

**DOCTORAL (PHD) THESIS**

**VIKTÓRIA KÚTVÖLGYI**  
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**THE ROLE OF VALUE PROPOSITIONS IN MEDICAL  
TOURISM IN HUNGARY**

**VIKTÓRIA KÚTVÖLGYI**

**Gödöllő**

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# 1.INTRODUCTION

## 1.1. Topicality and significance of the topic

I focused my doctoral dissertation on the attitude of the Hungarian adult population towards spa visits. The results of the research related to the dissertation are expected to help determine the directions of spa development and the development of this tourism segment of Hungary. In order to maintain and enhance the competitiveness of spas and to ensure continuous development, it is essential to know the bathing habits of consumers. The potential of health tourism can significantly contribute to the improvement of the health status of the Hungarian population both physically and mentally, so I consider it important to carry out studies on the topic and draw conclusions. The uniqueness of my research is that I examined the development opportunities of spas based on value propositions covering the whole country based on consumer responses.

For a long time, I have been interested in the question of what peculiar and unique feature Hungary has? What can give us the opportunity to ascend? The grey matter with outstanding capabilities, the high-quality arable land, or perhaps the valuable water resources? To what extent do we use the treasures given by nature to improve the health status of our country? How popular are our spas? How could the situation of the current spas become better and more successful among current and potential guests? These and similar questions were formulated in my mind when choosing the topic of my dissertation.

Health tourism is mentioned as an outstanding branch of tourism in the 21st century, the reason for which can be found in its social and economic significance and in the increase in the needs of the ageing society. The extension of life expectancy and the increase in the number of older age groups contribute to increasing the popularity of medical tourism. The Covid pandemic has had a significant impact on health tourism and consumer habits, so the new attitude survey is relevant for the proper planning of the development of spas, which also contributes to the increasing global competition for spas to be able to participate as much as possible. After the Covid pandemic, health has become stronger in people's value system again. Nowadays, we live a particularly stressful life, and spas can greatly contribute to relieving tension and improving the quality of life.

## 1.2. Research objectives and tasks

My aim is to outline the possible development directions of the spas by getting to know the opinions of consumers regarding the value propositions of the spas.

The broader aim of my dissertation is to contribute to the change of attitude in the field of development by examining the need for spas with my research results and work.

During my research, I formulated six hypotheses, which are the following:

**Hypothesis 1:** The socio-demographic characteristics of spa visitors affect their spa visits.

**Hypothesis 2:** In Hungary, visiting spas is no longer popular only for the older age group and not only for health reasons.

**Hypothesis 3:** With regard to the spa resort, the characteristics of which contribute to the successful stay of the consumers in the spa can be well identified.

**Hypothesis 4:** The development of hospitality can significantly contribute to the rejuvenation of the clientele in Hungarian health resorts.

**Hypothesis 5:** Consumers have definite ideas about the priority of spa values.

**Hypothesis 6:** According to consumers, improving the quality of gastronomy is an important factor in making spas more successful.

With the help of my research data and results, more accurate decisions can be made in order to boost spa tourism. According to statistical data, Covid-19 has greatly worsened the positive results achieved by the baths, which made it necessary to get to know the views and needs of potential visitors as widely as possible in order to regain competition, thus contributing to the determination of the direction of development. Based on the questionnaire answers, the practical utilization and further processing of the results in an innovative framework can make a valuable contribution to the fact that spa managers and marketers can meet the unique needs and expectations of each visitor group with personalized offer and communication, thus increasing the overall satisfaction and success of spas.

When developing the structure of my doctoral thesis, I tried to make it consist of clear, logical, interdependent chapters. The dissertation consists of seven main chapters. In the introduction, I described the main idea of the dissertation, the actuality and significance of the choice of topic. In the second part, the relevant literature review follows, which mainly concerns the situation in Hungary, but I also tried to include the works of foreign authors and tried to achieve as recent material as possible. In this chapter, I dealt with the decisive impact of the Covid pandemic on health tourism, the conceptual

transformation of health tourism, and the multi-level presentation of the health tourism system. In the following, I primarily focused on the presentation of natural endowment-based offerings in Hungary, and then I moved on to the lighting of the demand side. The third part of the dissertation contains the processing method of the primary and secondary research, as well as the socio-demographic characteristics of the subjects of the questionnaire. In the fourth chapter, I presented the scientific results and correlations of the answers to the questions of the research, supported by statistical calculations. In the fifth chapter I summarized the results of the test. I presented the new scientific results in the sixth chapter and propose further directions of research that have arisen during my work. When summarizing the results, I tried to create a simple, clear picture. In the seventh chapter, I summarized the message of the dissertation, as well as the theoretical and practical applicability of the dissertation within the health tourism industry in order to develop successful, competitive spas. The seventh chapter contains the summary in English.

## **2.MATERIAL AND METHOD**

### **2.1. Databases used in the research and the model of the research**

My research includes the analysis of literature materials, the professional press, the Internet, the data and publications of the Central Statistical Office. After studying the secondary data, I used the questionnaire survey as the primary quantitative research method, with the help of which I surveyed the respondents' opinion about their spa visiting habits. The requirements for respondents were adulthood and Hungarian citizenship. The data collection lasted from 10 October 2023 - until the planned 1500 completed questionnaires were reached - until 15 December 2023. The questionnaires were sent through intermediaries to the respondents' homes in different counties of the country (Babbie, 2017). A significant part of the questionnaires were printed on paper and handed over to the intermediaries, while others were forwarded in e-mail form for convenience reasons, followed by printing and distribution by the agents. The questionnaires were also collected with the help of intermediaries. Of the questionnaires received, 1313 were usable after data cleaning. The research sample is not representative. The questionnaire was completed anonymously and the survey data was processed in a consolidated manner. The questionnaire took about five minutes to complete. The questionnaire contained a total of 43 questions, of which 9 were multiple-choice questions and 34 were questions to be answered in the form of a Likert scale. The advantage of the multiple-choice question type is that due to its simple answerability, the willingness to fill in is higher. The Likert scale is a fundamental measurement tool in social science research (Tanujaya

et al., 2023) and a method for measuring attitude (Rinker, 2014). The Likert scale is a commonly used psychometric scale in questionnaires (Pimentel, 2010). The degree of scaling can range from 1 to 5, seven or 10. (Zerényi, 2016). I chose the five-point scale for my research, because I thought it was more effective not to force the respondent to give extreme answers, as this can create tension in the respondent in the case of 34 questions, which increases the chance that they will stop answering before the final completion of the questionnaire, and beyond that, in my opinion, the middle-value answer is also telling, there are things that are not particularly important in a person's value judgment, and therefore this is also important information. For easy understanding and quick and precise answers, questions related to the value proposition of the spa were answered according to the five-point scale of the school system. The respondent marked the values with which they agreed the most. These questions in the questionnaire show how much the respondent could identify with the different statements. Response 1 indicated that the respondent "strongly disagreed" with the statement; according to the designation 2 "to a small extent"; based on answer 3: "moderately", according to answer 4: "largely agree"; while number 5 means complete agreement with the statement.

The questionnaire is structurally divided into five parts. In the first set of questions, I examined the attitude of consumers towards spas. I was able to find out how regularly they visited spas in recent years, and whether they would recommend the spas they visited to their friends/relatives or not based on their experience, or whether they only recommend them for health reasons or for general reasons. In both cases, the questions could be chosen from 3-3 half-choice answers.

In the second, third and fourth questions, I asked the respondents to evaluate the statements on the Likert scale. In the second set of questions, I examined, through 17 statements, the extent to which the characteristics whose development contributes to a successful stay at the spa are enforced. I was able to find out which are the most important and least important qualities, the development of which influences the stay at the spa. Among the statements to be evaluated were the peace and quiet, the wide range of cultural attractions of the spa town, the quality of gastronomy, the quality of medical care and treatment, the safety of the spa and the settlement (low crime rate), the cleanliness and charm of the spa park, the beautiful environment, the value of the cost of treatments, the wide range of treatments, transport (access, parking), the opportunity to get acquainted with other visitors to the spa, the favorable cost of accommodation, the quality of accommodation, entertainment (cinema, dancing, etc.), a wide range of tourist attractions in the settlement, mass events, concerts, festivals and finally the cleanliness of the

streets. The claims that arise primarily examine the environment of the bath, which are mostly given, so the bath could only partially bring about changes in these areas.

In the third set of questions, ten statements are aimed at how consumers evaluate value propositions that can be developed to improve their health holidays. This issue is primarily about the services that can be provided by the spa, which fall within the competence of the spa, so it is relatively easier to change their creation and implementation based on the decision of the management of the bath, if required. Among the value propositions that make up the survey are: giving lectures to spa visitors (meeting interesting personalities or senior universities), raising the standard of medical care, raising the quality of spa services, organizing the supervision of young children so that a mother can also participate in a treatment, developing cultural offers (cinema, library, concerts, etc.), treating visitors as special "guests" and not as "patients", Spiritual care during the stay in the spa (e.g. retreats), the use of leisure animators in the spa, the improvement of accommodation and gastronomy, the introduction of transport services for spa visitors from accommodation to the spa and back (door-to-door).

In the fourth question, I measure the opinions of consumers about the values of the spa in seven statements. These statements mostly contain the characteristics of the bath and the effect of its subjective judgment. Statements to be evaluated on the Likert scale include: the importance of providing a bathing area with microclimatic features; maintaining or improving health by using natural healing agents; providing health, physical and mental security through medical care; achieving the transformative effects of treatments (improved well-being, rest, beauty, weight loss, improved condition and athletic performance); cultural and spiritual experiences; opportunities for socializing and entertainment (talking, games, excursions); the opportunity to participate in various forms of tourism.

Finally, in the fifth part, I wanted to get to know the socio-demographic characteristics of the respondents, including their age, gender, education, economic activity, place of residence, marital status and income. The age groups were divided into three groups: younger adults (18-39), older adults (40-59) and older (60 years and older). The economic activity of the respondents was also divided into three parts: workers/entrepreneurs, pensioners and those who do not belong to the previous two groups, inactive people, i.e. students, unemployed and other people belonging to other categories. Respondents could also indicate the section relevant to them in three categories according to their highest level of education, according to which they had a basic, secondary or higher education. According to the place

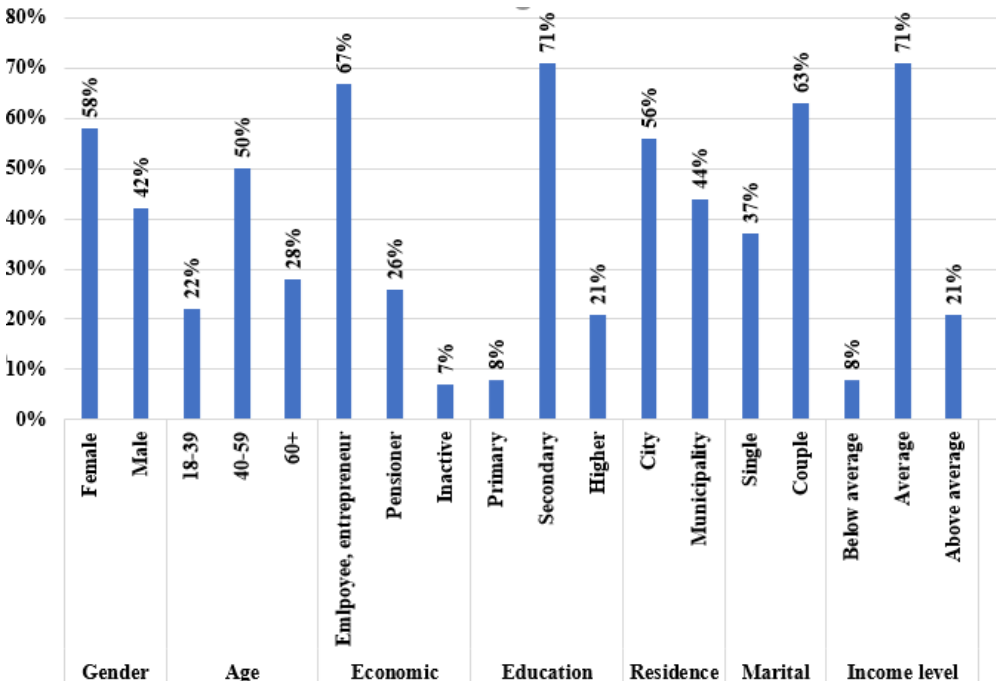


of residence, it was possible to indicate the place of residence of the city or village. Within the respondent's marital status, those living alone and those living in a relationship were distinguished. The last socio-demographic question was based on the respondent's assessment of the respondent's family income level, according to which the respondent could categorize themselves between below-average, average and above-average income levels.

In the course of the planning and implementation of the quantitative research, the provisions of Act XLVI of 1993 on Statistics were taken into account, in particular the part of the Act on Statistics relating to the collection of statistical data (Sections 8-9), the collection of statistical data by bodies not belonging to the official statistical service (Sections 15-16) and the publicity, protection and transmission of statistical data (Sections 17-21).

The cross-tabulated analyses show that taking into account the socio-demographic data of the 1313 people who filled out the questionnaire in an appreciable manner, it was possible to reach the middle-aged Hungarian middle class in a broad sense. Summing up the socio-demographic data of the respondents, it can be said that the majority of those who filled out the questionnaire, 58% are women and 42% are men. In terms of age, 22% of those between the ages of 18 and 39, 50% of those between the ages of 40 and 59 and 28% of those over 60 years of age. Taking into account the economic activity of the respondents, the proportion of employees/entrepreneurs is 67%, the proportion of pensioners is 26%, which is almost the same as the number of people over 60, 7% are inactive, they are mainly students, unemployed and those who do not work for other reasons. 8% of the respondents have a primary education, 71% have a secondary level and 21% have a higher education degree. Examining the distribution of the respondents by place of residence, it can be stated that 56% live in towns and 44% live in villages. Based on marital status, 36% live alone and 64% live in a relationship. The last question on the analysis of socio-demographic data examines income levels. 7% of the respondents consider themselves to have an average income, 83% to have an average income and 10% to have an above-average income.

The socio-demographic characteristics of the respondents are illustrated in Figure 1.



**1. figure: Research sample (%) (N = 1313)**

Source: own editing based on the data of the questionnaire

### 2.2. Methods used in the research:

To analyze the questionnaire, I used the following methods:

- Based on the questionnaire answers, I analyzed the data using the descriptive statistical and cross-table method, which revealed the respondents' latest spa visiting habits. From the data processing methods, I used the univariate descriptive statistical analyses and the two-variable cross-tabular analysis. Where the contingency table met the frequency requirements, i.e. the frequency number of all cells is less than 5 in a maximum of 20%, the Pearson Chi-squared test ( $\chi^2$ ) was applied at the significance level  $p = 0.05$ . The strength of the relationship between the variables was examined by Cramer's coefficient V or Gamma, depending on whether the variables were nominal or ordinal (Vargha, 2015). I used the Chi-squared test to examine the relationships between categorical variables, and Cramer's coefficient V gave a measure of the associative strength between these variables (IBM, 2024). In addition, I applied

Gamma to ordinal number data to assess the strength and direction of the relationship, providing insights into trends and association patterns (Field, 2024).

- Normality assumption due to sample size:  
Given the large sample size of the study, the central boundary distribution theorem supports the assumption of normality when performing parametric tests. This assumption allows for the use of methods such as ANOVA, which typically require data with a normal distribution (Field, 2024).
- Factor analysis:  
With the help of factor analysis (with Direct Oblimin rotation), I identified the underlying variables and factors that explain the correlation pattern within the set of observed variables. I used an oblique rotation method (Direct Oblimin rotation), which allows the factors to be correlated. This rotation is appropriate if we assume that the theoretical constructions are related to each other (Székelyi – Barna, 2010)

Through the first factor analysis, I examine the characteristics that contribute to a successful stay at the spa. The Kaiser-Meyer-Olkin (KMO) sampling conformity rate indicates a value of 0.777, which indicates that the sample size is suitable for factor analysis. KMO measurement is a criterion for the adequacy of factor analysis; Values closer to 1 usually indicate that factor analysis can be useful in relation to the data. The Bartlett spherical test, which tests the hypothesis that the correlation matrix is a unit matrix is significant ( $\chi^2(136) = 8721.629$ ;  $p < 0.001$ ). This significance indicates that the observed correlation matrix is not an identity matrix and is suitable for factor analysis.

The total variance explained by factor analysis is 51.854%. This percentage reflects the cumulative ratio of all standard deviations of the original variables, which can be attributed to the factors extracted.

In the second factor analysis, I explore the preferences of the various value propositions of the spa. The Kaiser-Meyer-Olkin (KMO) sampling compliance metric for this analysis is 0.834, indicating the level of compliance required to perform factor analysis, as values above 0.6 generally suggest that the data is suitable for factor analysis. Bartlett's sphericity test is very significant ( $\chi^2(36) = 4887.445$ ,  $p < 0.001$ ), which confirms that the variables correlate well enough for factor analysis.

The total variance explained by the factor analysis is 51.143%, indicating that just over half of the variability in preferences related to the spa can be explained by the factors identified.

- Cluster analysis:  
I used hierarchical clustering to classify the cases into groups that maximize the homogeneity of the cases within each cluster. I used Ward's method, which minimizes the sum of squares within the cluster, effectively optimizing the compactness of the clusters (Székelyi – Barna, 2010).
- ANOVA for testing cluster analysis results:  
I performed ANOVA to test the differences between the averages between clusters identified by hierarchical cluster analysis. This statistical technique is suitable for comparing three or more groups in terms of statistical significance.  
The F-value is a statistical value of the ANOVA test, which shows how different the averages of the groups are from each other (Darren – Mallery 2024).
- Homoscedasticity test with Levene test and subsequent application of Welch ANOVA:  
Prior to performing the ANOVA, I used the Levene variance homogeneity test to ensure that the differences are equal between the groups, which is a prerequisite for traditional ANOVA. In case of failure of this test, which indicates unequal deviations, I used Welch ANOVA. Welch ANOVA does not assume equal variance and is more robust for datasets that violate homoscedasticity (Darren – Mallery, 2024; Field, 2024).
- Repeated measurement with ANOVA Greenhouse-Geisser correction and pairwise comparison with Bonferroni:  
I used the repeat-measurement ANOVA to analyze the change in the mean under several study conditions. I applied the Greenhouse-Geisser correction to a possible violation of the sphericity assumption of the ANOVA test. I then performed pair-by-pair comparisons with Bonferroni correction to adjust for multiple testing and control the Species I error rate (Darren – Mallery, 2024).

### 3. RESULTS AND DISCUSSION OF THEM

The aim of my dissertation was to assess the demand for spas. The questionnaire survey completed among the Hungarian population in the course of the research contributed to the answers to the research questions as follows:

**1. table: Examining Research Questions**

<b>Se- rial num- ber</b>	<b>Research Study</b>	<b>Related questions of the questionnaire/ Claims</b>	<b>Explain- ing an answer in the disserta- tion</b>	<b>Number of hypotheses</b>
1.	What is the attitude of consumers towards spas?	1 and 37 - 43, Questions 2 and 37 to 43	Chapter 4.2.1	H1 H2
2.	To what extent are the qualities that contribute to a successful stay at the spa come into play?	Statements 3-19	Chapter 4.2.2	H3
3.	What are the most important and least important qualities, the development of which affects the stay at the spa?			
4.	How do consumers rate the value propositions that they can develop to improve their health stay?	Claims 20-29 Claim 28	Chapter 4.2.3	H4
5.	What are the consumers' opinions about the values of the spa resorts?	Claims 30-36	Chapter 4.2.4	H5
6.	What is the importance of gastronomy in spas?	Questions 5 and 37 to 43	Chapter 4.2.5	H6

Source: own edit

**2. Table: Summary table of hypotheses**

<b>Hypothesis</b>	<b>Research Hypothesis</b>	<b>Result</b>
<b>H1</b>	The socio-demographic characteristics of spa visitors have an impact on their spa visits.	Attested
<b>H2</b>	In Hungary, visiting spas is no longer only popular for the older age group and not only for health reasons.	Attested
<b>H3</b>	With regard to the spa resort, the characteristics of the development of which contribute to the successful stay of the consumers in the spa can be clearly identified.	Attested
<b>H4</b>	The development of hospitality can significantly contribute to the rejuvenation of the clientele of Hungarian health resorts.	Attested
<b>H5</b>	Consumers have definite ideas about the priority of spa values.	Attested
<b>H6</b>	According to consumers, the development of the quality of gastronomy is an important factor in making the spa more successful.	Attested

Source: own edit

The first hypothesis (**H1**) states: The socio-demographic characteristics of spa visitors have an impact on their spa visits. Based on the results of my investigations, the **H1** hypothesis is confirmed.

Examining the frequency of spa visits by consumers and their socio-demographic characteristics (the respondent's gender, economic activity, highest level of education, place of residence, marital status and family income level), they can be classified into a typical group supported by statistical calculations.

Examining the relationship between the frequency of spa visits by consumers and the *distribution by sex*, it can be stated that the significance of the Chi-squared test ( $\chi^2=11.024$ ,  $df=2$ ) is  $p < 0.004$ , i.e. less than 0.05, so I rejected the null hypothesis of the Chi-square test, i.e. a detectable relationship between spa visits and gender. Cramer's V has a coefficient value of 0.092, which is very close to zero, so it is a weak relationship, but it is considered a significant relationship.

Examining the relationship between the frequency of spa visits and *economic activity*, it can be concluded that the significance of the Chi-squared test ( $\chi^2=11.259$ ,  $df=4$ ) is  $p=0.024$ , i.e. less than 0.05, so I rejected the null hypothesis of the Chi-square test, i.e. a detectable relationship between the frequency of spa visits and the economic activity of the respondent. Cramer's V has a coefficient value of 0.065, so it is a weak relationship, but it is considered a significant relationship.

*Examining the relationship between educational attainment* and the frequency of going to the spa, it can be said that the significance of the Chi-squared test ( $\chi^2=73.475$ ,  $df=4$ ) is  $p<0.001$ , i.e. less than 0.05, so I rejected the null hypothesis of the Chi-square test, i.e. there is a relationship between educational attainment and the frequency of going to the spa. Cramer's V has a coefficient value of 0.167, which is a weak correlation between spa visits and the respondent's education.

Examining the relationship between the frequency of spa visits and the respondent's *place of residence*, the significance of the Chi-square test ( $\chi^2=38.232$ ,  $df=2$ ) is  $p<0.001$ , i.e. less than 0.05, so I rejected the null hypothesis of the Chi-square test, i.e. a detectable relationship between the spa visit and the place of residence. Cramer's V has a coefficient value of 0.171, which suggests a weak correlation but is significant.

Examining the relationship between the frequency of spa visits and the respondent's *marital status*, the significance of the Chi-square test ( $\chi^2=34.308$ ,  $df=2$ ) is  $p<0.001$ , i.e. less than 0.05, so I rejected the null hypothesis of the Chi-square test, i.e. a detectable relationship between the spa visit and the respondent's marital status. Cramer's V has a coefficient of 0.162, resulting in a weak correlation.

Examining the relationship between the frequency of spa visits and the *income level* of the respondent's family, the significance of the Chi-squared test ( $\chi^2=43.306$ ,  $df=2$ ) is  $p<0.001$ , i.e. less than 0.05, so I rejected the null hypothesis of the Chi-square test, i.e. a demonstrable relationship between the spa visit and the income level of the respondent's family. Cramer's V has a coefficient of 0.182, which results in a weak correlation but is significant.

According to the second hypothesis (**H2**), visiting spas in Hungary is no longer only popular for the older age group and not only for health reasons. Based on the results of my investigations, the **H2** hypothesis was confirmed.

The statistical calculation of the hypothesis is supported by the significance of the Chi-square test examining the relationship between the recommendation of the spas and the age of the respondents,  $p<0.001$ , i.e. less than 0.05, so I discarded the null hypothesis of the Chi-square test, i.e. there is a demonstrable

relationship between the spa recommendation and the age of the respondent. Assuming monotony and using the Gamma indicator, a medium-strength relationship can also be detected between the two variables ( $\text{Gamma} = 0.415$ ,  $p < 0.001$ ).

During the study, it can be established that among the 18-39-year-olds surveyed, there was not a single person who would not recommend going to the spa to their friends/relatives. Most people recommend visiting spas for general reasons (83.80%), while a small proportion (16.20%) do the same only for health reasons.

Among middle-aged people (40-59), there is already a layer who does not recommend visiting the spa (7.90%). In their case, the recommendation for a spa for health reasons is higher, with nearly a quarter (24.70%) of those surveyed sharing this opinion. In this case, too, the majority recommends the idea of visiting the spa to their friends/relatives for the purpose of a general spa.

Members of the oldest age group (60+) do not recommend going to the spa (8.30%), however, 41.30% of the respondents recommend going to the spa for health reasons alone, while in general 50.40% definitely recommend going to the spa.

It should be noted that the cross-table analysis of statistical calculations shows that people who have not been to a spa in the past few years are still happy to recommend the opportunity to others (63.40%).

According to statistical indicators, the recommendation of medicinal baths "solely for health reasons" is the highest in the 60+ age group (41.30%). It can be said that 16.20% of young adults (18-39 years old) recommend the spa "purely for health reasons", in the case of the next age group (40-59 years old) this figure increases by one and a half times (24.70%). Even the 60+ age group does not emphasize the special role of the spa in the highest percentage of the recommendation for spa visits, i.e. they do not only emphasize the health benefits of the spa, but the general benefit of the spa. Analyses highlight that more than half of older adults (50.40%) place more emphasis on the general recommendation to go to the spa than on recommending "for the sole health reason" (41.30%).

In recent years, 22.66% of the surveyed 18-39 year olds and 51.12% of those aged 40-59 have visited a spa at least once, which means that 73.78% of adults have visited a spa, ignoring the oldest adults, so it has been proven that it is not only older adults who visit spas.

According to the third hypothesis (**H3**), the characteristics of the spa can be well identified, the development of which contributes to the successful stay of the consumers in the spa place. Based on the results of my investigations, the H3 hypothesis is confirmed.



The hypothesis is supported by statistical calculations. The Kaiser-Meyer-Olkin (KMO) sampling compliance rate is 0.777, suggesting that the sample size is suitable for factor analysis. The Bartlett spherical test, which tests the hypothesis that a correlation matrix is a unit matrix significant ( $\chi^2(136) = 8721.629$ ;  $p < 0.001$ ). This significance indicates that the observed correlation matrix is not an identity matrix and is suitable for factor analysis.

Based on statistical calculations, five factors have been developed and their factor scores in the various attributes related to the spa stay are as follows:

***Infrastructure and environment (factor 1):*** This factor includes features such as cleanliness and charm of the spa park (0.832), beautiful surroundings (0.571) and transport (0.580), as well as cleanliness of the streets (0.356). These elements suggest that the physical and aesthetic characteristics of the bathing environment are a separate factor contributing to the bathing experience.

***Entertainment options (factor 2):*** This factor is characterized by a significant coefficient of mass events, concerts and festivals (0.786), entertainment such as cinema and dance (0.761), a wide range of tourist attractions (0.576) and the opportunity to get to know other visitors (0.345). This factor reflects the variety and quality of the entertainment options available, which increase the attractiveness of the spa location.

***Quality of medical services (factor 3):*** The load of this factor includes the quality of medical care and treatment (0.661), the wide range of treatments (0.530), and the safety of the spa and the settlement (0.423). It indicates that the therapeutic aspect of the spa experience, including the variety and quality of treatments offered, constitutes a coherent factor.

***Quality of other services (factor 4):*** This factor has a significant correlation with the gastronomic quality (0.824), highlighting the importance of dining and dining experiences as part of spa services, as well as the wide range of cultural attractions of the spa town (0.426).

***Low prices (factor 5):*** This factor includes affordable accommodation costs (-0.766), low handling costs (-0.707), peace and quiet (-0.440) and quality of accommodation (-0.370). Negative signs mean that the assessment of all factors is inversely related to the other factors, suggesting that cost considerations play a different role than the other characteristics. It should be noted that all of the factor scores are negative, so for easier interpretation, I inverted the factors, by which the factor measures cheapness.

According to the assumption of the fourth hypothesis (**H4**), the development of hospitality can significantly contribute to the rejuvenation of the clientele of Hungarian health resorts. Based on the results of my investigations, the **H4** hypothesis was clearly confirmed.

The statistical calculation of the hypothesis is supported by the repeated measurement ANOVA model (using the Greenhouse-Geisser correction), which showed a significant difference between the averages of the individual value propositions ( $F(6.814; 8939.670) = 110.538; p < 0.001; \eta^2 = 0.078$ ). Out of the ten value propositions listed in the questionnaire, "Raising the quality of accommodation and gastronomy" (4,072) proved to be the value that improved the quality of health holidays with the highest average value.

During the statistical calculation, the Chi-squared analysis showed that the improvement of accommodation and gastronomic standards reveals significant differences for different age groups (Chi-squared (6) = 268.045,  $p < 0.001$ ). A Cramer's V coefficient of 0.319 indicates a strong correlation, and a Gamma value of -0.460 indicates a notable negative correlation. This suggests that the importance of these developments is inversely proportional with increasing age, i.e. with age, the achievement of high-quality accommodation and gastronomic standards becomes less and less an important measure of value.

Of the areas to be developed that make the health resort better, the raising of the quality of accommodation and gastronomy and its achievement at the highest level are of paramount importance from the point of view of the activity of young adults going to health resorts. Young adults are the strongest believers that first-class accommodation and gastronomy are key to excellent spa stays (62.16%), in stark contrast to the relatively lower rates of middle-aged (19.82%) and older adults (11.63%). This suggests that younger guests particularly appreciate exceptional standards in these areas, potentially reflecting higher or more specific expectations.

According to the fifth hypothesis (**H5**), consumers have a definite idea of the priority of spa values. Based on the results of my investigations, the **H5** hypothesis was confirmed.

The statistical calculation of the hypothesis is supported by the fact that the ANOVA results of the repeated measurements, which I used to compare the mean responses to the values during the spa stay, show significant differences between the seven measured values ( $F(4.712, 6182.288) = 107.66, p < 0.001$ ). The significant F-value and the size of the effect in the analysis indicate that the participants definitely distinguish these values during their stay at the spa. A partial eta-squared value of 0.076 indicates a moderate effect size, suggesting that the differences between the different values are significant and significant enough to be considered.

An analysis of the values of spa visitors highlights that health-related benefits during their stay at the spa clearly take priority over social, cultural and recreational aspects.

Treatments that improve well-being, relaxation, beauty, weight loss, fitness improvement, and sports performance received the highest average ratings ( $M = 4.095$ ,  $SD = 0.704$ ), indicating that there is a strong consensus on their importance. Equally appreciated are the preservation or improvement of health with natural healing factors ( $M = 4.033$ ,  $SD = 0.627$ ) and medical care that promotes health, physical and mental safety ( $M = 4.015$ ,  $SD = 0.734$ ). These aspects underpin the considerable appreciation of the health and wellness offerings of spas.

The opportunity to participate in various forms of tourism ( $M = 3.911$ ,  $SD = 0.857$ ) is considered important, but it is less critical compared to the direct health benefits. The microclimatic properties of the bath ( $M = 3.864$ ,  $SD = 0.761$ ) also receive positive attention, but they are not the primary attraction. Cultural and spiritual experiences ( $M = 3.663$ ,  $SD = 0.845$ ) and social and entertainment opportunities ( $M = 3.655$ ,  $SD = 0.920$ ) are less valued, and there is the greatest variation in guest opinions. This distribution of preferences suggests that while guests recognize and appreciate the wider range of experiences that spas offer, their primary focus remains on improving health.

Based on the sixth hypothesis (**H6**), consumers believe that improving the quality of gastronomy is an important factor in making spas more successful. Based on the results of my studies, the **H6** hypothesis was clearly confirmed.

During the examination of the successful characteristics of the spa resorts, comparing the average score of the individual properties, the ANOVA model with repeated measurement (using Greenhouse-Geisser correction) shows a significant difference between the averages ( $F(10.402; 13647.789) = 169.223$ ;  $p < 0.001$ ;  $\eta^2 = 0.114$ ), based on which the quality of gastronomy has an average value of 4.131, i.e. it represents a significant contribution to the successful stay at the spa resort.

**No:** the cross-table analysis of the responses to the quality of spa gastronomy shows significant gender differences ( $\text{Chi square}(3) = 32.157$ ,  $p < 0.001$ ), the value of the Cramer's V coefficient of 0.156 indicates a moderate association. This suggests that men and women value spa gastronomy differently.

Gastronomy was rated as good by a significant proportion of 42.18% of women and 56.16% of men (4), which is 48.06% of all responses. This suggests that more men than women have a positive perception of gastronomy, the development of which contributes to the success of the spa.

39.42% of women and 26.09% of men rated the required gastronomic quality as excellent (5), which is 33.82% of all responses. This higher rate among women suggests that they are more likely to find gastronomy to be excellent

as a possible direction of development than men, who are more conservative with their high ratings but less critical at the lower end of the scale.

**Age:** the results of the Chi-squared test show significant differences in how different age groups perceive the quality of the gastronomy of the spa, the statistical significance ( $\text{Chi-square}(6) = 96.475, p < 0.001$ ) indicates significant differences between the socio-demographic data of age. A Cramer's V coefficient of 0.192 indicates a moderate correlation, while a negative Gamma value of -0.317 indicates an inverse relationship between age and a higher rating of gastronomic quality.

Good (4) ratings are most common in the oldest group (54.57%), followed by middle-aged (49.70%) and, less commonly, the proportion of youngest adults (36.49%).

In the youngest age group (18-39), the proportion of excellent (5) ratings is the highest (55.41%), which decreases significantly with age, only 29.57% of 40-59-year-olds and 23.82% of those over 60 years of age rate it similarly.

These results suggest that it is generally more important for younger guests to develop the gastronomy of spas than for older guests.

**Economic activity:** the results of the Chi-squared test show significant differences in the effect of the quality of gastronomy on the success of the spa between different economic activity groups ( $\text{Chi-square}(6) = 54.024, p < 0.001$ ), Cramer's V of 0.143 indicates a moderate correlation. This suggests that economic activity influences how respondents rate gastronomy in the context of spa success.

A good (4) rating shows a high level of agreement across all groups, especially among inactive individuals (59.09%), followed by retirees (52.60%) and workers (45.16%). It is a general consensus that good gastronomic quality contributes significantly to the success of a spa.

The largest differences are seen in the highest category (5), where a significant 37.54% of employees and 40.91% of inactive people believe that excellent gastronomy is key to the success of the spa, compared to only 22.54% of pensioners. This suggests that while younger or currently economically active individuals appreciate exceptional gastronomy, retirees consider it less critical to the overall success of a spa.

These results suggest that improving the quality of gastronomy can be particularly appealing, and younger and economically active individuals consider it key to the success of the spa than retirees.

**Highest educational attainment:** the Chi-squared test, which examines how people with different levels of education perceive the importance of gastronomy quality for the success of a spa, indicates significant variations ( $\text{Chi-square}(6) = 25.001, p < 0.001$ ). A Cramer's V coefficient of 0.098

suggests a slight correlation, and a Gamma of 0.258 shows a small positive correlation between tertiary education and more favorable reviews.

The majority of respondents considered the impact of good (4) gastronomic quality to be significant. Tertiary graduates (54.41%) and primary school graduates (53.57%) were slightly more likely to rate the need for good gastronomy higher than those with secondary education (45.53%). This reflects the general consensus that good gastronomy significantly increases the success of the spa, especially among the most educated and the least educated.

The excellent (5) reviews were also quite high, with 25% of primary graduates, 35.74% of secondary graduates and 30.88% of higher education graduates indicating that excellent gastronomy is key to the success of the spa. Those with secondary education were much more inclined to this assessment, suggesting that they place greater value on exceptional dining experiences as part of the overall spa experience.

Overall, these results suggest that while there are differences in how people with different levels of education rate the importance of gastronomic quality, the overall trend indicates that a significant proportion of each group values gastronomy ranging from good to excellent as a key factor in the success of a spa.

***Residence:*** the results of the Chi-squared test show significant differences in how the inhabitants of cities and villages perceive the impact of the quality of gastronomy on the success of a spa (Chi-squares (3) = 66.768,  $p < 0.001$ ), the Cramer's V coefficient of 0.226 indicates that a moderate association can be observed as a conclusion.

A significant part of the villagers (58.48%) rated the good (4) gastronomy as effective, compared to 39.86% of the city dwellers. The higher percentage in villages may reflect a greater appreciation of quality gastronomy or reliance on it in less urbanised areas, probably due to fewer alternative dining options. While a significant part of the city dwellers (36.46%) and the majority of the villagers (30.45%) considered excellent gastronomy to be of key importance for the success of the spa (5), the townspeople are somewhat more likely to attach great importance to outstanding gastronomy. This can be influenced by exposure to diverse and high-quality culinary experiences in urban areas.

These findings support the fact that residence significantly influences the perception of the role of gastronomy in the success of the spa, and there are significant differences between the inhabitants of the city and the village. City dwellers have a wide range of expectations, which are likely to be influenced by the variety and abundance of culinary options, while villagers are more consistent in recognizing the importance of gastronomic quality.

**Marital status:** the results of the Chi-squared test indicate significant differences in how singles and those in a relationship perceive the importance of the quality of gastronomy in the success of a spa (Chi-squared (3) = 11.66,  $p = 0.009$ ), although the correlation is relatively weak, with a Cramer's V coefficient of 0.094. This finding highlights modest but statistically significant differences in attitudes based on marital status.

The majority of single people (54.24%) consider the gastronomic quality to be good (4), which is a higher proportion compared to those in a relationship (44.59%). This difference indicates that singles are more likely to value good gastronomic quality as a significant part of the spa's success than those in a relationship.

In contrast, a higher percentage of those in a relationship (36.39%) believe that excellent (5) gastronomy is key to the success of a spa, compared to 29.24% of singles. This may suggest that those in relationships place more value on exceptional gastronomy, likely due to shared dining experiences or higher expectations when going to spas as a couple.

Overall, these results show that marital status influences the perception of the role of gastronomy in the success of the spa, and those in relationships have higher expectations for exceptional gastronomy. In contrast, singles may find it easier to appreciate a good level of service.

**Income level:** the Chi-squared test reveals significant differences in how respondents with different income levels see the impact of the quality of gastronomy on the success of a spa (Chi-squared (6) = 73.708,  $p < 0.001$ ), and a Cramer's V coefficient value of 0.168 is a moderate association. A Gamma value of 0.634 indicates a strong positive correlation, especially highlighting the differing opinions of income groups about the role of excellent gastronomy.

The vast majority of those with below-average incomes (72.73%) rate good (4) gastronomic quality highly, compared to 48.03% of those with average incomes and 32.35% of those with above-average incomes. This may indicate that people with lower incomes value good gastronomy or consider it a key factor in enhancing the bathing experience.

Remarkably, 39.71% of respondents with above-average incomes believe that excellent gastronomy is key (5) to the success of a spa, compared to 34.34% of respondents with average incomes and only 18.18% of respondents with below-average incomes. This indicates that wealthier individuals are more likely to emphasize the importance of exceptional gastronomy, aligning with their propensity to seek premium experiences.

#### 4. CONCLUSIONS AND RECOMMENDATIONS

**T1:** According to a national survey, the gender, economic activity, education, place of residence, marital status and income level of spa visitors have an impact on their visit to the spa. Based on statistical studies, the frequency of bathing visits by bathers depends to the greatest extent on the level of income, among socio-demographic data. This is followed in descending order by place of residence, education, marital status, gender, and finally economic activity.

The frequency of bathing is influenced by the income level to the greatest extent among socio-demographic data. According to the research, the majority of regular spa visitors and those who do not visit the spa at all belong to the group of low-income people. This suggests that they use the services of the spa at a discount. With a referral from a specialist, you can take two cures a year. One course entitles the bathing guest to 15 sessions. The amount from the service financed by the National Health Insurance Fund Management does not cover the maintenance of the services of the spas.

I recommend that spas make up for the lost revenue by providing quality services to those with higher incomes. For example, a night-time light-show party organized for young people can be an interesting experience.

**T2:** Based on a national survey, the recommendation of Hungarian spas is very significant in all adult age groups, who emphasize the general function of spas as the primary reason instead of recommending them for purely health reasons.

Satisfied guests provide the most effective and at the same time the cheapest advertising tool through word of mouth. The majority of regular spa visitors and I definitely recommend the spa to others, are female. Based on an international survey, it can be said that women have a dominant role in the idea of a vacation and in carrying it out.

I recommend that guests receive an additional gift after every fifth visit to the spa for more frequent spa visits and to build a good reputation for the spa. This little surprise can be a small portion of healthy salad in the catering unit of the spa, such as Caesar salad; tomatoes with mozzarella with fresh basil dressing; Greek salad with grilled chicken breast. After every fifth visit, giving a discounted entrance ticket can also be a pleasant gesture for the guest or even a 15-minute massage treatment. It is worth putting a little more emphasis on the ladies, for more effective word-of-mouth advertising. I recommend that they receive a flower on Women's Day, for example, when they leave the spa. Maintaining the spa's reputation would increase the spa's success, which is the result of the development.

**T3:** On the basis of a national survey, the characteristics of which contribute to the successful stay of consumers in spa resorts, such as infrastructure and environment, entertainment facilities, quality of medical services, quality of other services and low prices, can be characteristically distinguished from each other.

During the cluster analysis, the group with the largest composition considers the quality of gastronomy and the wide range of attractions of the spa town to be the most decisive features for a successful stay at the spa resort. For the second largest cluster group, the priority value of spas refers to the high quality of medical services. Therefore, during the development of the spa, these three factors deserve special attention.

I recommend compiling a program package for the guests. For example, visiting the surroundings of the spa and its local attractions in the framework of a minibus excursion by eating a pleasant, local food specialty and supplementing an optional treatment.

**T4:** Based on a national survey, the development of accommodation services and gastronomy contributes significantly to the rejuvenation of the clientele at Hungarian health resorts.

In order to maintain the spa and its future growth, it is necessary to rejuvenate the clientele. Age has a significant impact on how the development of accommodation and gastronomy contributes to the success of spas. Younger adults appreciate exceptional quality and are potentially more eager for premium experiences than other age groups. I recommend the establishment of a modernly furnished, comfortable accommodation equipped with electrical appliances. Young people like to share their experiences through the media, which can contribute to an increase in guest traffic. The older age group has lower demands in this area, so I recommend developing different accommodation services in different price categories to suit the needs of the guests.

**T5:** Based on a national survey, consumers perceive the most important values during their stay at the spa. These are the achievement of the transformative effects of treatments, the maintenance or improvement of health through the use of natural healing factors, and the provision of health, physical and mental safety with medical care.

Overall, during the stay at the spa, the improved well-being, relaxation, beauty, weight loss, improvement of condition and sports performance as a result of the treatments are of paramount value. Based on the answers of the questionnaire respondents, factors related to the state of health are listed at the



top of the order of importance. It follows that in the development of the values of the spa resorts, it is of paramount importance to raise the standard of medical care.

I recommend assessing the needs of the treatments and making them as widely available as possible for the sake of quality care for the guests.

**T6:** Based on a national survey, the development of the quality of gastronomy is an important factor for spa resorts, which has an impact on making them more successful.

The importance of gastronomy comes up again and again. It has also been linked to the rejuvenation of the clientele.

Suggestion:

- Young people like street food, so I consider their inclusion in the menu to be pivotal. I recommend that the menu should include hamburgers, pizza, gyros. The dishes should always be homemade, from fresh, seasonal ingredients (from burger buns to mayonnaise) and I also consider fast service important for the smooth operation of the catering unit and for the efficient service of guests.
- An important measure of value is the variety of ingredients, seasonality, the wide use of fresh herbs, and a wide variety of vegetables and fruits.
- I recommend following the guidelines of a healthy diet: moderate salt use, consumption of honey instead of sugar.
- The reduction of the fat content of food with the help of greaseproof paper. I recommend fat-free frying in modern cookware coatings: ceramic, Teflon.
- In thickening procedures, instead of using deep-frying, whisking is healthier. According to the modern approach, it is most ideal to thicken the food with its own substance or with starch cooked from potatoes.
- Steaming and steaming are the most gentle of the kitchen technology heat transfers, with these technological processes most vitamins and minerals remain in the food.
- The design of the salad bar can also be popular supplemented with various dressings, croutons, parmesan shavings, ladies usually like it.
- To enhance the atmosphere, I recommend cooking in a cauldron and grilling in the open air (in the case of vegetables, cheeses, meats).
- The show kitchen is an additional mood enhancer and, based on my many years of experience, extremely popular among guests.
- From drinks, I recommend prioritizing freshly squeezed fruit and vegetable juices (célka, cucumber, carrot).

- When compiling the menu and drink list, it is also worth thinking about people suffering from various allergic diseases.

### **Further direction of the research, recommendations**

During the research, a number of questions and directions arose, which provide an opportunity to continue the research:

- A further step of the research could be to explore how it is possible to reach the different groups and clusters formed during cross-tabulation and factor analysis with marketing tools in order to increase the frequency of spa visits.
- The continuation of the research could be the determination of the improvement of the gastronomic quality of the spas, in the course of a new questionnaire survey, as well as the preparation of interviews with dietitians, doctors and experts examining eating.
- The subject of the study may be the research of how those who do not recommend spas to others justify this decision.
- The continuation of the research could be to examine how those who prefer spa lectures imagine the most appropriate way to hold the lectures and what specific topics they are interested in.
- The characteristic features of clusters help to decide which cluster can be effectively reached using which marketing communication tool.

## **5. NEW SCIENTIFIC FINDINGS**

As a consequence of the hypothesis tests, I formulated the following new scientific results:

**T1:** According to a national survey, the gender, economic activity, education, place of residence, marital status and income level of spa visitors have an impact on their visit to the spa. Based on statistical studies, the frequency of bathing visits by bathers depends to the greatest extent on the level of income, among socio-demographic data. This is followed in descending order by place of residence, education, marital status, gender, and finally economic activity.

**T2:** Based on a national survey, the recommendation of Hungarian spas is very significant in all adult age groups, who emphasize the general function of spas as the primary reason instead of recommending them for purely health reasons.

**T3:** On the basis of a national survey, the characteristics of which contribute to the successful stay of consumers in spa resorts, such as infrastructure and environment, entertainment facilities, quality of medical services, quality of other services and low prices, can be characteristically distinguished from each other.

**T4:** Based on a national survey, the development of accommodation services and gastronomy contributes significantly to the rejuvenation of the clientele at Hungarian health resorts.

**T5:** Based on a national survey, consumers perceive the most important values during their stay at the spa. These are the achievement of the transformative effects of treatments, the maintenance or improvement of health through the use of natural healing factors, and the provision of health, physical and mental safety with medical care.

**T6:** Based on a national survey, the development of the quality of gastronomy is an important factor for spa resorts, which has an impact on making them more successful.

## **6. PUBLICATION RELATED TO THE TOPIC OF THE DISSERTATION**

### **In scientific journals**

#### *In a foreign language:*

- Kútvölgyi, V. (2020): Touristic value of Bática village in Hungary. p. pp. 161-178. In: *Tourism Today*. Cyprus, College of Tourism and Hotel Management, p. 217.
- Kútvölgyi, V. (2019): The study of health tourism in Hungary within the framework of GIS. p. 105-116. In: *Tourism Today*. Cyprus, College of Tourism and Hotel Management, p. 219.

#### *In Hungarian:*

- Kútvölgyi V. (2021): Examination of tourism development in Sântamás Ciuc. In: *A FALU*, 36 (1-2) 71- 85. p.
- Kútvölgyi V. (2019): Tourism Study of a Transylvanian Village Inhabited by a Majority of Hungarians. In: *A FALU*, 34 (3), 15-25 p.
- Kútvölgyi V. (2017): Tourist Opportunities in the Village of Bática. In: *A FALU* 32 (3), p. 23-34.
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### **Conference Publication**

#### *In a foreign language:*

- Kútvölgyi, V. – Szabó, Z. (2023): Attitudes to Visiting Baths in Hungary. In: Hojcska, Á. E. – Szabó, Z. – Bujdosó, Z. (ed.): *4th Spa Towns International Scientific Conference*. Budapest, 19 October, 2023, Budapest Business University. Book of Abstracts. Budapest: Association of Hungarian Spa Towns. p. 25-26.
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- Kútvölgyi, V. (2016): The study of the clientele of the Dagály Bath, recommendations for improvement. In: Svéhlik, Cs. (Ed.): *Diverse Economics in the 21st Century: Best of KHEOPS IV. (2006-2016)*. Budapest, Hungary, Vienna, Austria: Kheops Automobile Research Institute. p. 151-160.

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- Kútvölgyi V.–Szabó Z. (2024): Does raising the quality of gastronomy increase the success of spas? p. 36-37. In: Szabó Z. (ed.): *Science in Spa Town Research: Summaries of the Researchers' Night 2024 workshop of the Spa Towns Research Institute*. Hévíz: Association of Hungarian Spa Towns, p. 42.
- Z. Szabó – Kútvölgyi, V. (2024): Frequency of spa visits in Hungary. p. 24-25. In: Szabó Z. (Ed.): *Science in Spa Town Research: Summaries of the Presentations of the Researchers' Night 2024 Workshop of the Spa Towns Scientific Research Institute*. Hévíz: Association of Hungarian Spa Towns, p. 42.
- Kútvölgyi V. – Szabó, Z. (2023): Identifying and understanding the profile of spa tourists. In: Bujdosó Z. (Ed.): *The World of Science: Summaries of the Presentations of the 2023 Workshop Held at the MATE Károly Róbert Campus, Gyöngyös, MATE Károly Róbert Campus*. p. 42.
- Kútvölgyi V. – Szabó Z. (2023): Attitudes towards bathing in Hungary. In: Szabó Z. – Hojcska Á. E. – Kútvölgyi V. (eds.): *IV. Spa Towns International Scientific Conference. Abstract volume*. Budapest, Association of Hungarian Spa Towns. p. 25-26.
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### **Book excerpt:**

#### *English:*

- Kútvölgyi V. (2024): Characteristics of the recommendation of spas in Hungary. p. 38-39. In: Szabó Z. (Ed.): *Scientific Advice in the Service of the Spa Society: Celebration of Hungarian Science in the Scientific Research Institute of Spa Towns*. Gyomaendrőd: Association of Hungarian Spa Towns, 50 p.
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