63.54
14. Have you tried so far to find information regarding snakes in Serbia? a,b,c	i) Yes, unsuccessfully.	5.21	2	2.08	3	3.13
	ii) Yes, there is data on the Internet.	34.40	13	13.54	20	20.83
	iii) Yes, the info can be found in books and journals.	10.40	5	5.21	5	5.21
	iv) Yes, I follow the scientific literature.	8.30	5	5.21	3	3.13
	v) No, I have not.	41.70	10	10.42	30	31.25
	i) Yes.	60.40	20	20.83	38	39.58
15. Do you think that snakes-related information for Serbia is sufficient?	ii) No.	39.60	15	15.63	23	23.96
	i) No, never.	2.08	1	1.04	1	1.04
16. Have you ever met a snake in nature? a,b	ii) Yes, once.	7.29	1	1.04	6	6.25
	iii) Between two and five times.	40.60	11	11.46	28	29.17
	iv) Between six and 10 times.	50.00	22	22.92	26	27.08
	i) Suck out the wound (with mouth) and tightly tie the bitten limb.	7.30	1	1.04	6	6.25
17. What are the first aid measures in the case of a bite? a,b	ii) Squeeze the venom from the wound (with fingers) and use wide/elastic tourniquet to gently tie the limb.	41.70	21	21.88	19	19.79
	iii) Suck out the wound (with mouth) and use wide/elastic tourniquet to gently tie the limb.	7.30	2	2.08	5	5.21
	iv) Squeeze the venom from the wound (with fingers) and tightly tie the bitten limb.	43.80	11	11.46	31	32.29
	i) Yes.	85.42	31	32.29	51	53.13
18. The "Torlak" institute produces antivenom. Is it efficient against all our venomous snakebites? b	ii) No.	12.50	4	4.17	8	8.33
	i) Yes, obligatorily.	40.60	12	12.50	27	28.13
19. Should the antivenom be administered in the field? a	ii) No, by no means.	59.40	23	23.96	34	35.42

Questions	Possible answers	Percent in entire sample N = 96	Men			Women		
			Nm = 35	% of 96	% of men	Nw = 61	% of 96	% of women
20. Regarding snakes, I feel: a. b. c.	i) fear.	16.70	1	1.04	2.86	15	15.63	24.59
	ii) disgust.	3.13	2	2.08	5.71	1	1.04	1.64
	iii) both fear and disgust.	6.25	1	1.04	2.86	5	5.21	8.20
	iv) admiration.	8.30	4	4.17	11.43	4	4.17	6.56
	v) awe.	34.40	12	12.50	34.29	21	21.88	34.43
	vi) I have no concrete feeling regarding snakes.	31.30	15	15.63	42.86	15	15.63	24.59

Table 2. Percentages of answers of the examinees grouped into clusters. Percentages of the answers given by men and women (pooled, M+F, and separately) in the entire sample (%N) and respective clusters, NCn. Notation of questions and answers is the same as in Table 1.

		Cluster 1, NC1 = 35										Cluster 2, NC2 = 38										Cluster 3, NC3 = 23									
	M	F	M+F%N	% M in N	% M in C1	% F in N	% F in C1	M	F	M+F%N	% M in N	% M in C1	% F in N	% F in C1	M	F	M+F%N	% M in N	% M in C1	% F in N	% F in C1	M	F	M+F%N	% M in N	% M in C1	% F in N	% F in C1			
1	19	16	35	19.79	54.29	16.67	47.51	12	26	39.58	12.50	31.58	27.08	68.42	4	19	23.96	4.17	17.39	19.79	82.61										
	i	0	0	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00										
	ii	2	0	2.08	2.08		0.00	0	1	1.04	0.00	0.00	1.04	2.63	0	0	0.00	0.00	0.00	0.00	0.00										
	iii	5	4	9.38	5.21	14.29	4.17	0	9	9.38	0.00	0.00	9.38	23.68	2	5	7.29	2.08	8.70	5.21	21.74										
	iv	8	5	13.54	8.33	22.86	5.21	7	6	13.54	7.29	18.42	6.25	15.79	0	9	9.38	0.00	0.00	9.38	39.13										
3	v	4	7	11.46	4.17	11.43	7.29	5	10	15.63	5.21	13.16	10.42	26.32	2	5	7.29	2.08	8.70	5.21	21.74										
	i	11	11	22.92	11.46	31.43	11.46	8	19	28.13	8.33	21.05	19.79	50.00	1	14	15.63	1.04	4.35	14.58	60.87										
	ii	5	4	9.38	5.21	14.29	4.17	0	0	0.00	0.00	0.00	0.00	0.00	1	0	1.04	1.04	4.35	0.00	0.00										
	iii	3	1	4.17	3.13	8.57	1.04	3	6	9.38	3.13	7.89	6.25	15.79	2	5	7.29	2.08	8.70	5.21	21.74										
	iv	0	0	0.00	0.00	0.00	0.00	1	1	2.08	1.04	2.63	1.04	2.63	0	0	0.00	0.00	0.00	0.00	0.00										
4	i	2	5	7.29	2.08	5.71	5.21	1	7	8.33	1.04	2.63	7.29	18.42	0	6	6.25	0.00	0.00	6.25	26.09										
	ii	3	1	4.17	3.13	8.57	1.04	2	5	7.29	2.08	5.26	5.21	13.16	2	4	6.25	2.08	8.70	4.17	17.39										
	iii	3	3	6.25	3.13	8.57	3.13	3	7	10.42	3.13	7.89	7.29	18.42	1	3	4.17	1.04	4.35	3.13	13.04										
	iv	10	6	16.67	10.42	28.57	6.25	5	3	8.33	5.21	13.16	3.13	7.89	0	3	3.13	0.00	0.00	3.13	13.04										
	v	1	1	2.08	1.04	2.86	1.04	1	4	5.21	1.04	2.63	4.17	10.53	1	3	4.17	1.04	4.35	3.13	13.04										

Cluster 1, NC1 = 35																						Cluster 2, NC2 = 38								Cluster 3, NC3 = 23							
M	F	M+F%	% M in N	% M in C1	% F in N	% F in C1	M	F	M+F%	% M in N	% M in C1	% F in N	% F in C1	M	F	M+F%	% M in N	% M in C1	% F in N	% F in C1																	
19	16	35	19.79	54.29	16.67	47.51	12	26	39.58	12.50	31.58	27.08	68.42	4	19	23.96	4.17	17.39	19.79	82.61																	
5	i	0	1	1.04	0.00	1.04	2.86	1	1	2.08	1.04	2.63	1.04	2.63	0	0	0.00	0.00	0.00	0.00																	
	ii	3	1	4.17	3.13	8.57	2.86	0	9	9.38	0.00	0.00	9.38	23.68	1	3	4.17	1.04	4.35	13.04																	
	iii	10	6	16.67	10.42	28.57	17.14	4	7	11.46	4.17	10.53	7.29	18.42	2	7	9.38	2.08	8.70	30.43																	
	iv	6	8	14.58	6.25	17.14	22.86	7	9	16.67	7.29	18.42	9.38	23.68	1	9	10.42	1.04	4.35	39.13																	
6	i	7	6	13.54	7.29	20.00	17.14	7	10	17.71	7.29	18.42	10.42	26.32	2	10	12.50	2.08	8.70	43.48																	
	ii	12	8	20.83	12.50	34.29	22.86	4	14	18.75	4.17	10.53	14.58	36.84	2	8	10.42	2.08	8.70	34.78																	
	iii	0	2	2.08	0.00	2.08	5.71	1	1	2.08	1.04	2.63	1.04	2.63	0	1	1.04	0.00	0.00	4.35																	
	iv	0	0	0.00	0.00	0.00	0.00	0	1	1.04	0.00	0.00	1.04	2.63	0	0	0.00	0.00	0.00	0.00																	
7	i	2	3	5.21	2.08	5.71	8.57	5	13	18.75	5.21	13.16	13.54	34.21	1	7	8.33	1.04	4.35	30.43																	
	ii	17	13	31.25	17.71	48.57	37.14	7	13	20.83	7.29	18.42	13.54	34.21	3	12	15.63	3.13	13.04	52.17																	
	i	0	0	0.00	0.00	0.00	0.00	1	6	7.29	1.04	2.63	6.25	15.79	0	2	2.08	0.00	0.00	8.70																	
	ii	0	0	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00																	
8	iii	0	0	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00																	
	iv	19	16	36.46	19.79	54.29	45.71	11	20	32.29	11.46	28.95	20.83	52.63	4	17	21.88	4.17	17.39	73.91																	
	i	0	0	0.00	0.00	0.00	0.00	1	0	1.04	1.04	2.63	0.00	0.00	0	1	1.04	0.00	0.00	4.35																	
	ii	7	3	10.42	7.29	20.00	8.57	1	6	7.29	1.04	2.63	6.25	15.79	2	6	8.33	2.08	8.70	26.09																	
9	iii	0	0	0.00	0.00	0.00	0.00	0	4	4.17	0.00	0.00	4.17	10.53	0	0	0.00	0.00	0.00	0.00																	
	iv	12	13	26.04	12.50	34.29	37.14	10	16	27.08	10.42	26.32	16.67	42.11	2	12	14.58	2.08	8.70	52.17																	
	i	13	8	21.88	13.54	37.14	22.86	7	12	19.79	7.29	18.42	12.50	31.58	3	5	8.33	3.13	13.04	21.74																	
	ii	6	8	14.58	6.25	17.14	22.86	5	14	19.79	5.21	13.16	14.58	36.84	1	14	15.63	1.04	4.35	60.87																	
10	i	1	5	6.25	1.04	2.86	14.29	2	8	10.42	2.08	5.26	8.33	21.05	0	3	3.13	0.00	0.00	13.04																	
	ii	12	7	19.79	12.50	34.29	20.00	7	7	14.58	7.29	18.42	7.29	18.42	3	9	12.50	3.13	13.04	39.13																	
	iii	6	4	10.42	6.25	17.14	11.43	3	11	14.58	3.13	7.89	11.46	28.95	1	7	8.33	1.04	4.35	30.43																	
	iv	0	0	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00																	
11	i	1	0	1.04	1.04	2.86	0.00	0	2	2.08	0.00	0.00	2.08	5.26	0	0	0.00	0.00	0.00	0.00																	
	ii	18	19	38.54	18.75	51.43	54.29	12	24	37.50	12.50	31.58	25.00	63.16	4	19	23.96	4.17	17.39	82.61																	
	i	0	0	0.00	0.00	0.00	0.00	2	4	6.25	2.08	5.26	4.17	10.53	0	0	0.00	0.00	0.00	0.00																	
	ii	0	0	0.00	0.00	0.00	0.00	0	1	1.04	0.00	0.00	1.04	2.63	0	1	1.04	0.00	0.00	4.35																	

Cluster 1, NC1 = 35					Cluster 2, NC2 = 38					Cluster 3, NC3 = 23											
	M	F	M+F%N	% M in N	% M in C1	% F in N	% F in C1	M	F	M+F%N	% M in N	% M in C1	% F in N	% F in C1	M	F	M+F%N	% M in N	% M in C1	% F in N	% F in C1
13	19	16	35	19.79	54.29	16.67	47.51	12	26	39.58	12.50	31.58	27.08	68.42	4	19	23.96	4.17	17.39	19.79	82.61
	iii	0	1	0.00	0.00	1.04	2.86	2	2	4.17	2.08	5.26	2.08	5.26	1	0	1.04	1.04	4.35	0.00	0.00
	iv	2	0	2.08	5.71	0.00	0.00	3	3	6.25	3.13	7.89	3.13	7.89	0	3	3.13	0.00	0.00	3.13	13.04
	v	17	18	36.46	17.71	48.57	51.43	5	16	21.88	5.21	13.16	16.67	42.11	3	15	18.75	3.13	13.04	15.63	65.22
14	i	2	3	2.08	5.71	3.13	8.57	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00
	ii	12	9	21.88	34.29	9.38	25.71	1	2	3.13	1.04	2.63	2.08	5.26	0	9	9.38	0.00	0.00	9.38	39.13
	iii	4	2	6.25	4.17	2.08	5.71	0	1	1.04	0.00	0.00	1.04	2.63	1	2	3.13	1.04	4.35	2.08	8.70
	iv	1	2	3.13	1.04	2.86	5.71	3	1	4.17	3.13	7.89	1.04	2.63	1	0	1.04	1.04	4.35	0.00	0.00
15	v	0	0	0.00	0.00	0.00	0.00	8	22	31.25	8.33	21.05	22.92	57.89	2	8	10.42	2.08	8.70	8.33	34.78
	i	12	10	22.92	34.29	10.42	28.57	7	13	20.83	7.29	18.42	13.54	34.21	1	15	16.67	1.04	4.35	15.63	65.22
	ii	7	6	13.54	7.29	6.25	17.14	5	13	18.75	5.21	13.16	13.54	34.21	3	4	7.29	3.13	13.04	4.17	17.39
	i	0	0	0.00	0.00	0.00	0.00	1	0	1.04	1.04	2.63	0.00	0.00	0	1	1.04	0.00	0.00	1.04	4.35
16	ii	0	1	1.04	0.00	1.04	2.86	0	4	4.17	0.00	0.00	4.17	10.53	1	1	2.08	1.04	4.35	1.04	4.35
	iii	4	6	10.42	4.17	6.25	17.14	5	14	19.79	5.21	13.16	14.58	36.84	2	8	10.42	2.08	8.70	8.33	34.78
	iv	15	9	25.00	15.63	9.38	25.71	6	8	14.58	6.25	15.79	8.33	21.05	1	9	10.42	1.04	4.35	9.38	39.13
	i	1	1	2.08	1.04	1.04	2.86	0	3	3.13	0.00	0.00	3.13	7.89	0	2	2.08	0.00	0.00	2.08	8.70
17	ii	14	9	23.96	14.58	9.38	25.71	4	7	11.46	4.17	10.53	7.29	18.42	3	3	6.25	3.13	13.04	3.13	13.04
	iii	0	1	1.04	0.00	1.04	2.86	2	4	6.25	2.08	5.26	4.17	10.53	0	0	0.00	0.00	0.00	0.00	0.00
	iv	4	5	9.38	4.17	5.21	14.29	6	12	18.75	6.25	15.79	12.50	31.58	1	14	15.63	1.04	4.35	14.58	60.87
	i	16	10	27.08	16.67	10.42	28.57	11	23	35.42	11.46	28.95	23.96	60.53	4	18	22.92	4.17	17.39	18.75	78.26
18	ii	3	5	8.33	3.13	5.21	14.29	1	3	4.17	1.04	2.63	3.13	7.89	0	0	0.00	0.00	0.00	0.00	0.00
	i	4	4	8.33	4.17	4.17	11.43	6	16	22.92	6.25	15.79	16.67	42.11	2	7	9.38	2.08	8.70	7.29	30.43
	ii	15	12	28.13	15.63	12.50	34.29	6	10	16.67	6.25	15.79	10.42	26.32	2	12	14.58	2.08	8.70	12.50	52.17
	i	0	0	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	1	15	16.67	1.04	4.35	15.63	65.22
20	ii	0	0	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	2	1	3.13	2.08	8.70	1.04	4.35
	iii	0	1	1.04	0.00	1.04	2.86	0	1	1.04	0.00	0.00	1.04	2.63	1	3	4.17	1.04	4.35	3.13	13.04
	iv	3	3	6.25	3.13	3.13	8.57	1	1	2.08	1.04	2.63	1.04	2.63	0	0	0.00	0.00	0.00	0.00	0.00
	v	7	9	16.67	7.29	9.38	25.71	5	12	17.71	5.21	13.16	12.50	31.58	0	0	0.00	0.00	0.00	0.00	0.00
	vi	9	3	12.50	9.38	3.13	8.57	6	12	18.75	6.25	15.79	12.50	31.58	0	0	0.00	0.00	0.00	0.00	0.00

Differentiation of the Hungarian Food Festival Offer According to the Thematic, Spatial and Temporal Characteristics Before the COVID-19 Pandemic

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Abstract

In our study, we analysed the pre-pandemic Hungarian gastro festival offer based on their topic, spatial and temporal characteristics, using media content analysis and advanced statistical methods. Based on the results, the Hungarian gastro festivals can be divided into several categories according to their theme and the emphasis of their theme. The examined festivals were mainly held in rural areas, most of them did not perform tourist functions, they can be defined as local, community events. According to the time characteristics, Hungarian festivals typically last for 1-2 days or are organized for 1-2 years. They are held primarily during the main tourist season, but some festival themes are also off-season. Based on our results, there is a correlation and difference between the theme, spatial features and temporality. The theme also influences the schedule, length and age of the festivals, while some themes can be linked to a city or countryside, and some themes are more relevant to tourism. Festivals are time-varying phenomena in terms of both number and territorial significance.

Keywords: food festival, food tourism, K-mean cluster, One-way ANOVA

Introduction

Prior to the COVID-19 pandemic, the organization of festivals, included gastro festivals was popular both internationally and in Hungary (Hall, Sharples, 2008; Várhelyi, 2016; Pusztai, 2020). The increase in the number and dynamic change of food festivals made it less possible to register gastro-festivals. At the same time, there has been widespread differentiation in the festival offer in terms of theme, temporal and spatial characteristics, and goals.

Nevertheless, to date, there has been little large-scale empirical research on the offer of (gastro) festivals in a given region in the international festival literature. The festival literature

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usually examines the motivations of festival visitors (Büyüksalvarci, Akkaya, 2018; Krajíčková, Šauer, 2018), the socio-cultural impacts of festivals (Sharpley, Stone, 2012; Bogataj, 2019) economic, tourism development and location marketing aspects (Bottyán, 2015; Vukic. et al., 2016), and the management of festivals through a few case studies through the study of the role of different interest groups (Andersson, Getz, 2008; Presenza, Iocca, 2012).

In our research, we aimed to fill this gap by examining the pre-pandemic supply of Hungarian food festivals from several perspectives. In the framework of this, we explore how the Hungarian gastro festivals can be typified based on the theme intended for the celebration, and how these events can be categorized in connection with the emphasis of the theme. We examine the spatial characteristics of the events, with special regard to how the Hungarian food festivals differentiated in terms of the size of the settlement organizing the festival, as well as their volume and territorial significance. We also explore the temporal characteristics of the events, during which we examine what was characteristic of the length and age of the food festivals.

To answer our questions, we compiled a database of Hungarian food festivals for the year 2019 with the help of media content analysis, as there was no collection for the whole country before, including the temporal and spatial data of the events. In another multi-faceted internet media analysis, we recorded additional data on the events included in our database, with reference to program offerings and marketing elements. We performed advanced statistical analyses on the data, with the help of which we explored the thematic, spatial, and temporal characteristics of Hungarian food festivals, as well as the interrelation between them.

Characteristics of food festivals

Festival research is a popular topic in the international literature, but there is no general, internationally accepted definition of the concept (Ásványi, Jászberényi, 2017; Mair, 2019).

Based on the various concepts and festival descriptions used in the literature (Falassi, 1987; Hall, Sharpley, 2008; Kalkstein-Silkes et al., 2008; Besermenji et al., 2009; Presenza, Iocca, 2012; Dwyer, Jago, 2019; Mair, 2019) in our study we consider a festival *to be events that have a limited duration and are repeated periodically, organized around a theme to celebrate and sustain some elements of a community's culture, but are also open to a wider audience. In addition, they work with different stakeholders to achieve economic, social and / or cultural goals.* In our study, we address the celebratory theme of the festival, the target audience and its volume, and the components of timeliness, so we present the characteristics of these elements.

Festivals can be divided into different types according to the theme to be celebrated. One of the most popular types is gastronomy-based festivals also internationally and in Hungary (Hall, Sharpley, 2008; Lee, Arcodia, 2011; Várhelyi, 2016; Pusztai, 2020). According to Lee, Arcodia (2011 p. 5) „*A food festival is a food featured festival that really highlights what regional/local speciality food is or a foodthemed festival which has food-based or food-themed activities and programme*”. Gastro festivals basically draw attention to the uniqueness of the place by celebrating gastronomic traditions at a certain point in the year (Smith, Costello, 2009; Dixit, 2019). However, the basis of festival creation can be not only the local gastronomy, but in many cases in order to achieve the goals, the organizers use their creativity as a local resource to create festivals by localizing some general food / drink (Rotherham, 2008; Pusztai, 2020; Tóth et al., 2020).

Gastronomic festival typing on the gastronomic theme for celebration is less common in the international literature and there is no uniform classification system. Hall, Sharpley (2008)

distinguish the generic, (no local food focus); the generic (but focussed on local food); the wide range of themes, local focus, and product combinations (multiple themed/categories); the ones based on a single category of product; as well as gastro festivals based on a specific product or food type. Based on the typology of Bottyán (2015) the food festivals by theme are a kind of agricultural crop (e.g., pumpkin, cherry, apple...), a kind of food (e.g., fish soup, aspic, dodolle – special potato dish...), a kind of food product (e.g., ham, sausage, cheese, wine, palinka...), and differentiate according to special traditional food producer crafts (e.g., pigsticker, baker...). While Bogataj (2019) differentiate food festivals based on traditional culinary or gastronomic theme, based on contemporary interpretations of a culinary tradition, and based on innovations based on modern culinary and gastronomic endeavours.

In addition to their main theme, festivals typically offer music and cultural programs to visitors (Krajčková, Šauer, 2018). However, despite the naming gastronomic theme, the musical program offerings may receive a greater focus than gastronomy (Büyüksalvarci, Akkaya, 2018). Food appears in almost all types of festivals, but if gastronomy does not play a prominent role, it cannot be considered a gastro-festival, even if the name of the festival refers to a gastronomic theme (Lee, Arcodia, 2011; Presenza, Iocca, 2012).

Prior to the COVID-19 pandemic, the organization of gastro festivals was popular at all levels of the settlement hierarchy, in both urban and rural environments, resulting in an increase in the number of festivals and their differentiation according to scale, volume and significance. The literature identifies tourism-oriented and local, community festivals as two main types of festivals (Getz, 2008; Presenza, Iocca, 2012; Ásványi, Jászberényi, 2017). The large-scale, tourism-oriented festivals are aimed at a wider audience, in addition to the local audience, they are waiting for visitors beyond the borders of the settlement, providing a source of experience through the accompanying cultural programs and meals (Bessière, 1998; Quan, Wang, 2004; Bogataj, 2019). Local, community festivals are typically local, recreational community events that provide a meeting place for residents so that their social relationships can be strengthened through eating together and cooking together (Presenza, Iocca, 2012; Dwyer, Jago, 2019). Based on the definition of festival used in our study, festivals are celebrations of the local community, but are also open to the wider community. Therefore, if local community festivals are not an attraction at all for those outside the local community or are just excluded from it, they cannot be considered a festival by our definitions.

The temporality of food festivals can also be interpreted in terms of their age, length and schedule, periodicity, and their relationship to their past and future. These events take place at a specific time, which are repeated periodically, usually annually, yet cannot be repeated, the “same” festival provides a different experience year to year (Smith, 2009; Getz, 2012). As a result, the festival provides a framework for celebration, production and consumption in a given space and time, which is different from the usual practice of everyday life (Getz, 2010; Quinn, Wilks, 2017). The scheduling of festivals is also an important factor, as they can help to prolong the tourist season, or they can be an additional attraction for tourists during the main season (Benedek, Stark, 2009). In addition, the timing of the festivals also depends on the seasonality of the theme to be celebrated (Lyons, 2008). Food festivals can make a connection between the past, the present and the future by celebrating traditional food to preserve it and pass it on to future generations (Bessière, 1998). Festivals are dynamically changing phenomena over time, new events are created every year, previous festivals cease to exist. In addition, festivals can evolve over time according to their goals or volume (Andersson, Getz, 2008; Pusztai, 2020).

Data and methods

At the beginning of our research, we created a database of Hungary's gastro-festivals for 2019 with the help of content analysis. Agreeing with Bottyán's (2015) statement, at the beginning of our research, during the collection of gastronomic events, we considered a food festival to be any event whose name included a food or beverage, product, crop, or food production process. The festivals were collected using archive festival databases, content analysis, keywords and word combinations formed from the names of the settlements, searching for all the settlements of Hungary one by one with the help of the Google search engine. Only the events of Budapest are not included in the database, because due to the large number of events in there, this method cannot be applied. The result of the research is a gastronomic event database covering the national level, which contains the regional and temporal data of the events. It is important to note that the database was created based on our predefined criteria system, the events issued by the search engine and their filtering by their own evaluation.

In our research, we typed the collected gastro festivals based on their topic, the emphasis of their topic, and their territorial significance, by analysing the media content found on the Internet. The relevance of the method is supported by the fact that nowadays the media is one of the most important image-forming tools, which also influences the consumer decisions of tourists. (Hanan, Karim, 2015; Mandabach, Chuanbiao, 2019; Süli, Martyin-Csamangó, 2020). In addition, the media activity of the festivals can be used to deduce the function, size, target group and emphasis of the festival (Andersson, Getz, 2008). As part of this, we created an indicator called "Focus" that includes the characteristics of the theme to be celebrated at the festivals. It refers to the extent to which the examined events can be considered gastronomic or rather cultural-musical focus on the basis of textual content published in the media. As a first step in the creation, we examined the content of the news about the festivals, the poster or program description of the festivals, and the interrelation between the program and the theme in terms of how prominent the gastronomic theme was compared to the musical program offering. Within this, we scored the festivals on a scale of 1 to 5 based on the content of the news published in the media and the content of the program description or poster, whether the cultural-musical program offerings of the events or the gastronomic character played a more prominent role in these contents. The scores for these two aspects were considered with double weight. We also scored on a scale of 1 to 5 to fit the theme of the program and the festival. The second step was to build the indicator. The scores of these three aspects were added together, but if the event was called village day or city day in its name or description, it lost its

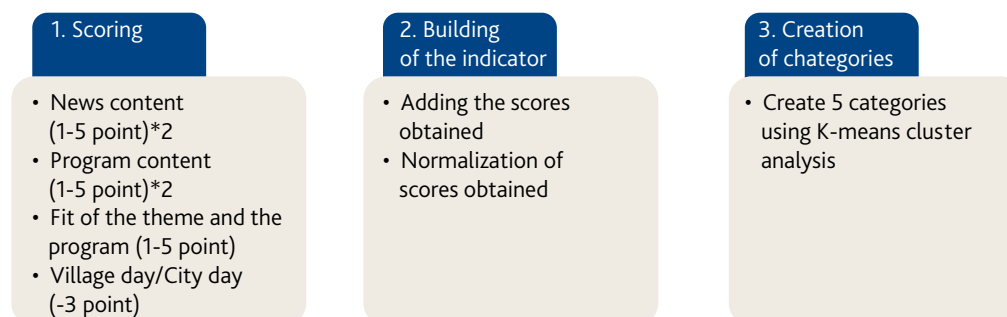


Figure 1. The steps of creating "focus" indicator

Source: Own edition

gastro character, and 3 points were deducted from the points earned. Then, by normalizing the scores, we created the “focus” indicator (the scores obtained were divided by all the points that could be obtained to avoid biasing the data gaps). As a third step, we created five groups in the SPSS program using K-means cluster analysis (Figure 1.) (Landau, Everitt, 2003).

We created the “function” indicator, which refers to the scale, volume, and territorial significance of the festivals. In the first step, we scored the appearance on the internet marketing platforms, for example, whether the festival has a poster or program available, a website, a Facebook page, or a Facebook event for the events. Furthermore, we scored whether the event was featured on programturizmus.hu (Hungarian program recommendation website) and how many videos about it appeared on YouTube, how many watched the most popular video of the event. Participation in the Hungarian Festival Qualification Program can indicate the quality of the events, so a point was given if the event is qualified or registered. Furthermore, the number of years of organization and the number of days of the festival can also be a quality indicator, so we formed scores from these as well. As a second step, we added the scores for each aspect, normalized them, and finally created 5 categories with the help of K-means cluster analysis in the SPSS program (Figure 2.) (Landau, Everitt, 2003).

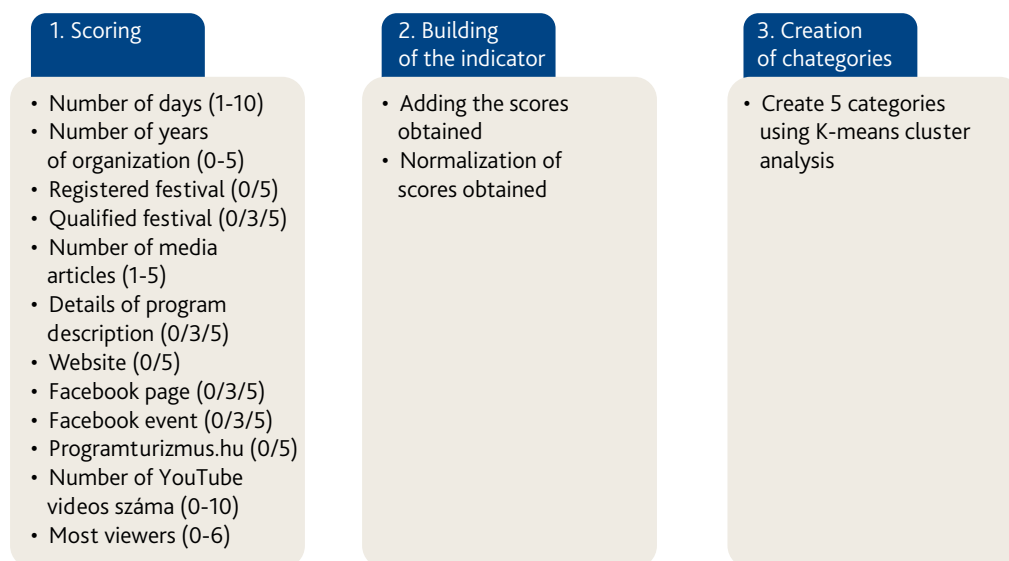


Figure 2. The steps of creating “function” indicator

Source: Own edition

ANOVA

Moreover, we used one-way ANOVA method to explore the main differences between festival groups with specified features. Analysis of variance (ANOVA) is a collection of statistical models and their associated estimation procedures used to measure the differences among means (Gillard, 2020). This method is based on the law of total variance, where the observed variance in a particular variable is divided into components attributable to different sources of variation. In its simplest form, ANOVA provides a statistical test of whether two or more population or features means are equal, and therefore generalizes the T-test beyond means (Gillard, 2020).

In our study we performed this kind of statistical analyses on the retrieved data and compiled the necessary and charts for further analysis.

Results

During the collection of gastronomic events at the national level, we found a total of 987 events that met all aspects of our research. In the following, we explore the characteristics related to the theme, territorial significance, volume, and timeliness of these events and look for the interrelations between these aspects.

Characteristics of food festivals by theme of celebration

During the examination of the topic of the events, we created our own food festival categorization system by analysing the names of the gastronomic-themed events we collected, during which 7 categories were created. Most gastronomic events (about 20%) are celebrated with a crop festival, some kind of vegetable or fruit, or food made from them. The second most events (about 19%) fell into the pig slaughter category. The slaughter is closely linked to Hungarian traditions, as pigs were previously raised and slaughtered in most village households. These events are an excellent opportunity to nurture this tradition and pass it on to the younger generations. Of the beverage festivals, which accounted for about 16%, wine festivals (107) were the most typical in Hungary in the year under review, but beer celebrations were also occurred (41). One of the most unique products of the Hungarians is pálinka, which is a spirit drink, however, we have identified only 9 pálinka festivals. Animal and meat cooking or baking festivals typically celebrated the selected meat dish and its preparation in a cooking competition. About 8% of the festivals have a general focus, so they had no specific theme. In these cases, the specific flavours of an area were typically celebrated, but modern street food events were also list-

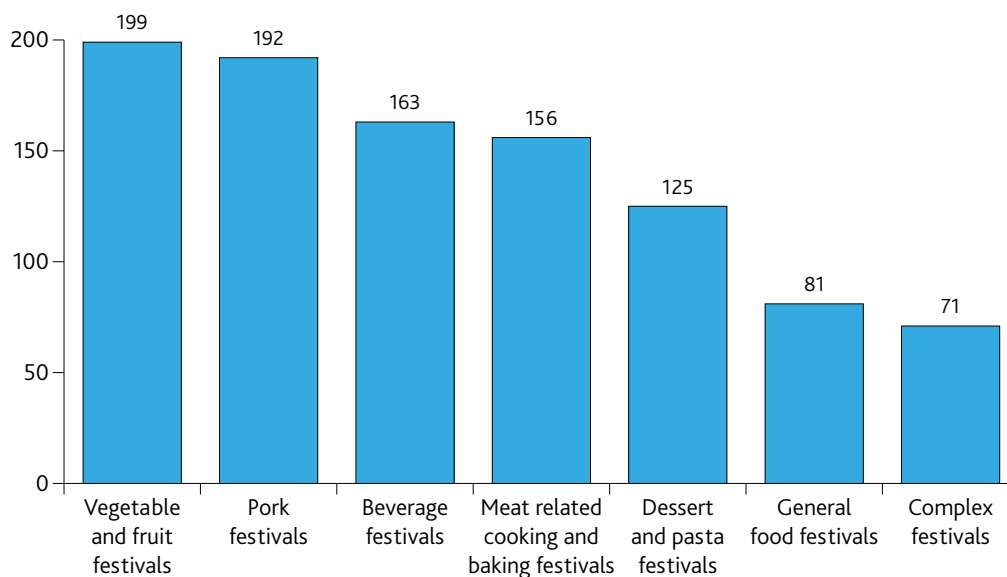


Figure 3. Distribution of food festivals in Hungary by category

Source: Own edition according to own data collection

ed here. The events last approx. 7% have a complex theme, which means that the celebration theme of the event was created by combining the former categories (Figure 3.).

We explored the extent to which gastronomic events in Hungary focused on the selected, celebrated theme. For this, we used a “focus” indicator based on Internet media content. Based on the results of this, 7.2 percent of the gastro festivals in our database did not reveal at all the form in which gastronomy appeared, the text media contents, and the posters of the events emphasized the cultural and musical offer. Nearly 20 percent of the events suggested the way food or drink appeared, but cultural shows were dominant despite the gastronomic name. In our view, cultural, and more culturally focused, events are less considered food festivals if the celebration of gastronomy has really played a minor role (Lee, Arcodia, 2011; Presenza, Iocca, 2012). The reason for choosing the gastronomic theme may be the popularity of these festivals, the name may make them attractive to visitors and distinguish them from events in other settlements. The gastronomic and cultural-musical offer was presented in a similar proportion by 29% of the events, these were called gastro-cultural festivals. Events focusing on gastronomic elements, but also emphasizing musical stage elements, approx. 15% were present, while 30% clearly focused on the gastronomic offer according to the analyzed media content (Figure 4.).

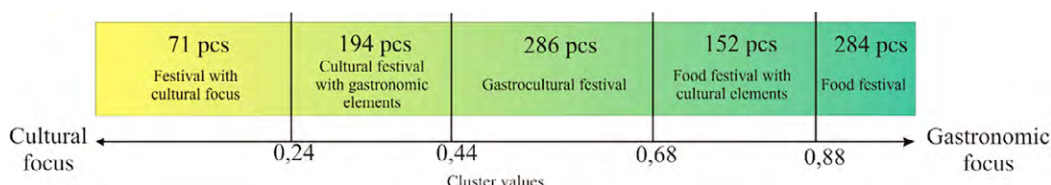


Figure 4. Distribution of the food festivals in the categories of the „focus” indicator in 2019

Source: Own edition according to own data collection

In connection with the analysis of the topic of the events, we explored the connections between the nature of the topic of the events and the emphasis of the topic. The results show that the least gastronomic-focused events are fruit and vegetable festivals, sweets and pasta, and meat cooking festivals. These events are usually cooking competitions; however, the sight of cooking others can be less of an experience for visitors if they are not allowed to consume the competitor’s food. Therefore, to increase the attractiveness of the events and to enhance the visitor experience, it is necessary to supplement them with theatrical, musical programs. The events that focus most on gastronomy are the pork festivals, where the processing of the pork throughout the day is a spectacular element in itself. Here the entertainment programs are the additional elements, not the main attractions (Figure 5.).

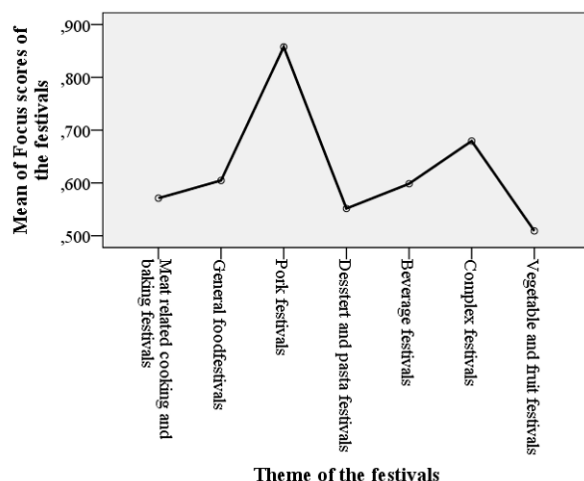


Figure 5. Interrelation between the focus indicator and the theme of the festivals

Source: Own edition according to own data collection

Spatial characteristics of food festivals

In connection with the examination of the spatiality of gastronomic events, we explored how the events were distributed in the Hungarian settlement hierarchy. Based on the results, almost one third of the festivals were held in settlements with a population of over 10,000, which are typically urban, and two-thirds in rural settlements with less than 10,000 inhabitants. In the largest proportion of these, large and small villages, settlements with 500 and 4999 inhabitants organized more than half of the gastronomic events in Hungary.

To explore the territorial characteristics, we used the “function” indicator, which refers to the territorial significance, the volume, scale, and attractiveness of the festival. According to the “function” indicator, 14% of the events were aimed at attracting local audiences, their attractiveness was not or less extended to neighbouring settlements. Events that were mainly aimed at the local audience, but also at the surrounding population, were attended by almost 35%. The events that fall into these two categories are less relevant from a tourism point of view and can be defined as local, community events based on the literature. Their role in the survival of the local community and settlements should be emphasized, as joint eating and cooking and joint celebration play a key role in strengthening the identity of the local community (Presenza, Iocca, 2012; Dwyer, Jago, 2019). Almost 38% of the events, which form a transition between community and tourism-oriented festivals, were attended by local and surrounding

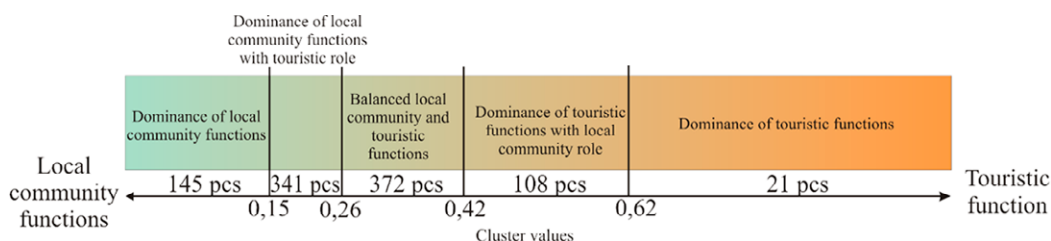


Figure 6. Distribution of the food festivals in the categories of the „function” indicator in 2019

Source: Own edition according to own data collection

residents and tourists in a similar proportion. At the regional level, about 11% of events may be attractive, with the attraction of tourists also appearing as a goal in addition to attracting the local population. While only 2% of festivals have become significant tourism-oriented events at the national level (Figure 6.).

We examined the interrelation between the size of the organizing settlement and the volume and territorial significance (function) of the events. Based on the results, the larger the volume of the event, the larger the size of the event. This is understandable, as in general, settlements with a larger population have more resources and more infrastructural equipment than smaller settlements, so they have better opportunities to organize tourism-oriented festivals (Figure 7.).

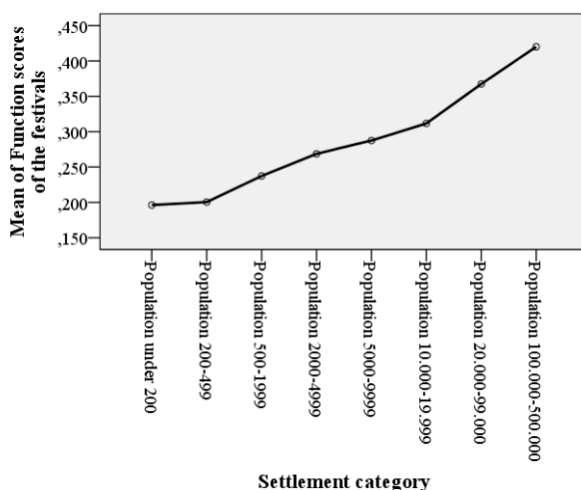


Figure 7. Interrelation between the function indicator and the population of the organizing settlement

Source: Own edition according to own data collection

Temporal characteristics of food festivals

As part of the temporal characterization of the gastro festivals in Hungary, we analysed the years of organization of the events, but 164 events did not reveal how many years they were held. The festivals analysed are quite young. In 2019, most of the festivals were held for the first time, proving both the popularity of organizing gastro festivals and the fluctuation related to them (Figure 8.). From this it can be concluded that fewer festivals have been organized in the past than in recent years, but also that many of them have presumably ceased to be organized, as evidenced by the archive content of previous festival databases.

In connection with the duration of festivals, according to the Hungarian Festival Qualification System, only events that last at least 2 days can be considered as festivals. Based on this 70% of gastronomic events in Hungary cannot be considered gastro-festivals, as so many events lasted only one day (Inkei, 2010) (Table 1).

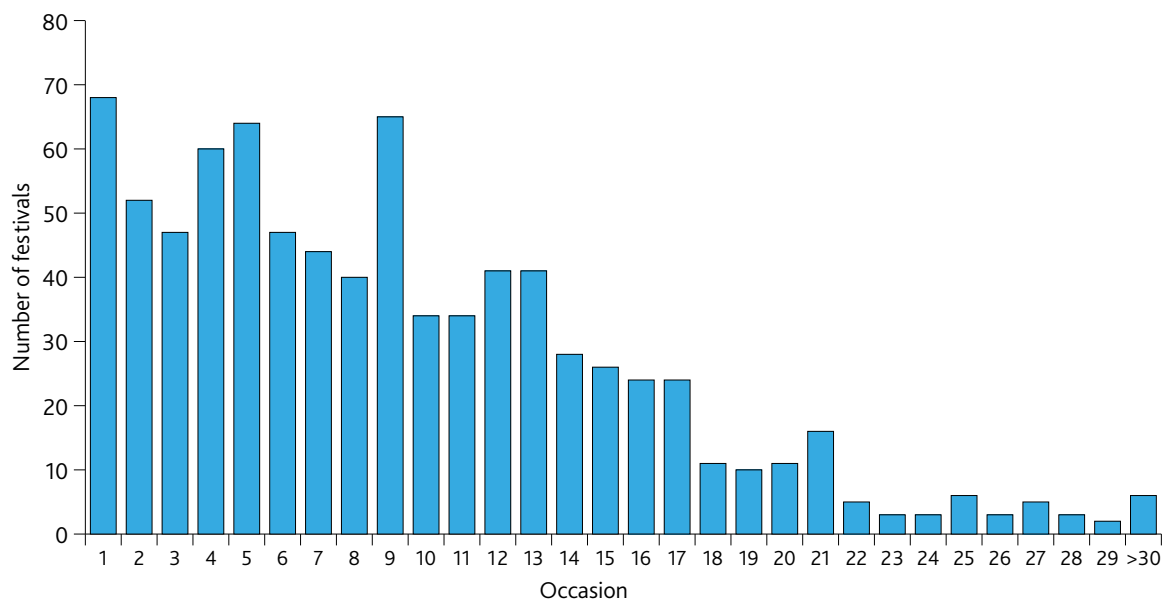


Figure 8. The occasion for organizing food festivals in 2019

Source: Own edition according to own data collection

Table1. The distribution of festivals their duration in 2019

Duration	1 day	2 days	3 days	4 days	5 days	6 days	8 days	9 days	10 ormore days
Number of festivals	679	143	112	30	14	1	2	2	4

Source: Own edition according to own data collection

According to the relationship between the length of festivals and their age, with a few exceptions, the longer a festival has been organized, the more days it has been last (Figure 9).

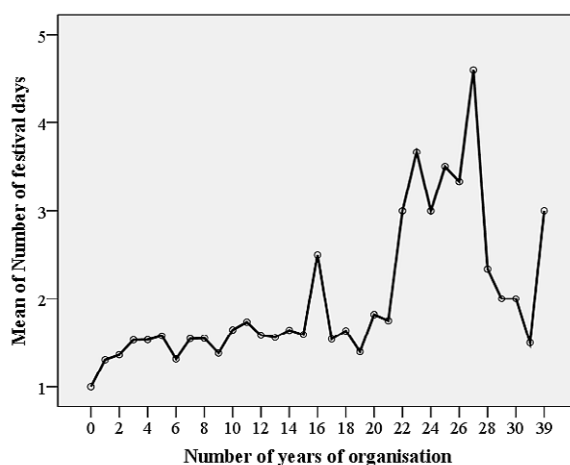


Figure 9. Interrelation between the length and age of festivals

Source: Own edition according to own data collection

In terms of schedule, most festivals were held on summer weekends, but the proportion of autumn events is also high. The proportion of winter events is high compared to the fact that this period is less favourable for tourism in Hungary. The smallest proportion of festivals were held in the spring, which is also a dead season in Hungary (Figure 10). Based on this, gastro festivals really help to prolong the tourist season and also complement the tourist offer.

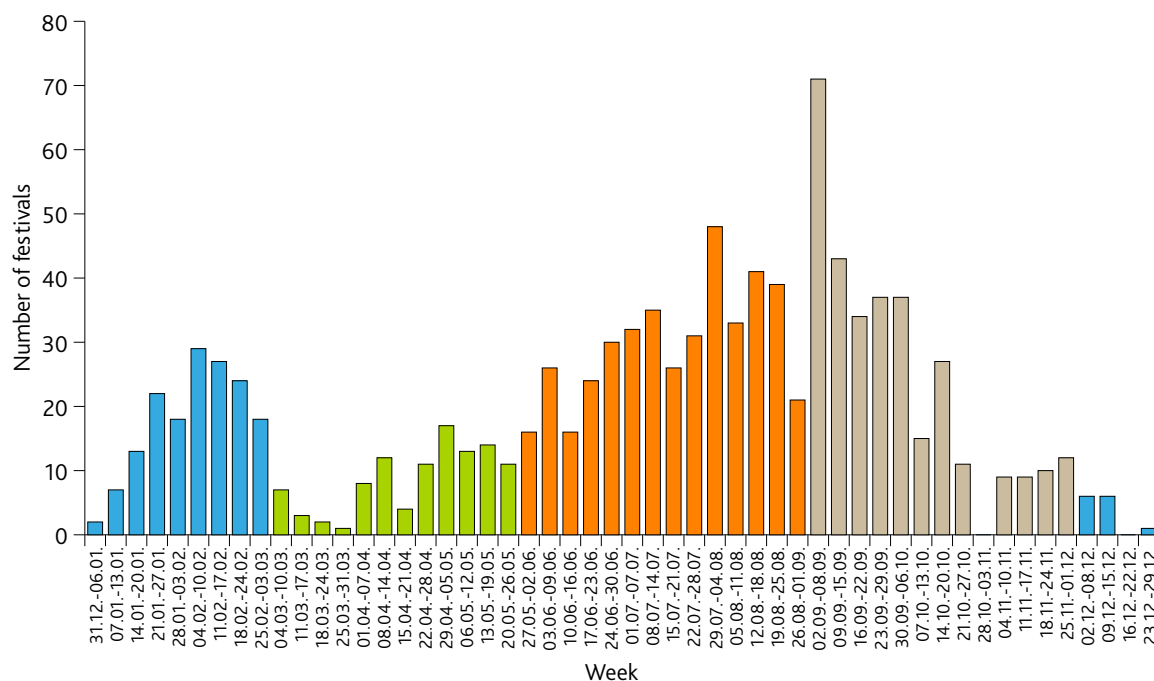


Figure 10. The number of food festivals at the weekends of 2019

Source: Own edition according to own data collection

Discussion

In the research we explored the correlations and differences between the theme, spatial and temporal characteristics of the festivals with the help of ANOVA analysis (Figure 11). The F-value degrees of freedom and significance values obtained between the criteria pairs examined during the ANOVA analysis are plotted in Appendix 1. Pairs that are not significant ($\text{Sig.} > 0.05$) were not analysed. The results are based on the means, therefore they provide a comprehensive, generalizing picture of Hungary's 2019 festival offer. There may be exceptions when examining all aspects.

According to our research results, there is a correlation and difference between the theme of the festivals and the time characteristics, as the nature of the theme greatly influences the length and schedule of the festivals as well. For example, beverage and complex festivals were, on average, the longest in the year under review, while events related to pig slaughter were the shortest. In connection with the schedule, certain gastronomic products and activities intended for celebration can be linked to a season, which determines the time of organizing the festivals (Lyons, 2008). For example, pig slaughter festivals are typically winter holidays, so they are able to create a tourist offer in the less popular winter tourism season in Hungary.

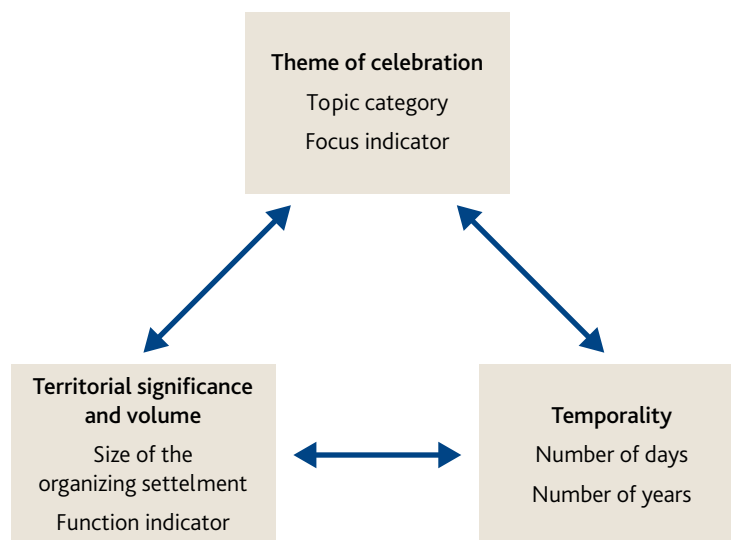


Figure 11. The interrelations between the theme of the celebration, the spatial features and temporality
Source: Own edition according to own data collection

The oldest festivals, with an average age of over 10, are the meat-making and vegetable-fruit festivals, followed by the beverage and dessert and pasta festivals. In our view, these gastronomic products, crops, and activities may be the most traditions of the organizing settlement, and when they were first held, these themes may have been the most popular ones. While the settlements that later joined the organization of gastro-festivals, did not have a local specificity, or lagged the expropriation of the specifics of the area, decided to organize festivals with complex, general themes (including fashionable street food nowadays) and pig slaughter festivals (Rotherham, 2008; Pusztai, 2020) (Figure 12.). In addition, the youth and high proportion of pork events may be since they can be organized quickly, flexibly and require less high-quality supplementary programs. Pig slaughter is generally characteristic of the whole of Hungary,

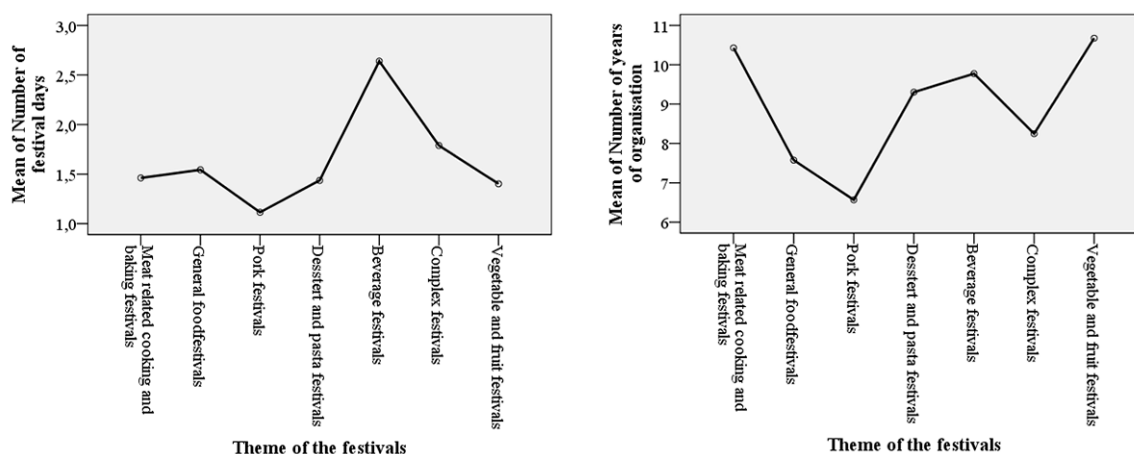


Figure 12. Interrelations between temporality and the theme of festivals
Source: Own edition according to own data collection

so their organization can be no stranger anywhere, but it appears less and less in the practice of everyday life. In the form of a gastronomic event, this tradition can be carried forward, it can help to create a connection between past and future generations (Bessière, 1998).

The emphasis on the theme and the length of the festival did not show significant results (Appendix 1), so we failed to statistically prove our hypothesis that the longer an event, the more it focuses on the music program offerings. Nevertheless, we consider it important to outline the connections between these aspects, as the trend supports our suggestion. In our view, the reason for the trend may be that the longer a festival lasted, the more cultural programs had to be organized to be able to continuously maintain the interest of visitors with different stage shows. According to the interrelation of focus and temporality, with a few exceptions, the older a festival was, the more it lost its gastronomic character, and its appeal was more in the range of cultural and musical programs (Figure 13.).

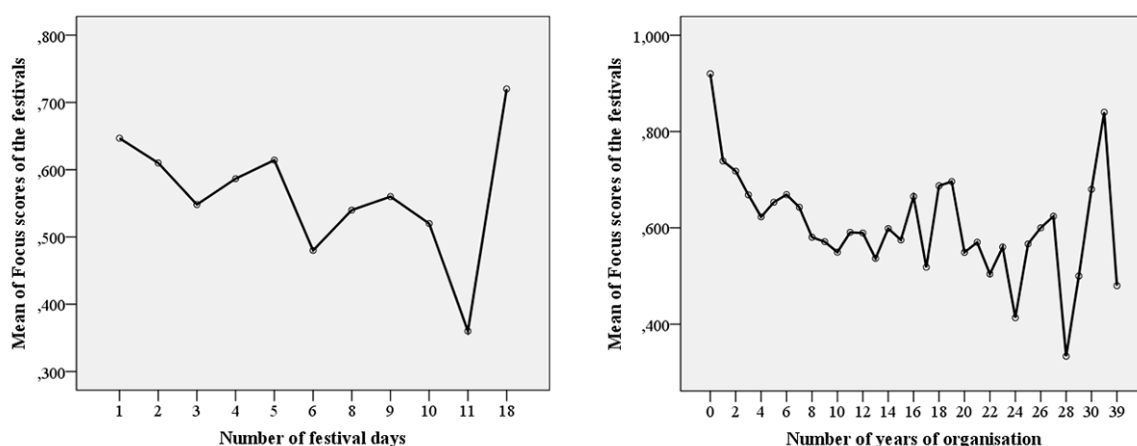


Figure 13. Interrelations between focus indicator and temporality

Source: Own edition according to own data collection

We examined the relationships between the theme of food festivals and spatiality. Vegetable and fruit festivals, pork events and meat cooking festivals are those that have typically taken place in settlements with smaller populations, which is understandable as crop and live-stock production are more rural activities. Beverage festivals were typical of larger cities. Both general focus and complex events are more likely to be related to cities, which may be due to the fact that cities are less gastronomic in nature or choose a more general theme to attract a larger audience. The pork events had the smallest volume, so they were typically more traditional community events for the local community, while the biggest tourist attraction was the beverage festivals (figure 14.).

In terms of spatial and temporal characteristics, according to the literature, there are festivals that started as local community events and then, due to their growing importance, became tourism-oriented festivals, which may have resulted in separation from the local community (Smith, 2009; Duffy, Mair, 2014). In this respect, festivals can be considered as tourism products that have a life cycle similar to other tourism products (Butler, 1980; Getz, 2010). The change in the territorial significance of festivals over time is also supported by our research results. According to them, the older a festival is, the greater its territorial significance, but there have been cases, especially after 24 years, of having a lower function. This can be related

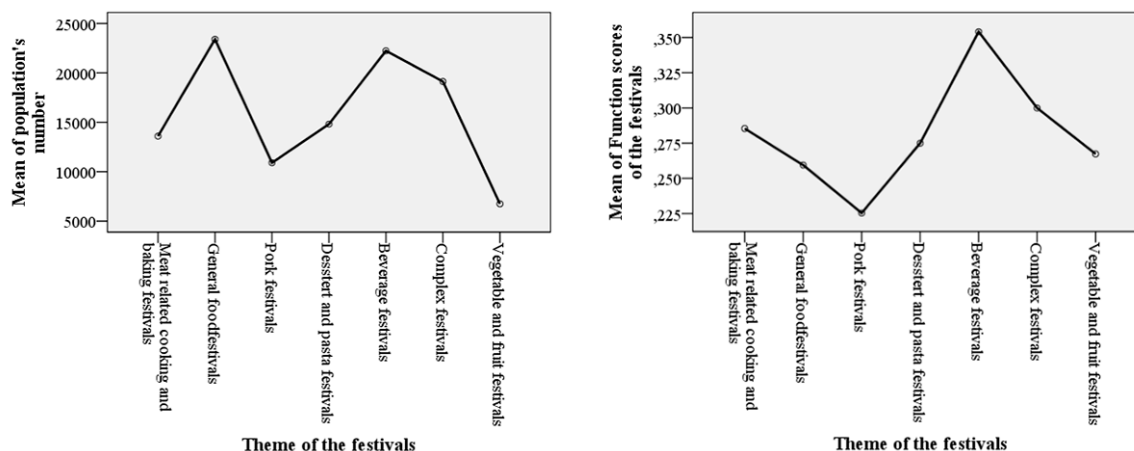


Figure 14. Interrelations between spatiality and the theme of festivals

Source: Own edition according to own data collection

to the mentioned tourism life cycle model, as these events with a long history were presumably in a crisis of renewal in the year under review. Events over the age of 28 have passed this critical period and have been among the gastro festivals with the greatest tourist appeal (Figure 15).

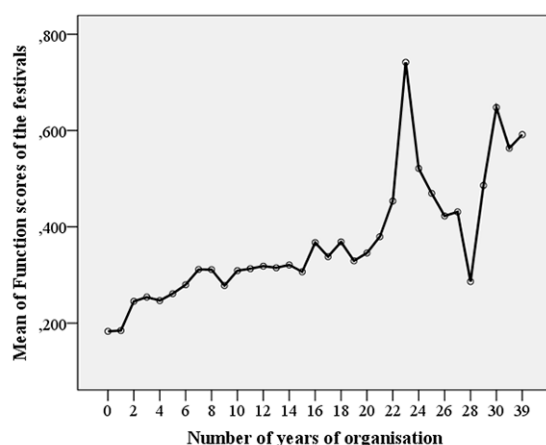


Figure 15. Interrelations between spatiality and the age of festivals

Source: Own edition according to own data collection

The relationship between territorial significance and the length of festivals clearly shows that the longer the festival, the greater its territorial significance and volume, and thus its greater tourist attractiveness. This interrelation is not so clear between the size of the organizing settlement and the length of the festivals, but it should be emphasized that longer festivals are more typical in cities. This can be important, for example, to provide an additional attraction for tourists visiting the city during their stay, as well as to increase the length of stay (Mandabach, Chuanbiao, 2019) (Figure 16).

In connection with the examination of the three aspects of the study, i.e. the theme, spatiality and temporal characteristics, it should be emphasized that, in general, the volume of tourism-oriented events in the Hungarian gastro-festival offer was more typical in cities. These are

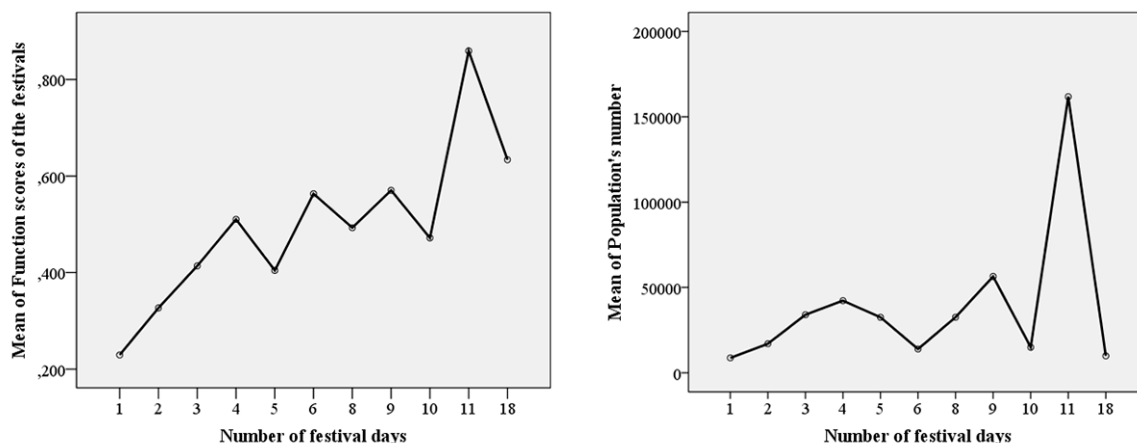


Figure 16. Interrelations between spatiality and the length of festivals

Source: Own edition according to own data collection

the longest and oldest events, their focus has been more on gastronomy than on the music program, and the most typical of these are beverage festivals as well as general-focus events. In contrast, small-scale, local community festivals were typically held in smaller settlements, the most typical of which were more gastronomic pork events and low-gastronomic-focused vegetable and fruit festivals. It is important to note that the results were based on means, and in the overall offer, festivals organized in settlements with a smaller population were much more typical than those organized in larger cities.

Conclusion

Prior to the COVID-19 pandemic, the organization of gastro festivals in Hungary at all levels of the settlement hierarchy was popular. Due to the increase and dynamic change in the number of gastro-festivals and the unclear definition of the concept of a festival, no large-scale, empirical research has been conducted on the characteristics of the gastro-festival offer. In our research, we set the goal of filling this gap, and based on our own food festival database, we typed the offer based on the theme intended for the celebration, the spatial and temporal characteristics of the festivals, and we looked for correlations. In the course of the research, we performed media content analysis, and processed the data using advanced statistical methods.

According to the characteristics of the theme, the Hungarian gastro-festival offer was dominated by crop festivals and tradition-preserving holidays, but gastronomic events with a more general focus and presenting current trends also appeared. Most of the events focused on celebrating the marked gastronomic theme in their program offerings, however, there were events in which, despite the gastronomic theme, cultural-music programs were given a more prominent role. This may be due to the fact that some food festival themes (such as cooking competitions) provide less experience for visitors and have been involved through stage programs. According to the spatiality, almost half of the events can be defined as local, community festivals, so their tourist attraction was low, which events were typically held in rural settlements. The temporal analysis of festivals proves the popularity of festival organization, as most festivals were held for the first time in the year under review, and the low number of older festivals

is also justified by the closure of festivals. Festivals in Hungary are typically short, as almost three-quarters of them lasted only one day. On the other hand, it is typical that the older a festival was, the longer it lasted. The majority of the festivals in Hungary took place during the tourist-frequented summer period, but the autumn and winter festivals were also typical, celebrating themes related to these seasons.

Based on the results, in the case of gastro festivals in Hungary there is a correlation and difference between the thematic, spatial, and temporal characteristics of food festivals. The nature of the theme greatly influenced the schedule of the festivals as well as their length. Based on the age of the festivals with different themes, the currently popular themes and trends can be discovered. However, the emphasis of the topic may change over time, as the results show that the longer a festival has been organized, the more it has focused on the musical program offerings instead of gastronomy. While this, of course, as just mentioned, may have been influenced by the current trend theme. We also discovered connections between theme and spatiality. For example, some gastronomic themes were more rural, others were more urban, and the territorial significance of the festivals was different for each theme. The research proves that festivals are time-varying phenomena, as territorial significance can change over time, which fits the product life cycle model, so festivals can also be considered a tourism product. In the context of temporality and spatiality, the interrelation between length and territorial significance shows that the longer a festival is, the greater its tourist significance, while short events have more of a local, community function.

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Appendix 1. Main values of each one-way ANOVA analysis of the food festivals

Analysed features	F ratio	df	Sig.
Mean of Focus scores of the festivals and Theme of the festivals	38,913	6	,000
Mean of Function scores of the festivals and Settlement category	26,666	7	,000
Mean of Number of festival days and Number of years of organisation	3,147	32	,000
Mean of Number of festival days and Theme of the festivals	29,786	6	,000
Mean of Number of years of organisation and Theme of the festivals	8,243	6	,000
Mean of Focus scores of the festivals and Number of festival days	1,575	10	,109
Mean of Focus scores of the festivals and Number of years of organisation	1,664	32	,013
Mean of population's number and Theme of festivals	5,561	6	,000
Mean of Function scores of the festivals and Theme of festivals	15,306	6	,000
Mean of Focus scores of the festivals and Settlement category	1,248	7	,273
Mean of Focus scores of the festivals and Function clusters of the festivals	2,045	4	,086
Mean of Function scores of the festivals and Number of years of organisation	7,549	32	,000
Mean of population's number and Number of years of organisation	1,092	32	,334
Mean of Function scores of the festivals and Number of festival days	57,658	10	,000
Mean of population's number and Number of festival days	13,608	10	,000

Systematic Literature Review on Tourism Destination Competitiveness Research

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Abstract

This study aimed to conduct an examination of prior research on tourism destinations' competitiveness to shed light and broaden the field of knowledge on the topic. The review focuses on 45 practical and applicable studies that addressed the competitiveness of tourism destinations. The findings indicate that half of the analyzed articles are model-driven research, while Crouch and Ritchie's model is one of the most frequently applied models among articles. It has been shown that there are different perceptions and views of destination competitiveness on the demand and supply side. The majority of the study on destination competitiveness is based on a supply side given their experience and deeper knowledge of tourism businesses. The research also seeks to identify the most common indicators of competitiveness to understand the creation of tourist offers, as well as the advantages and disadvantages. Finally, it was important to give a more thorough overview of tourism competitiveness in Serbia and reveal any potential knowledge gaps in the literature and provide guidance for further research.

Keywords: tourism competitiveness, destination competitiveness, competitiveness models, indicators, Serbia

Introduction

Despite global challenges that threatened to hinder expansion, tourism has continued to develop and diversify over the recent decades, being among the greatest and fast expanding economic sectors worldwide. One of the most efficient choices for attaining economic growth and social well-being in countries across the world, especially in emerging or undeveloped countries, is to strengthen the tourist sector (Khan et al., 2020). As a result, it is crucial to consid-

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er how competitive the tourism destination and its tourism products are. This opportunity for expansion is paired with a product that can only be consumed there and then, which has proven to be a crucial component of local development strategies (Ferreira, Estevão, 2009).

One of the most crucial elements of regional and local development is competitiveness (Plummer et al., 2014; Ahn, Bessiere, 2023). The competitiveness of a country's tourism sector in the global tourism market significantly depends on the extent to which it may prosper from tourism (Gomezeli, Mihalic, 2008). A particular tourism destination should have the attributes and amenities that attract tourists there in the first place (Enright, Newton, 2004; Lustický, Štumpf, 2021). Determining the degree of competitiveness of tourist destinations is the focus of scientific research for many years due to many factors that influence the degree of attractiveness of a tourist destination, as well as the heterogeneity of tourist demand. The increasing amount of research in this area has been driven by the growing interest in the competitiveness of tourism destinations (Vila et al., 2015). One of the most used theoretical and conceptual frameworks by Ritchie and Crouch (2003) is, for instance, created to help understand how a tourist destination manages and monitors its competitiveness. But it is believed that the focus on destination competitiveness still doesn't match its significance and the highlighted imperative to act for the benefit of the destination's long-term growth (Abreu-Novais et al., 2016).

To exceed visitors' expectations and further assure the sustainability and long-term competitiveness of destinations and tourism enterprises, it is crucial to analyze quality in tourism and collaborate with all stakeholders involved in the provision of quality products and services. Also, the most presented approach for assessing the competitiveness of tourist locations throughout the world is Tourism & Travel Competitiveness Report presented by World Economic Forum (T&TCI WEF) every two years. Nevertheless, despite the limitations of this methodology (Wu, et al., 2012) and the accuracy and reliability of the results (Kunst, Ivandić, 2021), many authors are still employing T&TCI data to assess a tourism destination's competitiveness. However, a more specialized method for gauging tourism destination competitiveness is necessary, according to the literature and other research conducted so far. There is no universal competitiveness model that can be used for all tourism destinations, bearing in mind all the tangible and intangible determinants that affect it.

Enhancing the competitiveness of the tourist sector and related industries on the domestic and international markets is one of the objectives of the Strategy for the Development of Tourism in Serbia from 2016 to 2025, developed by the Government of the Republic of Serbia, which recognizes tourism as one of the country's important economic branches (Ministry of Trade, Tourism, and Telecommunications, 2016). The number of tourists and overnight stays has both increased in Serbia during the past few years. Even after the Covid-19 lockdown and all of the problems that came with it, this tendency is still going strong. Given that the majority of visitors in Serbia are business travelers, this data does not, however, provide a clear image of Serbia's competitive strength in the international market. That indicates that the majority did not consider Serbia to be a desirable destination for leisure or other types of special interest activities. Understanding how to improve and maintain the destination's competitiveness is crucial for destination management. Because of this, it's critical to recognize and evaluate the strengths and weaknesses of the competitors as well as to assess a destination's competitive position. Due to numerous studies regarding tourism destination competitiveness and frequent changes that can be observed regarding competitiveness indicators, aspects of research, methods of conducting research, etc. (Mior Shariffuddin et al., 2022), it is important to conduct a literature review to gain a better insight into the systematic analysis of relevant studies. On the other side, because of the dynamic nature of competitiveness, it is possible to examine

the factors that affect its dynamics and thereby provide a greater benefit for the tourism industry and future research.

This research is based on a systematic review of research from the past 10 years that examined the notion of tourism destinations' competitiveness. Thus, our main findings aim to clarify the available literature by using a systematic literature review (SLR) approach. This is strengthened by a broader analysis of tourism competitiveness in Serbia with the aim of emphasizing previous research and providing a critical overview. First, the literature on measuring tourism competitiveness is examined, before an in-depth discussion of the methodology of this article. The last section outlines the general discussion, limitations, and future research agenda.

Literature study - competitiveness measurement

Ritchie and Crouch (2003) established the most well-known tourism destination competitiveness model, which has served as the foundation for several following conceptual models (Andrades-Caldito et al., 2014). The authors underlined that an effective destination management program can increase a tourist destination's competitiveness. In particular, marketing initiatives can boost the destination's reputation, and managerial initiatives can improve a destination's competitive position.

The model's strength is that it provides a framework for distinguishing comparative from competitive advantages (Mazanec et al., 2007; Boley, Perdue, 2012). Comparative advantages of the destination relate to human resources, physical resources, knowledge, fixed assets, infrastructure and tourism superstructure, cultural and historical resources, and the development of the local economy. Competitive advantages refer to the destination's ability to rationally use the resources at its disposal over a long period.

Even though the list of attributes for measuring destination competitiveness includes five dimensions of competitiveness and 36 sub-factors in the Destination competitiveness and sustainability model (Crouch and Ritchie conceptual model of destination competitiveness), Crouch (2011) states not all factors will have an equal impact on a destination's ability to be competitive, and some are more or less significant for particular market groups. Furthermore, not all indicators are available in all destinations, which may be limiting in the comparison of destinations (Vila et al., 2015).

Another widely used model developed by Dwyer and Kim (2003) mostly retained Crouch and Ritchie's (1993; 2003) paradigm, although there are some important variations. While Crouch and Ritchie's (2003) model assists management in making decisions by emphasizing supply-side factors, the Integrated model recognizes the demand side as a crucial factor in determining destination competitiveness. Not only do demand conditions are recognized as a distinctive determinant of destination competitiveness, but the suggested model also emphasizes competitiveness as a goal for regional or national economic growth. The authors provide a comprehensive list of destination competitiveness indicators for each of the six categories. In addition, the main elements of the model are resources and destination management. The model's resources, which are classified into inherited and produced, enable them to attract visitors and they are perceived as important resources for boosting the destination's attractiveness. The second element is the one that can serve as the foundation for a tourist-friendly offer, ultimately leading to a competitive offer. The model differs from the Ritchie and Crouch model in another significant way: it depicts causal links, i.e., the dependency between elements (Vanhove, 2010).

Recognizing the importance of sustainability for tourism development, Hassan (2000) introduced a competitiveness model that analyzes the relationships between all stakeholders involved in creating and integrating additional values to maintain a favorable market position about other competitors (Akin et al., 2022). In addition to its commitment to the environment, the model emphasizes the relevance of comparative advantage, demand orientation, and the structure of the tourist industry as the four key determinants of destination competitiveness. Although environmental protection is important for individual countries' overall competitiveness in a way that can lead to the introduction of innovations that can further strengthen competitiveness, Hassan (2000) believes that it is especially important in tourism, because the quality of the natural and cultural environment is an important component of the tourist experience.

Heath's (2003) model includes the core indicators of destination competitiveness found in prior studies (Ritchie, Crouch, 2000; Dwyer, Kim, 2003) with a focus on key competitiveness factors and vital connections. In order to create a comprehensive framework for long-term sustainable destination competitiveness, he emphasizes the significance of the human factor in the development of tourism as well as the creation of appropriate and mutually beneficial partnerships between stakeholders and destinations through communication and information management.

In addition to the aforementioned models, the World Economic Forum model is a globally recognized practical model that has contributed to determining a tourism destination's competitiveness (WEF). In 2007, the WEF developed the Travel and Tourism Competitiveness Index (TTCI), which consists of 14 categories and determines specific factors and policies to establish the tourism and travel (T&T) industry by measuring destination competitiveness. Recently, the World Economic Forum, relying on the T&T Competitiveness Index, developed the new Travel & Tourism Development Index. The index has five subindexes, 17 pillars, and 112 individual indicators, distributed among the different pillars (WEF, 2022, p.4).

Although key industry players are involved in determining destination competitiveness (Crouch, 2007), some authors (Vila et al., 2015; Mior Shariffuddin et al., 2022) state that TTCI is disputable since it does not take into account the importance of market size, the condition of the destination's economy, or its level of dependency when addressing the tourism industry. Furthermore, TTCI assumes that all variables that measure competitiveness are equally important (Zadeh Bazargani, Kilic, 2021), on the other hand, some research emphasizes that factors such as resident quality of life or real tourism receipts per capita may not necessarily be strong in ranking countries according to their competitiveness (Vila et al., 2015).

Methodology

This research conducted a systematic literature review (SLR) approach to investigate the literature on the competitiveness of a tourist destination, including competitiveness models and different approaches to measuring competitiveness. The goal of SLR is to thoroughly examine changes in theories and methodologies in tourism destination competitiveness research. The findings reveal any potential knowledge gaps in the literature and guide further research. Since this approach includes both empirical and theoretical studies to fully comprehend this phenomenon (Webb, Roe, 2008), the research was carried out by collecting, reviewing, and analyzing scientific articles in three phases:

1. Identifying the articles in the field of tourism destination competitiveness

2. Classifying and systematising the articles according to the set of criteria
3. Context and content analysis (with a focus on Serbia).

Data Collection

Data collection was conducted based on the Scopus database. As one of the most widely used sources of bibliographic data, it was chosen for this study since it may offer comparatively greater coverage in a short amount of time providing coverage of the data type, topic, and adequate data extraction format (del Río-Rama et al., 2020; Gao et al., 2022).

The search criteria were determined by the researchers to extract the collection results. Since the concept of tourism destination competitiveness and the relevant competitiveness models were the main focus of this study, keywords such as: “tourism competitiveness”, “destination competitiveness”, “competitiveness factors” and “tourism competitiveness models” were searched in three sections, including the title, abstract, and keywords. Regarding the time period, the researchers determined the starting point, and articles published in the last ten years, between January 2012 and September 2022 were collected.

The first phase of the literature selection process resulted in 113 articles from Scopus. The next step implied language, article type, and study area as criteria in the following step of the review to determine the articles that fell within the purview of this paper. Only English-language articles were gathered in terms of language. In terms of document types, only research articles and review articles were collected, while conference papers, reports, and editorials were excluded. Since the search was limited to the research that has been conducted in European countries, these filters produced significantly fewer articles, and as a result, 62 articles were left.

In the second phase, the title, abstract, and method were screened to identify the studies that merely mentioned competitiveness, rather than measuring it on the destination. Twenty-five additional articles were excluded as a result.

Finally, utilizing the “snowballing method” (Pullin, Stewart, 2006) eight articles concerning tourism competitiveness in Serbia were included in the final list of the 45 articles that were determined to be pertinent to this study. Papers were included to examine previous research, give a more thorough overview of research on the topic of tourism competitiveness, and identify any potential research gaps in Serbia.

The process of selecting and screening the articles is described in Figure 1.

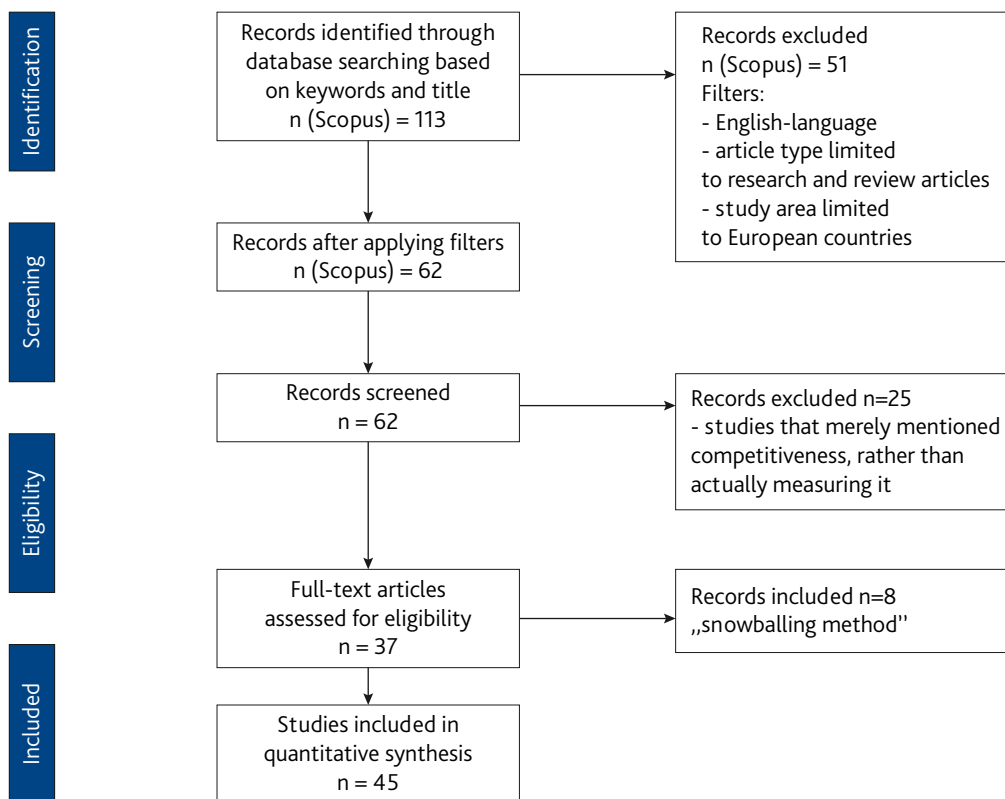


Figure 1. Flowchart of study review

Findings and Results

The assembled data from selected articles were grouped in the general categories within the tourism and competitiveness branch of knowledge that evolved between 2012 and 2022. This section goes into detail about the analysis of annual publication patterns, including the number of papers published annually, journals (published more than once) countries, methods, competitiveness models, as well as supply or demand perspectives and indicators of tourism competitiveness.

Our initial stream of analysis is based on how our dataset is distributed following publications that have been published in scholarly journals. The majority of articles on tourism and/or destination competitiveness were published in the journals *Sustainability* and *Tourism Analysis* (4 articles each). The journals such as *Tourism Economics*, *Tourism Management Perspectives*, and *Tourism and Hospitality Management* published two (2) articles on this concept. In the other journals, one publication was published for a given period (Table 1).

Table 1. Article distribution among journals (more than one article per journal)

Journal Name	Number of articles
Tourism Analysis	4
Sustainability	4
Tourism Economics	2
Tourism Management Perspectives	2
Journal of Travel Research	2
Tourism and Hospitality Management	2

The majority of journals have a significant impact on the field of tourism, indicating that the competitiveness of tourism and tourism destination reaches particular academic attention. However, the fact that several studies have appeared in other publications, such as those covering economics and business, shows that the topic of competitiveness is being studied in a variety of fields. This shows how important high-quality publications on tourism competition are to the body of evidence.

Further research is based on the distribution of our dataset across countries and throughout time. Except 2013, articles were published each year. Most articles were published in 2021 (8 articles) and this year has made the biggest contribution to the examination of tourism competitiveness, followed by 5 articles each in 2016 and 2018. Although the trend for the year of publication is more or less irregular, it was noted that no less than three articles were published per year over the observed period (Figure 2). Analysing articles by country, Serbia, Slovenia and Croatia have the most research publications (4), followed by Austria, Germany, Switzerland, Hungary, Montenegro, and Portuguese (2). The analysis confirms that the countries that represent each other's competitors in the tourist offer are mostly included.

This publishing trend is shown in Figure 2.

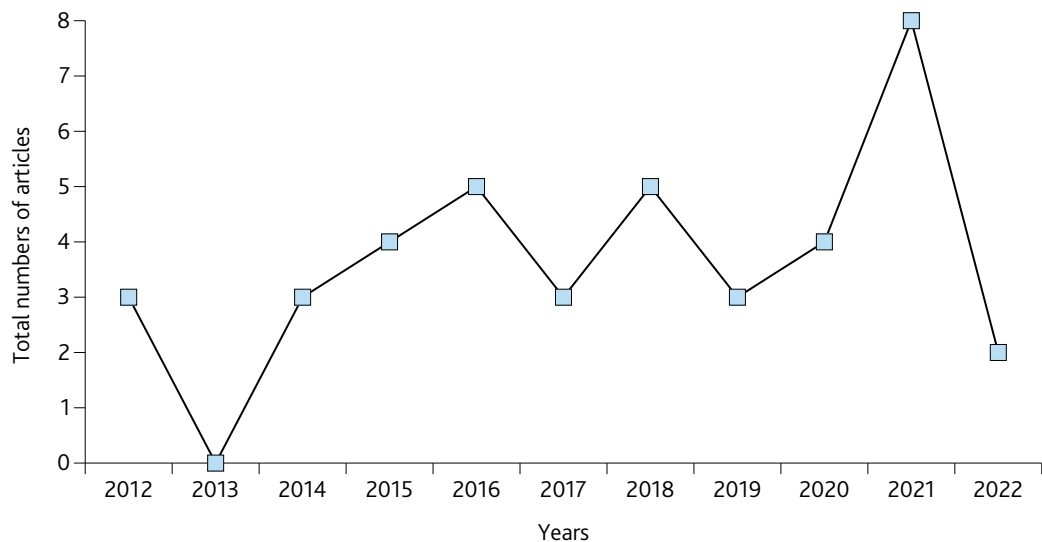


Figure 2. Publishing trend of research articles

Distribution of methodology and competitiveness model

Three types of methods - qualitative, quantitative, and mixed analysis methods are used in articles on tourism and destination competitiveness. Table 2 displays the frequency of methods used in articles more than once. With 29 studies, quantitative analysis predominates among the chosen articles, while 9 articles used qualitative analysis techniques.

Table 2. *A methodological examination*

		Number of articles	Total
Quantitative	• Secondary data (WEF, TTCR, TICI, GDP)	9	29
	• Empirical method (descriptive, factor analysis, ANOVA, MANOVA, T-tests, regression)	13	
	• Cluster analysis	4	
	• SEM analysis	3	
Qualitative	• Interview	4	9
	• Conceptual	5	
Mixed methods		7	7

When it comes to quantitative analytic methods, the empirical method that includes descriptive, factor analysis, ANOVA, MANOVA, T-tests, and regression analysis is the most widely used method. The second method that is frequently used includes secondary data (WEF, TTCR, TICI, GDP). The articles employ cluster analysis and SEM analysis applied 4 and 3 times. In terms of qualitative analysis methods, articles frequently use interviews (4 times) and conceptual methods (5). Finally, mixed methods are used in seven articles (Table 2).

Among the 45 articles on tourism and destination competitiveness, 21 are model-driven research and 24 did not apply the model in the article. According to the obtained results, the Crouch and Ritchie (2000, 2003) model is the most frequently applied model among articles, with a frequency of nine. Dwyer and Kim's (2003) model ranked second and was applied in six articles. Gomezelj and Mihalič's (2008) model ranked third and was used in two articles. Among other models that have been applied are listed Heath's (2003) model, the butterfly competitiveness model, and Porter's competitiveness diamond model (1990).

Articles examining the supply or demand perspective and indicators of tourism competitiveness

Given the many factors that must be considered, measuring a tourism destination's competitiveness is regarded to be difficult and time-consuming. Some approach destination competitiveness from the demand viewpoint, arguing that since travelers are the ones who experience the tourism destination, their perceptions of these characteristics ultimately determine how competitive the destination is (Ritchie et al., 2000). Others believe that supply-side participants' viewpoints are more realistic and trustworthy since they have a deeper understanding given their experience with tourism-related business in their own country. Additionally, some researchers believe they can take into account a greater variety of competitiveness elements, such as supporting variables and destination management, which tourists might not be able to evaluate (Mihalič, 2013; Novais et al., 2020). Twelve of the publications used a supply-side perspective, whereas only a few used a demand-side perspective. Only two papers combined these two approaches (demand and supply side). This is consistent with previous research indicating

that tourists can partially determine competitiveness and it can be seen through their opinions and actual behavior (Mihalič, 2013).

According to generally acknowledged competitiveness models such as Ritchie and Crouch (2000, 2003), Dwyer and Kim (2003), Heath's (2003), Gomezelj and Mihalič (2008), it is noted that a range of elements, indicators, or aspects that influence the tourism and destination competitiveness. One of the analyses sought to determine the most prevalent competitiveness indicators or factors from the sample of articles. Destination attractiveness factors are one of the most often represented in the analyzed articles and refer to destination amenities, tourism infrastructure, accessibility, cultural and historical legacy richness, including activities at the destination. Among the represented factors there are also skilled labour, hotels and accommodations as part of the infrastructure, quality of service, the perceived image of a destination, events, gastronomy, safety, and security of the destination. Additionally, the analysis observed the inclusion of protected areas which refers to establishing environmental standards and enhancing environmental attractiveness. The indicator relating to innovation and technology is the one that receives the least attention in the articles.

Research in Serbia

Several prior studies on Serbia's competitiveness as a tourism destination may stand out. Dwyer et al. (2016a) use the IPA method to assess Serbian tourism competitiveness and tourism business strategies (Dwyer et al. 2016b). Dwyer et al. (2016a, 2016b) indicate the necessity of achieving competitiveness through the measurement of importance and performance (IPA). The application of the IPA approach in this study, using the example of Serbia, has certain benefits in the analysis of a tourism destination's competitiveness since it can be utilized to recognize potential changes as well as a guide for strategic planning and sustainable development. Serbia was one of the many environments in which Dwyer et al. (2014) utilized the Integrated Destination Competitiveness Model to investigate destination competitiveness. The same authors mention that, in several studies conducted in Serbia, the use of the same competitiveness determinants and sub-determinants as in the Integrated Model has proven effective for comparison and policy advice. (Armenski et al. 2012; Dragičević et al., 2012; Mihalič et al., 2011).

The World Economic Forum's (WEF) Travel & Tourism Competitiveness Report 2019 (WEF, 2019) makes it clear that Serbia does not possess a particularly strong competitive position in the international market. Several authors have previously discussed Serbia's competitive position as a tourism destination. They applied different approaches, took into consideration several competitiveness factors, and, for the research's objectives, singled out various stakeholders in the country's tourist industry. Thus, for instance, Milutinović et al. (2021) concluded that the safety element is significant in influencing the attractiveness and relevance for a better competitive position of a tourism destination after evaluating stakeholders' perceptions of a destination's competitiveness. According to these authors, a significant portion of respondents considers that Serbia's weaknesses which influence competitiveness in the tourism market may be seen in the areas of trash disposal, cleanliness and order, and nautical tourism. Petrović et al. (2017) stress the significance of locals in achieving a high-quality rural tourism offer and a more competitive position in the tourism market, including notions of community connection, the growth of rural tourism, assistance for multifunctional agriculture, and residents' well-being. By choosing components of the destination-integrated product such as attractive-

ness, accessibility, and destination amenities and services, Pavlović et al., (2016) analyse the competitiveness of two Western Serbian destinations that are closely correlated to one another but with different tourism performances. Milićević et al. (2020a), on the other hand, examine the competitiveness of one of Serbia's major spa tourism destinations. Đeri et al. (2018) employ the IPA approach to assess the effectiveness of resource allocation focused on discrete variables and the potential for improving management strategies for enhancing the destination's competitiveness in the Jablanica district in Southeast Serbia. Other authors take the implementation and use of ICT as an indicator of the competitiveness of a tourism destination (Milićević, et al. 2020b).

To develop a model to evaluate the competitiveness of a tourism destination, many authors, including Gajić et al. (2018), adopt the 24 indicators defined by Dwyer and Kim (2003). This model closely resembles the model presented by Crouch and Ritchie and is frequently used for assessing the benefits and disadvantages of tourism destinations, including Serbia. (Štetić et al., 2014) The same model was used by Dragičević et al. (2012) who applied this approach to measure the competitiveness of the Serbian province of Vojvodina in the context of business tourism. Drakulić Kovačević et al. (2018) evaluated the views of stakeholders from the public and private sectors using this model and discovered some variations of opinion regarding the competitiveness of the two determinants in one of the Serbian regions: Management of destinations and destination policy, planning, and development. Also, according to the study by Armenski, Dwyer, and Pavluković (2018), managers in the private sector are more critical of the performance of all competitiveness indicators when it comes to Serbian tourism. It demonstrates that researchers are particularly interested in how diverse perspectives from the stakeholders in the public and private sectors view the question of a tourism destination's competitiveness.

General Discussion

The relevant tourism competitiveness literature was thoroughly reviewed for the current study. By providing an up-to-date comprehensive picture and identifying the historical trend, research areas, models, methods, and most important tourism competitiveness indicators we have contributed to the existing literature. The number of published scientific papers has more or less changed over the last 10 years, except 2021 when, according to the Scopus database, 8 papers were published.

For the tourism sector and government, it is vital to understand where a destination's competitive position is strongest and weakest, as well as how competitiveness is changing. As many authors stated (Dwyer, Kim, 2003; Crouch, 2011; Dwyer et al., 2014; Cronjé, du Plessis, 2020), there is not a single or particular set of competitiveness indicators that is always applicable to all destinations. Different competitiveness factors will be relevant for any given destination, and that is something that needs to be considered in measuring tourism competitiveness.

This study showed that the most competitiveness research is conducted from the supply side, indicating that the majority of theories regarding what makes a destination competitive are based on the opinions of stakeholders or tourism industry professionals. This approach is frequently used since it can aid in a more accurate discovery of the tourism destination due to their understanding of the whole range of competitive destination resources. On the other hand, tourism and destination competitiveness research from the demand side appears to be significant since tourist profiles and preferences vary over time. For this reason, some authors

(Novais et al., 2020) support continuous research on significant viewpoints and give more complete insight. Besides certain TDC models, some authors (Armenski et al., 2018) suggest the Importance Performance Analysis in the measurement of competitiveness to help precisely identify and prioritize initiatives to enhance destination competitiveness from both the supply and demand sides. This examination of the indicators can thoroughly identify the benefits and drawbacks of a destination's competitive position from both equally.

Among the various factors that contribute to tourism development, technological advancements and ICT have aided the growth of smartness, which is one of the competitive trends. (Cimbaljević et al., 2018). Therefore, the innovation and technology indicator should be in focus in future research toward destination competitiveness.

Gaps in tourism competitiveness research in Serbia

Based on the TTDI Framework, it may be inferred that there is presently no scientific research that addresses all of the identified competitiveness pillars in Serbia. To begin with, research on this issue in Serbia has been quite limited so far, which is supported by the lack of a unique and tailored competitive framework based on the features of Serbia as a tourism destination. It can be noted that a great number of research studies that investigate the competitiveness of a tourism destination employ a similar methodology. Most of them initiate research with the WEF or Dwyer and Kim frameworks to generate indicators. Furthermore, the IPA method is one of the models that is frequently utilized as a methodological framework for addressing the subject of tourist competitiveness in Serbia. Furthermore, focusing on the partially described indicators, we may say that previous research in Serbia has not incorporated all of the established indicators in order to gather more relevant information regarding Serbia's strengths and shortcomings as a tourism destination. The issue of human resource quality and the labor market in the tourism sector is often not examined in depth as an indication of Serbia's competitiveness in the tourism market. Following the pandemic era, the service industry in Serbia is confronting a labor shortage, which is a crucial part of maintaining competitiveness and providing quality tourism products.

In addition, from the perspective of tourism competitiveness, the assessment of the extent, distribution, and quality of infrastructure in Serbia has not frequently been the subject of scientific research. The accessibility of a tourist destination is one of the fundamental elements of competitiveness; therefore, the issue of traffic accessibility, as well as the quality of tourist infrastructure and superstructure, is an important indicator that requires special attention from the scientific community. Furthermore, based on the systematic review, there are not many scientific papers that address environmental management and sustainable development. In comparison to the competitive set, Serbia is at the very back in these areas, according to the WEF (2022), and it is therefore critical to look at the reasons that have put this destination in such a poor spot, as well as what solutions could be offered with the goal of improving the competitive position, according to these indicators, in the following period. Furthermore, the implementation and use of ICT in the tourism industry have not been thoroughly studied, particularly in light of the constant changes imposed by current technology, but also the possibilities of usage that may be successfully employed in tourism marketing and tourism product development.

Finally, the question of incentives for investors and state governments in the growth of the tourist sector may be thoroughly studied. There has not been enough done to attract investors and develop the T&T business in Serbia, and further study on this topic may help to identify

the causes of the problem. Given that the degree of competitiveness of a tourism destination is deeply affected by the public and private sectors' support of its development and growth, a higher scientific contribution might dispel any worries and stimulate increased investment in the tourism sector.

Limitations and future research

The study provides a number of significant implications for future research topics. The scope of the current review was restricted to full-length research articles in the Scopus database and additional databases were not considered. Additionally, the academic conference proceedings were not included in our review. Since our research only included English-language articles and was easily accessible, the sample may have been biased. For the topic of tourism destination competitiveness in Serbia, future research should include articles and other types of publications on the Serbian language. One of the limitations of the paper derives from the specific keywords that have been set up at the beginning stage of the research, and this can be expanded to avoid a decrease in competitiveness research.

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