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Aim & Scope

Journal of Multidisciplinary Academic Tourism (JOMAT) is an explicitly international and multidisciplinary peer-reviewed scientific journal founded in 2016. JOMAT aims to publish both empirically and theoretically based articles which advance and foster knowledge of tourism and research that explores one or more of the economic, social, cultural, political, organizational, marketing, management or environmental aspects of the subject. We are also trying to give a new perspective to tourism-related activities. The journal encourages short commentaries and rejoinders and provides a rapid turnaround of submissions. In addition to regular length submissions, the journal also welcomes extended peer-reviewed papers on a single topic that combines detailed literature reviews with substantive empirical research and policy analysis. We also welcome supplementary material in the form of video, audio, photographs and additional supplementary about data, not included in the paper. The journal publishes Main Papers, Book Reviews, Review Essays and occasional Opinion Pieces. Book reviews and Opinion Pieces are by invitation only.
The Journal invites contributions related to the following subjects and their applications in tourism and hospitality: marketing management; innovations; global issues; economics; consumer behavior; organizational behavior; culture; methodology; sustainability; beverage management; planning and development; financial management; gender issues; ethics; entrepreneurship; education; and future trends. We also commission Special/Additional Issues – please contact the editors if you have a proposal for a Special Issue or Opinion Piece.

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Contents

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Financial analysis of Indonesian and Turkish tourism listed firms in Covid-19 outbreak

Tri Damayanti, Suphi Aslanoğlu*

Keywords:
Credit (risk) analysis,
Profitability analysis,
Restriction policy.

ABSTRACT

COVID-19 outbreak is global disease that impact most of industries in the world. Tourism is one of industry shocked by COVID-19. Curfew policy and social distance caused most of tourism sector such as tourism, hotel, and restaurant were closed. The purpose of this study is to analyze financial statement of tourism industries in Indonesia and Türkiye using financial ratio analysis. We employ financial analysis of credit (risk) analysis and profitability analysis during lockdown. We employ 27 financial statements of tourism firms in both countries in 2020. Based on the result, we found that profitability ratio that have significant differences in both countries such as ROA, ROE, and net margin. Although other measurement such as, current asset ratio, quick ratio, asset turn over, debt to equity ratio, and short term debt to equity ratio have no significant. The result informs that tourism of listed firms in Indonesia and Türkiye have significantly difference in profitability ratio. However, capability of managing liquidity, utilizing asset and managing capital structure and solvency has no significant difference. The result implies that tourism industries both in Indonesia and Türkiye have similar issues in liquidity, utilizing asset, and solvency, because they have to face diminishing income during COVID-19. Hence, it will effect on the liquidity.

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1. Introduction

COVID-19 outbreak that begun in end of 2019 attacked the world not only in the health issues but also most of economic sectors. Curfew policies were applied in most of countries. Social distance also were applied. It was caused most of human activities changed to virtual activities. Thus, it impacted economic activities including tourism, hotel and restaurant as tourism industries. They lost local and international customers, guesses, and tourists. Travel restriction policy was applied in Indonesia. They did not give permission to travel to Indonesia from red zone countries (Purba, Fathiah, & Steven, 2021). This disease globally impacted the world tourism sector. For example, in China (Wu, Lee, Xing, & Ho, 2021), Italy (Messori & Escobar, 2021), Spain (Rodríguez-Antón & Alonso-Almeida, 2020), Algier (Bouarar, Mouloudj, & Mouloudj, 2020; Madani, Boutebal, Benhamida, & Bryant, 2020), Norwegia (Zhang & Xie, 2021), Indonesia (Suwendra, Sujana, & Irwansyah, 2020; Purba, Fathiah, & Steven, 2021), Pakistan (Khan, Niazi, Nasir, Hussain, & Khan, 2021), and Türkiye (Özdemir, 2020; Özcan,2021)

In Türkiye, restaurant and hotel industry is substantial (Turegun, 2019). Bal, Akça, & Bayraktar (2016) stated that in tourism in Türkiye was really matter on the GDP. In the 1972-2014, tourism in Türkiye positive effect on Türkiye's economic growth. So do in Indonesia. Actual loss in tourism sector in Indonesia also impacted in this country because profit of hotel industries have reduced up to 40%. Broad and domestic flight tickets are canceled (Suwendra, Sujana, & Irwansyah, 2020; Purba, Fathiah, & Steven, 2021).

Impact of COVID-19 outbreak in tourism industries are noted in preliminary scholars that analyzed their financial statements. For instance, Aman and Altass (2021) found that in airlines industry, they have some problems deal with negative operating profit, net profit and return on invested capital during Covid 19 outbreak. Özcan (2021) also stated that Turkish transportation industry, their profitability is negatively affected by COVID-19 outbreak.

Financial analysis is used for decreasing reliance on presumptions, opinions, and other feelings without trusted data (Subramanyam & Wild, 2013). Moreover, financial analysis will reduce uncertainty of failure in the business decision making. We did not find previous study related to financial analysis of tourism in Indonesia and Türkiye in pandemic period. Purba, Fathiah, & Steven, (2021) found

**Corresponding Author* *Research paper*
Tri Damayanti: *Res. Assistant., Universitas Bandar Lampung, Lampung, Indonesia, Email: tri.damayanti@ubl.ac.id, Orcid Id: 0000-0003-2792-0889*
Suphi Aslanoğlu: *Prof. Dr., Kırıkkale Üniversitesi, Kırıkkale, Türkiye, Email: s_aslanoglu@hotmail.com, Orcid Id: 0000-0003-4394-5541*

hat in Indonesia there was stuck of the foreign visitor at the last semester because of increasing of infections in foreign tourists source countries. In tourism industry, key factors that affecting its sustainability development is financial performance and competitive advantages (Zhang & Xie, 2021). Ratio analysis is important measurement for analyzing financial statements, comparing performance, making several plans, and detecting side effect, opportunities and threats (Turegun, 2019). Furthermore, Zhang & Xie (2021) explained that hotel as one of tourism industry is influenced seasonal, then in COVID-19 outbreak it more difficult to face market volatility and more uncertainty risk.

We purpose to analyze their financial ability in facing difficulties during COVID-19 outbreak using three basics analysis. This study also could be one of literature and empirical finding to both academic and business practices. The rest of this paper is as follow. The next section is literature review. Then, it will be followed by methodology section, result and discussion section, and ended up by conclusion section.

2. Literature Review

There are several previous studies related to tourism. Bal et al. (2016) found that in Türkiye tourism increased Turkish economic growth up to 0,314%. Moreover, tourism' cash inflow increased Turkish GDP for 1,7 %. It also means that tourism increase foreign exchange earnings then indirectly effect national employment and income. Turegun (2019) examined financial ratio performance of restaurant and hotel industries in Türkiye. Their finding is that key factors that affect restaurant and hotel industries are cash, return on equity, account receivable and inventory turnover. Furthermore, financial ratios which could make hotel industries differentiation are highly liquidity, receivables, and turn over ratio. Where areas, for restaurant is differentiated by solvency and probability ratios. Bouarar, Mouloudj, and Mouloudj (2020) stated that their study related to tourism sectors in COVID-19 pandemic in Algeria affected dependency of tourism revenues. Wu et al. (2021) stated that COVID-19 pandemic in China impacted negatively on tourism sectors. Zhang and Xie (2021) argued that seasonality on hotel industries in order to increase their financial performance is crucial. They found that hotel will be exist in their industries if they had high cumulative earnings but low financial leverage. Moreover, they found that working capital and EBIT did not influenced sustainability of hotel business. Aman and Altas (2021) stated that because of COVID-19, the airline industry significantly declined its investment. Financial performance such as EBIT, ROIC, and revenues affect mostly their performance.

There are several methods to analyze financial report. Subramanyam and wild (2013) mentioned that below are kind of important methods for financial analysis:

1. ***Comparative financial statement analysis***

The purpose of comparative financial statement analysis is to review balance sheets, income statements, and cash flow statements from period to period (Subramanyam & Wild, 2013). In a comparative analysis, changes in account balances are carried out annually or in multiple years (Subramanyam & Wild, 2013). The best known comparative analysis is trend. Trend analysis reveals the direction, speed and extent of a trend. Comparative analysis is also called horizontal analysis because it analyzes left-right (or vice versa) account balances in comparative reports (Subramanyam & Wild, 2013). There are two comparative analysis techniques that are often used, namely analysis of changes from year to year and analysis of index number trends (Subramanyam & Wild, 2013). For example, suppose there is an 18% increase in sales from year to year accompanied by an increase in promotion costs. With this comparative analysis an investigation and explanation of the case can be carried out.

2. ***Common-size financial statement analysis***

Common-size financial statement analysis aims to understand the internal structure of financial statements (Subramanyam & Wild, 2013). This analysis is also called vertical analysis because it evaluates the up-and-down accounts (or vice versa) in the statement of common measures of a financial statement (Subramanyam & Wild, 2013). This analysis is usually extended to examine the accounts that make up a particular group. For example, balance sheets are used to analyze common measures that describe:

a. Financing sources

b. Composition of assets in a company.

Likewise, this analysis can be expanded, for example to check the liquidity of current assets, this analysis will explain the proportion of current assets.

3. ***Ratio analysis***

Ratio analysis is an analysis that reveals the relationship between two quantities mathematically in the form of a comparison (Subramanyam & Wild, 2013). This ratio analysis calculation is a simple arithmetic operation but its interpretation is complex. This interpretation is depend on economic relations (Subramanyam & Wild, 2013). For example, there is a direct and important relationship between the selling price and the cost of production and other costs. An example of using ratio analysis in reports is sales: cost is 2:1, which means that the product has a cost of 50% of its selling price.

4. ***Cash flow analysis***

Cash flow analysis aims to evaluate the sources and uses of funds in a company. The analysis provides an explanation of how the company obtains financing and how to use these resources in the company's economic activities (Subramanyam & Wild, 2013). This analysis is also part of the liquidity analysis.

5. Valuation

Valuation often used as method to assess a company's financial capability by evaluating intrinsic value of company or their stocks (Subramanyam & Wild, 2013). In this analysis, time value of money theory is applied. Basically, investors need two crucial information for evaluating their investment such as their expected future payment and discount rate.

Compared to among those methods ratio analysis is the most popular and frequently used in financial analysis. There are three basics of financial analysis using ratio analysis method (Subramanyam & Wild, 2013):

1. Credit (Risk) analysis

Credit analysis is an analysis that explains a company's credit by evaluating the company's ability to pay its bills (Subramanyam & Wild, 2013). The focus of this credit analysis is the risks that can be managed by the company (Subramanyam & Wild, 2013). In addition, credit analysis also focuses on liquidity and solvency analysis. Liquidity is the company's ability to obtain cash in the short term to pay bills (Subramanyam & Wild, 2013). Meanwhile, solvency is the company's ability to maintain the continuity of the company in the long term and pay long-term bills (Subramanyam & Wild, 2013). Long-term credit analysis also includes cash flow projections and evaluation of long-term profitability.

Credit analysis is consists of two measurement: (1) liquidity ratio to measure the capability of the firm in completing short-term obligations, and (2) capital structure and solvency to measure the ability of the firm to meet long term liabilities (Subramanyam & Wild, 2013).

2. Profitability analysis

Profitability analysis is an analysis that aims to evaluate the company's operating performance (Subramanyam & Wild, 2013).The method used to perform this analysis is to examine the ratios that link the income statement such as purchases, cost of good sold, and sales(Subramanyam & Wild, 2013).. This ratio is also often referred to as the profit margin. The results of this ratio are also usually consistent with common-size income statement analysis.

Profitability analysis is consists of three kinds of ratio, (1) return on investment to measure the ability of the firm to create financial rewards to the shareholders' equity and debt financing, (2) Operating performance to measure capability of the the firm in generating profit margins from operating activities, and (3) Asset utilization to measure the effectiveness of assets deals with sales.

3. Valuation

Valuation analysis is aimed to measure firm intrinsic value (stock).

In this study we employ credit analysis and profitability analysis of Indonesian and Turkish tourism listed firms' financial statements.

3. Methodology

This research is purposed to find the difference of financial performance in Indonesian and Turkish tourism listed firms. This research is conducted using secondary data. We collected financial statement of tourism listed firms from www.idx.co.id (for Indonesia listed firms) and www.kap.org.tr (for Turkish listed firms). Table below exhibits detail of research samples.

Table 1. Sampling

Sampling process (es):	Indonesia	Türkiye
Number of tourism listed firms	34	11
Less: Unavailable financial report	(16)	(2)
Subtotal	18	9
Total	27	

Financial performance is measured by several financial indicators such as, (1) capability of the firm to achieve firm return on investment (Return on Assets, Return on Equity, and Net Margin), (2) ability of the firm to provide liquidity (Current assets ratio and Quick Ratio), (3) capability of managing capital structure and solvency (debt to equity ratio and short term debt to equity ratio), and capability of the firm in utilizing asset (asset turnover ratio). Table below describes variable measurement in this study.

Our analysis is conducted by those measurements of each financial statement. After collecting data, we classified data based on the country. Then, we conduct descriptive analysis. In order to achieve the purpose of this study, we apply to use Mann-whitney t-test due to the abnormal finding in normality test. Mann Whitney test is applied using SPPS. Mann-whitney test is nonparametric test to find probability both a group and others.

Table 2. Variable Measurement

Ratio (s)	Classification	Formula
Return on Assets (ROA)	Return on investment	$\text{ROA} = \frac{\text{Net Income before tax}}{\text{Total Assets}}$
Return on Equity (ROE)	Return on investment	$\text{ROE} = \frac{\text{Net income}}{\text{Total shareholders' equity}}$
Net Margin	Operating Performance	$\text{Net Margin} = \frac{\text{Net Income}}{\text{Sales}}$
Current Asset Ratio	Liquidity	$\text{Current Asset Ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$
Quick Ratio	Liquidity	$\text{QR} = \frac{\text{Cash} + \text{Cash Equivalent} + \text{Current Receiveable} + \text{Short term investment}}{\text{Current Liabilities}}$
Asset Turnover	Asset Utilization	$\text{Aseet Turnover} = \frac{\text{Sales}}{\text{Total Assets}}$
Short term debt to equity ratio	Capital Structure and Solvency	$\text{Short term debt to equity} = \frac{\text{Short term debt}}{\text{Total shareholders'equity}}$
Debt to Equity Ratio	Capital Structure and Solvency	$\text{DER} = \frac{\text{Total Liabilities}}{\text{Total Equity}}$

Source: Subramanyam and Wild (2013)

4. Result and Discussion

In this section the result of statistic tests will be showed and explained. The table below exhibits descriptive statistic result.

Table 3. Descriptive Statistic (N=27)

Variable (s):	Mean	Minimum	Maximum	Standard Deviation
ROA	-0,0537	-0,515	0,2338	0,1221806
ROE	-0,136	-0,826	0,2567	0,2377595
Net Margin	-2,640	-56,82	4,0317	10,877312
Current Asset Ratio	0,2958	0,0065	0,9081	0,2721801
Quick Ratio	9,3227	0,0558	140,24	26,218000
Asset Turnover	0,1062	-0,086	1,0142	0,2333890
Short term debt to equity ratio	0,1570	0,0013	0,8592	0,1858535
Debt to Equity Ratio	0,8280	0,0015	13,529	2,5032880

Source: Output of descriptive statistic test, copied from SPSS output.

The result informs several equations of data, such as mean, minimum, maximum and standard deviation. Those equations' output state that ROA, ROE, net margin as the measurement of profitability show that they have negative mean and minimum value. However, liquidity measurement such as current asset and quick ratio have positive mean and minimum value and so do capital structure and solvency measurement, such as debt to equity ratio and short term debt to equity ratio. Meanwhile, asset utilization measurement (asset turnover ratio) has positive mean and negative minimum value. Furthermore, we found that quick ratio has the highest score at maximum and standard deviation. The following table describes the result of Mann-Whitney test.

Table 4. Result of Mann-Whitney test (For ROA)

Indipendent-Samples Mann Whitney Test Summary	
Total N	27
Mann-Whitney U	123.000
Wilcoxon W	168.000
Test Statistic	123.000
Standard Errror	19.442
Standardized Test Statistic	2.160
Asymptotic Sig. (2-sided test)	.031
Exact Sig (2-sided test)	.031

Source: SPSS Out Put (Mann-Whitney Test Out Put)

Table 4 shows Mann Whitney test of SPSS output. This output examined difference of ROA of both Indonesian and Turkish tourism industries in COVID-19 pandemic. Result shows that t-statistic value is 2.160 and ρ value is 0.031. Because ρ value is 0.031 is less than 0.05, this value means that there is difference on ROA of both Indonesian and Turkish tourism industries in COVID-19 pandemic ROA performance both Indonesian and Turkish tourism industries has difference during COVID-19.

Table 5. Result of Mann-Whitney test (For ROE)

Indipendent-Samples Mann Whitney Test Summary	
Total N	27
Mann-Whitney U	121.000
Wilcoxon W	166.000
Test Statistic	121.000
Standard Errror	19.442
Standardized Test Statistic	2.057
Asymptotic Sig. (2-sided test)	.040
Exact Sig (2-sided test)	.041

Source: SPSS Out Put (Mann-Whitney Test Out Put)

Table 5 exhibits Mann Whitney test of SPSS output. This output examined difference of ROE of both Indonesian and

Turkish tourism industries in COVID-19 pandemic. Result shows that t-statistic value is 2.057 and ρ value is 0.040. Because ρ value is 0.040 is less than 0.05, this value means that there is difference on ROE of both Indonesian and Turkish tourism industries in COVID-19 pandemic ROE performance both Indonesian and Turkish tourism industries has difference during COVID-19 outbreak.

Table 6. Result of Mann-Whitney test (For Net Margin)

Indipendent-Samples Mann Whitney Test Summary	
Total N	27
Mann-Whitney U	116.000
Wilcoxon W	161.000
Test Statistic	116.000
Standard Errror	19.442
Standardized Test Statistic	1.800
Asymptotic Sig. (2-sided test)	.072
Exact Sig (2-sided test)	.076

Source: SPSS Out Put (Mann-Whitney Test Out Put)

Table 6 informs Mann Whitney test of SPSS output. This output examined difference of net margin of both Indonesian and Turkish tourism industries in COVID-19 pandemic. Result shows that t-statistic value is 1.800 and ρ value is 0.072. Because ρ value is 0.072 is less than 0.10, this value means that there is difference on net margin of both Indonesian and Turkish tourism industries in COVID-19 pandemic net margin performance both Indonesian and Turkish tourism industries has difference during COVID-19 outbreak.

Table 7. Result of Mann-Whitney test (For Current Asset Ratio)

Indipendent-Samples Mann Whitney Test Summary	
Total N	27
Mann-Whitney U	106.000
Wilcoxon W	151.000
Test Statistic	106.000
Standard Errror	19.442
Standardized Test Statistic	1.286
Asymptotic Sig. (2-sided test)	.198
Exact Sig (2-sided test)	.212

Source: SPSS Out Put (Mann-Whitney Test Out Put)

Table 7 shows Mann Whitney test of SPSS output. This output examined difference of current asset ratio of both Indonesian and Turkish tourism industries in COVID-19 pandemic. Result shows that t-statistic value is 1.286 and ρ value is 0.198. Because ρ value is 0.198 is more than 0.05, this value means that there is no difference on current asset ratio of both Indonesian and Turkish tourism industries in COVID-19 pandemic current asset ratio performance both Indonesian and Turkish tourism industries has no difference during COVID-19 outbreak.

Table 8. Result of Mann-Whitney test (For Quick Ratio)

Indipendent-Samples Mann Whitney Test Summary	
Total N	27
Mann-Whitney U	126.000
Wilcoxon W	147.000
Test Statistic	102.000
Standard Errror	19.442
Standardized Test Statistic	1.080
Asymptotic Sig. (2-sided test)	.280
Exact Sig (2-sided test)	.298

Source: SPSS Out Put (Mann-Whitney Test Out Put)

Table 8 exhibits Mann Whitney test of SPSS output. This output examined difference of quick ratio of both Indonesian and Turkish tourism industries in COVID-19 pandemic. Result shows that t-statistic value is 1.080 and ρ value is 0.280. Because ρ value is 0.280 is more than 0.05, this value means that there is no difference on quick ratio of both Indonesian and Turkish tourism industries in COVID-19 pandemic quick ratio performance both Indonesian and Turkish tourism industries has no difference during COVID-19 outbreak.

Table 9. Result of Mann-Whitney test (For Asset Turnover)

Indipendent-Samples Mann Whitney Test Summary	
Total N	27
Mann-Whitney U	53.000
Wilcoxon W	98.000
Test Statistic	53.000
Standard Errror	19.442
Standardized Test Statistic	-1.440
Asymptotic Sig. (2-sided test)	.150
Exact Sig (2-sided test)	.160

Source: SPSS Out Put (Mann-Whitney Test Out Put)

Table 9 informs Mann Whitney test of SPSS output. This output examined difference of asset turnover of both Indonesian and Turkish tourism industries in COVID-19 pandemic. Result shows that t-statistic value is -1.440 and ρ value is 0.150. Because ρ value is 0.150 is more than 0.05, this value means that there is no difference on asset turnover of both Indonesian and Turkish tourism industries in COVID-19 pandemic asset turover performance both Indonesian and Turkish tourism industries has no difference during COVID-19 outbreak.

Table 10. Result of Mann-Whitney test (For Short term debt to equity ratio)

Indipendent-Samples Mann Whitney Test Summary	
Total N	27
Mann-Whitney U	68.000
Wilcoxon W	113.000
Test Statistic	68.000
Standard Errror	19.442
Standardized Test Statistic	-.669
Asymptotic Sig. (2-sided test)	.504
Exact Sig (2-sided test)	.527

Source: SPSS Out Put (Mann-Whitney Test Out Put)

Table 10 presents Mann Whitney test of SPSS output. This output examined difference of short term debt to equity ratio of both Indonesian and Turkish tourism industries in COVID-19 pandemic. Result shows that t-statistic value is -1.440 and ρ value is 0.150. Because ρ value is 0.150 is more than 0.05, this value means that there is no difference on short term debt to equity ratio of both Indonesian and Turkish tourism industries in COVID-19 pandemic short term debt to equity ratio performance both Indonesian and Turkish tourism industries has no difference during COVID-19 outbreak.

Table 11. Result of Mann-Whitney test (For Debt to equity ratio)

Indipendent-Samples Mann Whitney Test Summary	
Total N	27
Mann-Whitney U	62.000
Wilcoxon W	107.000
Test Statistic	62.000
Standard Errror	19.442
Standardized Test Statistic	-.977
Asymptotic Sig. (2-sided test)	.328
Exact Sig (2-sided test)	.348

Source: SPSS Out Put (Mann-Whitney Test Out Put)

Table 11 exhibits Mann Whitney test of SPSS output. This output examined difference of debt to equity ratio of both Indonesian and Turkish tourism industries in COVID-19 pandemic. Result shows that t-statistic value is -1.440 and ρ value is 0.150. Because ρ value is 0.150 is more than 0.05, this value means that there is no difference on debt to equity ratio of both Indonesian and Turkish tourism industries in COVID-19 pandemic debt to equity ratio performance both Indonesian and Turkish tourism industries has no difference during COVID-19 outbreak.

According to Subramanyam and Wild (2013) financial rasio analysis are consists of three kinds of analysis, such as credit (risk) analysis, profitability analysis and valuation. In this study we examine credit (risk) analysis and profitability analysis of tourism industries in Indonesia and Türkiye. Credit (risk) analysis is important in COVID-19 outbreak, since this measurement explains ability of the firm in facing financial difficulties. For example, they have to pay debt which have made before COVID-19 and another cost that have to be paid even though their business was closed down during pandemic. Moreover, credit (risk) also related to liquidity measurement. Liquidity reflects capability of raising cash in short term. Further, liquidity not only displayed by current assets ratio but also how cash flow works. As we know that in the COVID-19 outbreak, uncertainty risk are increased. Liquidity measurement for tourism industry- that mostly affected by COVID-19 outbreak- is crucial measurement of its performance.

Damayanti and Baskan (2021) had examined impact of working capital on cash management in tourism industries in 2019 and 2020. They argued that working capital of tourism industries impact their cash management. So that, it is important to analyze credit (risk) ratio to understand the strength of tourism industries during shocking COVID-19. Thus, in our mind, credit (risk) analysis is substantial to be examined in this research. Our results show that in credit (risk) analysis, we found that there is gap between the ratio measurement of credit (risk) analysis. There are four ratios that measured credit (risk) analysis. Two of them represent liquidity measurement. Two others are capital structure and solvency measurement.

Our findings show that profitability ratios measurement has significant difference both in Indonesia and in Türkiye in COVID-19 pandemic. Although the capability of to provide liquidity such as current assets ratio and quick ratio; capability of managing capital structure and solvency, e.g. debt to equity ratio and short term debt to equity ratio, and capability of the firm in utilizing asset (asset turnover ratio) have no significant difference both Indonesian and Turkish tourism industry.

Our analysis for this finding is that tourism industries between Indonesia and Türkiye were facing difference situation, wherever restriction policy during COVID-19 outbreak both in Indonesia and Türkiye are different. In Indonesia, even though restrictions were applied local people were visiting some of tourism sites (Purba, Fathiah,

Table 12. Resume of Mann-Whitney test' output

Variable (s)	t-statistic	P value
ROA	2,160	0,031**
ROE	2,507	0,040**
Net Margin	1,800	0,072*
Current Asset Ratio	1,286	0,198
Quick Ratio	1,080	0,280
Asset Turnover	-1,440	0,150
Short term debt to equity ratio	-0,669	0,504
Debt to equity ratio	-0,977	0,328

Source: Mann-Whitney test's outputs SPSS
*** significant at 0,05 level, * significant at 0,10 level.*

& Steven, 2021). For example in Bali island, tourism industries were starting to create smart tourism (Suwendra, Sujana, & Irwansyah, 2020). It was difference what happened in Türkiye, wherever curvier policy was applied with less probability to local people to visit tourism places.

In the profitability measurement, we find that ROA, ROE, and net margin have significant difference both in Indonesia and Türkiye. ROA refers to income from operating activities. So that unrelated operating activities' revenues and expenses are not counted as operating income (Subramanyam & Wild, 2013). Because ROA focuses on income for the firms more than for debt and equity shareholders (Subramanyam & Wild, 2013). We have explained in the previous paragraph that in Indonesia and Türkiye have difference manner of local people during COVID-19 regarding local tourism visitation because of difference restriction policy between countries. So that it impact on the operating activities of tourism firms in each countries. ROE is found significant difference in line to shareholders view of investment in tourism sectors will not have satisfied return during pandemic. Net margin presents measurement how many net income could be achieved generally (Subramanyam & Wild, 2013). In this finding, in line to other profitability measurement such as ROA and ROE, it has significant difference both Indonesian and Turkish tourism industries during COVID-19.

Regarding capability of to provide liquidity, current asset to and quick ratio also reflects that between Indonesian and Turkish tourism industries have no difference. Those might be because of difficulties to raising cash in during restriction policy. Quick ratio reflects ability of the firm to raise cash, cash equivalent, account receivable and short term investment to meet liabilities. It is probable difference finding to current assets ratio because quick ratio is more detail in measuring liquidity of the firm. We can understand that all the items counted in quick ratio seem to hard to raise during lockdown. However, current assets ratio is counted by total current assets that probable raise in other account. Furthermore, Subramanyam and Wild (2013) stated that current asset ratio relevant to reflect margin of safety against uncertainties and random shocks to a company's cash flows. So that, the difference in finding between quick ratio and current asset ratio are found.

Moreover, Asset utilization ratio represent sales activity to asset categories, are substantial determinants of return on investment (Subramanyam & Wild, 2013). Asset turnover is found no significant difference. Asset turnover indicates the intensity of the firm dealing with utilizing asset effectively (Subramanyam & Wild, 2013). It is important to raise sales of the firm. So that we can summarize that the more effective of utilizing asset the more sales can be raise, then profit also can be increased. In the case of COVID-19 outbreak it seems difficult to be achieved.

For capability of managing capital structure and solvency measurement such as short term debt to equity ratio and debt to equity ratio are found no significant difference both Indonesian and Turkish tourism industries. Short term debt to equity ratio and debt to equity ratio are represent capital structure and solvency level of the term. Solvency is related to all activities in the business e.g. operating, investing and financing (Subramanyam & Wild, 2013). We found that those variables are no significant difference both in Indonesia and Türkiye. We argue that no significant differences among these variables is caused by general difficulties among operational, investment and financial activities during COVID-19 outbreak. Moreover, solvency also represent firm's violability and capability of covering long-term obligations in the long run. So that, it is possible both countries' hospitality industries are facing difficulties in meeting their long term obligations. Also, their capital structure probable a little bit difference since shareholder view, investment in tourism industries during pandemic does not have promising return, so that in our view firms tend to consider to the debt-based structure.

5. Conclusion

Restriction policy in the world is applied during COVID-19 outbreak. The consequence of restriction policy not only impact on the social activities but also economic activities of tourism industries around the world. Indonesian and Turkish tourism industries were impacted by restriction policy. In this research we purpose to compare financial ability of tourism in both countries. Using financial ratio analysis, we employ credit (risk) analysis and profitability analysis.

The findings of the study are that only profitability ratio, such as ROA, ROE, and net margin have significant difference both Indonesia and Turkish tourism industries during COVID-19 outbreak. The capability of managing liquidity, utilizing asset, and managing capital structure and solvency both of Indonesian and Turkish tourism industries have challenges during COVID-19 outbreak. Liquidity of Indonesian and Turkish tourism industries declined because of restriction policy that affect their operating revenue. Furthermore, this difficulties will also effect indirectly to capability of managing capital structure and solvency performance.

The limitation of this research is we have not yet applied the most effective measurement of financial ratio analysis to explain the effect of COVID-19 outbreak for tourism industry. Also, we have not yet used valuation analysis for measuring financial performance during COVID-19 outbreak.

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INFO PAGE

Financial analysis of Indonesian and Turkish tourism listed firms in COVID-19 outbreak

Abstract

COVID-19 outbreak is global disease that impact most of industries in the world. Tourism is one of industry shocked by COVID-19. Curview policy and social distance caused most of tourism sector such as tourism, hotel, and restaurant were closed. The purpose of this study is to analyze financial statement of tourism industries in Indonesia and Turkey using financial ratio analysis. We employ financial analysis of credit (risk) analysis and profitability analysis during lockdown.

We employ 27 financial statements of tourism firms in both countries in 2020. Based on the result, we found that profitability ratio that have significant differences in both countries such as ROA, ROE, and net margin. Although other measurement such as, current asset ratio, quick ratio, asset turn over, debt to equity ratio, and short term debt to equity ratio have no significant. The result informs that tourism of listed firms in Indonesia and Turkey have siginicantly difference in profitability ratio. However, capability of managing liquidity, utilizing asset and managing capital structure and solvency has no significant difference. The result implies that tourism industries both in Indonesia and Turkey have similar issues in liquidity, utilizing asset, and solvency, because they have to face diminishing income during COVID-19. Hence, it will affect on the liquidity.

Keywords: *Credit (risk) analysis, Profitability analysis, Restriction Policy*

Authors

Full Name	Author contribution roles	Contribution rate
Tri Damayanti:	*Indonesian Listed Firms Data Collection, Discussion, SPSS Application, Paper Preparation*	*60%*
Suphi Aslanoğlu:	*Literature Review, Turkish Listed data collection, Discussion, Conclusion*	*40%*

Author statement: *Author(s) declare(s) that All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.* ***Declaration of Conflicting Interests:*** *The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article*

This paper does not required ethics committee report

Justification: The methodology of this study does not require an ethics committee report.

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Pilgrimage tourism in Uttarakhand Himalaya: Pilgrims' inflows and trends

Vishwambhar Prasad Sati

Keywords:
Inflows,
Trends,
Pilgrimage tourism,
Highland pilgrimage,
Valley pilgrimage,
Uttarakhand Himalaya.

ABSTRACT

This article aims to describe pilgrimage tourism in the Uttarakhand Himalaya: pilgrims' inflows and trends. Pilgrimages – highlands and valleys are the main centers of spiritual tourism in the Uttarakhand Himalaya. Data on pilgrims' inflow in the major pilgrimage centers from 2000 to 2018 were gathered from the Uttarakhand Tourism Development Board, Dehradun. The pilgrims from Indian subcontinents and abroad have been visiting the pilgrimage centers for time immemorial. Inflows of pilgrims in the pilgrimage centers vary from the river valley pilgrimages to the highland pilgrimages. Haridwar, a valley pilgrimage, receives the highest inflow of pilgrims, which is more than 50% of the total pilgrims' inflows. Meanwhile, Yamunotri, a highland pilgrimage has the lowest inflow of pilgrims from within and outside countries. The main reason for the change in the number of pilgrims in these highland and valley pilgrimages was the availability of infrastructural facilities in the form of transportation and accommodation. In terms of the trends of pilgrims' inflows during the period, it is not uniform. The state of Uttarakhand is highly vulnerable to climate-induced calamities, which are highly catastrophic, and leads to land degradation and roadblocks. The pilgrimage season in the Himalaya falls during the monsoon season when happy rainfall occurs. High rainfall variability has led to changing the number of pilgrims. This study reveals that pilgrimage tourism has immense potential for the economic development of the Uttarakhand Himalaya if suitable tourism infrastructural facilities are provided.

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1. Introduction

Tourism, a smokeless industry, is one of the most prominent economic activities, practiced worldwide. Many countries in the world have tourism as a major economic activity obtaining the largest share of gross domestic product (GDP). Tourism is practiced in various ways such as natural tourism, cultural tourism, historical tourism, and adventure tourism. Cultural tourism is also known as pilgrimage tourism. It offers high opportunities for generating income, employment, and foreign currency. It earns over 3.5 trillion worldwide and it has high social and ecological implications (Bar & Cohen-Hattab, 2003). In India, tourism and hospitality had risen by 5.1% in 2017 (Jafari & Scott, 2014; Reader, 2013).

Pilgrimage tourism has obtained an important place in varying categories of tourism in India (Page & Hall, 2014). It is an important segment of tourism (Ivakhiv, 2003), performed for peace and brotherhood. A journey to a temple and shrine, pilgrimage tourism denotes faith and beliefs (Gladstone, 2013). Pilgrimage tourism has spiritual importance also associated with religious tourism (Dhar, 2015). The concept of the pilgrimage tourism in academic studies seems new, however, it is one of the old forms of tourism practiced since time immemorial (Timothy & Olsen, 2006). Timothy and Olsen (2006) stated that pilgrimage tourism, the oldest form of tourism, has been practiced for centuries. Pilgrimage tourism can be defined as a visit of pilgrims to cultural places for spiritual attainment (Hernandez, 1996) and salvation (Kim & Kim, 2018; Liutikas, 2015). Pilgrims of all religions visit pilgrimages all over the world (Stoddard & Morinis, 1997) and exchange ideas on culture and spirituality with each other (Chidester & Linenthal, 1995). Pilgrimages are important cultural spaces where the pilgrims perform penance for peace of mind. Thus, pilgrimage tourism is also called spiritual and cultural tourism (Digance, 2003). Pilgrimage tourism integrates religions, cultures, and faith, and injects deep feelings among the pilgrims (Sharma & Gupta, 2006). Many scholars have studied the various aspects of pilgrimage tourism and generated knowledge (Hyde & Harman, 2011) and as a result, pilgrimage tourism has large literature to understand the sacred sites worldwide (Collins-Kreiner, 2016).

Besides the cultural and spiritual importance of pilgrimage tourism, it has a greater role in income generation and employment augmentation (Gokhale, 1986; Josan, 2009). It has also a significant role in enhancing the growth of industries, as demand and supply have increased multifold in the major pilgrimage centers (Elsner, 1992; Karar, 2010). Pilgrimage tourism thus has a high socio-economic significance (Reader, 2007). Most of the pilgrimages are

Research paper

Vishwambhar Prasad Sati: *Senior Prof. Dr., Mizoram University, Department of Geography and Resource Management, India, Email address: sati.vp@gmail.com, Orcid id: 0000-0001-6423-3119*

situated in spectacular geographical landscapes, therefore, the geographical importance of pilgrimages is significant. Pilgrimage tourism has converted into mass tourism in the recent past and the excessive use of natural resources through mass tourism has led to environmental degradation (Collins-Kreiner, 2016; Nolan & Nolan, 1989).

India has been practicing different types of tourism – natural, cultural, historical, and adventure for centuries. It provides suitable destinations for tourists' interests. The geographical components of tourism such as mountains, river valleys, waterfalls, forest landscapes, coastal areas, and varied climates are abundant. Further, the cultural components – fairs, festivals, customs, and rituals provide suitable bases for cultural tourism. India has diversity in religion, culture, and traditions. One of the major components of cultural tourism, pilgrimage tourism dominates in the tourism practices in India. Owing to high cultural diversity, every religion has its pilgrimage centers, spanning all over India. The people of India are religious and cultural therefore the importance of pilgrimage tourism in India is high (MacCannell, 2013). Among the Hindus' pilgrimages, there are four famous pilgrimages, which are situated on the four corners of India. Badrinath in Uttarakhand, Dwarika in Gujarat, Rameshwaram in Tamil Nadu, and Puri in Orissa are world-famous. Besides the Hindu pilgrimages, Jains, Buddhists, Sikhs, Christians, and Muslim pilgrimages are also located almost all over India. India is the main center for pilgrimage tourism, as about 170 million visit the pilgrimages, of which, 70-90% are domestic pilgrims (UNWTO, 2020; Shinde, 2012).

The largest tourist inflow in India was observed as pilgrimage tourism. Pilgrimage to the major shrines, located within India, is the way of life of Indians. Owing to the involvement of the pilgrims, local people, and service providers – providing transportation, accommodation, and food and beverages, pilgrimage tourism has large economic, social, cultural, and environmental implications. Tourism is one of the economic activities in India therefore tourism has favorable economic impact. The socio-cultural impact of tourism in India is significant both in terms of favorable and adverse. Most of the highland and coastal shrines are located in fragile landscapes, therefore, the environmental impact of the pilgrimage tourism in terms of land degradation, is enormous.

The Uttarakhand Himalaya is believed to be the abode of Lord Shiva, Goddess Shakti, and folk deities. Many pilgrimage centers are situated in the high mountains and the river valleys. Pilgrims and tourists from within and of outside visit these pilgrimages, mainly during the six months of summer (Sati, 2015). These pilgrimages are the centers of spirituality, where people of all religions and cultures visit and worship deities. Pilgrimage to the Himalaya is a very old practice, performed since time immemorial. The pilgrims have a strong bonding with these pilgrimages. They worship Lord Shiva, Lord Vishnu, and Goddess Shakti for the attainment of Moksha (salvation). It is believed that by visiting these centers for spiritual tourism, the pilgrims get rid of the birth and death cycle. Many highland pilgrimages are remotely located where the pilgrims have to trek over 15 km. Accommodation facilities are lagging. Therefore, the pilgrims' inflow is less in the highland pilgrimages than to the valley shrines. Similarly, the inflow of foreign pilgrims in the pilgrimage centers is less than the number of domestic pilgrims. The scope of this study is limited to the six pilgrimage centers – four highlands and two river valleys, situated in the Garhwal Himalaya. There are several institutes located in India, researching tourism studies. Further, academicians and scholars have conducted significant studies on tourism in India. However, a few studies on tourism were carried out in the Uttarakhand Himalaya, mainly on pilgrimage tourism and trends and inflows of pilgrims. This study is important because it examines pilgrimage tourism and its trends and inflows in the Uttarakhand Himalaya. It also analyzes domestic and foreign pilgrims' inflows and trends in the four highlands and two river valley pilgrimages from 2000 to 2018 (19 years) first time. The study will provide literature to the academician and scholars for further research.

2. Study Area

The Uttarakhand Himalaya is one of the states of India, formed on 9th November 2000. It was known as Kedarkhand, Manaskhand, and Uttaranchal in the past. The state has 53,483 km2 areas and it stretches between 28°53′24″– 31°27′50″N and 77°34′27″–81°02′22″E (Figure 1). It has two distinct geographical and administrative divisions as Garhwal and Kumaon regions. In terms of culture, it has three broad cultural realms – Kumaon, Garhwal, and Jaunsar. The Uttarakhand Himalaya comprises mainly two topographies – mountainous mainland, which has about 93% geographical area, and plain regions. Two districts of Udham Singh Nagar (USN) and Haridwar are fully plain areas and Dehradun and Nainital are partially mountainous. The other nine districts – Pithoragarh, Champawat, Chamoli, Uttarkashi, Tehri, Rudraprayag, Pauri, Almora, and Bageshwar are mountainous. There are many pilgrimages located in the Uttarakhand Himalaya. The pilgrimages, which are located in the high Himalaya, are called the highland pilgrimages whereas the others are called the valley pilgrimages. The Garhwal region is known for four highland and two river valley pilgrimages. In the meantime, the Kumaon region has two highland pilgrimages – Purnagiri and Dunagiri, and two river valleys pilgrimages – Bageshwar and Jageshwar. The highland pilgrimages of the Garhwal region – Badrinath, Kedarnath, Gangotri, and Yamunotri are situated above 3,000 m altitude in Bugyals. These Bugyals are situated near the Greater Himalaya, which remains closed during the winter

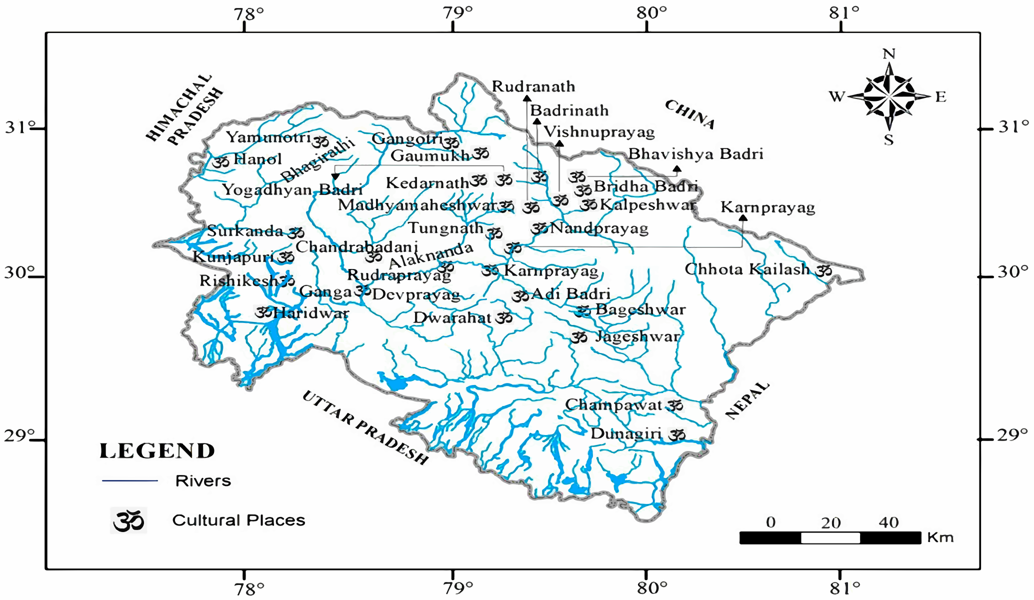

Figure 1: Major pilgrimage centers in Uttarakhand Himalaya; Sati (2020) modified.

Source: By author

season. The river valley pilgrimages of the Garhwal Himalaya – Rishikesh and Haridwar remain open throughout the year.

3. Methodology

This study has mainly a qualitative approach whereas the quantitative method was also used to analyze data pertinent to pilgrims' inflows and trends. Data were collected through Geographical Positioning System (GPS), field observation, and the Uttarakhand Tourism Development Board (UTDB). Data on the inflow of pilgrims in the high Himalayan regions and valleys pilgrimages were gathered from UTDB from 2000 to 2018. Data were available till 2018. Further due to the Covid 19 pandemic, the data were scanty for the rest of the years mainly up to the end of 2021. Data were categorized into domestic and foreign pilgrims and their inflow in each pilgrimage – valleys, and highlands. They were analyzed and presented through linear graphs to show trends. Statistical tools such as mean, maximum, and minimum values, and std. deviation of pilgrims, who visited each pilgrimage, was used to analyze inflow.

A total of six pilgrimages were studied – four highland and two valley pilgrimages. Their location, altitude, and coordinates – latitudes and longitudes are given in Table 1. Haridwar (288 m) and Rishikesh (339 m) are the valley pilgrimages (Figure 2), whereas, Gangotri (3063 m), Badrinath (3108 m), Yamunotri (3229 m), and Kedarnath (3551 m) are the highland pilgrimages (Figure 3). Two valley pilgrimages - Haridwar and Rishikesh are situated on the bank of the Ganga River in the Hardwar district. They are world-famous. All pilgrimages are situated on the bank of the Bhagirathi, Yamuna, Mandakini, and Alaknanda rivers. These pilgrimages are the abode of Lord Shiva, Goddess, Shakti, and Lord Vishnu. On the bank of the Alaknanda River, the famous pilgrimage is Badrinath, which is the seat of Lord Vishnu. The two mountain peaks – Nar and Narayan surround the pilgrimage. Yamunotri pilgrimage is known as the home of Goddess Yamuna, situated in the Uttarkashi district. On the bank of the Mandakini River above 3,000 m altitude, the world-famous Kedarnath temple is situated. Gangotri is a highland pilgrimage, the seat of Mother Ganga, situated on the right bank of the River Bhagirathi.

Table 1: Geographical Information of Major Pilgrimages

Place Name	Location (District)	A river that flows in the pilgrimage	Altitude (m)	Coordinates		Infrastructural facilities	
				Latitude	Longitude	Transportation	Accommodation
Haridwar	Haridwar	Ganga	288	29°57'26"	78°10'22"	Road, rail, and air	Star hotels, models, *dhabas*
Rishikesh	Dehradun	Ganga	339	30°5'15"	78°17'33"	Road, rail, and air	Star hotels, models, *dhabas*
Gangotri	Uttarkashi	Bhagirathi	3063	30°59'39"	78°56'28"	Road	Few Dhabas
Badrinath	Chamoli	Alaknanda (Vishnu Ganga)	3108	30°44'41"	79°29'27"	Road	Hotels and *dhabas*
Yamunotri	Uttarkashi	Yamuna	3229	30°59'56"	78°27'45"	16 km trekking	Few *dhabas*
Kedarnath	Rudraprayag	Mandakini	3551	30°44'06"	79°04'00"	16 km trekking and chopper	Few dhabas

Source: By author

Figure 2: River valley pilgrimages, situated along the Ganga River (a) Pilgrims taking part in Ganga Aarti at Triveni, Rishikesh (b) Pilgrims participating in aarti at Har-Ki- Pauri, Haridwar

Figure 3: (a) Pilgrims are in queue for worshiping Lord Vishnu at Badrinath, (b) pilgrims are standing in front of the Kedarnath temple (this picture is taken before 2013), and the Gangotri temple remains snow-clad during four months of winter, and (d) the pilgrims trekking 16 km to Yamunotri temple

4. Results

Pilgrims' Inflows and Trends

In this section, the flows and trends of pilgrims are described. At individual pilgrimage centers, the flow of domestic and foreign pilgrims was also illustrated. The data reveal that the flow of domestic pilgrims is high in the highland and valley pilgrimages whereas it is very less in terms of foreign pilgrims. For analyzing the flow of pilgrims in the pilgrimage centers, statistical tools – minimum, maximum, sum, mean value, and standard deviation, and a linear regression method were used.

The Inflows and Trends of Domestic Pilgrims in the High Himalayan and the Ganga valley pilgrimages

Domestic pilgrims' inflow was analyzed (Figure 4). It shows that the trend of the flow of domestic pilgrims has been increasing. In 2000, about seven million domestic pilgrims visited these pilgrimages –highlands and river valleys. It has increased to more than 25 million in 2018. In the meantime, the trend shows variability in pilgrims' inflow. Several times, domestic pilgrims' inflow decreased from the previous year. For instance, in 2009, the domestic pilgrims' inflow was 22 million, which decreased to less than 19 million in 2011 and further decreased to 15 million in 2013. The reason was noticed as the occurrences of atmospheric hazards, particularly in June 2013.

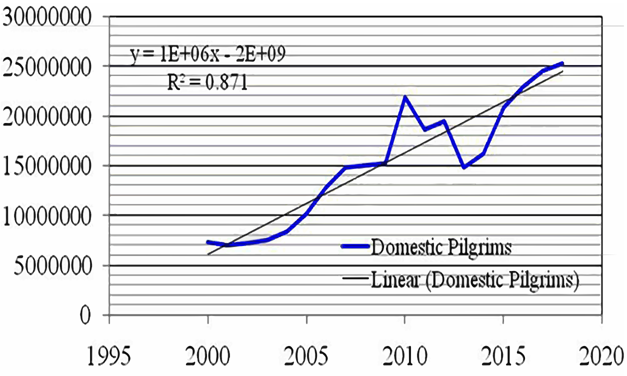

Figure 4: The flow of domestic pilgrims in the high Himalayan and Ganga valley pilgrimages

Source: By author

The inflow of foreign pilgrims was analyzed (Figure 5) It was noticed that the foreign pilgrims' inflow was comparatively very less, however, the trend has been increasing. In 2000, the inflow was about 15,000 pilgrims, which increased to 35,000 pilgrims in 2018. In between, the highest inflow was observed in 2010, which was 37,000 pilgrims. There has been a decrease in foreign pilgrims' inflow in several years such as 2002, 2006, 2011, and 2014.

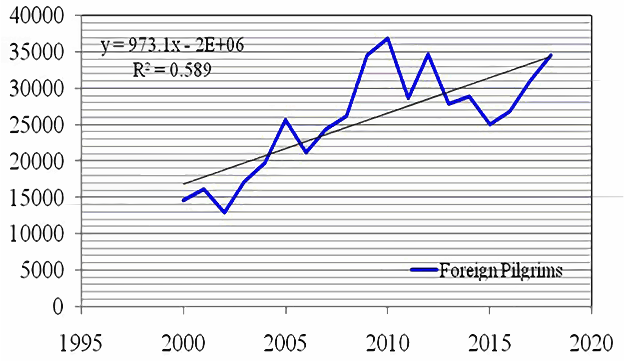

Figure 5: Foreign pilgrims' inflow in the pilgrimage centers both the highlands and the river valleys

Source: By author

The Inflows and Trends of Domestic Pilgrims in the high Himalayan Pilgrimages

The flows and trends of domestic pilgrims in the high Himalayan pilgrimages have been analyzed (Figure 6). It shows that in the Badrinath pilgrimage, domestic pilgrims visited the highest number. The second place was obtained by Kedarnath. In Yamunotri and Gangotri, the lowest number of pilgrims visited. The trends of domestic pilgrims visiting the highland pilgrimages are not uniform. In 2014, the highland pilgrimages were visited by the lowest number of tourists. During the period, lots of fluctuations in pilgrims' inflow were observed.

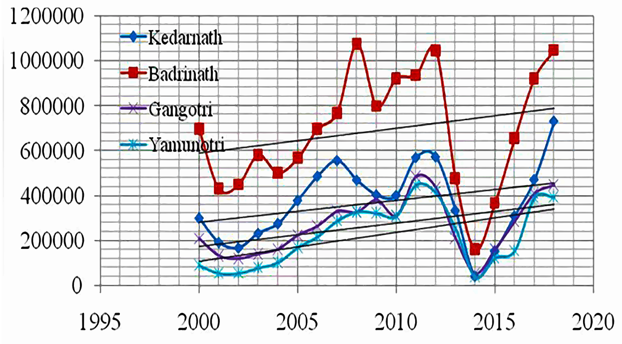

Figure 6: The inflows and trends of domestic pilgrims in the high Himalayan pilgrimages

Source: By author

Statistics tools were employed to illustrate domestic pilgrim's inflow in the highland pilgrimages, for which a total of 19 years of pilgrims' inflow data from 2000 to 2018 were examined. The data show that in Badrinath, the flow of pilgrims was the highest with 688,669 mean values, followed by Kedarnath with a mean value of 370,423 (Table 2). The mean value of the number of pilgrims who visited Gangotri was 125,845, and in Yamunotri, the number of pilgrims visited was the lowest with 137,599 mean values.

Table 2: Inflow of domestic pilgrims in the high Himalayan pilgrimages (n=19 years)

Highland Pilgrimages	Minimum	Maximum	Sum	Mean	Std. Deviation
Kedarnath	40,718	730,387	7,038.046	370,423	174,270
Badrinath	159,405	1,075,372	13,084,720	688,669	259,242
Gangotri	51,555	484,826	5,070,810	266,884	125,845
Yamunotri	38,208	448,751	4,225,356	222,387	137,599

Source: UTDB (2018)

Inflows and Trends of Domestic Pilgrims in the Ganga Valley Pilgrimage centers

Haridwar and Rishikesh are the two cities, situated on the bank of the Ganga within a 24 km distance. These are renowned pilgrimages. Haridwar was visited by the exodus of domestic pilgrims between 2000 and 2018 and the trend has been increasing (Figure 7). The data shows that from 2011-2014, the pilgrims' inflow decreased in Haridwar. This is the time when a meteorological disaster affected Uttarakhand which had a direct impact on pilgrims' inflow. The inflow was the highest in 2010 (19 million) and 2018 (21.5 million). In comparison to Haridwar, pilgrims who visited Rishikesh were quite fewer and the trend was the same during the study period.

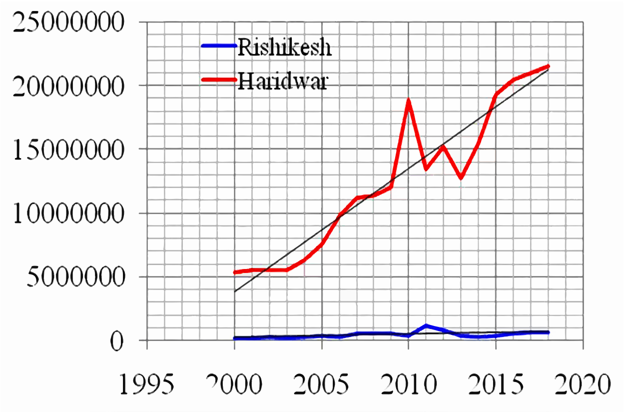

Figure 7: Domestic pilgrims' inflow and trends in the valley pilgrimage centers

Source: By author

Data were analyzed to find out the inflows of domestic tourists in the Ganga valley pilgrimages and the statistical tools – minimum, maximum, and mean values were applied. The data showed that the mean value of inflows of domestic pilgrims in Rishikesh was 480,038 pilgrims during 2000-2018. Meanwhile, it was 12.53 million mean values in Haridwar (Table 3). Similarly, the minimum and maximum values change in both pilgrimages.

Table 3: Inflows of domestic pilgrims in the Ganga valley pilgrimages (n=19 years)

Valley Pilgrimages	Minimum	Maximum	Sum	Mean	Std. Deviation
Rishikesh	220,097	1,181,535	9,120,726	480,038	240,164
Haridwar	5,316,980	21,555,000	238187071	12,536,161	5,742,652

Source: UTDB (2018)

Inflows and Trends of Foreign Pilgrims in the High Himalayan Pilgrimages

In the Kedarnath pilgrimage, the inflow of foreign pilgrims was the highest (Figure 8) whereas its trend was irregular during the period. In the other three pilgrimages, the trend was almost the same at all times. Kedarnath pilgrimage had the highest inflows in 2005, which were 4,800 pilgrims. In 2001 and 2004, the inflow was 2,100 and 2,400, respectively. From 2006 onwards, the foreign pilgrims' inflow decreased to a minimum in 2013 and 2014 because of a devastating natural calamity, which caused to death of more than 10,000 pilgrims. The trend shows pilgrims' inflow is increasing since 2017.

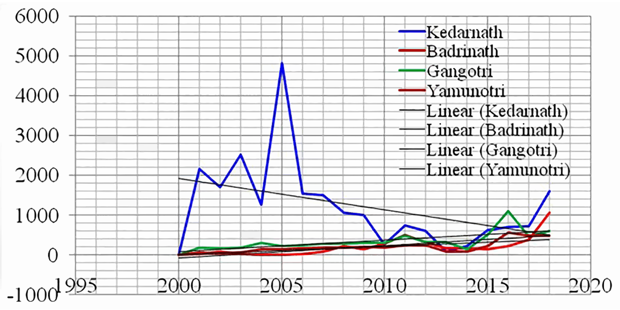

Figure 8: Inflows and trends of foreign pilgrims in the high Himalayan pilgrimage centers

Source: By author

Descriptive statistics of inflows of foreign pilgrims in the high Himalayan pilgrimage centers were employed (Table 4). In Kedarnath, the mean value of inflows of pilgrims was the highest (1,215 pilgrims), which was seconded by Gangotri (338 pilgrims), Badrinath (200 pilgrims), and Yamunotri (197 pilgrims). Similarly, the maximum value changes from 4,811 the highest in Kedarnath to 566 the lowest in Yamunotri. The inflow of foreign pilgrims in the high Himalayan pilgrimage centers was comparatively less than the inflow of domestic pilgrims.

Table 4: Inflows of foreign pilgrims' in the high Himalayan pilgrimage centers (n=19 years)

Pilgrimages	Maximum	Sum	Mean	Std. Deviation
Kedarnath	4811	23094	1215	1112
Badrinath	1064	3805	200	251
Gangotri	1109	6429	338	234
Yamunotri	566	3752	197	155

Source: UTDB (2018)

Inflows and Trends of Foreign Pilgrims in the Ganga Valley Pilgrimage Centers

Haridwar is the major center for pilgrimage tourism where foreign pilgrims' inflow was high (Figure 9). However, the foreign pilgrims' inflow showed a mixed trend. From 2000 to 2010, the foreign pilgrims' inflow in Haridwar increased significantly whereas, after 2010, a large decrease was noticed in the inflow of foreign pilgrims. The inflow was the minimum in 2015. The overall trend has been noticed to increase. Rishikesh received very less foreign pilgrims inflow and the trend has been noticed to decrease.

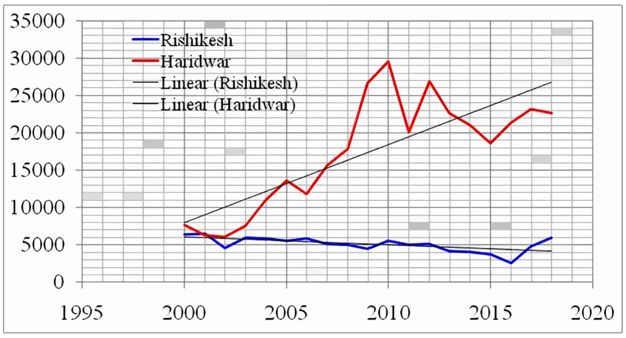

Figure 9: Foreign pilgrims' inflow and trends in Rishikesh and Haridwar pilgrimages

Source: By author

An analysis of the inflow of foreign pilgrims in Rishikesh and Hardwar pilgrimage centers was carried out using descriptive statistics. The data depicts that the mean value of the inflow of foreign pilgrims in Rishikesh was 5,092, whereas, it was 17,359 in Haridwar, three times higher than in Rishikesh (Table 5). A total of 329,834 pilgrims visited Haridwar during 2000-2018 (19 years) whereas in Rishikesh the total number of pilgrims visited was only 96,752.

Table 5: Inflows of foreign pilgrims in the Ganga valley pilgrimage centers (n=19 years)

Pilgrimages	Minimum	Maximum	Sum	Mean	Std. Deviation
Rishikesh	2,574	6,536	96,752	5,092	1,004
Haridwar	6,029	29,555	329,834	17,359	7,391

Source: UTDB (2018)

5. Discussion

In this article, a detail of pilgrims' inflows and trends in all the pilgrimages – highland and river valleys were described. Further, the inflows and trends of domestic and foreign pilgrims in both pilgrimages were illustrated. First, the author described domestic and foreign pilgrims' inflow and trends in all pilgrimage centers. It was followed by a description of inflows and trends of domestic and foreign pilgrims in the high Himalayan and the Ganga River valley pilgrimages separately. It was noticed that the inflows of domestic pilgrims in the high Himalayan and the Ganga River valleys pilgrimage centers were quite higher than the inflows of foreign pilgrims in the same places. The inflows of both domestic and foreign pilgrims varied from one season to another, depending on the natural conditions in the pilgrimage centers. Physical remoteness of some of the highland pilgrimage centers, where the pilgrims trek for kilometers, is one of the major causes of low pilgrims inflows. The other causes, which are affecting pilgrims' inflows in the pilgrimage centers, are transportation, accommodation, and institutional facilities. Haridwar and Rishikesh pilgrimage centers have adequate infrastructural facilities in the forms of transportation – airways, railways, and roadways – and accommodation facilities, therefore, pilgrims' inflow in the two pilgrimage centers was quite high, which was more than 50% of the total pilgrims visit in the entire Uttarakhand. Badrinath and Gangotri pilgrimages are well connected by road, therefore, pilgrims' inflow was substantial. To visit the Kedarnath pilgrimage, about 16 km of trekking is required. Although, helicopter services are available yet, only economically sound pilgrims avail of air services. Meanwhile, an exodus number of pilgrims belong to low-income groups and thus, they trek to the Kedarnath pilgrimage. Many of them avoid trekking 16 km because of their poor health condition. Therefore, the pilgrims' inflow in the Kedarnath temple was comparatively less. On the other hand, in the Kedarnath pilgrimage, the inflow of foreign pilgrims was higher. The foreign pilgrims are economically sound therefore they prefer to use helicopter services. They also visit Kedarnath to enjoy the natural beauty. The Yamunotri pilgrimage is also remotely located, where about 16 km of trekking is required therefore, the inflow of pilgrims both domestic and foreign pilgrims was less. In the highland pilgrimages, accommodation facilities are not adequate. This is also a reason for fewer pilgrims' inflow. The other important factor restricting the inflow of pilgrims in the high Himalayan pilgrimage centers is accommodation facilities. Yamunotri and Gangotri have very few accommodation facilities (Sati, 2018). A large group of pilgrims visit these pilgrimages and returned on the same day owing to a lack of accommodation facilities.

The trends of pilgrims' inflow in the pilgrimage centers were not uninformed and varied from year to year. The major drivers of changing trends of pilgrims' inflow in the pilgrimage centers were changing climatic conditions and frequent occurrences of natural disasters. This part of the Himalaya is prone to natural hazards such as terrestrial and atmospheric. Due to climate change, geo-hydrological hazards are quite active. This leads to a decrease in the number of pilgrims mainly in the high Himalayan pilgrimage centers. This study depicts that the trends of the inflow of pilgrims in the high Himalayan pilgrimage centers are more variable than in the valley pilgrimages. The reason was noticed that the river valley pilgrimages are less vulnerable to climate-induced disaster in comparison to the highland pilgrimage centers. Monsoon season is more devastating in the Uttarakhand Himalaya, which leads to occurrences of landslides-triggered roadblocks and therefore, it affects pilgrims' inflow. Data show that the pilgrims' inflows and trends – foreign and domestic – in the highland pilgrimages have declined sharply after 2010. From 2013 to 2015, pilgrims' inflow in all the places was very less. The 2013 catastrophe, which is called the 'Himalayan Tsunami', has caused huge landscape degradation. The intensity of the disaster was so huge, which has caused the killing of more than 10,000 people (Sati, 2013). Therefore, pilgrims' inflow decreased largely. After 2015, the trends of pilgrims' inflow increased. The trend of pilgrims number from within and outside India in the Ganga valley and high Himalayan pilgrimage centers was noticed increasing. In the high Himalayan pilgrimage centers, the trend of domestic pilgrims' inflow was increasing with high variability. In the Haridwar pilgrimage center, the domestic pilgrims' inflow trend was significantly increasing whereas, in Rishikesh, it was almost stagnant. The Kedarnath pilgrimage center received declining trends of foreign pilgrims' inflows whereas other highland pilgrimage centers had a slow increase in the number of foreign pilgrims. In Haridwar, the trend in the number of foreign pilgrims was increasing whereas it was decreasing in Rishikesh.

The unique and wide range of natural and cultural attractions in India provides the potential for tourism development (Mair & Whitford, 2013). However, it lacks in sustainable tourism development particularly, in sustainable development of pilgrimage tourism. A plan for the sustainable development of tourism requires managing environmental issues (Smith, 2015). Further, the cultural and historical places need to be conserved because of their uniqueness. In a nutshell, both environment and culture need to be preserved simultaneously. Ghimire (2013) observed that less attention towards the environmental issues in the major pilgrimage centers has enhanced water and air pollution in India. Pilgrimage tourism in India needs immediate attention to check ecological degradation, sewage and sanitation problems and provide accommodation tariffs, catering, and water supply (Du Cros and McKercher (2014). To attain sustainable tourism development, appropriate policies and strategies need to be framed and implemented (Rao & Suresh, 2013).

6. Conclusions

Pilgrimage to the Himalaya has been practiced since time immemorial. Here, pilgrimages are the most sacred places. Pilgrims from within and outside India visit the pilgrimage centers every year for peace of mind and to attend spirituality. Other forms of tourism are also popular in the Himalayan region. These are natural tourism, adventure tourism, and eco-tourism. In the meantime, pilgrimage tourism is the most popular form of tourism. This study revealed that the inflow of pilgrims is the highest in this part of India. However, the inflow of pilgrims varies from one pilgrimage to another, mainly due to variations in various facilities including institutional facilities. The potential for tourism development is high in the Uttarakhand Himalaya, mainly for the development of pilgrimage tourism. However, it is lagging behind infrastructural facilities. It is suggested that the accommodation facilities in the pilgrimage centers can be increased and sufficiently provided to pilgrims. The pilgrimage centers, which are remotely located and which are not connected by roads, ropeways can be constructed. This will provide transportation facilities to pilgrims and will restore fragile landscapes. The helicopter services can be provided at subsidy rates for the highland pilgrimages. The state government can support homestay facilities by providing local food and beverages, and ICT. In the pilgrimage centers, the folk culture can be performed to educate pilgrims about the culture and customs of the Uttarakhand Himalaya.

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INFO PAGE

Pilgrimage tourism in Uttarakhand Himalaya: Pilgrims' inflows and trends

Abstract

This article aims to describe pilgrimage tourism in the Uttarakhand Himalaya: pilgrims' inflows and trends. Pilgrimages – highlands and valleys are the main centers of spiritual tourism in the Uttarakhand Himalaya. Data on pilgrims' inflow in the major pilgrimage centers from 2000 to 2018 were gathered from the Uttarakhand Tourism Development Board, Dehradun. The pilgrims from Indian subcontinents and abroad have been visiting the pilgrimage centers for time immemorial. Inflows of pilgrims in the pilgrimage centers vary from the river valley pilgrimages to the highland pilgrimages. Haridwar, a valley pilgrimage, receives the highest inflow of pilgrims, which is more than 50% of the total pilgrims' inflows. Meanwhile, Yamunotri, a highland pilgrimage has the lowest inflow of pilgrims from within and outside countries. The main reason for the change in the number of pilgrims in these highland and valley pilgrimages was the availability of infrastructural facilities in the form of transportation and accommodation. In terms of the trends of pilgrims' inflows during the period, it is not uniform. The state of Uttarakhand is highly vulnerable to climate-induced calamities, which are highly catastrophic, and leads to land degradation and roadblocks. The pilgrimage season in the Himalaya falls during the monsoon season when happy rainfall occurs. High rainfall variability has led to changing the number of pilgrims. This study reveals that pilgrimage tourism has immense potential for the economic development of the Uttarakhand Himalaya if suitable tourism infrastructural facilities are provided.

Keywords: *Inflows, Trends, Pilgrimage tourism, Highland pilgrimage, Valley pilgrimage, Uttarakhand Himalaya.*

Authors

Full Name	Author contribution roles	Contribution rate
Vishwambhar Prasad Sati:	*Conceptualism, Methodology, Software, Formal Analysis, Investigation, Data Curation, Writing - Original Draft, Writing - Review & Editing, Visualization*	*100%*

Author statement: *Author(s) declare(s) that All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.* ***Declaration of Conflicting Interests:*** *The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article*

This paper does not required ethics committee report
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Scientific production on tourist security in the period 2002-2021

Félix Díaz-Pompa, Solangel Pérez-Labrada, Nolberto Cruz-Aguilera, Zaydelis Balseira-Sanamé*

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ABSTRACT

Tourism security is linked to the well-being, physical, psychological and economic integrity of visitors, service providers and members of the host communities and plays a very important role when people choose a tourist destination, hence the need to analyze the scientific production associated with the topic. The present study aims to use bibliometric indicators to review the relevant literature related to tourism security in the period 2002-2021. The information and the main trends in this area are represented and mapped using the following software: EndNote, Excel, Bibexcel and VOSviewer. During the period analyzed, a total of 59 original articles were registered in the Sciencidirect and Scielo databases. The analysis indicates that the literature on tourism safety is growing gradually, however, it is considered insufficient; a total of 26 journals are included in the study where the journal Estudios y perspectivas en turismo is the leader in the field of research registering 24% of the total published research. As for the keyword analysis, the main lines of productivity are focused on the relationship between security and tourism, destination image, risk perception, public safety, customer satisfaction and Covid-19. The impact of the Covid-19 pandemic is a trigger for the growth of research related to the field of research under analysis. In conclusion, the limitation of this research is that only two databases were taken into account and that through the search strategy used, some works might not have been identified, in addition to the fact that the study can be expanded with the inclusion of other bibliometric indicators.

1. Introduction

Tourism is a social, economic and cultural phenomenon, directly linked to the movement of people from their place of origin to other places for multiple reasons, the choice of destination is related to factors that provide the traveler with a memorable moment and positive experiences, so people choose, in general, a safe destination. (Jiménez-García & Pérez-Delgado, 2018; Schluter, 2008).

Among the various motivations that lead people to choose a place to spend their vacations, the most important are its attractions, entertainment, price, among other aspects. However, security, especially nowadays, is one of the most important factors that influence people's decision making when choosing a tourist destination. (Sánchez-Mendoza & Barbosa-Jasso, 2017, pp. 111).

With the constant advance of technology and the media, people are more and more informed about what is happening worldwide, emphasizing attacks, crimes, internal situations and natural phenomena that occur in a destination, which directly influences the tourist's perception of the place, creating an image of insecurity in the destination (Morales-Chumacero, 2019). In this sense, tourism safety plays a very important role in the choice of the destination, since tourists are an easy target for risk situations, namely crime and terrorism. (Agarwal, et al., 2021).

Security and tourism go hand in hand, which is why the World Tourism Organization in 2002 studied the necessary security indexes in tourism and created the "Manual on accessible tourism for all. Public-private partnerships and good practices" in order to be able to measure the risks and tourist typologies of the different destinations in the world, with the intention of enhancing them through tourism security recommendations; in which the importance of government involvement is added as the regulatory entity of the rules, laws and ordinances governing the territory under management (Gálvez-Izquieta, et al., 2020, pp. 138).

The elements discussed in this section raise the following

**Corresponding Author*

Research paper

Félix Díaz-Pompa: *Dr. C., ,University of Holguin, Holguin, Cuba, Email: felixdp1978@gmail.com, Orcid Id: 0000-0002-2666-1849*

Solangel Pérez-Labrada: *Profesional, Brisas Guardalavaca Hotel , Holguin, Cuba, Email: solangelperezlabrada@gmail.com, Orcid Id: 0000-0002-2965-7407*

Nolberto Cruz-Aguilera: *Doctoral, University of Holguin, Holguin, Cuba, Email: nolbert1309@gmail.com, Orcid Id: 0000-0003-1881-4953*

Zaydelis Balseira-Sanamé: *Profesional, El Bosque Hotel, Holguin, Cuba, Email: zayde95@nauta.cu, Orcid Id: 0000-0002-0169-8223*

questions: What is tourism safety? When did the concern for this topic begin? What are the factors that influence it and its objectives?

This term can be analyzed from different approaches, in a general way it can be seen from the approach of González-Fonseca, et al., (2017) which refers to the tourist's intention of a safe return and in the best conditions to fulfill their full desire for enjoyment and pleasure travel.

Generally speaking, according to Abellan (2008, pp. 112), tourism security is the protection of the life, health, physical, psychological and economic integrity of visitors, service providers and members of host communities. Security is one of the main guidelines of human valuation in the choice of a destination during leisure time for tourism and recreation and should be interpreted as an objective and subjective state that allows for the perception of travel in a space free of real or potential risks. Tourism security is a variable of citizen security and should be analyzed as part of an integral security system, but with its own indicators or work axes. The development of tourist activity in a destination basically involves considering the relationship between two variables: demand - a tourist or excursionist - and the destination's supply.

On the other hand, the World Tourism Organization (UNWTO) defines it as "the protection of the life, health, physical, psychological and economic integrity of visitors, service providers and members of the host communities", making it a key element for the tourism development of the territories (León, 2013).

The interest in the study of this phenomenon comes from the events of September 11, 2001, the day the world was paralyzed when three manned airplanes with passengers on board exploded against the World Trade Center in New York and the Pentagon in Washington, one of the cruelest terrorist acts in history that meant the loss of numerous human lives, missing persons and material damage. It meant a turning point in the security and image associated with tourism, involving travel cancellations, regrettable losses and global panic (Gálvez-Izquieta et al., 2020; M. Korstanje, 2009).

A year after these events, in 2002, UNWTO implemented The Tourism Security Network with the objective of having a virtual organization to deal with security issues worldwide and, at the same time, identify and accredit divergent responsibilities (Mora-Pisco, et al., 2020).

Since then, tourism security is considered one of the most discussed and analyzed topics worldwide, which has been affected by the growing citizen insecurity, violation of human rights and the actions of groups that try to promote fear and broaden the audience of their claims in order to influence the highest level of governments to support their political or religious objectives. This generates negative consequences for some countries, regions and main tourist poles because a tourist, when affected by insecurity, becomes a negative promoter for the country (González-Fonseca et al., 2017; Korstanje & Clayton, 2012)

Mediavilla-Valenzuela (2015, pp. 25-26) point out that the main objectives of tourism security are the following: to provide a quality service to all tourists, both domestic and foreign, who visit a destination, providing security and assistance; to plan, design and implement a system of tourist assistance, it is essential that all establishments have an assistance plan for tourists; to assist tourists in situations of risk that threaten their security and from which they emerge unharmed and to collaborate and solve tourist complaints with total discretion and speed.

Security is a right of the tourist, and they have total freedom to move where they wish and choose their residence, therefore, during a crisis information is a key factor, it is important to follow the indications of the help they are providing, the best way to corroborate that the actions to follow and the decisions to take during a crisis situation is the realization of simulations, crises can occur at any time and place, an important stage of the crisis is the recovery after a risk (Morales-Chumacero, 2019, pp. 26).

In the current context, tourism security goes beyond the police issue, it also includes health and environment. Such is the case of the situation caused by the appearance of the new Coronavirus (Covid-19) declared on March 11, 2020 as a pandemic, which brought with it, in addition to the loss of human lives and numerous consequences, unemployment and world economic crisis.

Tourism is one of the most affected sectors due to mobility restrictions, the reduction of trips and transfers to and from certain places, as well as the contraction in the demand for tourist services, as a result of the intervention of psychological and emotional aspects associated with preventive distancing actions taken by tourists in order to protect their health (Petrizzo-Páez, 2020).

That is why most of the scientific research currently carried out is related to the impact of Covid-19 on the sector and how to rethink tourism to ensure a sustainable, safe and suitable product for all, including the most vulnerable, in order to guarantee tourism security. Therefore, having updated safety protocols, offering a product that guarantees a healthy and safe environment, proper risk management and a solid health system are factors that positively influence the purchase decision of travelers and the construction of a favorable destination image (Altinay & Kozak, 2021; Félix, et al., 2020; Filimonau, et al., 2020; González-Torres, et al., 2021; Hu, et al., 2021; Khanra, et al., 2021; Lin, et al., 2021; Neves, et al., 2021; Pahrudin, et al., 2021; Peco-Torres, et al., 2021; Sakdiyakorn, et al., 2021; Souza, 2021; Villacé-Molinero, et al., 2021; Zaldívar Sosa & Gutiérrez López, 2020).

As a result, the current context reveals the importance of this research, as it provides an overview of how much work is being done in the area of tourism security in academia and what are the gaps that emerge from this research to position destinations and make them more competitive.

In order to make it concrete, we start from the analysis of the situation of research on tourism security through the scientific literature. The evaluation of scientific production in tourism is currently widespread in the field of tourism research. Bibliometrics is a very popular method that makes it possible to show the scientific growth of an area of knowledge.

In the field of tourism research such as (Köseoglu et al., 2015), (López-Bonilla & López-Bonilla, 2020), (D'Amato et al., 2017), (Benckendorff & Zehrer, 2013), (Figueroa-Domecq et al., 2015), (Okumus et al., 2018), (Mulet-Forteza et al., 2018), (Niñerola et al., 2019), (Cruz-Sintes et al., 2020), (Öğretmenoğlu et al., 2022) among others, account for the importance of these studies in this field. However, it can be appreciated that studies related to tourism security are scarce and the researches found focus their analysis on more specific aspects of tourism security, for example, Foronda-Robles and Galindo-Pérez-de-Azpillaga (2016) conduct a study related to the evolution of the concept of crisis in the field of tourism, Jiang, Ritchie and Benckendorff (2019) address research related to crisis and disaster management and Casado-Aranda, et al., (2020) analyze the scientific production related to the effect of covid-19 on tourism. However, it is interesting to perform an analysis of tourism safety in a holistic way so that it can be appreciated in which research fields more progress has been made during the stage under study.

The above shows the current relevance of the subject and therefore the need to answer some of the questions that have generated this study: What is the behavior from the point of view of tourism safety sciences? What bibliometric indicators can describe the development of this field of research? How does scientific production behave by year?

This is evidence of the current relevance of the subject and therefore the need to study it.

2. Methodology

Bibliometric studies are an important tool for the knowledge of scientific production. Bibliometrics is a science whose development has been marked by the exponential growth and dissemination of scientific information through the web. It allows to measure the scientific production of a field, topic, institution, among others; and to evaluate the development, identifying advances, novelties, trends and consequently gaps (Graciano & Holanda, 2020; Quevedo-Silva, et al., 2016).

Bibliometric studies respond to a need, representing an opportunity for the development of tourism, encouraging and promoting its growth as a multidimensional and social activity and identifying, as mentioned above, novelties, trends and gaps with theoretical, conceptual and practical implications (Alberca-Sialer, 2020). The present bibliometric research consists of an exploratory-descriptive study with retrospective design, whose time frame is the period 2002-2021. The units of study were original scientific articles directly related to the field of tourism security, indexed in "Sciencedirect" and "Scielo".

After determining the source of information for the identification of the original articles, a generic search strategy was used to retrieve the largest possible number of references published during the study period. The following keywords were selected: "seguridad turística" and "tourist security", as well as combinations with "safe tourism", "hospitality", "tourism" and "security". The search criteria established were: original research articles, in the period 2002-2021, where the keywords were included in TITLE, KEYWORDS and ABSTRACT.

The original articles obtained were filtered, eliminating false positives and duplicates, and the inconsistencies detected in the spelling of authors' names, institutional affiliations and countries of origin were standardized and corrected. Thus, 28 articles indexed in Sciencedirect and 31 indexed in Scielo were obtained, as shown in Table 1.

Table 1. Data selection process for final analysis

	Sciencedirect	Scielo	Total
1- Results of the initial search in the databases	49	49	98
2- Duplicates	0	7	7
3- Articles that are not related to research	21	11	32
4- Sample collected	28	31	59

Source: Authors

The normalization of the search results obtained is carried out with the help of the Endnote X7 bibliographic manager. Taking into account that Sciencedirect does not provide information on the language of the publications, a manual search is performed.

The information obtained was entered into a database, which with the help of Bibexcel version 2016-02-20 and Excel 2010 was used to perform the descriptive analysis of the variables by calculating the frequencies, percentages and standard deviation for the following indicators:

- Productivity of articles by years in order to know the behavior of scientific production in the time frame and to demonstrate the interest of the authors in the subject and its importance.
- Productivity by journals to identify the most prolific journals. This indicator is of interest for theoretical treatment based on publications by authors who have systematized the subject, productivity and dispersion of publications by journals. Its implications reside in

the consideration of publications in journals that have shown interest in tourism security.

- Productivity by language of the publication in order to know its universality.
- Author collaboration, an indicator of interest for the scientific community interested in collaboration and socialization of scientific knowledge.
- Thematic categories, to know the main thematic lines, their treatment over time and research opportunities.

VOSviewer 1.6.16 is used for the analysis of the thematic categories; the bibliographic data are plotted using maps. This map illustrates the co-occurrence of keywords identifying scientific background knowledge, Van Eck, & Waltman (2010). A tool widely used by researchers in the field of tourism. Atsız, et al., refer that keywords are the main terms that underline the content of studies (2022). It allows authors researching in a similar area to identify relevant articles. Moreover, the co-occurrence of author keywords determines the most used keywords in the articles which makes it a tool with advantages to explore new research.

3. Results

This section presents the results obtained from the analysis and synthesis of the information presented, using the procedures described above.

The bibliometric search was carried out in November 2021, comprising original articles published in the period from January 2002 to November 2021. Figure 1 shows the number of articles published by year in the databases analyzed, with Scielo standing out as the database that publishes the most on the topic of tourism security.

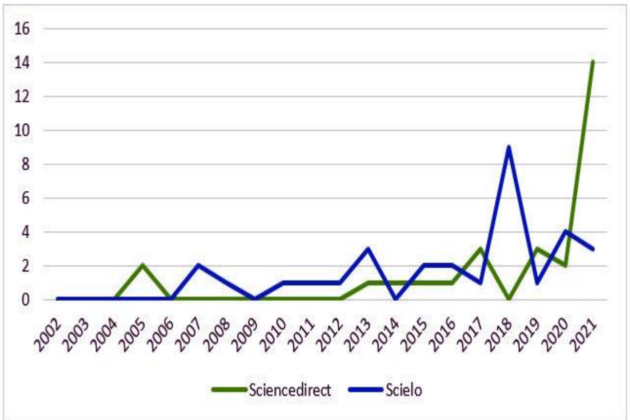

Figure 1. Graph of the number of publications per year in Scielo and Sciencedirect.

Source: Authors

Temporal evolution of productivity

Figure 2 shows the scientific production by year during the period analyzed, which reflects the increase in the number of publications.

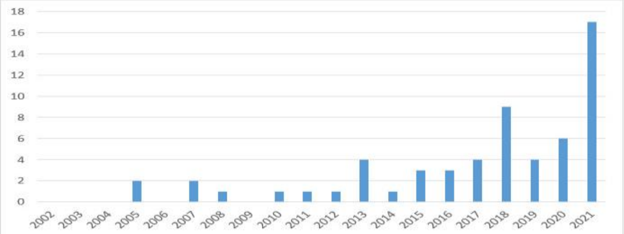

Figure 2. Graph of the number of publications by years.

Source: Authors

The number of articles published per year shows that the period from 2017 to 2021 is the most productive with 67.8% of the total number of publications, while the most productive year with a total of 17 publications on the subject is 2021 with 28.8% of the total. In the last 20 years the average publication per year is 2.95 with a standard deviation of 4.05 approximately.

Language of publications

Figure 3 shows the distribution of the original articles in terms of English, Spanish and Portuguese. As can be seen in the figure, the English language predominates with 51% of the publications, this is due to the fact that in the Sciencedirect database the results obtained were entirely in English. On the other hand, in the Scielo database, the Spanish language predominates in the publications, representing 41% of the total.

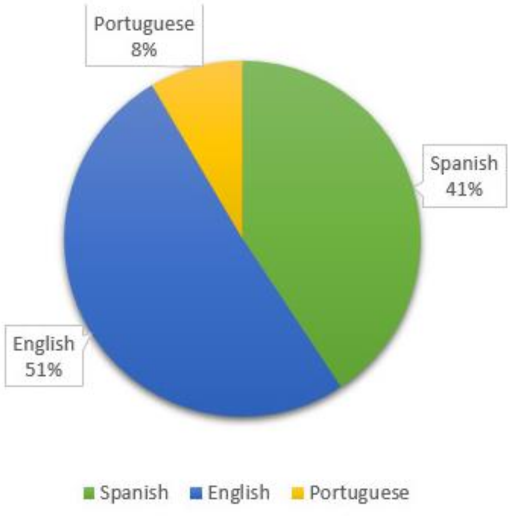

Figure 3. Graph of the relation of articles by language.

Source: Authors

Productivity per journal

The scientific production on the subject under study, registered in Sciencedirect and Scielo, was published in 26 journals. The journal with the highest number of publications was "Estudios y perspectivas en turismo" with a total of fourteen (14) articles published for 24% of the total as shown in Figure 4, followed by: "International Journal of Hospitality Management" with six (6) articles for 10% of the total, "Tourism Management" with five (5)

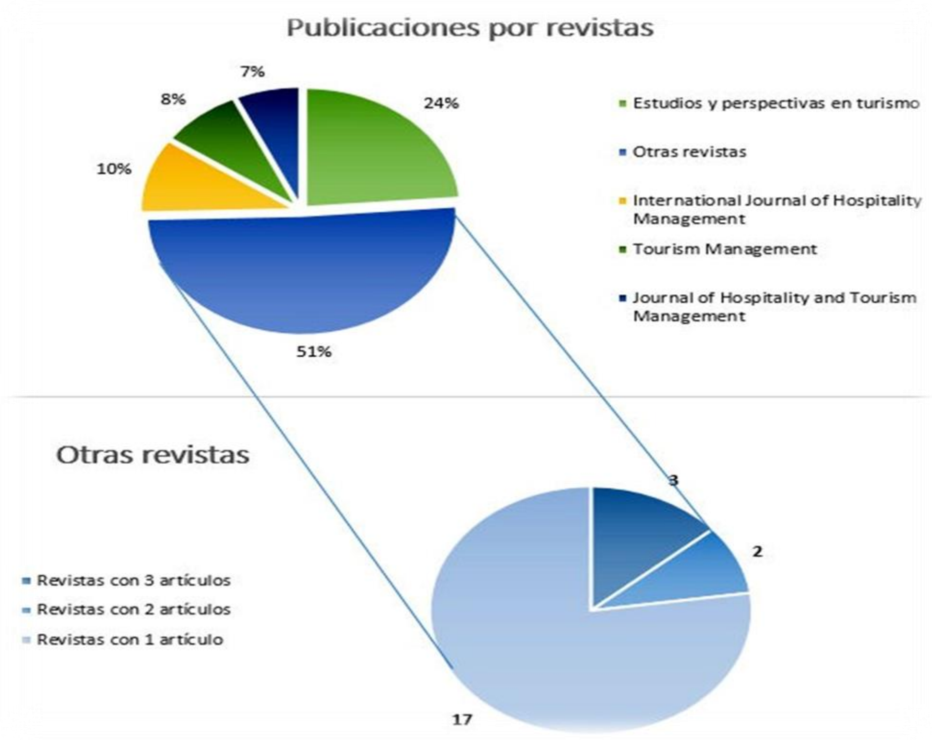

Figure 4. Graph of publications by journals.

Source: Authors

and "Journal of Hospitality and Tourism Management" with four (4) for 8% and 7% respectively of the total. These journals represent 49% of the total number of publications. The remaining 51% is distributed in other journals: three (3) journals publish three (3) articles each, two (2) journals published only 2 articles each and seventeen (17) journals with only 1 article each as shown in Figure 4.

Distribution of authors with the level of productivity

The distribution of the authors according to the level of productivity (small, medium and large producers). Of the total number of authors, 98.7% belong to the group of small producers while only 1.3% reach the level of medium producers.

Main productivity lines

In order to identify the main research topics, the study of the author's keywords is carried out through co-occurrence analysis. This technique counts the number of articles in which two or more keywords appear together. For this purpose, we used the VOSviewer software where the 59 articles were processed and a total of 370 keywords were identified.

Considering the above, Figure 5 shows the main keywords, the same are distinguished by: the size of the nodes (the larger the label of the keywords and the node, the more articles these keywords collect). The lines show the frequency of co-occurrence of keywords and finally the distance between the nodes (the smaller the distance, the stronger the relationship that these keywords have relatively, comparing the co-occurrence with other keywords). On the other hand, the colors of the nodes indicate clusters, clusters or groups of keywords (Pérez-Labrada, et al., 2022).

Figure 5 shows the existence of six (6) clusters, considering a threshold of two occurrences representing the 37 keywords with the most frequent co-occurrences. The first cluster, in red, is represented by the nodes "chaos theory", "tourism destination", "destination competitiveness", "perceived risk" and "tourist" all with the same weight; in the second cluster, represented by green, the country "Brazil" appears as the main node, followed by the nodes "image", "tourism destination", "destination competitiveness", "perceived risk" and "tourist", all with the same weight, followed by the nodes "image, "public security", satisfaction" and "tourism destination", in the third cluster, in blue, the node with the greatest impact is "Covid-19", followed by the nodes "hotels", "hospitality industry" and "tourism planning". The fourth cluster, in yellow, is represented by the nodes "risk management", "healt vulnerability" and "tourism", the latter being the most used keyword in the master's theses analyzed. The fifth cluster, in purple, is made up of the nodes "safety", "security" and "terrorism".

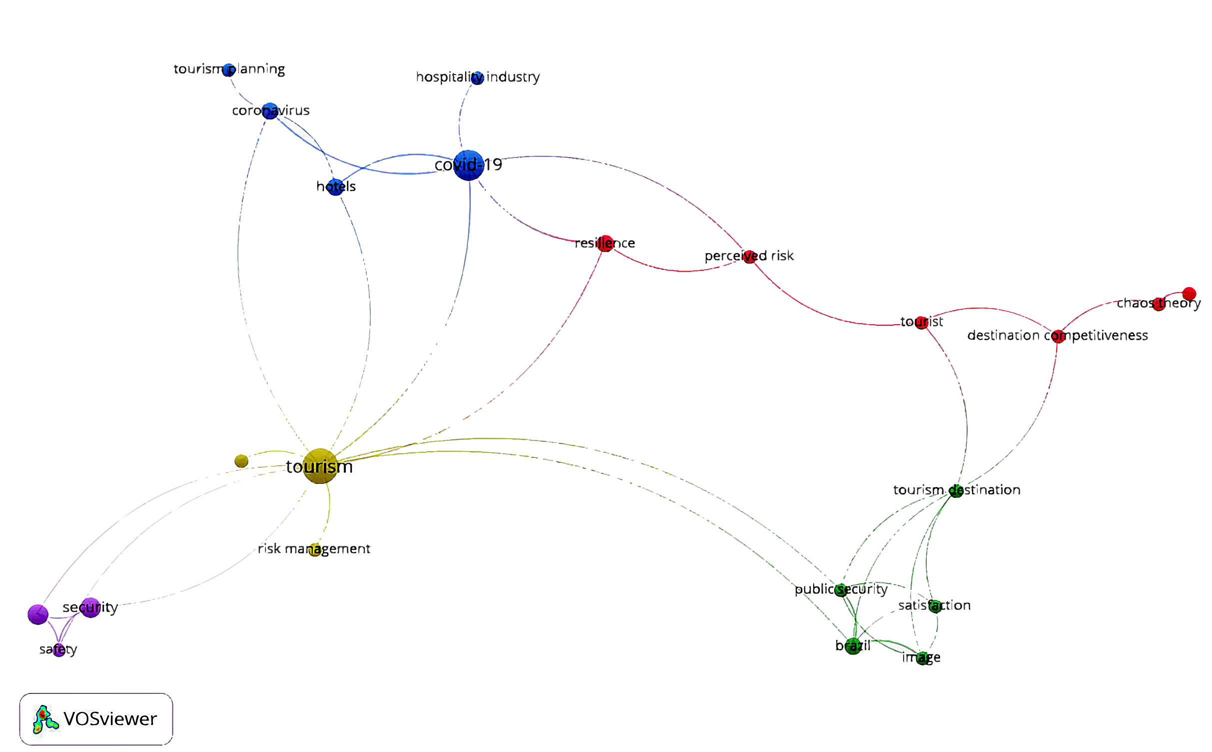

Figure 5. Keyword map. created by authors

Source: Authors

Table 1 shows the 37 main keywords resulting from the research conducted, as well as occurrences (frequency) and co-occurrences (total link strength)

Table 1. Keyword summary

Keyword	Occurrences	Total link strength
Tourism	12	26
Brazil	3	15
Covid-19	9	15
Image	2	12
Public security	2	12
Satisfaction	2	11
Tourism destination	3	14
Coronavirus	3	10
Resilience	3	7
Hotels	3	6
Security	4	6
Terrorism	4	5
Safety	2	4
Tourism planning	2	4
Destination competitiveness	2	3
Healt vulnerability	2	3
Perceived risk	2	3
Tourist	2	3
Tourist attractions	2	4
Chaos theory	2	2
Service quality	2	2
Hospitality industry	2	1
Refugee crisis	2	1
Risk management	2	1

Source: Authors

When analyzing the map of co-occurrence of keywords and the list of descriptors, it is evident that the main lines of research are generally associated with the phenomenon of tourism. In turn, they investigate the perception of risk by visitors, highlighting "security" as one of the most influential aspects when choosing destinations, an aspect that acts directly on the image and quality of destinations. Another line of great relevance is Covid-19 and how the different security protocols must be complied with for the correct functioning of the hotel industry.

Figure 6 shows the evolution of the keywords of the publications analyzed in the given period, with the help of the VOSviewer 1.6.16 software using the cauterization algorithm. The oldest descriptors according to the conformed network are "healt vulnerability", "brazil" and "image", while as most current are the descriptors represented by yellow nodes "covid-19", "coronavirus", "hospitality industry" and "hotels". Reaffirming the theory that the main issues to be investigated at present are the behavior of the hotel industry with respect to the new coronavirus.

4. Conclusions

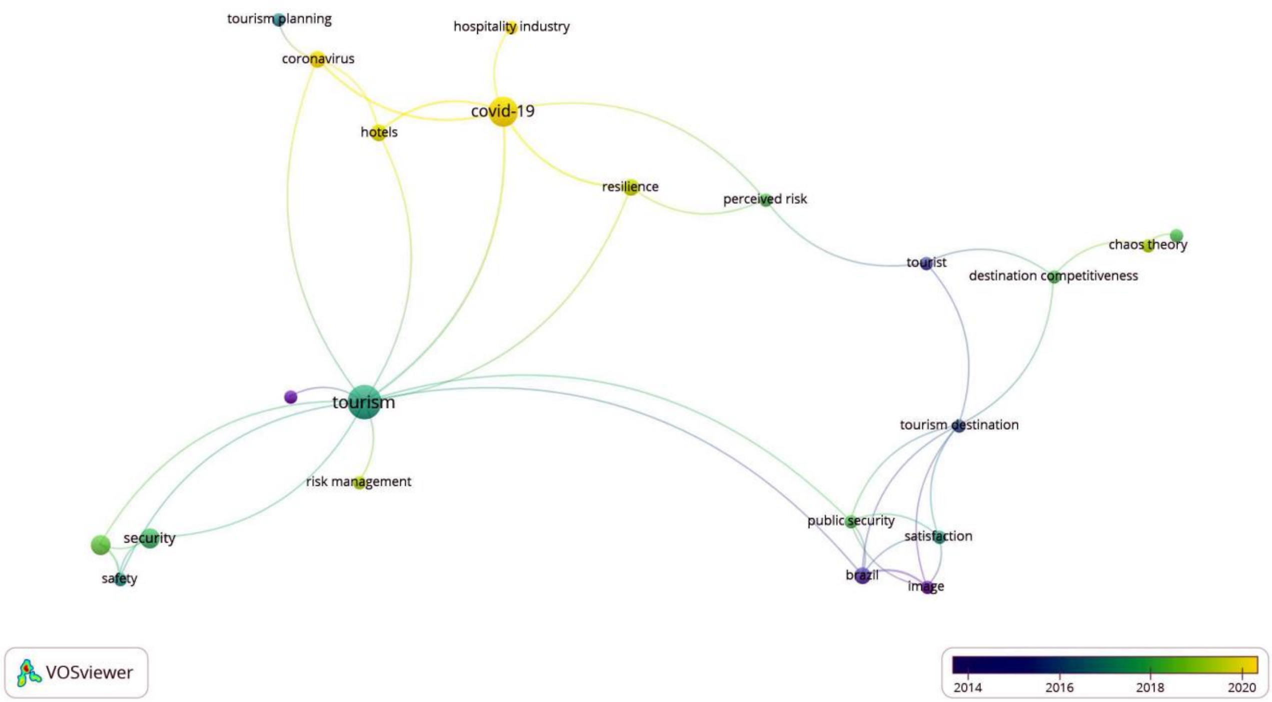

Figure 6. Keyword map in the time frame. created by authors

Source: Authors

In general terms, the term tourism security refers to the protection and physical and psychological integrity of visitors, service providers and members of the communities linked to the tourism sector, and is considered one of the most influential factors in the choice of tourist destinations. Hence the need for constant study on the subject of security in tourism.

Using the bibliometric analysis of articles published in the Sciencedirect and Scielo databases, this research provides accurate information on trends, novelties and main lines of research on the topic of tourism security.

Although the number of publications has increased in the last 5 years and the current year, 2021, accounts for 28.8% of total research, the scientific production in the period under analysis is considered insufficient, considering that interest in security in tourism has been awakening since the end of 2001 and today is a key factor for the image of destinations. For these reasons, it is necessary to urge the scientific community to investigate and systematize the subject.

In terms of productivity by language, the English language predominates, with 51% of the publications, due to the fact that 100% of the results obtained in the Sciencedirect database were in English.

A total of 26 journals published papers related to safety in tourism; taking into account the number of publications, "Estudios y Perspectivas en Turismo" (24%) stands out as the main journal, followed by "International Journal of Hospitality Management" (10%), "Tourism Management" (8%) and "Journal of Hospitality and Tourism Management (7%), these journals (5) representing 49% of the total number of publications.

Regarding authors and authorial collaboration, of the 158 authors analyzed, only two signed two articles each, the remaining 156 signed only one article, with small producers predominating with 98.7%. This shows that the scientific community is characterized by a lack of systematization in the area of tourism security.

The most used key word is "tourism" and the lines of research are related to the new coronavirus, tourism security, destination image and risk perception. This indicates that the concept of tourism security must go hand in hand with the tourists' perception of risk, post-Covid operation protocols, the influence of security on the image of a destination and the risk management of each hotel entity.

The results of the present research may have implications for tourism destination managers, which can be taken into account when designing their tourism security strategies. The growth of research related to Covid-19 and its implication in security and customer satisfaction constitutes today a success factor if it is properly managed, which can generate an increase in the number of tourists at the destination. On the other hand, it requires studies that take into account the determining factors related to tourism security as seen from the perception of the internal and external client and promote the destination based on these factors.

Finally, the present research has the following limitations: with the search strategy used, some works might not have been identified, the research results were limited to original articles published in the Sciencedirect and Scielo databases, so different documents and other databases such as Wos, Scopus, Dimensions, among others, can be included. Other bibliometric indicators that can contribute new elements to the field of research were not investigated. Other tools such as Scimat, Bibliometrix, CiteSpace, among others, can be included. On the other hand, it is possible to deepen the analysis through meta-analysis and content analysis studies.

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INFO PAGE

Scientific production on tourist security in the period 2002-2021

Abstract

Tourism security is linked to the well-being, physical, psychological and economic integrity of visitors, service providers and members of the host communities and plays a very important role when people choose a tourist destination, hence the need to analyze the scientific production associated with the topic. The present study aims to use bibliometric indicators to review the relevant literature related to tourism security in the period 2002-2021. The information and the main trends in this area are represented and mapped using the following software: EndNote, Excel, Bibexcel and VOSviewer. During the period analyzed, a total of 59 original articles were registered in the Sciencidirect and Scielo databases. The analysis indicates that the literature on tourism safety is growing gradually, however, it is considered insufficient; a total of 26 journals are included in the study where the journal Estudios y perspectivas en turismo is the leader in the field of research registering 24% of the total published research. As for the keyword analysis, the main lines of productivity are focused on the relationship between security and tourism, destination image, risk perception, public safety, customer satisfaction and Covid-19. The impact of the Covid-19 pandemic is a trigger for the growth of research related to the field of research under analysis. In conclusion, the limitation of this research is that only two databases were taken into account and that through the search strategy used, some works might not have been identified, in addition to the fact that the study can be expanded with the inclusion of other bibliometric indicators.

Keywords: *Hospitality, Safe tourism, Tourism, Bibliometrics, Risk perception, Covid-19*

Authors

Full Name	Author contribution roles	Contribution rate
Félix Díaz-Pompa:	*Conceptualization, Methodology, Formal analysis, Writing - Original Draft, Writing - Review & Editing,*	*30%*
Solangel Pérez-Labrada:	*Conceptualization, Methodology, Formal analysis, Writing - Original Draft, Writing - Review & Editing,*	*40%*
Nolberto Cruz-Aguilera:	*Conceptualization, Methodology, Formal analysis, Writing - Original Draft, Writing - Review & Editing,*	*15%*
Zaydelis Balseira-Sanamé:	*Conceptualization, Methodology, Formal analysis, Writing - Original Draft, Writing - Review & Editing,*	*15%*

Author statement: *Author(s) declare(s) that All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.* ***Declaration of Conflicting Interests:*** *The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article*

This paper does not required ethics committee report
Justification: The methodology of this study does not require an ethics committee report.

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The effects of gastronomic experience and food image towards the gastronomic products of local tourism on the intention to eat local foods: The case of Hatay

Adem Ademoğlu, Memet Şahan*

ABSTRACT

Destinations offer various tastes to visitors as tourism products. Experiencing these delicacies is considered necessary for the tourists' travel motivation. Tourists travel to these destinations to increase their travel motivations and to have unique gastronomic experiences. In this sense, this study aims to determine the effects of gastronomic experience and food image on the individuals' intentions to eat Hatay's local foods. In this context, data of the study was collected from 371 individuals who had gastronomic experiences in the province of Hatay, using the survey technique. Structural equation modeling (SEM) was used to analyze the data. In this context, validity, reliability, and path analyses were performed. As a result of the path analysis, it was concluded that gastronomic experience and food image have significant impacts on the intention to eat local foods.

Keywords:
Gastronomic Experience,
Intention to Eat,
Local Food,
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1. Introduction

While tourism destinations offer gastronomic experiences to tourists, they also aim to increase the frequency of repeated visits and the sense of loyalty by ensuring the permanence of these experiences (Okumus et al., 2007). It can be said that gastronomic products not only meet the biological requirements of the individual but also increase the cultural experience. In this context, gastronomic tourism can not only enhance the experience with its attractive elements but also take on the role of preventing the negativities for the destination, where the gastronomic experience is enjoyed (Torres, 2002). In order to experience gastronomic tourism products, activities such as participating in cooking courses, visiting gastronomy museums, visiting wine and food factories, experiencing street delicacies, visiting gastronomy markets, participating in gastronomy festivals, gastronomic tours, and consuming local foods are used as experience enhancers by the tourists (Quan & Wang, 2004; Folgado-Fernández et al., 2017; Antón et al., 2019). Consuming, purchasing, recommending, and revisiting these gastronomic products are expressed as elements that enhance the experiences of tourists (Son & Xu, 2013; Saad et al., 2019; Kim et al., 2020a). Accordingly, it can be said that the variety of products and services offered in the destinations of gastronomic tourism increases curiosity and interest in food, as well as travel motivation (Agyeiwaah et al., 2019). In this context, the gastronomic experience constitutes the most basic point of travel and affects other experiences of tourists such as entertainment, education, aesthetics, and innovation (Santos et al., 2020). Although the main purpose of destination visits is not the gastronomic experience due to the diversity of the increasing tourism, the controlled provision of this process may allow local gastronomic products to become important. From this point of view, it is very important to control the perceptions and practices around eating and drinking, which is a crucial income-generating part of tourism. While local gastronomic products allow destinations to differ, they also increase their preferableness. On the other hand, marketing strategies for gastronomic products must be managed correctly in order for these products to be standardized and attractive. However, due to the nature of gastronomic products, the on-site and instant presentations eliminate the chances of eradicating possible mistakes, which can lead to negative courses for gastronomic experiences.

The social statuses, economic levels, and environmental factors of individuals have significant effects on the provision of gastronomic experience. In addition to these elements, the memory of the experience, the people with whom you have been together during the experience, entertainment, educative work, and escaping from the ordinary enable the level of experience to be determined. With its satisfaction-enhancing role, the gastronomic experience is an important factor in tourists' intention to

**Corresponding Author*
Adem Ademoğlu: *Asst. Prof. Dr., Gaziantep Islam, Science and Technology University, Faculty of Fine Arts, Architecture, and Design, Department of Gastronomy and Culinary Arts, Gaziantep, Türkiye, Email: adem.ademoglu@gibtu.edu.tr, Orcid Id: 0000-0001-9649-2019*
Memet Şahan: *Lecturer, Dr., Vocational School of Social Sciences, Department of Hotel, Restaurant, and Catering Services, Cookery Program, Gaziantep, Turkey, Email: msahan0179@hotmail.com, Orcid Id: 0000-0002-3812-221X*

Research paper

revisit the destination (Berbel-Pineda et al., 2019; Kim et al., 2020b). For this reason, while gastronomic experiences support the intention to eat local foods and the purchasing intention, they also influence food image, destination recall, perceived authenticity, quality of life, and attachment to the destination (Robinson & Clifford, 2012; Chi et al., 2013; Tsai, 2016; Kim & Kim, 2019; Hsu & Scott, 2020; Brune et al., 2021). In the formation of destination experiences, tourists' participations in activities such as consuming local foods and street foods, or visiting food-wine festivals, food fairs, gastronomic museums, and local food markets during their travels are sine-qua-non.

Important determinants of the food image include previous gastronomic experiences and sources of information. Marketing strategy is used through social media, websites, and promotional arguments to ensure positive food images for the destinations. In addition, food image requires addressing local foods and gastronomic elements with the level of perception. These factors affect tourists' familiarity with touristic products (Lee et al., 2011; Seo et al., 2013). In particular, tourists who have positive perceptions towards the images of the touristic destination and local products present the behavior of visiting the destination again, recommending the destination and its local products to others, and purchasing local products (Kim et al., 2014; Seo et al., 2017; Okumus et al., 2018; Agyeiwaah et al., 2019; Chi et al., 2019).

Studies on the experience reveal that the competent execution of marketing strategies increases customer loyalty and positively contributes to the images of destinations being visited and recommended (Oppermann, 2000; Chen & Chen, 2010). Compared to other types of tourism, local gastronomic experiences reveal that it is effective in increasing tourists' travel motivation and providing positive images of the destinations (Mitchell & Hall, 2003; Quan & Wang, 2004; Kim & Eves, 2012).

Hatay, which is an important gastronomy destination, is one of the leading cities in the context of gastronomy tourism (Duman & Saçlı, 2023). It is vital in terms of revealing the gastronomic experiences of the tourists visiting this city for the local gastronomic tourism products and the effect of the food image of this city on the intention to eat local foods. Because of this importance, it should be examined how the gastronomic experience and local food image affect intention to eat local foods in terms of gastronomy tourists. The main purpose of the current research is to examine the effects of gastronomic experience and food image towards the gastronomic products of local tourism on the intention to eat local foods. Considering the research design, the fact that this study starts with the gastronomic experience and at the same time explains the intention to eat local foods together with the food image fills an existing gap in the literature.

2. Conceptual Framework

In this section, the issues of local gastronomic products, gastronomic experience, and food image are discussed in line with the objective of the study.

Local Gastronomic Product

Local and gastronomic products have a very important effect on ensuring the authenticity of the destination elements and on the awareness of the purchasing behaviors of gastronomy tourists (Mohamed et al., 2020). Ensuring the accessibility of local gastronomic products is effective in the behaviors of tourists towards tourism planning, and this affects the preference of tourists for destinations that offer opportunities to experience these local gastronomic products (Egede, 2013; Tong et al., 2016). At this point, providing unique and authentic dining experiences can only be achieved in environments where local elements are present (Kim et al., 2009). Factors such as cultural experiences, interpersonal relationships, excitement, sensory appeal, and health contribute to the increase in these travel experiences (Kim & Eves, 2012). In this sense, it is important to have access to local gastronomic foods and to have information about these foods. At this point, both internet resources and social media offer the opportunity to reach more information about local foods (Dedeoğlu, 2019).

The presence of local gastronomic products as a niche market in a certain region contributes to providing the spirit of authenticity for the destination, which is important in terms of increasing the intention to eat (Karakuş et al., 2020). Making changes to the product itself has an effect on these authentic feelings (Özdemir & Seyitoğlu, 2017). This, in turn, enhances tourists' satisfaction, purchasing, and intentions to eat local foods (Jeaheng & Han, 2020; Kim et al., 2020a).

Especially at this point, entertainment and educational activities, including the preparation, presentation, and tasting of local gastronomic products at destinations, increase the interest of tourists (Chang & Yuan, 2011). Tourists bring their positive experiences about local gastronomic products to their living areas by buying local food and beverages, cookbooks, and kitchenware specific to the destination visited in order to prolong their recall. This situation reveals that there is a positive interaction between the tourist and the destination in terms of a sense of attachment to the place and identification with the place (Chen & Huang, 2016). Local gastronomic elements specific to a particular destination create an image of local food with perceptions, attitudes, and emotions, thereby providing attractiveness (Seo et al., 2013).

Gastronomic Experience

Consumers' individual experiences with the products or services they have purchased through their senses and emotions ensure the establishment of memorability and strong bonds (Holbrook & Hirschman, 1982; Pine & Gilmore, 1998; Yuan & Wu, 2008; Tsai, 2016). In this sense, commercial enterprises are continuously focusing on issues that increase the experience level of consumers as a requirement of the strategies of the experience economy. In particular, the necessity of shaping consumer behaviors, memorable experiences, and sincere ties with consumers is emphasized (Clatworthy, 2019). In terms of the subject, the gastronomic experience plays an important role in the choice of the destination and the motivation of tourists (Agyeiwaah et al., 2019; Santos et al., 2020). In this respect, gastronomic experiences are expressed as both experiences in the field of production and experiences in the field of consumption (Mohamed et al., 2020). In addition, although there is no direct gastronomic experience in the travel motivation of tourists, it is expected that gastronomic elements may become attractive during these visits. Gastronomic experiences are shaped by local foods and beverages, the environment in which these products are consumed, the time, and the people who are together (Tikkanen, 2007). In this context, tourists or consumers who are in search of gastronomic experiences want destinations to be extraordinary, pleasurable, entertaining, educative, cohesive, and memorable, apart from eating and drinking. In order to increase this gastronomic experience, both the production consumption processes have important places in providing this experience (Uriely, 2005; Oh et al., 2007; Jeong & Jang, 2011; Saad et al., 2019). More clearly, gastronomic experience occurs depending on being in the processes before, during, or after the products and services (Larsen, 2007; Goolaup et al., 2019). In other words, the gastronomic experiences of the tourists not only contribute to the increase in satisfaction, but also shape the intention to recommend related experiences to others, revisit the destinations, and the destination image (Kim et al., 2020b; Mohamed et al., 2020). On the other hand, gastronomic experiences also trigger tourists' purchasing and consuming behaviors of local foods (Brune et al., 2021). At the same time, local foods, street foods, food-wine festivals, fairs, local markets, cookery courses, gastronomy museums, and gastronomy tours contribute to ensuring destination images, and they enhance memorability (Lee et al., 2011; Park & Ha, 2016; Soltani et al., 2021; Suntikul et al., 2020). Local gastronomic tourism products play an important role in enriching the experiences of tourists and ensuring their permanence (Hall & Mitchell, 2005). By its very nature, the gastronomic experience can be considered as the sum of a rather long process. The reason for this is the process of doing research on gastronomic tourism products before the trip, taking part in gastronomic practices during the trip, and finally recommending or revisiting as a behavioral intention upon completion of the trip. In this context, a holistic approach should be brought to the gastronomic tourism products that play a leading role in the gastronomic experience and the active participation of tourists in gastronomic practices should be ensured.

Food Image

Food image can be expressed as the formation of a positive perception of gastronomic tourism products specific to a particular destination (Hsu & Scott, 2020). According to Lin (2006), food image is defined as “the main characteristics of the foods of a particular region”. Moreover, it is the overall impression created in the minds of tourists for each gastronomic destination. In order to strengthen this mental perception, destinations actively use gastronomic tourism products to increase the image of food, such as local food-wine festivals, gastronomy museums, cooking competitions, gastronomy routes and tours, cooking courses, gastronomy applications, and description panels (Okumus et al., 2013; Sun et al., 2015; Antón et al., 2019). The development of the destination image, depending on the provision of the food image, prioritizes authentic gastronomic elements by making them more visible (Seo et al., 2017). Evaluation of the perceptions and experiences as a result of the intention to eat local foods and the elements of gastronomy tourism by tourists plays an important role in the formation of food image. Increasing familiarity with the products of gastronomy tourism improves the image of the destination. In the formation of this familiarity, gastronomic experience and information sources are effective (Lee et al., 2011; Chi et al., 2013). Destinations actively use information resources such as social networks and websites in order to capture positive images. Therefore, an increase in tourists' satisfaction after the perceived positive food image has an impact on their commitment to the place, their intention to revisit, and to recommend them to their friends (Lertputtarak, 2012; Widjaja et al., 2020). In addition, the atmosphere, decor, service equipment, and the presence of local foods and beverages in the catering businesses provide a strong gastronomic experience, and it is predicted that this situation may contribute to the development of a positive food image. Moreover, this experience and the subsequent recommendation behavior may play an important role in providing a perception of a positive food image for the destination. Therefore, this gastronomic food image may positively affect the intention to eat local foods. In this sense, studies in the literature prove this situation (Çırak & Gümüş, 2021). In addition, the cognitive images of foods have positive effects on the intention to eat, while the emotional images of the foods do not have positive effects on the intention to eat (Seo, Yun, & Kim, 2017).

In line with the literature review, the hypotheses developed within the scope of the objective of the study and the research design is as follows:

H1: Gastronomic experience has significant and positive effects on the intention to eat local foods.

H2: Food image has significant and positive effects on the intention to eat local foods.

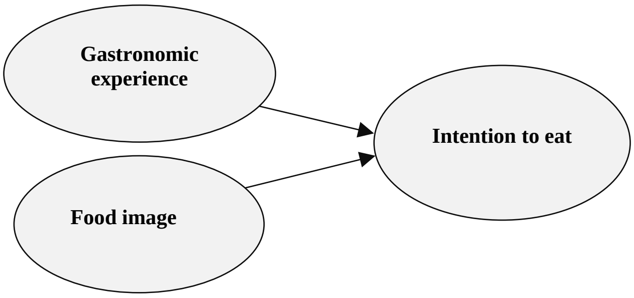

Figure 1: Research Design

Source: Authors

3. Method

Population and Sample of the Research

The population of the research consisted of domestic tourists visiting the province of Hatay. From this population, 371 individuals, consisting of people who have had gastronomic experience, were selected as samples by means of purposive sampling. The reason why Hatay was determined as a sample is that Hatay is one of the provinces where many civilizations lived in Turkey. Therefore, it is a city with horizontal and vertical multicultural structures. In addition, the fact that Hatay is a province included in the UNESCO's creative cities network in the field of gastronomy in Türkiye (UNESCO, 2022) and is a city rich in gastronomic culture has been effective in the selection of Hatay as the study group. This city is very important with its many local dishes and local restaurants developed based on its rich cultural background (Keskin et al., 2022).

Objective and Significance of the Research

The objective of this study is to determine the effects of gastronomic experience and food image towards local gastronomic tourism products on the intention to eat local foods.

Although restaurants are inherent in the gastronomic experience, the gastronomic experience is not limited to just that. In addition, tourists can have gastronomic experiences through activities such as festivals, food fairs, gastronomic museums, food markets, hotels, food and wine factories, street vendors, fishing, hunting, and picking strawberries or mushrooms. Therefore, this study is considered necessary in terms of revealing these activities that appeal to different gastronomic experiences of tourists.

Data Collection Tools

The data used in the research was collected with the help of the survey technique. The questionnaire used in the research consists of 4 parts. The subscale of “gastronomic experience”, which forms the first part, consists of 22 statements; the subscale of “food image”, which forms the second part, consists of 19 statements; the subscale of “intention to eat”, which forms the third part, consists of 3 statements. The fourth part consists of statements about sociodemographic information and individual questions for the participants. The items on the scale were graded according to the 5-point Likert type.

The study of Kodaş (2018) was used in the adaptation of the "Gastronomic experience" scale. The study of Ab Karim and Chi (2010) was used in the adaptation of the "Food image" scale. In the adaptation of the “Intention to Eat” scale, Seo et al.'s (2013) study was used. Information about the scales used in the research is given in the table below:

Data Analysis

Structural Equation Modeling (SEM) was used to test the model developed in the research. First of all, validity and reliability analyses of the scales were made. In this context, the values of internal consistency reliability, construct validity, convergent validity, and discriminant validity were analyzed. For internal consistency reliability, Cronbach's Alpha and Composite Reliability values were examined. In addition, the construct validity of the scale was evaluated by looking at the CR value. Factor loadings and Average Variance Extracted (AVE= Average Variance Extracted) coefficients were used to determine convergent validity.

In addition, VIF (linearity) values, path coefficients, R2, and effect size (f2) of the research model were calculated before starting the analysis of the data. In order to evaluate the significance of the path coefficients, t values were calculated by taking 5000 subsamples from the sample with bootstrapping. As a result of the analysis of the structural model used in testing the research hypotheses, the p and t significance values were analyzed.

Validity and Reliability Analyses of the Scales

In the present study, the Cronbach's Alpha coefficient and CR value are expected to be $\geq$0.70, to ensure internal consistency. A CR$\geq$ 0.70 is also important in terms of ensuring the construct validities of the scales. Factor loadings and Average Variance Extracted coefficients were used to determine convergent validity. In order to ensure convergent validity, factor loadings are expected to be equal to or greater than 0.708 and AVE values to be equal to or greater than 0.50 (Fornell & Larcker, 1981; Hair, Black, Babin, & Anderson, 2018; Hair, Hult, Ringle, & Sarstedt, 2017). Before starting the validity and reliability analyses, factor loadings were examined and in these reviews, the statements of "my gastronomic experience is only an experience that satisfies my hunger", "gastronomic products that I am familiar with while on holiday are important to me" and "my gastronomic experience is an ordinary experience" and "offers restaurant menus in English” were excluded from the analysis because the factor loadings were below 0.40 and the analysis was repeated. The results of internal consistency reliability and convergent validity are given in the table 1.

Table 1 shows the measurement model results of the items. According to these findings, it is seen that the Cronbach's Alpha and CR coefficients of the items are ≥ 0.70, which indicates that the internal consistency reliabilities of the scales are provided. In addition, it can be said that construct validities of the scales are ensured because the CR coefficients are greater than 0.70. In addition, factor loadings are greater than 0.708, and the AVE values higher than 0.50 indicate that convergent validities of the scales are provided.

For discriminant validity, cross-loadings, Fornell-Larcker Criteria, and HTMT Criteria were examined. In order to ensure the discriminant validities of the scales, the factor loading of the variable to which the indicator is related should be higher than that of the other variables, and the difference should be at least 0.100; according to the Fornell-Larcker Criterion, the AVE square root coefficient of each variable should be greater than the correlation coefficient of the variable with other variables, or the HTMT criterion is expected to be less than 0.90 (Fornell & Larcker, 1981; Henseler, Ringle, & Sarstedt, 2015). The values for the cross loadings are given in the Table 2.

Table 1: Results of the Measurement Model

Variables	Statements	Factor Loadings	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
	Intention_to_eat_1	0,888			
Intention to eat	Intention_to_eat_2	0,899	0,922	0,922	0,797
	Intention_to_eat_3	0,89			
	Gastronomic_exp._1	0,889			
	Gastronomic_exp._2	0,869			
	Gastronomic_exp._3	0,587			
	Gastronomic_exp._4	0,75			
	Gastronomic_exp._5	0,856			
	Gastronomic_exp._8	0,684			
	Gastronomic_exp._10	0,833			
Gastronomic experience	Gastronomic_exp._11	0,796	0,949	0,953	0,575
	Gastronomic_exp._12	0,723			
	Gastronomic_exp._13	0,72			
	Gastronomic_exp._14	0,823			
	Gastronomic_exp._17	0,703			
	Gastronomic_exp._19	0,621			
	Gastronomic_exp._20	0,692			
	Food _image_1	0,849			
	Food _image_2	0,789			
	Food _image_3	0,825			
	Food _image_4	0,811			
	Food _image_5	0,779			
	Food _image_6	0,876			
	Food _image_7	0,487			
	Food _image_8	0,582			
	Food _image_9	0,728			
Food image	Food _image_10	0,699	0,954	0,96	0,542
	Food _image_11	0,581			
	Food _image_13	0,572			
	Food _image_14	0,531			
	Food _image_15	0,873			
	Food _image_16	0,881			
	Food _image_17	0,774			
	Food _image_18	0,644			
	Food _image_19	0,783			

Source: Authors

Table 2: Results of the Discriminant Validity

Variables	Statements	gastronomic experience	Intention_to_eat	food_image
Intention_to_eat	Intention_to_eat_1	0,598	0,888	**0,605**
	Intention_to_eat_2	0,603	0,899	**0,614**
	Intention_to_eat_3	0,599	0,89	**0,606**
Gastronomic_ experience	Gastronomic_exp._1	0,889	0,597	**0,581**
	Gastronomic_exp._2	0,869	0,583	**0,569**
	Gastronomic_exp._3	0,587	0,394	**0,476**
	Gastronomic_exp._4	0,75	0,504	**0,525**
	Gastronomic_exp._5	0,856	0,575	**0,553**
	Gastronomic_exp._8	0,684	0,459	**0,559**
	Gastronomic_exp._10	0,833	0,559	**0,586**
	Gastronomic_exp._11	0,796	0,535	**0,539**
	Gastronomic_exp._12	0,723	0,485	**0,517**
	Gastronomic_exp._13	0,72	0,484	**0,524**
	Gastronomic_exp._14	0,823	0,553	**0,529**
	Gastronomic_exp._17	0,703	0,472	**0,479**
	Gastronomic_exp._19	0,621	0,417	**0,386**
	Gastronomic_exp._20	0,692	0,465	**0,436**
Food_image	Food_image_1	0,608	0,578	**0,849**
	Food_image_2	0,571	0,538	**0,789**
	Food_image_3	0,599	0,563	**0,825**
	Food_image_4	0,571	0,553	**0,811**
	Food_image_5	0,554	0,531	**0,779**
	Food_image_6	0,607	0,597	**0,876**
	Food_image_7	0,302	0,332	**0,487**
	Food_image_8	0,402	0,396	**0,582**
	Food_image_9	0,513	0,496	**0,728**
	Food_image_10	0,501	0,476	**0,699**
	Food_image_11	0,371	0,396	**0,581**
	Food_image_13	0,397	0,39	**0,572**
	Food_image_14	0,377	0,362	**0,531**
	Food_image_15	0,55	0,595	**0,873**
	Food_image_16	0,546	0,6	**0,881**
	Food_image_17	0,555	0,528	**0,774**
	Food_image_18	0,396	0,439	**0,644**
	Food_image_19	0,526	0,534	**0,783**

Source: Authors

In Table 2, cross-loadings were examined and overlapping items were detected in 5 statements. The overlapping items are “it is important for me to use traditional cooking techniques in my local gastronomic experience”, “it is important for me to participate in local gastronomic cooking practices”, “I buy the ingredients used in local gastronomic products to relive that experience at home”, “the gastronomic products I eat while on holiday are made with the cooking technique I know", “I consume gastronomic products that I have experienced before in my travels”, and “I consume gastronomic products that I have experienced before”, and they were excluded from the analysis, respectively. The analysis was repeated, and it was seen that the expressions measuring the research variable in other items had the highest value in their own variable, and it is possible to say that there is no overlapping item among these items according to the cross-loadings.

Table 3: Results of the Discriminant Validity (Fornell-Larcker Criteria)

Variables	Gastronomic experience	Intention to eat	Food image
Gastronomic experience	0,759		
Intention to eat	0,672	0,893	
Food image	0,685	0,681	0,736

Source: Authors

The discriminant validity results according to the Fornell-Larcker criterion are given in Table 3. When Table 3 is examined, it is seen that the square root coefficient of each of the variables is greater than the correlation coefficient of the variable with the other variables. This is proof that discriminant validity is achieved according to the Fornell-Larcker criterion.

Table 4: Results of the Discriminant Validity (HTMT Criteria)

Variables	Gastronomic experience	Intention to eat	Food image
Gastronomic experience			
Intention to eat	0,669		
Food image	0,679	0,675	

Source: Authors

In the table above, discriminant validity was evaluated according to HTMT criteria. Henseler et al. (2015) stated that the HTMT criterion should not exceed 0.90, if theoretically close concepts are measured, and it should not exceed 0.85, if distant concepts are measured. When the table is examined, it is seen that the HTMT values are below the threshold value of 0.90. Therefore, discriminant validity is ensured according to cross-loading, Fornell-Larcker criteria, and HTMT criteria. From this point of view, it is possible to say that the discriminant validities of the scales are achieved.

4. Results and Interpretations

Sociodemographic Characteristics of the Participants

The table below shows the findings regarding the sociodemographic characteristics of the participants and the results regarding the individual questions.

Table 5: Results on the sociodemographic characteristics

Characteristics	Groups	f	%
Gender	Female	187	50,4
	Male	184	49,6
Age	18-24	106	28,6
	25-34	85	22,9
	35-44	97	26,1
	45-54	60	16,2
	55 or higher	23	6,2
Marital Status	Single	183	49,3
	Married	185	49,9
Educational Level	Primary School	7	1,9
	High School	51	13,7
	Associate Degree	104	28,0
	Bachelor's Degree	176	47,4
	Postgraduate Education	32	8,6
Occupation	Public sector	138	37,2
	Private sector	65	17,5
	Retiree	12	3,2
	Housewife	24	6,5
	Shopkeeper	29	7,8
	Student	103	27,8
Monthly Income	3000 Turkish Liras or Less	124	33,4
	3001- 5000 Turkish Liras	18	4,9
	5001- 7000 Turkish Liras	53	14,3
	7001- 10000 Turkish Liras	74	19,9
	10001 Turkish Liras or More	102	27,5

Source: Authors

When the table given above is examined in terms of sociodemographic characteristics, it is seen that the majority of the participants (F=187, 50.4%) are women. Considering the age groups, it is understood that the people belonging to the age group (18-24) are in the majority (F=106, 28.6%). While it is seen that 185 (49.9%) of the participants in the research are married, it is seen that the majority (F=176, 47.4%) have bachelor's degrees in the analysis made on the basis of educational level. In the evaluation made according to occupational groups, it is seen that 37.2% (138 individuals) of the participants work in the public sector, while on the basis of monthly income, the income level of 124 (33.4%) participants is 3000 TL or less.

Testing of the Research Model and the Results

The structural equation model created before testing the research hypotheses is given below.

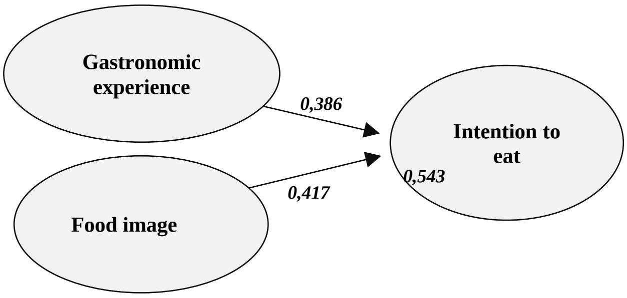

Figure 2: Structural Equation Modeling
Source: Authors

VIF (Variance Inflation Factor) values, path coefficients, R^2, and effect size (f^2) of the research model were calculated. In order to evaluate the significance of the path coefficients, t values were calculated by taking 5000 subsamples from the sample with bootstrapping.

Before starting the analysis of the hypotheses, it was tested whether there was a linearity problem between the variables. Variance Inflation Factor (VIF) coefficients were used to test the linearity and this value was expected not to exceed 5 (Hair, Black, Babin, & Anderson, 2014). In order to determine the percentage of exogenous (independent) variables explaining the endogenous (dependent) variable, R^2 and f^2 values, which expresses the share of each exogenous (independent) variable in the exogenous (dependent) variable's disclosure rate, were examined. An f^2 value between 0.02 and 0.15 means low effect size, between 0.15-0.35 means medium effect size, and above 0.35 means strong effect size (Cohen, 1988). VIF, R^2, and f^2 values of the research model are given in the table below.

Table 6: Results of the Research Model

Variables	VIF	R²	f²
gastronomic_experience	1,886		0,173
intention_to_eat	1,886	0,543	
food_image	1,886		0,202

Source: Authors

When Table 6 is examined, the VIF values, as Hair et al. (2014) stated, are below the threshold value of 5. According to the values in the table, it is seen that there is no linearity problem between the variables. The calculation of the R^2 value for intention to eat as approximately 54% indicates that the disclosure rate is medium. When f^2 values are examined, it can be said that they have medium effect sizes for both exogenous variables, with 0.173 for gastronomic experience and 0.202 for food image.

The results of the analysis of the structural model used in testing the research hypotheses are given below. According to these results, in order for the hypotheses to be accepted, the significance values are required to be $p<0.05$, and T values between -1,960 and +1.960 (Hair et al., 2018).

Table 7 shows the analysis results of the hypothesis tests. According to these results, the effect of gastronomic experience on intention to eat has been found to be significant since the p-value is $p<0.05$ ($p=0.000$), and the T value ($T=3.849$) is above +1.960. Another hypothesis, the effect of food image on intention to eat, has been found to be significant since the p-value is $p<0.05$ ($p=0.000$), and the T value ($T=4.201$) is above +1.960.

5. Conclusions And Implications

In the present study, it has been investigated how domestic tourists visiting Hatay (Türkiye) shape the effects of gastronomic experience and food image towards local gastronomic tourism products on intention to eat local foods. In this context, reliability and validity analyses were applied to the scales used in the collection of research data. Before starting these analyses, factor loadings were controlled, and some statements belonging to the gastronomic experience that remained below 0.40 were excluded from the analysis. Excluded statements are; “my gastronomic experience is only an experience that satisfies my hunger”, “gastronomic products that I am familiar with while on holiday are important to me”, and “my gastronomic experience is an ordinary experience”. Additionally, the statement "offers restaurant menus in English” belonging to the food image was excluded from the analysis. To test the reliability of the scales, Cronbach's Alpha and CR coefficients were examined, and it was concluded that this value was ≥ 0.70, which is the threshold value. In order to test the validity of the scales, cross-loadings, Fornell-Larcker Criteria, and HTMT Criteria were examined. The analysis revealed that these criteria are above the threshold value. From this point of view, it can be said that the reliability and validity of the scales used to collect data in the research are ensured. The partial least squares method of structural equation modeling (PLS-SEM) was used to test the model created for the objective of the research.

Within the scope of the research, the effects of tourists' gastronomic experience on the intention to eat local foods and the effects of food image on the intention to eat local foods were investigated. In the path analyses made for this purpose, it was concluded that gastronomic experience has a significant effect on the intention to eat local foods. Therefore, the H1 hypothesis was accepted. When the values obtained as a result of the analyses are examined, it is seen that the food image has a significant effect on the intention to eat local foods. In other words, the H2 hypothesis was also accepted. Based on these results, it is thought that there are positive perceptions towards the local gastronomic products in the tourist destination, and there is also an important trend in participating in gastronomic activities in the destination.

Practical Implications

In line with the research, it is necessary to make some suggestions to the stakeholders of the tourism industry such as local governments, independent restaurant businesses, hotel businesses, tourist guides, and travel agencies. In this direction, the suggestions made to both destination managers and destination marketers are as follows:

Promotion and marketing strategies for gastronomic tourism products can be developed according to the demographic characteristics of the tourists visiting the region, such as their length of stay, accommodation types, ages, educational levels, marital statuses, and economic levels.

The participation of tourists can be encouraged by organizing gastronomic routes and food tours developed specifically for Hatay. Moreover, the participation of tourists can be achieved through practices such as olive harvest and olive oil production, which have a very important place for the destination. In addition to these, cultural values can be transferred by organizing

Table 7: Results of the Research Model

Variables	Standardized Path Coefficients	T Values	P Values	Accepted/Rejected
gastronomic_experience -> intention_to_eat	0,386	3,849	0	Accepted
food_image -> intention_to_eat	0,417	4,201	0	Accepted

Source: Authors

gastronomic tours and forgotten dishes can be exhibited together with their rituals.

With the participation of the stakeholders of gastronomy tourism, digital platforms and social networks can be established to promote the local products of gastronomy tourism and their active uses can be ensured. A gastronomy guide including local restaurants, museums, and food markets can be prepared and offered to tourists. In addition, information is provided by developing applications that include the locations of local products and the dates on which they are presented to promote gastronomy tourism. In particular, the promotional brochures of the region can include information about what, where, how, and with whom to eat for tourists looking for local food experiences.

On the other hand, sections based on the local products of gastronomy tourism can be created and presented on the menus of the establishments for the guests staying. Moreover, it is necessary to pay attention to adapt to the tastes of the guests while including the food and drinks that reflect the culture of the city. Gastronomic tours to experience local foods can be organized in cooperation with tour companies.

Theoretical Implications

This study, which was conducted to determine the gastronomic experience, food image, and the tourists' intention to eat local foods, was conducted with an empirical approach. This study is supported by studies in the literature such as Chang and Chang (2010), Kodaş (2018), Kim et al. (2020b), Işın and Ünlüönen, (2020), and Yılmaz (2021). In this context, Chi et al. (2013), Antón et al. (2019), and Hsu and Scott (2020) emphasize that gastronomic experience has significant effects on the intention to eat local foods. According to the findings of the present study, it was understood that gastronomic experience and food image have remarkable effects on the intention to eat local foods. Therefore, this study shows parallelism with the studies in the literature. In addition, the positive attitudes of the tourists visiting the destination towards local foods increase their satisfaction with the local foods. Accordingly, touristic experiences increase the satisfaction level of customers (Stone & Migacz, 2016; Kim et al., 2020c; Suhartango et al., 2020; Keskin et al., 2022). In this study, it was determined that gastronomic experiences have positive effects on customer satisfaction, and the findings showed parallelism with the literature. The image created by the food plays an essential role in the formation of the intention to eat local foods. Experiences in the intention to eat local foods support the construction of a positive image for the destination. There is also a relationship between a positive destination image and a memorable tourism experience (Seo et al., 2017; Kim, 2018; Dagustani et al., 2018; Hsu & Scott, 2020). In this study, it was determined that the food image of the destination has effects on the gastronomic experience/intention to eat. This result is similar to previous studies. In addition, this study helps local tourists to determine and make sense of their gastronomic experiences and intentions to eat local foods. Local food markets, olive groves, vineyards, olive oil factories, museums with gastronomic products, and visits to local restaurants play an effective role in the formation of these gastronomic experiences. Experience-enhancing gastronomic tourism elements are carried out by researchers by focusing on a certain point. In these studies, local food or local restaurant experiences (Kim & Kim, 2019; Soltani et al., 2021), street foods (Lee et al., 2020), local food markets (Pérez Gálvez et al., 2021), food festivals and fairs (Park & Ha, 2016; Ding & Lee, 2017) and gastronomy museums (Kim et al., 2020b) have been investigated only with a focus on the experience on a specific tourism element. A holistic approach was adopted in this study, and all gastronomic tourism elements of the destination were discussed. Thus, local restaurants and markets, fairs and festivals, gastronomy museums, and experiences for street food were determined. In addition, the study focused on the intention to eat local foods. Among the factors affecting the intention to eat local foods are food curiosity, past experiences, motivation, and personality traits (Cohen & Avieli, 2004; Skuras et al., 2006; Kim & Eves, 2016; Girgin, 2018). In this study, the destination image that is effective in the formation of the gastronomic experiences of the tourists and the intention to eat local foods are discussed from a holistic perspective.

Limitations and Recommendations for Further Research

The present study has some limitations. Firstly, data of the study was compiled from domestic tourists visiting the Hatay (Türkiye) destination, which is the subject of the research. Therefore, the data obtained reflect the experiences and thoughts of domestic tourists. In this context, future studies on the Hatay destination can be repeated on foreign tourists. In this way, it will be possible to compare the data obtained from domestic tourists with the data obtained from foreign tourists. Secondly, the fact that Hatay is a city with rich gastronomic tourism products makes the study special. The fact that this destination is a gastronomy city attracts the attention of tourists thanks to its eating and drinking elements. In particular, the experiences of local gastronomic tourism products of the tourists visiting Gaziantep and Afyonkarahisar, which are gastronomic cities with rich gastronomic tourism products such as the province of Hatay Türkiye, can be examined. In this way, the gastronomic richness of these gastronomy cities can be revealed, and these cities can be compared.

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INFO PAGE

The effects of gastronomic experience and food image towards the gastronomic products of local tourism on the intention to eat local foods: The case of Hatay

Abstract

Destinations offer various tastes to visitors as tourism products. Experiencing these delicacies is considered necessary for the tourists' travel motivation. Tourists travel to these destinations to increase their travel motivations and to have unique gastronomic experiences. In this sense, this study aims to determine the effects of gastronomic experience and food image on the individuals' intentions to eat Hatay's local foods. In this context, data of the study was collected from 371 individuals who had gastronomic experiences in the province of Hatay, using the survey technique. Structural equation modeling (SEM) was used to analyze the data. In this context, validity, reliability, and path analyses were performed. As a result of the path analysis, it was concluded that gastronomic experience and food image have significant impacts on the intention to eat local foods.

Keywords: *Gastronomic experience, Intention to eat, Local food, Food image*

Authors

Full Name	Author contribution roles	Contribution rate
Adem Ademoğlu:	*Conceptualism, Methodology, Software, Validation, Formal Analysis, Investigation, Resources, Data Curation, Writing - Original Draft, Writing - Review & Editing, Visualization, Supervision, Project administration, Funding acquisition*	*50%*
Memet Şahan:	*Conceptualism, Methodology, Software, Validation, Formal Analysis, Resources, Data Curation, Writing - Original Draft, Writing - Review & Editing, Visualization, Supervision, Project administration, Funding acquisition*	*50%*

Author statement: *Author(s) declare(s) that All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.* ***Declaration of Conflicting Interests:*** *The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article*

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Determining destination competitiveness in medical tourism: A study based on AHP-QFD framework**

Vildan Yılmaz, Ebru Güneren*

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Analytic hierarchy process (AHP),
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ABSTRACT

This study investigates the competitiveness of Alanya, a medical tourism destination in Türkiye, and determines appropriate strategies using the analytical hierarchy process and quality function deployment. Data were collected from medical tourism experts to gain managerial insights into the factors affecting the competitiveness of medical tourism. The findings show that medical tourists primarily focus on medical factors such as competence of doctor and quality of treatment. The main strategies to strengthen competitiveness are to create a healthcare-free zone, to increase the number of accredited health care providers, and to encourage the involvement of doctors in academic research and ongoing training. For researchers interested in assessing competitiveness in medical tourism destinations, the study presents general determinants that should be considered in each destination. In addition, the findings show that each medical tourism destination should focus on its own determinants of medical tourism competitiveness when developing its marketing strategies. Finally, it shows that the analytical hierarchy process and quality function deployment approaches can be successfully applied in achieving destination competitiveness and strategic planning, with content validity and importance performance analysis.

1. Introduction

In many industrialized countries, social security and health insurance systems cover many health-related problems and offer free diagnosis and treatment to the inhabitants. However, there may be long waiting times for certain procedures while most systems exclude certain procedures, such as wellness, psychological disorders, and dental and aesthetic issues (Connell, 2006). Additionally, some countries lack access to the latest medical techniques for treating certain disorders while legal and ethical constraints may restrict access to certain surgeries, especially transgender surgery and organ transplants (Cohen, 2015). Consequently, many patients prefer getting medical treatment overseas because of lower costs and waiting times, better care, and opportunities to incorporate fun, relaxation, and leisure activities (Arueyingho et al., 2022; Connell, 2006; Heung, Kucukusta, & Song, 2010; Fetscherin & Stephano, 2016). This is known as medical tourism (MT) (Carrera & Bridges, 2006, Connell, 2006, Bookman & Bookman, 2007, Wongkit & McKercher, 2016).

Having been worth under $10 billion in 2000 (Zhang et al., 2022, pp. 4), MT is currently estimated to be worth $45–100 billion and to grow 25% annually over the next decade (Zolfagharian et al., 2018) to reach $143 billion by 2025 (Roy et al., 2022). Many countries, especially developing ones in Eastern Europe, Asia, and Latin America, have been planning legally and practically to become more competitive so as to benefit from this expanding market (Hunter, 2007; Smith et al., 2011; Zolfagharian et al., 2018; Al-Talabani et al., 2019).

Meanwhile, academic studies have focused increasingly on MT since the 2000s (Temizkan et al., 2015). According to Hoz-Correa et al. (2018), the most important contributors and frequently cited studies include Connell (2006), Bookman and Bookman (2007), De Arellano (2007), Horowitz, Rosensweig and Jones (2007), Carrera and Bridges (2006), and Lunt and Carrera (2010). Previous studies on MT, which primarily analysed the industry from a supply and demand perspective, have proposed various models incorporating push and pull factors to understand medical tourists' decision making. These models and empirical MT research indicate that these tourists are mainly attracted by treatment quality and the competencies of the destination country's physicians, hospitals, and clinics (Smith & Forgione, 2007; Wongkit & Mckercher, 2016; Fetscherin & Stephano, 2016). More specifically, each MT destination has its own characteristics, stands out for particular treatments, and attracts patients from certain countries (Hunter, 2007). Thus, each patient's particular

*Corresponding Author

Vildan Yılmaz: *Dr., Alanya Alaaddin Keykubat University, Alanya, Türkiye, Email: vildan.yilmaz@alanya.edu.tr, Orcid Id: 0000-0001-8211-7082*

Ebru Güneren: *Assoc. Prof., Nevşehir Hacı Bektaş Veli University, Nevşehir, Türkiye, Email: ebruguneren@nevsehir.edu.tr, Orcid Id: 0000-0003-2669-4402*

Research paper

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requirements may lead them to choose different destinations (Cormany, 2010; Heung et al., 2010), so a destination's competitiveness depends on matching its MT resources with the needs of medical tourists choosing it. Hence, research into MT competitiveness is conducted on specific destinations (Heung et al., 2011; Sultana et al., 2014; Roy et al., 2018), with each study developing destination-specific competitive recommendations based on various methodologies and theories.

Given the differing determinants of MT destination competitiveness, the present study focuses on Alanya in Türkiye, a developing country. The main aim is to identify the factors determining MT competitivness in Alanya from the perspective of destination competitiveness theory and to make recommendations to strengthen its competitiveness in the multidimensional MT market. By focusing on Alanya, the study also aims to contribute to MT practices in developing countries more generally by providing a conceptual framework for evaluating MT competitiveness in such destinations. The study first uses content validity (CV) to identify the factors determining the competitiveness of all Alanya's MT destinations. Then, it integrates analytic hierarchy process (AHP), importance-performance analysis (IPA), and quality function deployment (QFD) to evaluate Alanya's MT infrastructure, activities, organizations, opportunities, and attractions to address the needs of tourists and improve the destination's attractiveness.

The next sections include a brief literature review followed by the methodology and research design. The findings are then discussed in relation to the literature. Finally, after presenting the conclusions, the study' limitations and directions for further research are discussed.

2. Literature review

Since the 1990s, tourism academics have increasingly focused on destination competitiveness (Crouch, 2011). Much of this extensive research has drawn on competitiveness theory, developed by Porter regarding business practices since the 1980s (Crouch & Ritchie, 1999; Dwyer & Kim, 2003) and which synthesizes comparative and competitive advantage (Porter, 1990). In tourism, comparative advantage refers to inherited or endowed resources, such as climate, landscape, flora, and fauna; competitive advantages refers to created goods like tourism infrastructure (Dwyer and Kim, 2003, pp. 372). Destination competitiveness broadly encompasses cross-country price differences caused by currency fluctuations, many aspects of the tourism industry, and various determinants of destination attractiveness (Dwyer et al., 2000). A tourist destination's long-term success and survival therefore depends both on its natural and created endowments, and its ability to use these resources effectively (Crouch & Ritchie, 1999; Karakuş, 2019).

Regarding MT, however, competitiveness determinants are different because of tourists' varying motivational factors, which previous research assessed from a supply and demand perspective. For instance, costs, healthcare quality, accreditation, and physician expertise are important in medical facility selection, whereas regulatory and economic conditions affect the country choice (Smith & Forgione, 2007). Fetscherin and Stephano (2016) developed a two-way model of MT decision-making incorporating push and pull factors. Push factors are those motivating people to prefer medical treatment in a different country to their own; pull factors are the destination characteristics attracting medical tourists to that country over their own, including the country's environment, touristic attractions, and MT prices, facilities, and services.

While such models offer general insights into determinants of medical tourism destination selection process, MT competitiveness theories have been supplemented by destination-specific studies. For example, Heung et al., (2011) examined competitiveness of medical tourism in Hong Kong and determined main barriers through a qualitative research. Sultana et al. (2014) discussed the factors influencing the attractiveness of India with an application of structural equation modelling approach. Wongkit and Mckercher (2016) discovered the desired attributes of medical service for Thailand's most well-known MT destinations, Bangkok and Phuket in a quantitative research. Similarly several studies have also discussed this growing industry in many well-known destinations with different methods (Awang et al., 2015; Ganguli & Ebrahim, 2017; Roy et al., 2018).

Similar to these Asian destination, Türkiye, a developing country, draws many medical tourists recently (Ulaş & Anadol, 2016) and promotes to invest significantly in MT through the Ministry of Culture and Tourism, Ministry of Health, and Ministry of Economy (Fetscherin & Stephano, 2016). The competitiveness of Türkiye in medical tourism has thus been the subject of numerous research in recent years (Tontuş, 2018; Üstün & Uslu, 2022). Although some of these studies focus on Türkiye as a whole, there are also studies conducted in different destinations of Türkiye aiming to promote medical tourism. Antalya (Otamış and Yüzbaşıoğlu, 2015); İzmir (Sayın et al., 2017) and Istanbul (Pekerşen et al., 2021) are among the most important of these destinations. In addition to these destinations, another important destination targeting a wide market share in the world MT market is Alanya. Alanya, a popular summer destination on the south coast of Türkiye, welcomes nearly three million tourists and more than thirty thousand foreign residents, mostly from Northern Europe (Kahveci & Okutmuş, 2017). In addition to its touristic attractions, Alanya provides health and medical services with four hospitals, over 100 oral and dental health centers and many aesthetic clinics. It is also known that Alanya has hosted many medical tourists for many years. In addition, both resident foreigners and foreign tourists report high satisfaction with Alanya's health services (Yazan, Şengül, & Girgin, 2018). Taking into account all these features of the destination, the stakeholders in the national and local MT supply leg established the Turkish Medical Tourism Federation (TURSAF) in Alanya in 2017. Later, considering the city's MT potential, the federation made Alanya Health Tourism Association (ALSTUD) its administrative center. This development was followed by the establishment of the Health Tourism Research and Application Center (SATUMER) by Alanya Alaaddin Keykubat University in 2020.

The above-mentioned developments increase the possibility of Alanya turning into a competitive medical tourism destination, both nationally and internationally, beyond being a federation center. However, from the perspective of destination management and marketing, it is not possible to determine competitive strategies without determining and analyzing the current situation. No research has been found in the literature that analyzes the competitiveness of Alanya from a stakeholder perspective and proposes specific strategies for increasing the market share of medical tourism. From this point of view, the main objectives of this study are to provide a detailed overview of the current state of the medical tourism industry in Alanya and to present a perspective to industry leaders and decision makers, including factors and suggestions that will increase the competitiveness of the MT industry. In addition, this study will also guide the path to be followed for development and competitiveness in other MT destinations, using the methods to be explained in detail below.

3. Methodology

This study aims to identify the factors affecting the medical tourism destination choices of tourists, evaluate the importance of these factors and the performance of Alanya in terms of these factors, identify the areas where Alanya lags behind compared to its competitors, and present strategies for the development of these areas. Both quantitative and qualitative techniques were used to explore the situation, and to propose strategies within a methodological framework. Incorporating AHP and QFD, and CV and IPA, this study provides the required data accurately. After reviewing the MT literature, CV was implemented to identify the factors that influence medical tourists' destination choices, which will be called as the determinants of MT destination competitiveness in this study. AHP was then used to evaluate the importance of these determinants for Alanya and compare its performance with competitor destinations. IPA was used to identify Alanya's less successful areas, and various strategies were developed by QFD to overcome these deficiencies.

Table 1 lists and outlines the steps followed in this study.

The following headings contain detailed information about the steps in the table and how each method is implemented.

Table 1. Study steps

	Step	Method	Sample	NoP
1	Determining destination requirements and destination competitiveness evaluation	**CV:** Evaluation by MT experts of the attributes to determine destination MT competitiveness .	Experts with knowledge and experience in international MT throughout Turkey	13
		AHP: Determining the weighted importance attribute scores determined by experts and Alanya's MT performance against its competitors in terms of related attributes using pairwise comparisons.	MT experts in Alanya	14
		IPA: Evaluation of the areas to concentrate the IPA matrix on SPSS		
2	Determining functional requirements	**In-depth interviews:** Obtaining suggestions regarding the areas to concentrate indicated by IPA	MT experts in Alanya	14
3	Evaluation of the relationship between destination requirements and functional requirements	**In-depth interviews:** Correlating the effects of suggestions obtained with expert opinions on the development of the weak areas in the matrix	MT experts in Alanya	8
4	Evaluation of the relationship between functional requirements	**In-depth interviews:** Correlating the effect of each suggestion on the other obtained with expert opinions in the matrix	MT experts in Alanya	8
5	Determining the priorities of functional requirements	Determining the strategies to strengthen Alanya's competitiveness by evaluating the relations obtained from the matrices		

Source: Authors

Content validity

CV ensures consistency between the scale to be developed and the feature to be measured. It was first used by Lawshe (1975) to measure workplace performance (Wilson et al., 2012). By evaluating each item in the data set, CV ensures that expressions that strongly represent the subject are included in the scale (Ayre & Scally, 2014). CV defines how many of the experts consulted should evaluate an item as 'essential' for that item to reach a sufficient level of validity to be included in the scale (Wilson et al., 2012). For this, a study is conducted in which a sufficient number of expert opinions (between 5 and 40) are obtained (Ayre & Scally, 2014; Yeşilyurt & Çapraz, 2018).

Evaluate the following items as 1- Essential, 2- To be revised 3- Non-essential. You may indicate your suggestions for revisions and the reasons for the removal of the items that you have marked as non-essential next to the item or under the form.		**Essential**	**To be revised**	**Non-essential**
1	i item	**1**	**2**	**3**

Figure 1. Evaluation of the items in CV
Source: Lawshe, 1975, pp. 567

The benefits of CV include controlling the number of items and improving construct validity of the structure that the scale is trying to measure. As a result, a useful scale with sufficient scope can be developed (Yeşilyurt & Çapraz, 2018).

Analytic hierarchy process

The limited availability of natural and other resources, which underlies the scarcity principle in economics (Dinler, 2015), forces decision-makers to make choices. Finding solutions to decision-making problems (Carlsson & Fullér, 1996) systematically, consistently, and efficiently became an important field of study during the 1970s, with many models and theories that have become increasingly important (Dyer et al., 1992; Carlsson & Fullér, 1996). The first hierarchical model for solving such problems is AHP, developed by Saaty (Saaty, 1987, pp.161; Carlsson & Fullér, 1996). AHP first identifies the available alternatives and then defines the appropriate criteria for choosing from among them (Saaty, 1990) to enable the optimum decision (Ömürbek & Tunca, 2013; Doğan & Karakuş, 2014). Thus, the model is hierarchical (Figure 2), with purpose above the selection criteria and potential sub-criteria and the alternatives to choose at the bottom (Saaty, 1987, pp.161).

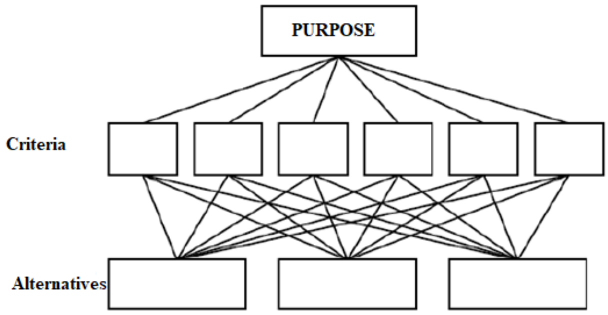


Figure 2. Three-level AHP model
Source: Ömürbek & Tunca, 2013, pp.50

To determine the priorities in solving the selection problem, the criteria are weighted through pairwise comparisons to determine relative importance weights that affect decision making (Saaty, 1990; Zhou *et al.*, 2015).

Table 2. Fundamental scale of absolute numbers

Importance Value	Definition
1	Equal importance of two criteria
3	Moderate importance of one over another
5	Strong importance of one over another
7	Very strong importance of one over another
9	Extreme importance of one over another

Source: Erbaş, 2016, pp. 99

To compare two criteria, Saaty (2008, pp. 86) developed a fundamental scale of absolute numbers (see Table 2). This defines the importance of criteria *i* compared to criteria *j*. For example, if two criteria contribute equally to the objective then their importance value is 1 whereas if the importance of one criteria over another is the highest possible then the importance value is 9.

However, the expert participants' evaluations in AHP may be inconsistent (Saaty, 1990). The level of this consistency is measured by the consistency ratio (CR) or inconsistency ratio (IR) (Saaty & Özdemir, 2003), calculated by comparing the number of elements with their eigenvalues (λ). That is, the reliability of the expert answers is evaluated by detecting inconsistencies (Saaty, 1990, pp.13), with matrices with an inconsistency ratio of 0.10 or lower considered consistent and ratios higher than 0.10 considered inconsistent (CR≤0:1) (Saaty, 1977).

Many studies have used AHP to evaluate tourism planners' managerial decisions (Crouch, 2011), and measure and improve tourist destination competitiveness (Das & Mukherjee, 2008; Hsu *et al.*, 2009; Zhou *et al.*, 2015; Erbaş & Perçin, 2016). Crouch (2011) provides one of the most important demonstrations of AHP's utility for evaluating destination competitiveness while other studies have shown that the most important reason for integrating AHP into QFD is to increase measurement precision and objectivity (Das & Mukherjee, 2008; Doğan & Karakuş, 2014; Karakuş & Çoban, 2018).

The data in this study were analyzed using AHP Excel Template Version 2018-09-15, prepared by Goepel

(2013). Therefore, the formulas for AHP data analysis and the detailed calculations are not decsribed here as they can be consulted in other sources, whether by Saaty (1977, 1987, 1990) or other researchers (Das & Mukherjee, 2008; Hsu *et al.*, 2009; Doğan & Karakuş, 2014), or using expert choice (Saaty, 1990, pp. 20).

Importance performance analysis

IPA, created by Martilla and James (1977), provides a method used in marketing for evaluating which aspects of a product or service should be prioritized to increase customer satisfaction (Albayrak & Caber, 2011). The method evaluates both each product feature's importance and performance (Martilla & James, 1977) using a three-stage process. The basic characteristics of the product are first determined through literature reviews, focus group interviews, managerial evaluations, etc. (Oh, 2001) or CV as in this study. Then, the importance and perceived performance of each product or service feature are determined from the customers' perspective (Martilla & James, 1977). Finally, each feature's importance and performance values are calculated and presented in a matrix from which the median or mean importance and performance values are calculated to identify where their axes cross (Martilla & James, 1977). These creates four quadrants, as seen in Figure 3.

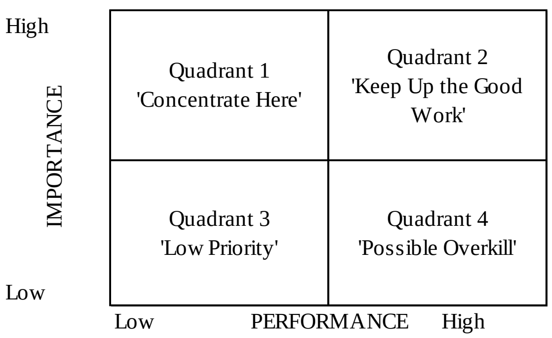


Figure 3. Importance-performance matrix
Source: Albayrak & Caber, 2011, pp. 629

While all four quadrants here have significant implications for product or service providers, for managers wishing to improve competitiveness and success, Quadrant 1 is the most critical because customers consider performance as low for the features they consider most important.

IPA is a simple and easily applicable technique that has been frequently used in tourism research into product and destination development and competitiveness (Oh, 2001; Enright & Newton, 2004; Murali *et al.*, 2016). Studies that combine IPA and AHP integrate them in two ways. One way is to apply AHP to the data set after conducting IPA, then create a hierarchical structure using factor analysis, and finally obtain competitiveness values (Wang *et al.*, 2016). The other way is to create a hierarchical structure based on data obtained from the literature, and then determine importance and performance values using AHP. Finally, the weighted average values that emerge can be used in the IPA (Erbaş & Perçin, 2016). The second approach is preferred in the present study. Hence, the values that emerged from the IPA provided the data for the destination requirements.

Quality function deployment

QFD accurately identifies customer needs and expectations, and incorporates them into designing new products (Tan & Shen, 2000). It can also be used to assess a business's current position against competitors (Erbaş, 2016). By offering a logical framework for prioritization, QFD eliminates irrational choices. Instead, it transforms them into a useful strategic planning tool (Erbaş & Perçin, 2016). The method is based on the matrix structure called house of quality (HOQ) (Figure 4) (Doğan & Karakuş, 2014, pp. 180), which provides answers to the following questions (Matzler & Hinterhuber, 1998, pp. 36):

1. What are our customers' requirements?
2. How important are these requirements?
3. How do customers evaluate us against competitors?
4. Which functional requirements meet our customers' requirements?
5. To what extent do these functional requirements meet our customers' requirements?
6. To what extent do the functional requirements affect each other?

Regarding HOQ, as shown in Figure 4, the term "customer requirements" was changed to "destination requirements" for this study. In addition, the HOQ did not include a competitive assessment matrix. Instead, the destination requirements on IPA were determined using Alanya's performance weightings as the areas to concentrate on (Figure 3).

The matrix reveals the relationships between destination requirements and the functional requirements to meet them. As Figure 4 shows, the destination requirements and functional requirements to meet them are determined first. Then, by correlating destination requirements with functional requirements, the importance of each functional requirement for meeting the destination requirements can be ranked. Next, by evaluating the relationship between highly important functional requirements, the potential positive or negative effects they have on each other can be determined (Erbaş, 2016). Finally, a systematic framework can be proposed for the competitive strategies. HOQ offers practictioners a flexible framework because matrices can be deleted or added (Matzler & Hinterhuber, 1998; Wang, 1999; Chien & Su, 2003).

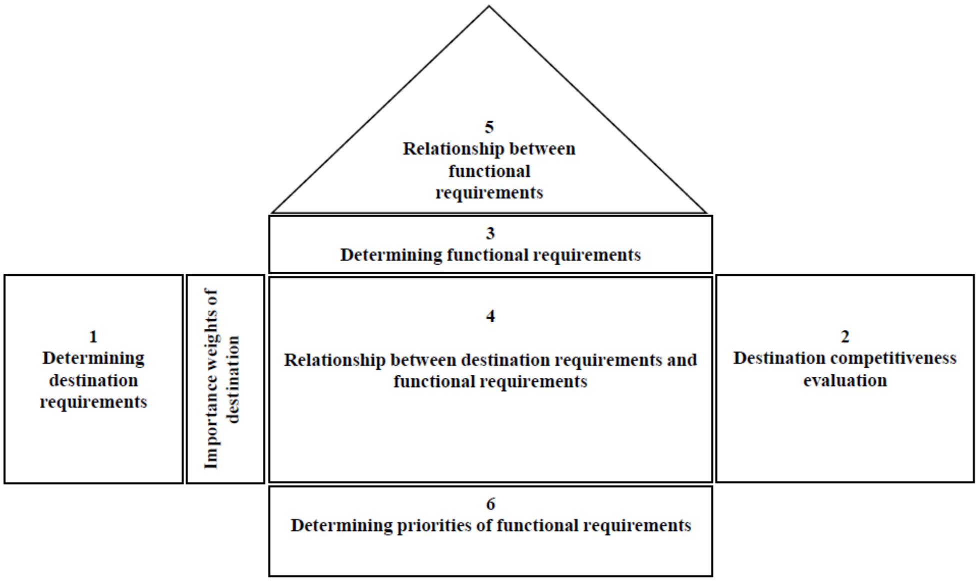


Figure 4. House of quality

Source: Adapted from Matzler & Hinterhuber, 1998, pp 35-36; Wang, 1999, pp. 900; Das & Mukherjee, 2008, pp. 326

QFD was first established in the 1960s during Japan's quality control and improvement research era before gaining global popularity (Tan & Shen, 2000, pp. 1141). QFD is used in many fields, including product design, planning, decision-making, engineering, management, teamwork, scheduling, and costing (Chan & Wu, 2005, pp. 467), and recognized as a powerful instrument in strategic service planning (Das & Mukherjee, 2008; Doğan & Karakuş, 2014; Erbaş & Perçin, 2016).

4. Results

This study aimed to identify which factors make MT destinations competitive in general before identifying the factors making Alanya successful or unsuccessful. Various competitive strategies were then developed for the unsuccessful areas. The following sections present the data analyses and results.

Content validity results

According to Table 1, the study idenfied which factors patients consider when choosing an international treatment destination, which determine the competitiveness of MT destinations as the first step. To do so, a data set of 98 items was created by compiling the frequently repeated factors from the literature for international patient motivation and destination competitiveness. Following a focus group interview with three academicians, this number was reduced to 66. To create the CV data set, the opinions of 13 qualified MT experts (see Table 1) were taken to determine the CV of the 66 items obtained from the literature. Here, the selection of the experts to consult is critical (Lawshe, 1975). In the present study, 13 experts were interviewed for about one hour during HESTOUREX 2019, Antalya Health and Sports Tourism Fair. Each expert was asked to evaluate the factors in the structured data set. The CVR and CVI calculations were then made using Microsoft Excel 2013. Based on the CVR values , 12 items more items with values of 0 or and less than 0 were eliminated. Finally, the CVR critical values in Table 3 were used to select the factors for the data set (Ayre & Scally, 2014; Yeşilyurt & Çapraz, 2018).

Table 3. Minimum/Critical Values of CVR

Number of Experts	Minimum Value	Number of Experts	Minimum Value
5	1.000	23	0.391
6	1.000	24	0.417
7	1.000	25	0.440
8	0.750	26	0.385
9	0.778	27	0.407
10	0.800	28	0.357
11	0.636	29	0.379
12	0.667	30	0.333
13	0.538	31	0.355
14	0.571	32	0.375
15	0.600	33	0.333
16	0.500	34	0.353
17	0.529	35	0.314
18	0.444	36	0.333
19	0.474	37	0.297
20	0.500	38	0.316
21	0.429	39	0.333
22	0.455	40	0.300

Source: Ayre & Scally, 2014, pp. 85

The critical CVR value at α=0.05 significance level was determined as 0.538 for 13 experts. Accordingly, 31 items were selected for the scale. Their average CVR value was 0.6778. Since this was greater than the critical CVR value of 0.538, the content validity of the 31 items could be considered statistically significant (Lawshe, 1975;

Table 4. Determinants of Destination Competitiveness in MT

N	CVRcritical	Factor	Reference
1	0.538	Accessibility of destination	Heung *et al.,* 2010; Aydın & Karamehmet, 2017; Zehrer *et al.,* 2017; Hoz-Correa *et al.,* 2018
2	0.846	Safety and security	Dwyer & Kim, 2003; Enright & Newton, 2005; Gomezelj & Mihalič, 2008; Zhou *et al.,* 2015
3	0.538	Infrastructure facilities	Enright & Newton, 2004; Heung *et al.,* 2010; Zehrer *et al.,* 2017; Ganguli & Ebrahim, 2017; Roy *et al.,* 2018
4	0.538	Positive country image	Crouch & Ritchie, 2003; Fetscherin & Stephano, 2016; Wongkit & Mckercher, 2016; Hoz-Correa *et al.,* 2018
5	0.692	Waiting time for treatment	Connell, 2006; Horowitz *et al.,* 2007; Hanefeld *et al.,* 2015; Hoz-Correa *et al.,* 2018
6	0.846	Prices of treatment	Heung *et al.,* 2010; Sultana *et al.,* 2014; Wongkit & Mckercher, 2016; Fetscherin & Stephano, 2016; Ganguli & Ebrahim, 2017; Al-Talabani *et al.,* 2019
7	0.692	Quality of medical equipment	Bookman & Bookman, 2007; Cormany, 2010; Gill & Singh, 2011; Fetscherin & Stephano, 2016
8	0.692	Accreditation of treatment / healthcare providers (hospitals and clinics)	Smith & Forgione, 2007; Heung *et al.,* 2011; Wongkit & Mckercher, 2016; Lunt *et al.,* 2015; Henson *et al.,* 2015; Ganguli & Ebrahim, 2017
9	0.692	Competence of doctors	Connell, 2006; Horowitz *et al.,* 2007; Das & Mukherjee, 2016; Al-Talabani *et al.,* 2019
10	0.692	Competence of other healthcare professionals	Kotler *et al.,* 2008; Debata *et al.,* 2015; Wongkit & Mckercher, 2016
11	0.692	Competence of healthcare providers	Crooks *et al.,* 2010; Debata *et al.,* 2015; Fetscherin & Stephano, 2016; Roy *et al.,* 2018
12	0.692	Quality of treatment	Bookman & Bookman, 2007; Connell, 2011; Lunt *et al.,* 2015; Das & Mukherjee, 2016; Fetscherin & Stephano, 2016
13	0.538	Patient follow-up services	Horowitz *et al.,* 2007; Smith & Forgione, 2007; Crooks *et al.,* 2010; Wongkit & Mckercher, 2016; Henson *et al.,* 2015; Fetscherin & Stephano, 2016
14	1	Intermediaries	Crooks *et al.,* 2010; Connell, 2011; Henson *et al.,* 2015; Lunt *et al.,* 2015; Wongkit & Mckercher, 2016
15	1	Opportunity to take a vacation	Connell, 2006; Henson *et al.,* 2015; Zehrer *et al.,* 2016; Aydın & Karamehmet, 2017
16	0.538	Prices of touristic products	Connell, 2011; Sultana *et al.,* 2014; Fetscherin & Stephano, 2016; Zehrer *et al.,* 2017
17	0.538	Hospitality	Dwyer & Kim, 2003; Zhou *et al.,* 2015; Aydın & Karamehmet, 2017; Zehrer *et al.,* 2017
18	0.538	Cultural and natural attractions	Gomezelj & Mihalič, 2007; Connell, 2011; Zhou *et al.,* 2015; Henson *et al.,* 2015; Perna *et al.,* 2018
19	0.538	Food and beverage facilities	Connell, 2011; Lunt *et al.,* 2015; Zhou *et al.,* 2015; Fetscherin & Stephano, 2016
20	0.692	Accommodation companies	Connell, 2006; Lunt *et al.,* 2015; Henson *et al.,* 2015; Heung *et al.,* 2010; Fetscherin & Stephano, 2016
21	0.692	Treatment and tour packages	Connell, 2006; Henson *et al.,* 2015; Das & Mukherjee, 2016; Fetscherin & Stephano, 2016
22	0.538	Government policy	Dwyer & Kim, 2003; Enright & Newton, 2005; Crouch, 2011; Lunt *et al.,* 2015; Aydin & Karamehmet, 2017
23	1	Bilateral agreements between countries	Hopkins *et al.,* 2010; Connell, 2011; Lunt *et al.,* 2015; Cohen, 2015
24	0.538	Compliance with medical ethics	Bookman & Bookman, 2007; Kotler *et al.,* 2008; Lunt & Carrera, 2010; Lunt *et al.,* 2015; Cohen, 2015
25	1	Promotional activities	Kotler *et al.,* 2008; Crooks *et al.,* 2010; Heung *et al.,* 2010
26	0.692	Use of information technologies	Kotler *et al.,* 2008; Crooks *et al.,* 2010; Henson *et al.,* 2015; Ganguli & Ebrahim, 2017; Roy et al.., 2018
27	0.692	Effectiveness of national / local tourism organizations	Dwyer & Kim, 2003; Heung *et al.,* 2010; Zehrer *et al.,* 2017; Perna *et al.,* 2018
28	0.692	Vision of the destination	Ritchie & Crouch, 2003; Lunt *et al.,* 2015; Zehrer *et al.,* 2017; Roy *et al.,* 2018
29	0.538	Analysis of competitor destinations	Enright & Newton, 2005; Zehrer *et al.,* 2017; Perna *et al.,* 2018

Source: Authors

Yeşilyurt & Çapraz, 2018). Of these, several items were excluded because they were represented in other variables or were not rated as priority statements by the majority of the experts. Thus, the final data set included the 29 expressions listed in Table 4.

Table 4 consists of the determinants of destination competitiveness in MT that were obtained by reviewing the most remarkable medical tourism studies in the literature, and then presented to the evaluation of MT experts throughout Türkiye. Due to the knowledge and experience of these experst in international healthcare destinations it has been ensured that these factors consist of a set of determinants that can be used in determining the competitiveness of any MT destination. In this study, these determinants were used to form the hierarchical structure, as explained below.

Analytic hierarchy process results

As previously explained, to make pairwise comparisons between factors listed in Table 4, factors close in terms of common features were gathered, before a factor definition was made for each group. Figure 5 shows the resulting hierarchical structure in which the second and third levels emerged by forming its purpose, factor headings, and sub-factors.

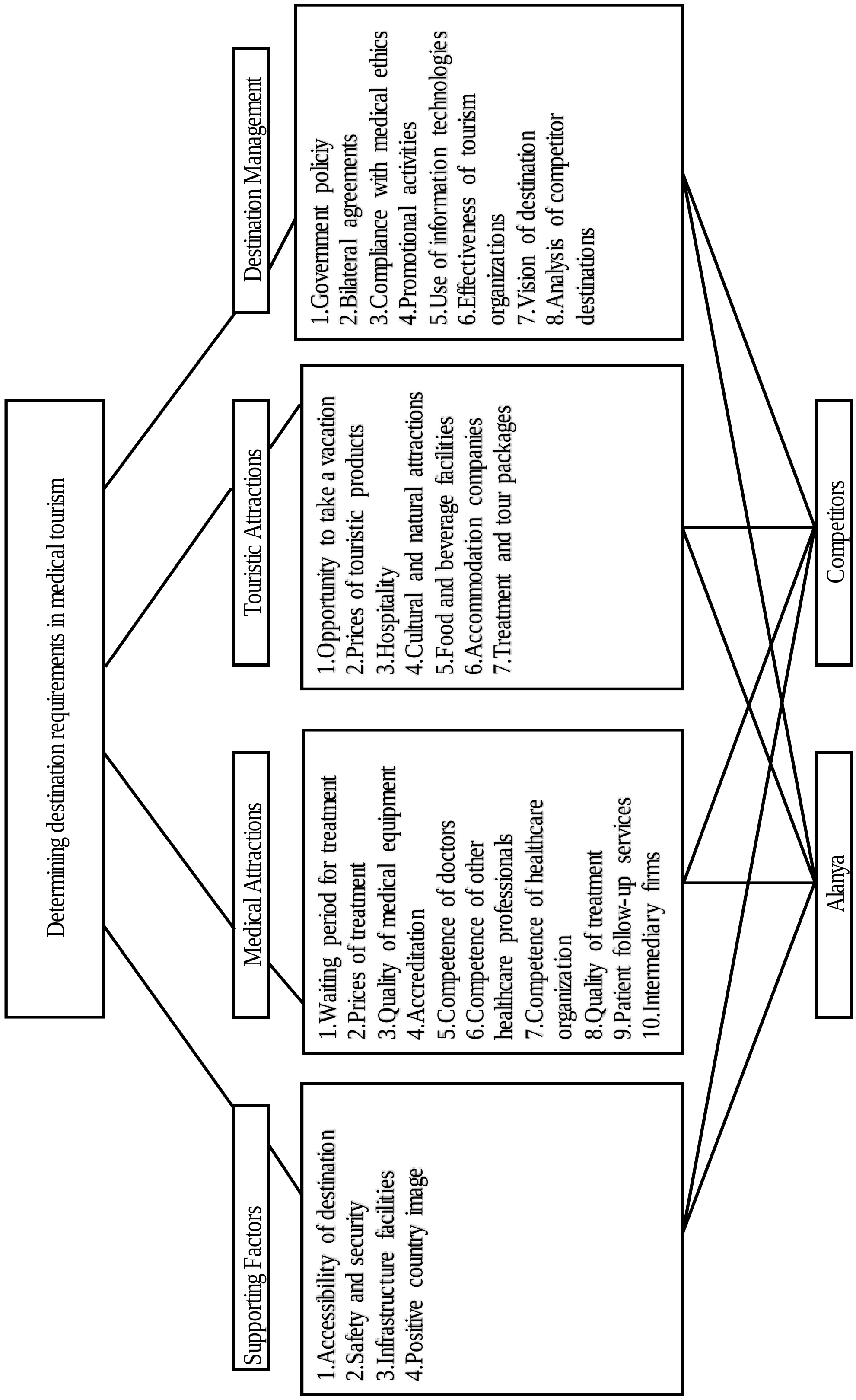


Figure 5. Hierarchical Structure for Determining Destination Requirements in MT

Source: Authors

Figure 5 also includes a fourth level with two alternatives: Alanya and competitors. The aim here was not to choose the most competitive destination but to determine Alanya's position relative to its competitors. These were destinations in similar markets considered preferable in their treatments, and with similar touristic attractions.

The questionnaire, consisting pairwise comparisons and some statistical information from the hierarchical structure, was administered to MT stakeholders in Alanya between May 2019-August 2020.

Participants' evaluations of medical tourists' preferences for Alanya

The questionnaire also asked the MT experts for information about medical tourists who prefer Alanya that was unavailable on governmental or non-governmental databases. AHP aims to have the determinants of MT destination requirements evaluated by subject experts (Crouch & Ritchie, 2005). Here, the experts were selected by two main criteria: holding mid-level or senior managerial positions as MT stakeholders, and/or having sufficient MT knowledge and experience They included TURSAF, ALSTUD, and SATUMER board members, and doctors, academicians, hotel, hospital and intermediary firm managers, and local managers (Table 5).

Table 5. Information on Experts

N	Profession	Experience (years)
1	Academician	15
2	Manager of intermediary firm	8
3	Doctor	21
4	Hotel manager	30
5	Academician	15
6	Dentist	12
7	Manager of intermediary firm	22
8	Manager of healthcare organization	15
9	Academician	5
10	Dentist	28
11	Doctor	26
12	Dentist	35
13	Manager of intermediary firm	28
14	Academician	27

Source: Authors

According to the experts (see Table 6), the most frequent reasons for patients' choosing an MT destination were that their treatments were not covered by health insurance in their home country and knowledge of the experiences of other previously treated patients. The experts also offered that Alanya's most popular services were aesthetic and dental. Regarding nationalities, patients most frequently came from the Russian Federation and Scandinavia. However, patients from Iran, Arab countries, and Turkic republics (included under "Others" in Table 6), were now replacing patients from countries like Germany and the UK, which previously provided most medical tourists.

Table 6. Experts' Evaluations of Patients' Preferences

Reason for treatment abroad	Frequency	Percentage
*Treatments not covered by insurance	9	64.3
Treatments not available in own country	5	35.7
Need for confidentiality and privacy	0	0
Total	14	100
Reason for choosing Alanya		
Recommendations of family and friends	4	28.6
*Patient experiences with previous treatment	7	50.0
Recommendations of intermediaries	1	7.1
Recommendations of doctors	0	0
Own healthcare experiences	2	14.3
Total	14	100
Main countries sending patients to Alanya		
Russia Federation	5	35.7
Scandinavian countries	4	28.6
Others	5	35.7
Total	14	100
The most preferred treatment type		
Dental treatments	11	78.5
Aesthetic treatments	3	21.5
Total	14	100

Source: Authors

Relative importance weights of determinants

For the pairwise comparisons, the experts were first asked to compare the factors against each other. Then, they compared the sub-factors of each factor in order of importance.

Table 7. General Inconsistency Rates of the Factors

Key Factors	CR
Supporting Factors	0.062
Medical Attractions	0.014
Touristic Attractions	0.01
Destination Management	0.01

N=14/ TO≤0.1
Source: Authors

The experts' opinions regarding the total value of the sub-factors were highly constistent (Table 7), given that a consistency ratio of 0.10 or less is considered acceptable (Saaty, 1990).

In the last stage of the pairwise comparisons, the MT experts were asked to evaluate Alanya's performance. To do so, they first named a competitor destination, with 11 experts choosing Istanbul and three choosing Antalya. They then identified the factors making Alanya successful or unsuccessful against these competitors.

Two different factor weights are formed in AHP. First, bilateral comparison of the participants is used to form local importance and performance weights (Saaty, 1987, pp. 165). Then, global importance and performance weights are calculated by multiplying each sub-factor's local weightsby the relevant main factor weight (Erbaş & Perçin, 2016, pp. 83). The global importance weight represents each sub-factor's importance and performance level within the whole structure. Hence, global importance and the sub-factors' performance values were used in this study.

Table 8. Importance and Performance Weights of Sub-Factors

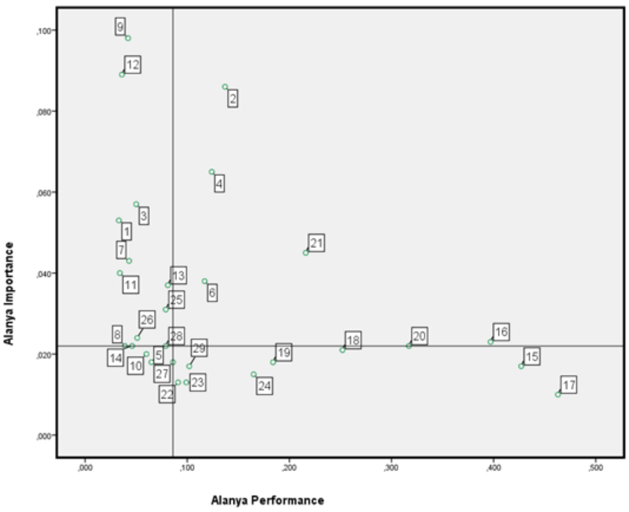
N	Key Factors/Sub-Factors	Global Importance Weights	Global Performance Weights
	Supporting Factors	**0,261**	**0,202**
1	Accessibility of destination	0.053	0.033
2	Safety and security	0.086	0.137
3	Infrastructure facilities	0.057	0.050
4	Positive country image	0.065	0.124
	Medical Attractions	**0.426**	**0.197**
5	Waiting period for treatment	0.018	0.065
6	Prices of treatment	0.038	0.117
7	Quality of medical equipment	0.043	0.043
8	Accreditation of healthcare providers	0.022	0.039
9	Competence of doctors	0.098	0.042
10	Competence of other healthcare professionals	0.020	0.060
11	Competence of healthcare providers	0.040	0.034
12	Quality of treatment	0.089	0.036
13	Patient follow-up services	0.037	0.081
14	Intermediary firms	0.022	0.046
	***Touristic Attractions**	**0.158**	**0.585**
15	Opportunity to take a vacation	0.017	0.427
16	Prices of touristic products	0.023	0.397
17	Hospitality	0.010	0.463
18	Cultural and natural attractions	0.021	0.252
19	Food and beverage facilities	0.018	0.184
20	Accommodation companies	0.022	0.317
21	Treatment and tour packages	0.045	0.216
	Destination Management	**0.155**	**0.282**
22	Government policy	0.013	0.091
23	Bilateral agreements between countries	0.013	0.099
24	Compliance with medical ethics	0.015	0.165
25	Promotional activities	0.031	0.079
26	Use of information technologies	0.024	0.051
27	The effectiveness of national/local tourism organizations	0.018	0.086
28	Vision of destination	0.022	0.079
29	Analysis of competitor destinations	0.017	0.102

Source: Authors

As Table 8 shows, the experts considered sub-factors under medical attractions and supporting factors as most important for tourists when choosing an MT destination. However, they also evaluated Alanya's performance as lagging behind its competitors in these factors. Conversely, although their importance weights are low, they evaluated Alanya as more successful than its competitors in touristic attractions and destination management.

Importance performance analysis results

Figure 5 presents the importance and performance scores objectively as an importance-performance matrix, created using the AHP scores for all 29 sub-factors. The matrices were created using SPSS 20 with the crossing point was defined as the median, following Martilla and James (1977, pp. 79).



Performance median: 0.086; importance median: 0.022

Figure 6. Positioning of Expert Evaluations in the IPA Matrix

Source: Authors

Table 11 shows which areas Alanya should concentrate on based on the IPA matrix; that is, sub-factors with both high importance and low performance scores . In addition, accreditation (8), intermediaries (14), and destination vision (28) fell between concentrate here and low-priority areas in the matrix, so they were also included as needing further attention.

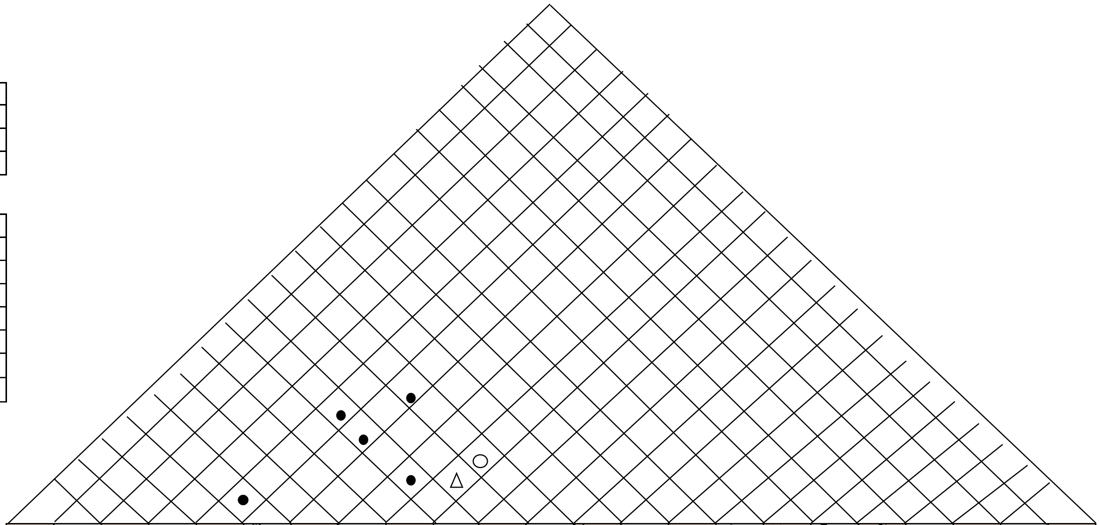
Table 9. Destination Requirements

N	Factor	Factor Number	Importance Weight	Performance Weight
1	Accessibility of destination	1	0.053	0.033
2	Infrastructure facilities	3	0.050	0.050
3	Quality of medical equipment	7	0.043	0.043
4	Accreditation of healthcare providers	8	0.022	0.039
5	Competence of doctors	9	0.098	0.042
6	Competence of healthcare providers	11	0.040	0.034
7	Quality of treatment	12	0.089	0.036
8	Patient follow-up services	13	0.037	0.081
9	Intermediaries	14	0.022	0.046
10	Promotional activities	25	0.031	0.079
11	Information technologies	26	0.024	0.051
12	Destination vision	28	0.022	0.079

Source: Authors

Symbol	Degree	Relationship
●	9	Strong
O	3	Medium
Δ	1	Weak

Symbol	Degree	Relationship
●	5	strong psitive
O	3	medium positive
Δ	1	weak positive
#	-5	strong negative
□	-3	medium negative
×	-1	weak negative
blank		no relationship



Functional Requirements

	Destination Requirements	*Importance Weight*	Increasing the number of international direct flights and routes at Gazipaşa Airport	Preventing unplanned urbanization	Improving urban and intercity transportation facilities	Increasing cultural activity and attraction centers	Increasing government support for equipment purchases of healthcare providers	Increasing the number of accredited healthcar providers	Opening of a full-fledged state/city hospital	Attracting certain groups of hospitals to the destination	Increasing doctors' involvement in academic studies and ongoing training	Establishment of a free health zone in Alanya	Strengthening primary health care centers	Ethical delivery of health services	Establishment of overseas offices by healthcar providers and agencies	Establishment of Customer Relationship Management departments in healthcare	Increasing the number of travel agencies with Health Tourism Authorization Certificate	Making agreements with insurance companies and intermediary firms abroad	Government-supported promotion of Alanya i medical tourism	Stretching the promotion bans in health servic to a certain extent	Employing IT specialists in healthcare provide	Making website contents useful	Creating online test and follow-up systems	Establishing a management organization representing all medical tourism stakeholders	Creating a shared and sustainable destination vision in medical tourism
1	Accessibility of destination	0,053	●		O																				
2	Infrastructure facilities	0,05		●	●	O							O												O
3	Quality of medical equipment	0,043					O	●																	
4	Accreditation of healthcare provider	0,022						●																	
5	Competence of doctors	0,098						O	O	O	●	●	O												
6	Competence of healthcare provider	0,04					●	●		O	●	●	O	●											
7	Quality of treatment	0,089					●	●	O	●	●	●	Δ	●											
8	Patient follow-up services	0,037													O	●	O	●				●			
9	Intermediaries	0,022														O	●	●							
10	Promotional activities	0,031								●					●				●	●				●	
11	Information technologies	0,024																			●	●	●		
12	Destination vision	0,022																						●	●
	Importance Score		0,477	0,45	0,61	0,15	1,29	2,04	0,561	1,49	2,04	2,04	0,65	1,61	0,399	0,4	0,309	0,531	0,279	0,279	0,216	0,549	0,22	0,477	0,348
	Importance Percentage		2,779	2,6	3,53	0,868	7,47	11,8	3,24	8,62	11,81	11,8	3,76	9,32	2,32	2,32	1,79	3,068	1,158	1,158	1,27	3,18	1,27	2,779	2,026
	Order of Importance		**10**	**11**	**6**	**17**	**4**	**1**	**7**	**3**	**1**	**1**	**5**	**2**	**12**	**12**	**14**	**9**	**15**	**15**	**16**	**8**	**16**	**10**	**13**

Figure 7. HOQ for Destination Competitiveness

Source: Authors

House of quality

To build the HOQ, the competitiveness factors to be included in the questionnaire were identified with CV, and their importance and performance values for Alanya were calculated with AHP. Then, after identifying the destination requirements using IPA, strategies were developed through in-depth interviews with the same experts for each requirement to make Alanya more competitive as an MT destination (Table 5). These suggestions, seen as functional requirements in the HOQ, were simplified for inclusion in the matrix to obtain 23 functional requirements (Figure 7).

The construction relationships between the destination and functional requirements were then evaluated and presented in the matrixes formed in the HOQ (Figure 7). These were based on the evaluations of eight of the 13 MT experts previously interviewed.

For the matrix evaluation, first the degree to which the functional requirements meet each destination requirement was determined to demonstrate how effective the functional requirements are in ensuring Alanya's MT destination competitiveness. Accordingly, a functional requirement developed to strengthen competitiveness that strongly affects achieving the destination requirements scored 9 in the matrix, 3 for a moderate effect, and 1 for a weak effect. If there was no relationship, then the relevant part of the matrix was left blank (Govers, 1996, pp. 580; Das & Mukherjee, 2008, pp. 338). Because the values given by the experts to each relationship differed, the most frequently repeated value (modal value) was added to the matrix for making the weight calculations (Das & Mukherjee, 2008, pp. 338). This matrix appears in the center of the HOQ. While calculating the functional requirements' importance values, the relationship values given by the experts to each functional requirement were multiplied by the importance values of the destination requirements corresponding to the lines in which they were included to obtain their cumulative value and the absolute functional importance values (Govers, 1996; Chan & Wu, 2005; Das & Mukherjee, 2008).

The Order of Importance section at the bottom of the matrix displays the importance scores for each of these strategies. As can be seen, the most important strategies were determined by selecting the five most important statements in order of importance. The resulting matrix (Figure 7) indicates that the most important functional requirements that might improve Alanya's MT competitiveness are increasing government support for medical equipment purchases, establishing more accredited healthcare providers, attracting specific hospital groups to the destination, increasing doctors' involvement in academic studies and ongoing training, establishing a healthcare free zone, strengthening primary healthcare services, and ethical delivery of health services. The first priority in the ranking was given to three separate strategies because they all received the same importance score. As a result, Table 10 lists the seven most important functional requirements in total based on the HOQ weights.

Table 10. *Functional Requirements*

N	Suggestion	Weight	Ranking
5	Increasing government support for medical equipment purchases	1.29	4
6	Establshing more accredited healthcare providers	2.04	1
8	Attracting specific hospital groups to the destination	1.49	3
9	Increasing doctors' involvement in academic studies and ongoing training	2.04	1
10	Establishing a healthcare free zone	2.04	1
11	Strengthening primary healthcare services	0.65	5
12	Ethical delivery of health services	1.61	2

Source: Authors

The training of doctors, accredited medical services, and health-free zone are given the highest importance among the suggested strategies, as shown in Table 10. Table 11 shows how these most important functional requirements affect each other. This relationship is located on the HOQ roof (Figure 7).

The purpose of calculating this roof matrix is to determine the relationship between the functional requirements and whether implementing one positively or negatively affects the implementing of another. Table 11 indicates no negative relationships between these requirements, so all of these relationships can be included in determinoing and implementing the recommended investments. For example, if Alanya establishes a healthcare free zone, it is anticipated that healthcare provides there would receive more government support for equipment purchases and specific hospital groups would be attracted to Alanya. The hospitals and clinics established in the free zone would also be more willing to obtain accreditation certificates to attract international medical tourists, thereby increasing the number of accredited healthcare providers in Alanya.

Similarly, expanding the number of accredited healthcare providers will increase the ethical delivery of health services and government support in purchasing medical equipment for healthcare providers. Increasing doctors' involvement in academic studies and ongoing training in their fields, which is crucial for increasing doctors' competencies and therefore treatment quality, will also ensure ethical health service delivery. Furthermore, primary healthcare services should be strengthened to decrease the burden of local patients on Alanya's hospitals, thereby giving doctors more time for academic research and training. In short, the three key functional requirements for strengthening Alanya's MT destination competitiveness are expanding the number of accredited healthcare providers, increasing doctors' involvement in academic studies and ongoing training to improve their competencies, and establishing a healthcare free zone. Moreover, by prioritizing investments in these areas,

Table 11. Relationship of Functional Requirements

Functional Requirements	Relationship	Functional Requirements
Establishing more accredited healthcare providers	Strong Positive	Ethical delivery of health services
	Strong Positive	Increasing government support for medical equipment purchases
Establishing a healthcare free zone	Strong Positive	Increasing government support for medical equipment purchases
	Strong Positive	Attracting specific hospital groups to the destination
	Strong Positive	Establlishing more accredited healthcare providers
Increasing doctors' involvement in academic studies and ongoing training	Medium Positive	Ethical delivery of health services
	Weak Positive	Strengthening primary healthcare services

Source: Authors

Alanya will be able to meet the other destination requirements.

5. Conclusion

This study, which focusing on the current situation of the city of Alanya in Türkiye in terms of medical tourism and determining the strategies that will enable its development, is important in terms of the direct contributions of the destination to the MT industry. In addition, the current study, as in the study of Heung et al. (2010), deals with the needs and expectations of medical tourists from the perspective of supply on MT institutions related to the infrastructure and superstructure development and promotion activities of the destination. The literature review revealed that there is no agreed set of determinants that can be used to assess a destination's MT competitiveness. For this reason, firstly, the models developed by previous studies were examined and suggested determinants for MT competitiveness were presented. After that, expert suppliers with international experience in MT were consulted so that these determinants could be used to measure the competitiveness of any destination. The aim was to downsize and evaluate the determinants by MT specialist suppliers. Then, a significant contribution was made to the field with the new set of determinants obtained by ranking the MT determinants with the CV application. Below, Figure 8 presents the key components from the study's findings and the determinants gathered under these components for MT competitiveness in a destination.

It should be noted in Figure 8 that the components of medical attractions, supporting factors, tourist attractions and destination management that make up MT competitiveness are interdependent. In addition, the importance of each determinant may vary depending on the treatment needed by the medical tourist and the main characteristics and opportunities of the destination

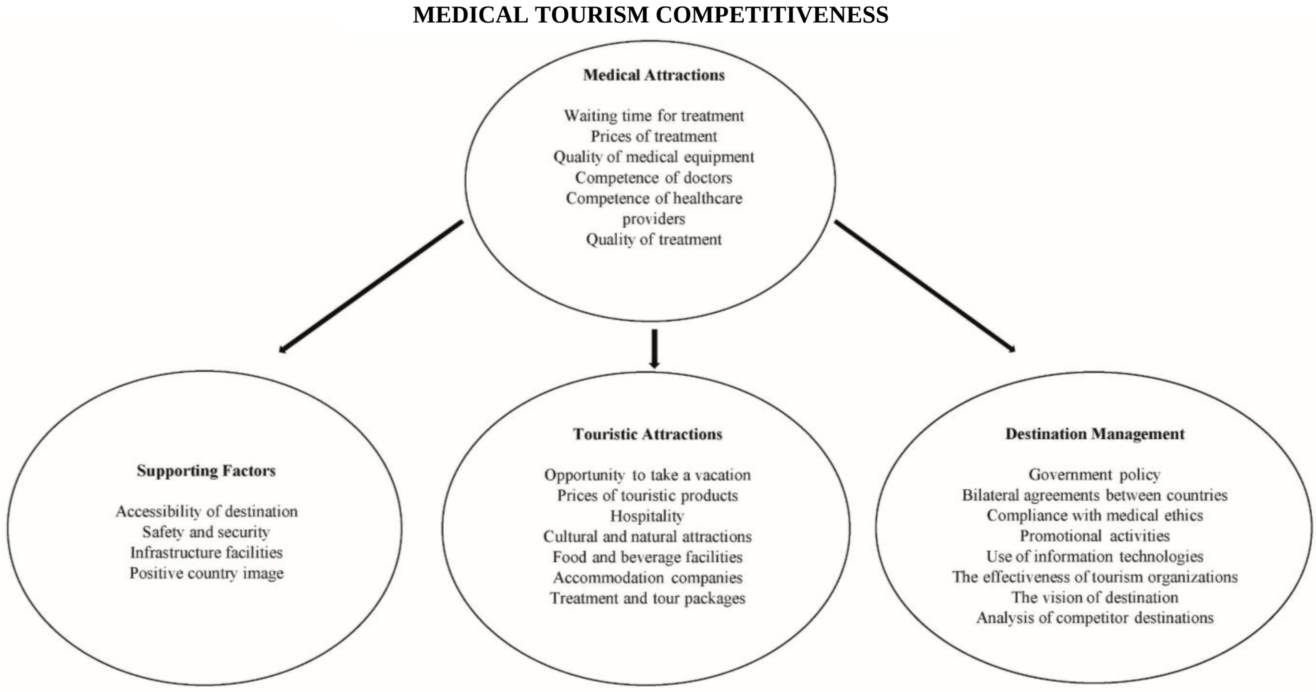


Figure 8. Determinants Of Medical Tourism Destination Competitiveness

Source: Authors

(Cormany, 2010; Heung et al., 2010). Therefore, Alanya's medical tourist type and destination requirements were first determined using AHP and IPA. Then the HOQ was designed, which is the main output of the QFD studies. This matrix offered a framework for identifying destination requirements and how they are supposed to be fulfilled through objective evaluations. The HOQ reveals the destination's ability to meet the expectations of medical tourists and proposes strategies to increase the success of Alanya in the areas it lags behind. Thus, the current study details the use of AHP-QFD along with CV and IPA applications to strengthen the competitiveness of an MT destination.

In the research, mostly minor surgical procedures such as dental or aesthetic operations take the first place in the preference of tourists for Alanya as an MT destination. Meanwhile, according to expert opinions, it is important for destinations to perform well as a tourist attraction. As a matter of fact, in their study, Ganguli and Ebrahim (2017) state that in order for a destination to carry out effective MT management, the services provided by the health and tourism sectors should be strategically addressed together. Cormany (2010) states that when medical tourists want to combine treatment with vacation, the joint and harmonious work of the health and tourism sectors will create added value. In this respect, the fact that Alanya is preferred for minor and non-urgent operations and is a destination with touristic attractions is one of the most important indicators of being a competitive MT destination.

According to interviews with experts, medical tourists are mostly influenced by the personal experiences that previous patients have told them. This finding shows that destination selection in MT is mostly based on non-public and unofficial information such as forums, discussion and rating websites and other electronic media, clinics' information sharing and promotional websites or social media platform accounts, and friend and acquaintance recommendations. It is also supported by previous research, which reveals that it is based on these kinds of sources (Hanefeld et al., 2015; Connel, 2016). Therefore, MT destinations and suppliers should base their promotion strategies on the quality of treatment and patient satisfaction. As stated in the studies in the literature (Smith & Forgione, 2007; Heung et al., 2010; Fetscherin & Stephano, 2016; Wongkit & Mckercher, 2016), patient preferences in a medical tourism destination are mostly shaped by the quality of the medical services and facilities offered by the destination. As a matter of fact, the quality of medical services comes to the fore in the preference of Alanya as a medical tourism destination, regardless of the type of treatment. In addition, according to the HOQ matrix for Alanya, the most important strategies to strengthen competitiveness resulted in the necessity of increasing the competence of doctors and other healthcare providers.

Despite the relatively low order of importance in the HOQ matrix, expert supplier interviews highlight the importance of the vision for a strong MT destination. Developing closer relations between national and local tourism organizations and having a consensus MT vision that includes all stakeholders will make that destination competitive. On the other hand, as Ulaş and Anadol (2016) stated, cooperation and coordination between stakeholders is very important for continuous development in MT destinations. A destination that experiences failure or weakness in terms of any MT competitiveness determinant will increase the probability that other determinants will fail as well. Therefore, destination management with a high level of initiative will also ensure that the strategies proposed here are included in government policies to increase MT destination competitiveness, which is crucial for all developing countries.

As a result, important theoretical and practitioner-oriented inferences can be made from the findings obtained and presented in this study. As mentioned earlier, the components and determinants of MT competitiveness seen in Figure 8 will apply to all MT destinations that want to increase their competitiveness and aim for higher market share. This proposed set of components and determinants will provide a theoretical and methodological framework for researchers aiming to determine the MT competitiveness of a destination in future studies. The findings also provide a highly functional perspective and a roadmap for the management of other MT destinations, especially in developing countries. The study also shows that AHP, IPA, and QFD are a very useful and efficient set of methods for determining the competitive characteristics of an MT destination and strategies to meet them. In other words, the study provides practical insights and operational and competitive strategies for all MT stakeholders, including policy makers, healthcare providers, non-governmental organizations (NGO's) and tourism professionals.

Limitations and directions for future research

The study successfully reveals the main determinants of MT competitiveness in Alanya. In addition, competitive strategies have been proposed for the stakeholders of the Alanya MT industry supply side. The research has some limitations. The most important limitation encountered is the extreme difficulty of reaching health and tourism professionals and conducting long interviews, which are crucial for evaluating MT competitiveness determinants. For this reason, the number of experts whose opinions can be consulted is very small. In addition, as it is known, this study focuses on the supply side of the MT industry and deals with the competitiveness of MT destinations in terms of the stakeholders who produce and provide this service. Future studies should be designed to include views of the MT current and potential demand side. In this way, current and potential medical tourists will be able to guide the development of competitive strategies by taking their evaluations of the determinants necessary for the competitiveness of an MT destination. Destinations that want to adapt to the customer-oriented approach of modern marketing should consider the determinants of MT competitiveness in terms of supply and demand-side stakeholders.

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INFO PAGE

Determining destination competitiveness in medical tourism: A study based on AHP-QFD framework

Abstract

This study investigates the competitiveness of Alanya, a medical tourism destination in Turkey, and determines appropriate strategies using the analytical hierarchy process and quality function deployment. Data were collected from medical tourism experts to gain managerial insights into the factors affecting the competitiveness of medical tourism. The findings show that medical tourists primarily focus on medical factors such as competence of doctor and quality of treatment. The main strategies to strengthen competitiveness are to create a healthcare-free zone, to increase the number of accredited health care providers, and to encourage the involvement of doctors in academic research and ongoing training. For researchers interested in assessing competitiveness in medical tourism destinations, the study presents general determinants that should be considered in each destination. In addition, the findings show that each medical tourism destination should focus on its own determinants of medical tourism competitiveness when developing its marketing strategies. Finally, it shows that the analytical hierarchy process and quality function deployment approaches can be successfully applied in achieving destination competitiveness and strategic planning, with content validity and importance performance analysis.

Keywords: *Destination competitiveness, Medical tourism (MT), Analytic hierarchy process (AHP), Quality function deployment (QFD), House of quality (HOQ), Alanya.*

Authors

Full Name	Author contribution roles	Contribution rate
Vildan Yılmaz:	*Conceptualism, Methodology, Software, Validation, Formal Analysis, Investigation, Data Curation, Writing - Original Draft, Writing - Review & Editing, Visualization, Supervision*	*60%*
Ebru Güneren:	*Conceptualism, Methodology, Validation, Writing - Review & Editing, Visualization, Supervision*	*40%*

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Foods spreading from Turkish cuisine to the world

Servet Kazım Güney

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ABSTRACT

Turkish cuisine is not based on a race. It is one of the world's richest cuisine in terms of cooking techniques, material diversity and basic titles, which feed on the brotherhood of cultures in a geography stretching from the Yellow Sea to the Americas. The main purpose of this study is to emphasize the importance of the Turkish cuisine and culture on the emergence and spread of the products mentioned here to the world. This study asks the question "What are the foods that spread from Turkish cuisine to the world?". For this purpose, scientific articles, theses, symposium proceedings, travelogues, books, and magazines were examined. After a wide literature review yogurt, yufka, baklava, döner, mantı, pastırma, tel kadayıf, coffee, lohuk, Turkish delight, sherbet, sütlaç and güllaç, which are known and mentioned most in international literature and cuisines were chosen for a deeper research. The study has been limited to these products and with the documents published in English and Turkish. This research plans to provide information about the history of these products, some of which are disputed about their origin, such as yoghurt, baklava, döner, mantı and pastırma.

1. Introduction

There are few countries that do not want their culture as much as Türkiye. The rich cultural diversity of Anatolia has emerged as the accumulation of centuries. It is seen that serious efforts were made to dissolve, divide this society and ignore some of its components, for which great sacrifices were made to keep it together a century ago. In the end, it became clear that the ardent followers of the Turkish-Islamic union and ottoman heritage were completely indifferent to cultural issues when it came to it. They did not mind leaving the products of a civilization they appeared to possess to destruction, evaporation and looting (Boratav, 2007, p.9).

Turkish cuisine is not well known even by those who try to introduce it. Turkish cuisine is not based on a race or a tight region bordered by race. Turkish culinary culture, which is very rich in terms of ingredients and variety of dishes, consists of a large geographical area from the Yellow Sea to the Americas, the time passed by the Sumerians to date. This cuisine is based on simple, healthy, easy-to-make and sustainable meals. Turks themselves have produced new foodstuffs and they also have taken things from every geography they have passed, adopted, developed and spread them (Güney, 2021a; Ögel, 1978, pp. 19-24).

The nutritional habits of a country is shaped according to her cultural, geographical, ecological, economic structure and historical process. That is why a national cuisine should be interpreted in terms of the foods and beverages that feed the people, their preparation, cooking and preservation; the tools, equipment and techniques required for these processes, the manners of eating and all the practices and beliefs developed around the kitchen. The richness of variety in Turkish cuisine is parallel with its rich history. Turkish cuisine, which consists of dishes prepared with cereals, various vegetables, meat, naturally grown herbs, olive oil, butter, yogurt, milk, molasses and dried and fresh fruits; can be grouped under at least 18 headings. Turkish cuisine is also one of the richest cuisines in terms of vegetarian dishes (Baysal et al., 2000; Güney, 2021a).

Every cuisine has its own special ingredients and dishes that identifying its culture. Yogurt, yufka, baklava, döner, mantı, coffee, Turkish delight, lohuk, sherbet, pastırma and sütlaç are some of the important ingredients and dishes that identifies Turkish culinary culture.

Review articles includes the analysis of written materials containing information about the case or cases that are aimed to be investigated. Resources such as documentaries, academic journals, books, pictures, travelogues, state archives are valuable resources that enable learning about the unknown about the past (Yıldırım & Şimşek, 2016, pp.189-194; Merriam, 2018, pp. 131-155). In the literature review, no research has been found that examines all of the topics covered in this study together and in terms of what this study deals with. The main purpose of this study is to emphasize the importance

Research paper

Servet Kazım Güney: *Lecturer, Başkent University, Ankara, Türkiye, Email: servetkguney@gmail.com, Orcid Id: 0000-0002-1948-4223*

of the Turkish cuisine and culture on the emergence and spread of the products mentioned here to the world. Therefore, it is considered that this study will make significant contributions to the literature. This article asks the question "What are the foods that spread from Turkish cuisine to the world?". For this purpose, scientific articles, thesis, symposium papers, travelogues, books and journals were examined. After a wide literature review yogurt, yufka, baklava, döner, mantı, pastırma, tel kadayıf, coffee, lohuk, Turkish delight, sherbet, sütlaç and güllaç, which are known most in international literature and cuisines, were chosen for a deeper research.

2. Methodology

Purpose, Scope and Importance of the Study

The main purpose of this study is to emphasize the importance of the Turkish cuisine and culture on the emergence and spread of the products mentioned here to the world. This study asks the question "What are the foods that spread from Turkish cuisine to the world?". For this purpose, scientific articles, thesis, symposium papers, travelogues, books and journals were examined. After a wide literature review yogurt, yufka, baklava, döner, mantı, pastırma, tel kadayıf, coffee, lohuk, Turkish delight, sherbet, sütlaç and güllaç, which are known and mentioned most in international literature and cuisines were chosen for a deeper research. The study has been limited to these products and with the documents published in English and Turkish. This research plans to provide information about the history of these products, some of which are disputed about their origin, such as yoghurt, baklava, döner, mantı and pastırma.

In the literature review, no research has been found that examines all of the topics covered in this study together and in terms of what this study deals with. Therefore, it is considered that this study will make significant contributions to the literature.

Yogurt

Yogurt is a coagulated dairy product formed by lactic acid fermentation and (Kızılaslan & Solak, 2016). The word yogurt (sometimes spelled as yoghurt or yoghourt) is mentioned in almost all the world dictionaries in exactly the same or very similar ways. The Oguz, Seljuks and Ottomans carry yogurt with their own culture to the countries they ruled. Eren (2008) and Durukoğlu (2017) states that yogurt is etymologically a Turkish word. According to Eren (2008, pp. 199-201), the word "suorat" in Yakutia, an ancient Turkish language, is a word that remains from proto-Turkic. The leading -y voice has become an -s in Yakutia. Similarly, Turkish yular has become sular (waters) in Yakutia. It is natural for yoğurt to transform into suorat. Yogurt is a Turkish derivative with its root, as a concept, as a word, with its appendix (ending with-t), and the form in Yakutia proves that yogurt has a history of more than two thousand years. Some examples of the usage of yoğurt in dictionaries are given in Table 1.

Table 1. The word yogurt in etymology dictionaries

Language	Dictionary	Word
Yakutia	Turkish-Sahaca (Yakutia) Dictionary	suorat
Spanish	Diccionario de la Lengua Española	yoğur
French	Centre National de Ressources Textuelles et Lexicales	yaourt
English	Oxford Etymological Dictionary	yoghurt, yoghourt
German	Digitales Wörterbuch der Deutschen Sprache	joghurt
Russian	Dictionary of Turkisms	yogurt
Hebrew	Etymological Dictionary of The Herbew Language for Readers of English	yoghurt, yoghourt, yogurt

Source: Clauson, 1972; Klein, 1987, pp. 140-152; Şirin, 2019, pp. 12-13; Vámbéry, 1878; Vasiliev, 1995, p. 305; Real Academia Española, 2022)

Yogurt, as Hippocrates mentioned, is one of the foodstuffs of the Scythians who lived further west in ancient times and as the peoples of Turkistan. Regardless of their race, the tribes living in these regions shared a common culture. These regions form one of the foundations of today's Turkish cuisine (Ögel, 1978, pp. 19-24). According to Dalby (1996), the product, known in classical times as pyriate, which Galen of Pergamon also identified with oxygala (sour milk), which he knew in his time, and which is eaten plain or with honey, is definitely a kind of yogurt (p. 66). However, it brings the mind the question that even Apicius's recipes, such as blancmange, have known to live in European cuisine for centuries, how come a yogurt-like product has no traces in Europe and has not affected the kitchen? The spread of products such as yogurt and cream in this geography through Turks suggests that this interpretation of the above-mentioned food is incomplete or wrong.

The written sources related to the kurut (dried yogurt), which has been known since Turkistan and which is still obtained by drying the yogurt after filtering and turning into a ball, go further back in AD.540, the period when the Turkish influence on the Tang Dynasty was intense. A book called Chi Min Yao Shu, mentions a product obtained by drying lean or drained yogurt balls by leaving under the sunlight. It is noted that this product is an excellent food that can be stored for years, used in dishes and soups, and transported on journeys (Işın, 2020, pp. 94-95).

One of the first examples of the word yogurt passes in Maitrisimit, which is 11th century Buddhist drama texts written in Turkish, as: "At one time, a pregnant cattle herder girl was going into town to sell yogurt, halfway through, she was in labor..." It is very important in terms of the presence of even pregnant women in the commercial life in Turkish culture and of course proving the contribution of yoghurt to the old Turkish economy. In one of the drama scenes depicting the hellish (tamulug) in the 9th century copy of the same work: "... some people hit each other on the head with hot iron sticks and stick them in their brains and eat (their brains) like yogurt." (Şirin, 2019, pp. 4-13).

In Kutadgu Bilig (1069), one of the first texts written after the Turks accepted Islam, yogurt is also mentioned among the basic foods such as kumiss, milk, fat and cheese. The words iró (ayran), tûró (unsalted white cheese), şayt (çığıt-cheese) in Hungarian are the oldest words to pass into Hungarian from Turkish in terms of phonetic properties (Rásonyi, 2002, pp. 350-377). In Dîvânu Lugâti't-Turk, the word yogurt is mentioned many times in the form of yoghurt (Çetin, 2005, pp. 185-200; Güldemir, 2014, pp. 351-352; Koşay, 1982, p. 50).

It is understood that Turks kept the Central Asian food culture alive. Foodstuffs such as milk, yogurt, cheese, kaymak (clotted cream), butter and kurut were an important part of the nutrition system in Turkish society during the Seljuk period (Çiçek, 2002, pp. 339-351). According to Fragner (2000), the use of dairy products in Iranian cuisine indicates that these are clearly Central Asian influence. Fresh yogurt, white cheese, ball-shaped kurut and ground kurut (kaşk) are examples of a range of long-lasting and high nutritional value products (p. 56).

As European travelers who traveled to Turkistan in the 13th century explained, Turks and Scythians obtained butter from yogurt, not milk. In Oguz Turks, which migrated to Anatolia over time, the yeast left at the bottom of the container for the production of yogurt was called kor. Fermented yogurt was stored in animal skin, wood or earthen containers. Yogurt was put in the skin of the animal, called tuluk, and butter was obtained by shaking it with a wooden tool. In Kutadgu Bilig, yogurt was liquefied by adding water to this shaking tool (yayıg), to obtain ayran as we know today. Although fresh is acceptable, yogurt would be dried for drought and difficult times. This product, which is still consumed in various regions of Anatolia and called kurut, is widely used in today's Turkistan countries by giving various shapes. This tradition continued in the Seljuk State. In Turks, nonfat yogurt was called yavan (bland), yavgan, that is, there were the terms ful-fat and nonfat yogurt. Yogurt was called yugrat during the Khwarazmshahs, yugrat, chugrat and yagurt among Turks in Kipchak and Egyptian Mamluks. Drained yogurt is a thick variety of yogurt. In ancient Turks, we also come across this kind of yogurt under the name of süzmeli means drained. Marco Polo, the famous traveler of the late 13th century, wrote in his travel book Il Milione that the peoples of Turkistan boiled the milk they milked and warmed it, and then fermented it with the yogurt left in the container. (Ögel, 1978, pp. 19-24; Sandıkçıoğlu, 2018, pp. 149-150).

Dernschwam says that during his trip to Istanbul in the 1550s, Turks filled fresh zucchini and eggplant with finely chopped meat, added garlic, spices and salt, cooked it in plain water, then poured yogurt on it. He explains that yogurt, which he describes as salted sour milk, is the favorite food of Turks and is made by souring and salting the cooked milk. It makes this product look like a milk compote. They sometimes add water to yogurt and drink it (ayran); but he adds that if someone from other nationalities drinks it, he will get sick (Dernschwam, 1992, p. 171). From his descriptions here, it can be deduced that he did not know both yoghurt and dolma. Besides yogurt has a very important place in today's Turkish cuisine, it is used in a wide range from soups to desserts.

Yufka

Yufka is a thin, fragile, flat bread made in the nomadic Turkish communities in Turkistan, Seljuks, Ottoman Empire and modern Türkiye, which is also used in Turkish in the sense of tenderhearted, kind and fragile (Buell, Anderson and Perry, 2010, pp. 583-584). In Orkhon Inscriptions, it is mentioned as yuyka: yufka, thin = juqa: thin, yufka, undersized. (Kaljanova, 2013, p. 237). Canbulat also states that (2017) The Shijing Recipes in Qimin Yaoshu, written by Jia Sixie in 544 AD., the flat bread used to wrap the dürüm (wrap) in the Barbarian (Hu) Meat Dürüm recipe 86.5, is 45-50 cm in diameter, similar to what yufka is today, and is not mentioned anywhere else in the Qimin Yaoshu recipes. He states that he believes this recipe was taken from Mongolian-Turkish tribes or that it had Turkish influence.

Among the Oguz, yufka (yuga, yuvga), pronounced yuka, was the most famous type of bread. In Hakanlı dialect, yufka was called a püşkel. The very thin yufka was called yalaçı yuka, and the type folded and curled like katmer was called katma yuka or yarma yuka. Yufka cooked on the Turkish sheet pan was filled with meat, eggs, etc. and eaten as dürüm like burritos. The Seljuks used to roll eggs, onions, honey, yoghurt and many other products into yufka, which was called dürüm or dürmeç. Rolled yufka was also called tıkım. (Çetin, 2005, pp. 197-200; Güler, 2010, p. 27; Köymen, 1982, pp. 38-39; Şahin, 2018, p. 28).

Baklava

Baklava dough phyllo is a relatively new Turkish invention, although it is based on older examples (Buell, et al. 2010, p. 66). The name of the baklava was first mentioned in the form of baklava in the 15th century. It is mentioned in the poems (simâtiye) of Kaygusuz Abdal in the 19th century. Kaygusuz Abdal tells about baklava prepared with almonds and lentils. Karaman Baklava is the first of three baklava recipes found in a Persian cookbook written during the Shah 1st Ismail period. This baklava is prepared by pouring heated honey syrup between twenty phyllo layers fried in clarified butter. When served, almonds, peanuts, musk sugar and rose water are sprinkled on top. The second recipe is prepared by sprinkling lentils, white sugar and ground almonds among phyllo layers fried in clarified butter, then cooked over the fire and poured over it with boiling syrup and rosewater. The third recipe is prepared by pouring honey syrup and rosewater on top of the phyllo layers called tutmaç, after they are fried clarified butter. Baklava was prepared with different fillings such as fresh cheese, cream, melon, walnuts, almonds, hazelnut, lentils, black eyed peas and rice (Gündüzöz, 2017; Işın, 2020, p. 240).

Five different baklava recipes were written in 19th century cook book Melceü't Tabbahin. Ordinary baklava prepared with nuts, peanuts or almonds. Baklava with cream prepared with sahan kaymağı (fresh milk cream) and musanna cream baklava prepared with pureed black eyed peas. Melon baklava prepared with melon and rice baklava prepared by cutting a kind of pudding prepared using rice flour in the form of baklava slices show that the tradition has survived for centuries (Mehmet Kâmil, 2016).

The 13th century Arabic cookbook Kitabü’l-vusla ile’l-habîb fî vasfü’l-tayyibât ve’t-tîb, contains a recipe for today's sarığıburma baklava. This recipe, which is mentioned in the book as Garn Yarug (karnıyarık – split belly) and is called tutmaç; It shows the effect of folding and layering doughs, which are part of Turkish culture and mentioned by Mahmud of Kashgar in Dîvânu Lugâti't-Turk, in Arabic cuisine. This recipe also indicates that there was information about baklava from previous dates from Kaygusuz Abdal (Perry, 1993). In a speech at the Passifica Institute in 2011, Charles Perry stated that there was no evidence of a layered dough-making culture in the Mediterranean before the Turks (Eksi10, 2011, December 13). Hungarian paper-thin strudel dough is a Turkish legacy, as is dolma and tomatoes. The earliest recipes for this product is contained in the German cookbook Ein New Kochbuch, published by Max Rumpolt in 1581 (Işın, 2020, p. 290; Roden, 1996).

The first record of the baklava made in the palace of Fatih Sultan Mehmet is mentioned in the Matbah-ı Amire books of 1473 (Ünver, 1952). However, no information was given about the ingredients of the baklava other than phyllo dough. From the records of the 16th century, it is understood that baklava prepared in Ramadan for the palace is prepared with walnuts, honey and clarified butter (Işın, 2008, p. 235).

In addition, old recipes of baklava are found in Sultan Bayezid’s public soup-kitchen records in Amasia. 480 grams of clarified butter, 640 grams of honey were spread into each layer of Rikak baklava consisting of nine layers of phyllo (Kolay, Bozkurt, Turan & Arabacı, 2016, p. 69) and phyllo were fried with clarified butter. Rikak baklava, which was given to janissaries, was sweetened with sugar and honey, and almonds were used as filling (Bilgin, 2008, pp. 78-119).

Reşad Ekrem Koçu tells about baklava in the Istanbul Encyclopedia. Until the First World War, Baklava was prepared during the holidays even in the lowest-income family home in Istanbul, and since there were no ready-made phyllo, their phyllo were rolled by the housewife or the daughter of the house. There were also peddlers and shops; however, it would be a shame to bring the ready-made baklava to the guest. Forty phyllo sheets as thin as rose petals were laid out on the baklava trays, and rendered tallow oil is the most preferred fat used in baklava. The fillings of baklava in Istanbul mansions has always been walnut; baklava with pistachio and cream are new and later inventions for Istanbul. He mentions that baklava is made in three forms in Istanbul. In the first, he notes that the phyllos lined up flat on the tray are cut diagonally in a way called samsa, and this is the way we know it most today. In the second, it is the shape called rose baklava, which is similar to the dilberdudağı we know today; however, he says that the shops do not prefer this because it gives a lot of waste. The third is tırtıl (caterpillar) baklava and prepared like sarığıburma. Cooking baklava, preparing the syrup and giving it on top are individual areas of expertise (Koçu, 1960, pp. 1938-1940). Tallow oil and tail fat found in the 16th century Acem Baklava recipe indicate that this application is very old (Işın, 2020, p. 277).

According to what is described in Evliya Çelebi Travelogue (Dağlı, Kahraman, & Dankoff, 2007); For a good baklava, at least one hundred phyllo dough should be placed in the baklava tray. Although baklava is layered and in the size of an oxcart wheel, as is customary, it should be soft enough to collapse under the weight of the coin when guests drop a golden lira from a height of half a meter. Anchovy baklava is also mentioned in Evliya Çelebi Travelogue (Yerasimos, 2019).

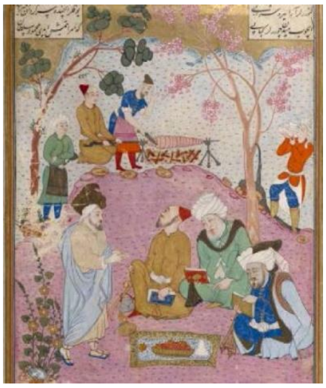
Döner

Döner (sometimes called döner kebap) is a dish, which has geographical indication in Türkiye. It is traditionally prepared from lamb meat and cooked by turning over an oak fire (Türk Patent ve Marka Kurumu, 2017). The first visual record about döner is an Ottoman miniature from 1616-1620. It is also mentioned in the Evliya Çelebi Travelogue in 1666 (Işın, 2018). Today döner is widely consumed in Europe and the Middle East, although it is prepared far from the original.

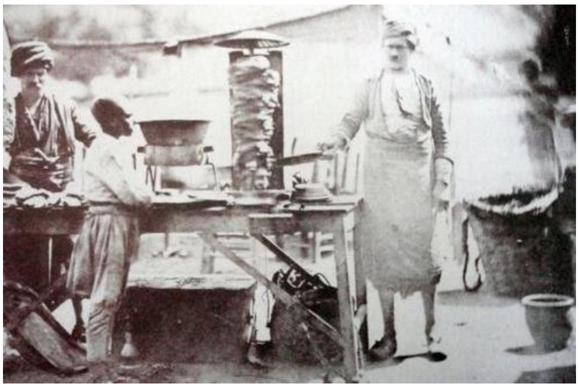
Bertrandon de la Brocquiere, a Frenchman who traveled to Jerusalem for the pilgrimage, decides to return to France via Anatolia. Brocquiere, in his travelogue, vividly records the food he ate with people he met on the road in 1433. Turkmen nomads in the Taurus Mountains serves yufka and yoghurt dürüm. He describes the walnut and molasses sausage (köme) in Afyonkarahisar, and the mutton kebab served by a group of Turkish travelers on the way to Bursa. It can be thought that this mutton kebab (cağ kebab) could be the origin of döner since they cut and eat slices as the meat on the outside is browned and before they are fully cooked (Schefer, 2000, p. 31).

Evliya Çelebi describes in detail the horizontal döner kebab cooked by Tatars in Crimea:

> *Even in those nice nights, they sacrifice a fat sheep weighing almost fifty kilograms, cut its meat like paper, put the meat of that sheep on a thick iron kebab skewer and arrange it in such*



First Doner staging miniature art
Source: Konak & Dilber, 2021



The first Turkish döner photograph taken by James Robertson in 1855
Source: Döner Üreticiler Derneği, 2011

Figure 1. First döner images in history

> *a way that one speck of it spills out of one place…After that, they break the wheel of a cart and prepare a slowly burning hot fire under the kebab and cook a kind of kebab, which is tender and delicious (Evliya Çelebi, VII, y. 128b).*

It is said that a nomadic Tatar cooks kebabs to show hospitality to a Nogay, breaking the wheel of his cart at the expense of leaving the woman he loves in the middle of the steppe. Since then, this practice has become a symbol of hospitality in Crimean culinary culture, and the tradition of cooking with a car wheel has emerged. The formation of such a tradition indicates that this type of kebab has a rather ancient history (Işın, 2020, p. 363). The first person to mention that the döner was cooked upright was the French Théophile Gautier (Gautier, 1853), who came to Istanbul in 1852.

Mantı

Mantı also has geographical indication in Türkiye. It is traditionally prepared by stuffing a thin layer of dough pieces with ground meat and spices. It is boiled or fried and served with yoghurt and melted butter (Türk Patent ve Marka Kurumu, 2009). The first fossil records of a dish like mantı was found in the Turfan Karahoca (Gaochang) Uighurs region in Turkistan. It was found in Astana Cemeteries, which were found to have been used as public cemeteries between the 3rd and 9th centuries.

Figure 2. Dumplings found in Astana cemeteries excavation
Source: Chen et al., 2012, p. 8

An example of dumplings excavated during excavations of Astana Cemeteries in East Turkistan region. The dough, prepared from sand and wheat, is filled with meat and the Allium Tuberosum plant, native to China's Shanxi region (Chen et al., 2012, p. 3

Figure 3. Dough rolling female figure, unearthed in Astana cemetery excavation
Source: Chen et al., 2012, p. 8

A female figure excavated in the excavations of Astana Cemeteries in east Turkistan region, soft with a rolling pin and cooked on sheet metal (Chen et al., 2012, p. 8)

The first records of dumplings in Chinese sources is based on a 3rd century legend about Zhuge Liang, who is a statesman. A version of this legend first appeared centuries later, during the Song Dynasty (960-1279 AD). There is also another version of this legend from the Ming Dynasty, which was in administration from 1368 to 1644 AD. (Dunlop, 2013, pp. 128-137).

There is a lot of Turkish influence in Chinese cuisine during the Han Dynasty Period and Tang Dynasty Period. Examples include boiled doughs such as noodles and mantı. It is recorded that 24 kinds of boiled pastry dishes were prepared for the emperor from the date of 700 BC. In addition, the use of cream, yogurt, clarified butter and wheat increased due to the Turkish origin of the ruling class during the Tang period, and the managers started to dress like Turks (Schafer, 1963; Huang, 2000, p. 478; Işın, 2020, p. 166-168).

According to Dunlop (2013), the word mantou has been used for centuries to describe a wide variety of pastries. This word may be foreign-sourced, although its origins are unclear, and it can be said that it developed as a result of interaction with communities in northern China and Central Asia (p. 137).

Among the dishes of Turkish society living in the 11th century, which we can call national food, Tutmaç has a very important place (Çiçek, 2002, pp. 339-351). Although the most general contributions to Middle Eastern food, except in areas directly occupied by Turks, usually belong to the Ottoman period, the 15th century cookbook Kitap al-Tabakhah contains at least two all-Turkish dishes; these are the Tutmaç (Yinshan Zhengyao's Tutum ash) and salma. These two recipes are available in Yinshan Zhengyao. Two important features related to Hu Sihui, author of Yinshan Zhengyao, stand out. First, the classic Chinese is excellent. To identify so strongly with Chinese culture, he must have grown up in or near China, or at least in a highly Chinese environment. Secondly, the fact that Turkish and to some extent Mongolian culture was natural to him may explain more than simply exposure to the palace environment of the period. Many Turkish words and phrases in Yinshan Zhengyao are strictly text-related, correctly used and display dialectic consistency. Hu Sihui's Turkish is in East Turkistan and the forms such as Tutum ash, um ash, sajhimur are very close to Modern Uighur. A Turkish language as a first or second language should probably have spoken Uighur and grown up in a culture that is Chinese, Turkish and even Mongolian, where cultural elements interact side by side and freely (Buell et al., 2010, p. 66, pp. 289-290).

There are several fundamental differences between manta, mantı, mantou and baozi. Manta and mantı are steamed or boiled plain (without yeast) doughs with a filling. However, since the Khan period, mantou has been prepared as an unfilled and steamed yeast dough. Baozi, on the other hand, is prepared by steaming the yeasted dough after filling it (Buell et al., 2010; Lin-Liu, 2013; Dunlop, 2013; Gallani, 2015; Işın, 2020, pp. 101-107).

Mantou, which is an unfilled dough passed through the sources to date has been known since the Han Period and is still consumed in the northern regions of China, has nothing in common but to share the same name as previous examples of it. Mantou is a Central Asian dish, probably derived from the word mamata used by Mahmud of Kashgar, called manta in Uighur and manty in Kyrgyz (Buell at. al., 2010, pp. 110-111).

In her book On The Noodle Road from Beijing to Rome, Jen Lin-Liu (2013) tells the story of dumplings along the Silk Road and explores its changes. When describing Uighur mantı, she says that the name mantı reminds her of the manta he learned to prepare in Kashgar. However, although it sounds like a mantou with steamed yeasted Chinese bread dough; as a reflection of the importance of meat in Uighur, manta contains much more knife-chopped fatty mutton, chopped white onions, ground cumin, black pepper and plenty of salt, unlike Chinese dumplings (Lin-Liu, 2013). The Chinese, on the other hand, put ginger, leeks and garlic in their doughs as filling (Buell et al., 2010; Gallani, 2015, pp. 15-25).

Perhaps mantı have become widespread along the Silk Road, since combining meat or similar filling with dough was suitable for nomadic cultures and, more generally, for people with very simple cooking facilities. One pot was enough, and the fillings could be changed according to the ingredients available. In addition, Mongolian conquerors who crossed the Silk Road from start to finish can also contribute greatly to the spread of this food. Because similar dumplings are found in the eastern borders of the empire as mandu in Korea, and in Japan as manju, a steamed bread (Dunlop, 2013; Gallani, 2015).

Claudia Roden explains the strong connection between Italian and Central Asian dumplings: Pasta came to Poland as a result of the Italian presence within the palace people, as well as through Central Asia. Perhaps that is why cheese kreplach (a kind of sweet dumpling) owes the sour cream spilled on it to Turkish-Mongolian dumplings with yogurt poured on it rather than Italian dumplings or cappelleti (Roden, 1996).

Coffee

Coffee is made from the roasted beans of the Ethiopian coffea arabica bush. Because it kept them awake, sufis in Yemen started drinking coffee and called it "kahva", which means wine in Arabic. Therefore, the word coffee in Mevlana's works has been misinterpreted as coffee, not wine (Işın, 2020, p. 281; Gökyay, 1984). Coffee was drunk in Aden in the 1470s. It arrived in Mecca in 1511 and its consumption was banned in the same year. Its existence was now known in Cairo in 1510 and in Istanbul in 1517. It reached Venice in 1615, Paris in 1643 and London in 1651 (Koca, 2020).

The coffee became known in France soon after the visit of the Ottoman ambassador Süleyman Ağa to King Louis XIV of France in 1669. During his stay in France, Süleyman Ağa collected information and gave many parties, including dress balls reflecting the Ottoman style and serving coffee as drinks. After a while, drinking Turkish coffee and dressing like Turks became a trend in Paris (Taylor, 2007, pp. 23-25). Similarly, two Ottoman citizens introduced the concept of coffee as a drink and coffee shop in England. The coffee shops opened by The Greek Pasqua in London and The Jewish Jakop in Oxford introduced the British to "a kind of Turkish magic and the devil's drink that defiles Christianity" (Baktır, 2008, p. 141).

500 sacks of coffee in the battlefield abandoned after the Siege of Vienna by Ottoman army expedite the spread of the coffee in Europe. Viennese merchant George Franz Kolschitzky requested and bought these coffees in return for his services. Kolschitzky opened a coffee shop in Vienna and, along with his friend from the Capuchin branch of the Franciscan sect, created today's Wienner

Melange (Cappuccino, Kapunziner) to endear the Viennese who find the taste of coffee bitter (Gürsoy, 2019, pp. 39-40; Koca, 2020, p. 58).

It is also said that it arrived to Istanbul in 1554; however, this date coincides with the opening of the first coffee shop. Kâtip Çelebi writes that coffee came to Istanbul on ships in 1543 and that the people of Istanbul met with coffee, and that the number of tradesmen selling coffee in Istanbul was five hundred and the number of shops was about three hundred. In his book, The Venetian botanist Prospero Alpino mentions coffee and its frequent consumption in the Ottoman Empire. In 1615, shops that prepare and sold coffee in Venice began to open (Erdoğru, 2002, pp. 640-643; Naskali, 2011, pp. 51-100; Ünver, 1962, pp. 39-84).

Thanks to the brand new brewing method found by Turks, coffee has been cooked in copper vessels and coffee pots and named Turkish coffee. The public was introduced to coffee thanks to the coffee shops that first opened in Tahtakale in 1554 and coffee spread rapidly throughout the city (Koca, 2020, p. 75). Coffee was quickly accepted in Istanbul and many coffee shops were opened. The word breakfast (kahvaltı: before the breakfast) also appeared in the 17th century with the onset of the habit of drinking coffee after the first meal of the day. The Turks first roasted the coffee beans on the coffee board, then cooled them in the coffee cooler carved from the tree and thinned them by pounding them in a large mortar. Roasted and pounded coffee in Istanbul was sold in state-owned breweries called tahmishane (Işın, 2020, p. 282). Coffee is also a social drink, but coffee shops have also been places where public life and sometimes events affecting a country and sometimes all of the world's politics have taken shape. Examples include coffee shops before and after 1908, where young Turks discussed both the country's politics and problems during the 1789 French Revolution (Gürsoy, 2019, pp. 42-48; Naskali, 2011, 51-100; Tutal, 2014).

As for the flavor of coffee, Brillat Savarin talks about his experience preparing coffee in his book Physiology of Flavor or Thoughts on The Great Kitchen; Turks who are our masters in this subject describe their own experiment after saying that instead of grinding the coffee beans in the mill, they thin them by beating them in the air with a wooden mall. After carefully roasting half a kilo of good quality Moka Coffee and dividing it into two equal servings; he writes that he grinded half of them in the mill and thinned the other half by beating them with malleneers in accordance with the Turkish method. He then states that he took an equal amount of ground coffee in both ways, brewed it with an equal amount of water, and made both himself and a expert jury taste the coffees he obtained. As a result, he explains that they unanimously decided that the finely ground coffee in the Turkish way was clearly superior to the other (Brillat-Savarin, 2018, pp. 97-98).

Turkish Delight (Lokum)

Turkish delight is derived from the pelte (a kind of gel) known in Anatolia since the 15th century. It is called rahat'ûl hulkûm (throat comfort) because it relaxes the throat, the name of the Turkish delight is first mentioned in a work by the divan poet Hevâyî. The earliest recipe of the Turkish delight is mentioned in a manuscript from the early 19th century. Varieties made with musk, rosewater, cream, pistachios, almonds, pine nuts and mastic are mentioned. In the early periods, honey and molasses were used as sweeteners in Turkish delight production, while flour was also known to be used as a consistency enhancer. Wheat starch has been used in Turkish delight production since 1811. The Turkish delight was taken to Europe by foreign visitors in the 1830s and spread. Europeans who are not accustomed to using cornstarch in the kitchen have not been able to produce Turkish delight (Batu & Kırmacı, 2009, pp. 1-7; Batu & Batu, 2016, pp. 42-52; Güldemir, 2018, p. 69; Işın, 2012, p. 3; Işın, 2020, pp. 308-309). The basis of the jellybean product exported from the United States to the whole world today is Turkish delight (Jelly Belly, 2021).

In 1903, the French artist Pretextat-Lecomte said that the materials for which Turkish delight was made actually very simple; however, it states that all difficulties are hidden in the construction technique and mastering (Sandıkçıoğlu, 2018, p. 151). In the Chronicles of Narnia series written between 1936 and 1950 by the Irish writer C. S. Lewis, who is familiar with Turkish culture, he used Turkish words and characters from Turkish mythology, one of which was Turkish delight (Ceylan, 2013, pp. 1-8).

Lohuk and Sherbet

Hard candy (lohusa sugar, sherbet sugar) and lohuk (çevirme, spoon dessert) take the first place among the confectionery that reached Europe from Türkiye during the Ottoman period. Lohuk was a soft confection prepared by pharmacists and sweetened with honey, sugar, juice, various spices or cinnamon to make the drugs more conveniently available. This product, which was started to be made by confectioners in the following periods, was introduced to France and named fondant. Lohuk was first introduced to Europe in the mid-19th century by Fredrich Unger, the confectioner of King Otto I of Greece, who came to Istanbul in 1835 to research the confectionery of the east. In his 1837 book on eastern confectionery, Unger says: "My readers will find that once they understand some methods, they can easily make all kinds of sherbet." Shortly after that, lohuk became widespread in France and England (Işın, 2012, p. 3, p. 91; Sandıkçıoğlu, 2018, p. 152).

Sherbet is a drink that has been consumed since the Seljuk period. It is prepared as both medicine and refreshing drinks with a variety of fruits and spices. In 1891, a Syrup Manufacturing treatise was prepared by Dr. Celal Pasha

(Koç, 2018). Sherbet is called scherbett in German, sorbetto in Italian, sorbet in French, sorbet-sherbet in English. In Europe, the habit of drinking sherbet first began in Venice. Francesco di Medici, Duke of Florence, asked a Venetian acquaintance for recipes for sherbet and other fine drinks made by Turks in 1577. The fashion for sherbet drinking has spread throughout England and France. English scientist Francis Bacon mentioned Ottoman sherbet in his Natural Science book published in 1627. After the 16th century, sherbets belonging to Ottoman cuisine spread throughout Europe starting from Italy, and the export of hard sherbet sugar produced to prepare easy syrup continued in the 18th century. Ice cream made in Italy in the 17th century by freezing sherbet is called sorbetto. These ice creams are still called sorbets in international cuisine today (Işın, 2020, p. 291; Özdoğan & Işık, 2007, pp. 1059-1077; Sarıoğlan & Cevizkaya, 2016).

Lady Mary Montagu, wife of the British ambassador, describes sherbet served in Chinese porcelain with solid gold lids and bottom plates (Işın, 2020, p. 291). French traveler Jean-Baptiste Tavernier writes in his travel book about his observations of Istanbul in the 1630s. He mentions that Turks drink sherbet both to cool off and besides meals (Yerasimos, 2006). From the mid-17th century, ready-made sherbet mixtures with lemon, rose and violet began to be exported to England. In addition to these sherbets, which are prepared in the form of hard confectionery and diluted before consuming, cherry syrups prepared in the 18th century under the name visney are also exported to both England and France (Işın, 2020, p. 291; Sandıkçıoğlu, 2018, p. 141).

Pastırma

Pastırma, which is prepared by drying the pieces of meat obtained from bovine carcasses, after being subjected to curing, washing, pressing and drying processes (Türk Patent ve Marka Kurumu, 2002). Pastırma means pressed dried meat and is found in Dânishmendnâme in 1360 AD. (Nişanyan Sözlük, 2022). Salting and drying of meat is seen throughout the history and in different cultures. Pastırma has been part of Turkish food culture since the Huns in Turkistan. In Kasgar's Mahmud's Divânu Lûgâti't-Turk, dried meat is referred to as kak et (dried meat), yazuk et (pastırma) and yazak et (pastırma). Pastırma was taken to Rumelia and the Balkans through the Turks, then to Central Europe, and spread all over the world, passing on Balkan languages and Western cuisine as pastrami (Çetin, 2005, p. 200; Sandıkçıoğlu, 2018, p. 5, 154). The Turks were making pastırma during the Seljuk period, and they called it yazak et. Meat was dried in autumn, prepared with a mixture of many spices, especially black pepper, and eaten in the spring. Thus, in the spring, good quality meat was eaten even when the meat of animals was not fatty (Köymen, 1982, p.43-44). Among the pastrami mentioned by Evliya Çelebi, the one that is closest to the pastrami we know today is the Engürü (Ankara) Pastırması seasoned with fenugreek seeds (Özkan, 2013, pp. 44-45; Yerasimos, 2019).

Sütlaç

Sütlaç, one of the most well-known milk desserts, is prepared today with rice, sugar and milk (Güney, 2021b). It is first mentioned in the sources under the name of Uwa in Dîvânu Lugâti't-Türk written by Mahmoud of Kashgar in the 11th century. It is made as follows: Rice is put in cold water after cooking. Then the water is drained and sprinkled with sugar on it. It is then cooled by putting ice on it and eaten as cold. In Kaygusuz Abdal's poems, it is mentioned as rice with milk, and in some sources it is called milky soup (sütlü aş). This word sütlü aş fused and took the form of sütlaç in accordance with the rules of Turkish. In 1529, it was presented at an event in Italy under the name Riso Turchesco (Turkish rice) at the wedding of Ercole II d'Este, Duke of Ferrara in 1529 (Gündüzöz, 2017; Işın, 2020). Rice Pudding, is a recipe born from the original sütlaç recipe. Sütlaç is called rice pudding in Europe and America.

Tel Kadayıf and Güllaç

Güllaç and tel kadayıf are not known products before the 15th century and there were no recipes until that time. Until that period, the kadayıf mentioned in Arabic cuisine is the flat kadayıf used in Turkish cuisine today (Işın, 2020, p. 223). The tel kadayıf is first mentioned in Muhammed bin Mahmud Shirvani's 15th Century Ottoman Cuisine book. In this book, Shirvani gives two different recipes of kadayıf and one of which is a tel kadayıf (Şirvanî, 2005, p. 123). In Mehmet Kâmil's work named Melceü't Tabbâhîn in 1844, four different dessert recipes prepared from tel kadayıf are given: the ordinary tel kadayıf, the palace tel kadayıf, the white kadayıf and the creamy kadayıf. The preparation of desserts is basically the same as today. Fresh kadayıf is placed on a tray generously spreaded with clarified butter, fried on both sides on a stove and served with sherbet (Mehmet Kâmil, 2016, pp. 79-81).

Although the prescription of güllaç is mentioned in Kaygusuz Abdal's poems called simatiye (Gündüzöz, 2017, p. 23), the first recipe we know is also included in Shirvani's book. According to Shirvani's recipe, the runny dough prepared by mixing wheat starch, egg white and water is cooked on Turkish sheet pan in the form of thin wafers. Cooked güllaç wafers are dipped in syrup, folded in half and served with sugar, musked rose water syrup and ground almonds (Şirvanî, 2005, p. 125). During his visit to Istanbul in the 1550s, Dernschwam saw the making of güllaç and stated as follows: Fine wheat flour (must be starch) is mixed with egg whites, this dough is poured into a hot pan and the mixture opens like a plate in the pan. These wafers are cooked in the desired number. Sugar, almonds or walnuts layered into them. These pastries are folded on top of each other and put on the table after sprinkled with musk and rose water (Dernschwam, 1992,

p. 171). Güllaç dough is prepared in a similar way today. Some companies prepare the dough mixture with flour and starch.

3. Conclusion

Turkish cuisine is one of the most important cuisines of the world that is misunderstood, misrepresented and not promoted. Considering the sources of Turkish cuisine, it is clear that it covers a very wide geography from the Yellow Sea to the Americas, a long historical history from the Sumerians to the present day. It is based on the brotherhood of cultures, not on the basis of a race. In all these stages, the Turks both found and developed new dishes themselves, and also adopted, diversified and spread to different geographies what they had taken from other cultures with which they interacted.

In the literature review, no research has been found that examines all of the topics covered in this study together and in terms of what this study deals with. This study differs from others in this aspect. In the light of the information obtained in this study, yogurt, baklava, döner, mantı, coffee, yufka, Turkish delight, lohuk, pastırma, güllaç, tel kadayıf, sütlaç are products that come out of Turkish cuisine. Although coffee is completely external, it is thought to have contributed by Turkish cuisine greatly to the fact that coffee has become what it is today.

One of the most important barriers in the promotion of Turkish Cuisine is not being a state policy. The governments should assist and promote Turkish cuisine as follows: The researches related to the field should be supported, academicians and researchers should do more research and publications on the origins of Turkish Cuisine, and the results of these research should be announced through publications at both national and international levels. Institutions and organizations should organize activities promoting Turkish Cuisine at international festivals and fairs. In order to prevent this damage caused by misinformation on Turkish cuisine, qualified publications in the written and visual media should be encouraged. 10 products that will promote Turkish Cuisine worldwide should be selected and an action plan should be created for their promotion. Turkish cuisine restaurants should be opened abroad and these initiatives should be supported by the state. Budget should be allocated and agreements should be made with universities for the opening of Turkish Culinary Culture courses in universities abroad (Güney, 2021a).

It is suggested for the future studies to carry out new researches based on new archeological findings, state archives and manuscripts.

As to conclude, it cannot be considered as extreme nationalism to explain and protect any product by documenting that it belongs to Turkish cuisine or spreads through Turkish cuisine to the world. Many countries market the products they bring from the places they go to as their own, with discourses that are not based on any scientific basis or source. In such an environment, it is at least a valuable task, if not a necessity, to uphold the values that make up Turkish cuisine.

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INFO PAGE

Foods spreading from Turkish cuisine to the world

Abstract

Turkish cuisine is not based on a race. It is one of the world's richest cuisine in terms of cooking techniques, material diversity and basic titles, which feed on the brotherhood of cultures in a geography stretching from the Yellow Sea to the Americas. The main purpose of this study is to emphasize the importance of the Turkish cuisine and culture on the emergence and spread of the products mentioned here to the world. This study asks the question "What are the foods that spread from Turkish cuisine to the world?". For this purpose, scientific articles, theses, symposium proceedings, travelogues, books, and magazines were examined. After a wide literature review yogurt, yufka, baklava, döner, mantı, pastırma, tel kadayıf, coffee, lohuk, Turkish delight, sherbet, sütlaç and güllaç, which are known and mentioned most in international literature and cuisines were chosen for a deeper research. The study has been limited to these products and with the documents published in English and Turkish. This research plans to provide information about the history of these products, some of which are disputed about their origin, such as yoghurt, baklava, döner, mantı and pastırma.

Keywords: *Turkish cuisine, Gastronomy, Yogurt, Yufka, Baklava, Mantı, Döner*

Authors

Full Name	Author contribution roles	Contribution rate
Servet Kazım Güney:	*Conceptualism, Methodology, Software, Investigation, Data Curation, Writing - Original Draft, Writing - Review & Editing*	*100%*

Author statement: *Author(s) declare(s) that All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.* ***Declaration of Conflicting Interests:*** *The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article*

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Examining tourists' travel intentions in Türkiye during pandemic and post-pandemic period: The mediating effect of risk reduction behavior.

İlknur Zeydan, Ahmet Gürbüz*

Keywords:
Covid-19,
Travel intention,
Risk reduction behavior,
Mediation effect,
TPB.

ABSTRACT

In the first two years of the Covid-19 pandemic, risk perception negatively affected travel intention. Whether the vaccination has changed risk perception and the impact of vaccination on travel intention has not been fully evaluated in the literature. This study aims to examine the effects of the Covid-19 pandemic on tourists' travel intentions during the mass vaccination and normalization period by the Theory of Planned Behavior (TPB). The mediating role of risk reduction behavior between risk perception and travel intention is also investigated. An online survey was conducted with 1233 tourists in Türkiye. As a result of the Structural Equation Model (SEM), it was found that the variables of attitude, subjective norm, and perceived behavioral control had a positive effect on tourists' travel intentions. However, no significant effect of the Covid-19 risk perception on travel intention was determined. When the mediation is tested, the effect of Covid-19 risk perception on travel intention became significant. Since most of our sample population was vaccinated (94.8%), tourists did not perceive Covid-19 as a risk at first. When they applied risk reduction behaviors, they began to perceive Covid-19 as a risk and realized that the pandemic was still not over and necessary precautions had to be taken. While this study emphasizes the importance of the mediation effect risk reduction behavior, it provides us with new ideas about the changes in the travel intention of tourists during the pandemic period.

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1. Introduction

The Covid-19 pandemic has created negative effects that will last for years in many sectors, especially tourism. Türkiye is the 11th country most affected by Covid-19 worldwide. In 16.9 million reported cases, more than 101 thousand people died in Türkiye (WHO, 2023). Major changes have occurred in the travel decision processes of consumers both in the world and in Türkiye due to the pandemic. Information on vacation evaluations has become much more important due to health problems caused by the pandemic, travel restrictions, and changes in travel intentions. The possibility of encountering uncertainties and undesirable events when purchasing a product or service is perceived as a risk (Quintal et al., 2010). The concept of perceived risk in tourism can be explained as giving up or postponing travel to a certain destination due to the occurrence of a dangerous situation (such as civil unrest, violent crimes, theft, terrorism, war, natural disaster, poor hygiene conditions or pandemics) (Sánchez-Cañizares et al., 2021; Sonmez & Graefe, 1998). There is an inverse relationship between health risk and tourism demand. When pandemics appear, touristic behaviors change. Tourists tend to cancel or postpone their reservations, change destinations, prefer not to go on vacation, and leave the affected destinations (Chua et al., 2021; Matiza & Kruger, 2021; Qiu et al., 2020). The fear of the virus affects tourists' travel preferences. Tourists tend to stay away from large hotels and crowded destinations due to inadequate social distancing and hygiene conditions (Benjamin et al., 2020; Zenker & Kock, 2020). A study conducted in China reveals that almost half of the respondents would make their next trip at least six months after the Covid-19 pandemic was brought under control (Li et al., 2021). Gürsoy et al. (2022) mentioned that even after the relaxation of travel restrictions, tourists decided to postpone travel plans due to fear of infection. As a result of the research conducted by DORinsight with 5007 people in Türkiye in 2020, 72% of the participants declared that they would not buy travel, and 63% of them would not go on travel (Çevik Tekin, 2020).

The theory of planned behavior (TPB) is widely applied in many studies on travel intentions and behaviors of tourists

***Corresponding Author**

Research paper

İlknur Zeydan: *Msc., ,Department of Business, The Institute of Graduate Studies, Karabük University, Karabük, Türkiye, Email: ilknur.oral@beun.edu.tr, Orcid Id: 0000-0002-6095-5429*

Ahmet Gürbüz: *Prof., Department of Business, Faculty of Economics and Administrative Sciences, Karabük University, Karabük, Türkiye, Email: agurbuz@karabuk.edu.tr, Orcid Id: 0000-0003-2287-9709*

in recent years (Bae & Chang, 2021). According to TPB perceived behavioral control, attitude, and subjective norms variables strongly influence behavioral performance. Intentions predict a great deal of individuals' behavior (Ajzen & Fishbein, 1980; Taştan & Soylu, 2023). Studies have argued that it is necessary to determine how individuals' attitudes, subjective norms, and perceptions affect intention and behavior in adverse situations such as pandemics (Han et al., 2020; Sánchez-Cañizares et al., 2021; Seong & Hong, 2021). In addition to the effects of behavioral control, attitude, and subjective norms variables on the intention to go on travel during the Covid-19, the effects of Covid-19 risk perception and risk reduction behavior variables were included in the theory. It is aimed to examine the changing tourist behavior during the Covid-19 pandemic period and to provide explanatory information about Turkish tourists' intention to travel. The mediating role of risk reduction behavior is also investigated. The innovative aspect of this study is that it was conducted during the period of normalization and mass vaccination.

Literature Review

Extended Theory of Planned Behavior

TPB examines the relationships between intentions and behaviors (Fishbein, 1980). TPB includes both social (subjective norms) and psychological (attitude) factors in tourists' decision-making (Quintal et al., 2010). TPB is used in tourism, especially in determining travel intentions (Sánchez-Cañizares et al., 2021). Attitude (AT), subjective norms (SN), and perceived behavioral control (PBC) lead to the formation of a behavioral intention. Human behavior is under the control of certain factors, resulting from certain reasons and occurring in a planned manner. The scales used in the research were developed by Ajzen (1985) within the scope of TPB.

In tourism literature, the extended TPB model is applied to determine the intention (Shen & Shen, 2021; Yuzhanin & Fisher, 2016). Quintal et al. (2010) investigated the effects of perceived risk on the intentions of tourists to travel to Australia using extended TPB. In the tourism and pandemic era, TPB was used for the first time during the swine flu pandemic by Lee et al. (2012) to determine the tourists' travel intentions. Frequency of past travels, perception of swine flu, and non-pharmaceutical measures have been added to TPB (Lee et al., 2012). In Covid-19, many researchers implemented the extended version of TPB in the field of tourism to investigate travel intentions. In the literature, it is seen that variables such as risk perception and risk reduction behavior are added to extend the original TPB (Han et al., 2020; Lee et al., 2012; Liu et al., 2021; Sánchez-Cañizares et al., 2021; Seong & Hong, 2021; Sujood et al., 2022). Han et al. (2020) reported that the perceived risk of Covid-19 rises the explanatory power of travel intention. Fear of Covid-19 and perceived high-risk change attitudes and behaviors (Nazneen et al., 2020). Neuburger and Egger (2021) stated that the perception of the pandemic resulted in postponing or avoiding traveling to affected places. It is important to measure how the risk can affect the tourists who want to travel during Covid-19. For this reason, "Covid-19 Risk Perception" (CRP) is added to the TPB as an independent variable (Bae & Chang, 2021). CRP is the degree of potential loss from traveling because of the negative consequences of the pandemic (Sánchez-Cañizares et al., 2021). Individuals who perceive health risks are assumed to engage in more preventive behaviors to minimize the risk (Bae & Chang, 2021). Tourists intend to avoid traveling to destinations where Covid-19 cases are reported and cancel their vacations (Liu et al., 2021). Personal non-drug interventions are getting information about diseases, improving hygiene conditions, maintaining social distancing, and monitoring personal health during travel (Lee et al., 2012; Liu et al., 2021). Non-pharmaceutical interventions, namely "Risk Reduction Behaviors" (RRB), are adaptive behaviors, thereby reducing the disease threat to an acceptable level and supporting behavioral intention (Lee et al., 2012). By considering the cited literature, in this study, the TPB was expanded by adding the variables "Covid-19 risk perception" and "risk reduction behavior"

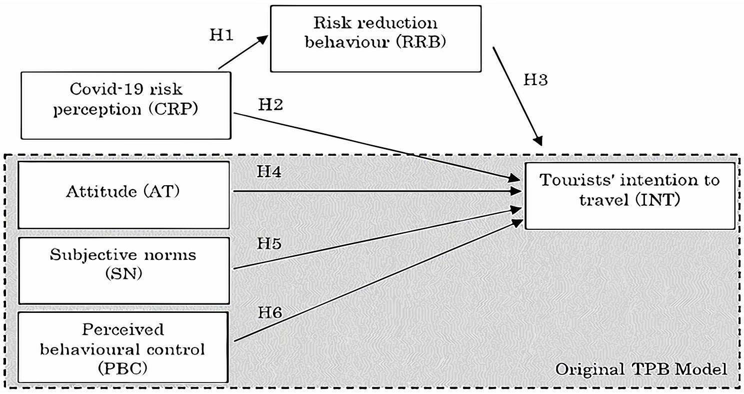

Figure 1 - Research model 1

Source: Authors

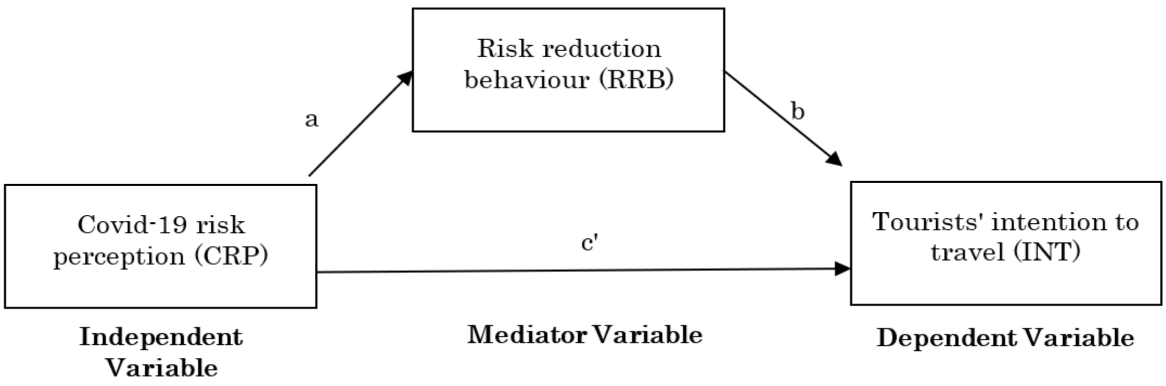

Figure 2: Research model 2

Source: Authors

(Lee et al., 2012; Liu et al., 2021). Figure 1 depicts the research model.

Considering all these studies, the six hypotheses proposed are as follows. Note that all hypotheses are valid for the Covid-19 pandemic period.

H1: CRP has a positive effect on RRB.

H2: CRP has a negative effect on tourists' INT.

H3: RRB has a positive effect on tourists' INT.

H4: AT has a positive effect on tourists' INT.

H5: SN have a positive effect on tourists' INT.

H6: PBC has a positive effect on tourists' INT.

The Mediating Role of Risk Reduction Behavior

It has been stated that risk reduction behaviors (non-pharmaceutical measures) function as a mediator between risk perception and travel intention. Lee et al. (2012) investigated the mediating role of risk reduction behavior between swine flu perception and the travel intentions of potential tourists in South Korea. They reported that non-drug interventions had a mediating effect between pandemic perceptions and travel intention. A study, conducted in China in June-July 2020, states that risk reduction behavior partially mediates between Covid-19 perception and travel intention (Liu et al., 2021). Considering these studies, the hypothesis that risk reduction behavior plays a mediating role is formed as follows. The research model of mediation is depicted in Figure 2.

H7: RRB has a mediating role in the effect of CRP on tourists' INT.

2. Methodology

Data Collection

The survey method was implemented to collect data. The questionnaire, containing 49 questions, was applied to a sample group of tourists in Türkiye. In the first part, questions were asked about the demographic information of tourists and the status of being vaccinated against Covid-19. In the second part, there exist 42 items to determine the CRP, RRB, AT, AN, PBC, and INT during Covid-19. (Bae & Chang, 2021; Bratić et al., 2021; Lee et al., 2012; Neuburger & Egger, 2021; Seong & Hong, 2021; Sujood et al., 2022; Ying et al., 2021). The second part of the questionnaire was prepared on a 5-point Likert-type scale (1=I strongly disagree, … 5=I strongly agree). Evaluations were made by taking the relevant opinions of 56 participants in the pilot study and the questionnaire was finalized.

The universe of this research consists of all tourists living in Türkiye. The study was conducted between 11 March 2022 and 21 April 2022. An online data collection platform “Google Forms” was used for collecting data. Especially for the study sample, it is necessary to reach the sample group between 10 and 15 times the number of questions in the questionnaire. Since a 49-question survey was prepared in this study, it is sufficient for the sample number to be between 490 and 735 (Thompson, 2000). In the survey, it was asked whether the responder has previously traveled. The study sample was composed of 1233 people, who traveled before and were considered tourists. The data size is suitable for Structural Equation Model (SEM) analysis.

Data Analysis

The data were analyzed with the SPSS 25 software. Descriptive analysis (frequency and percentage) was used to find the distribution of data according to demographic characteristics. Secondly, the normality of the research items is checked using descriptive statistics (mean, standard deviation, skewness, and kurtosis). Since the normal distribution of the data was obtained, the hypothesis tests were statistically evaluated at the 95% confidence level. Cronbach's alpha analysis, item analysis, item discrimination analysis, explanatory factor analysis, and confirmatory factor analysis were performed to determine the reliability and validity of the Likert scales.

Pearson correlation analysis was applied to find the relationships between the independent variable and dependent variables, and the SEM was established to evaluate the research models. Lisrel 8.51 was used for structural modeling.

3. Results

Participants' Profile

Table 1 represents the distribution of participants by variables. There were no significant differences in gender, marital status, or age. It was determined that 55.3% of the participants were public employees and most of the participants had a bachelor's degree or higher. Only 27.9% of the participants reported a monthly income of < 4254 Turkish Liras (TL) (the minimum wage during the data collection period) or no income. Most participants (94.8%) were vaccinated against Covid-19, and 5.2% were not vaccinated.

Table 1 - Distribution of participants by variables

Variables	Group	n	%
Gender	Female	686	55.6
	Male	547	44.4
Marital Status	Single	546	44.3
	Married	687	55.7
Age	18-29	387	31.4
	30-39	355	28.8
	40-49	306	24.8
	≥ 50	185	15.0
Occupation	Public Employee	682	55.3
	Student	291	23.6
	Private Sector	150	12.2
	Other	110	8.9
Educational Status	High school or below	80	6.5
	Associate degree	99	8.0
	Bachelor's degree	559	45.3
	Master	232	18.8
	Doctorate	263	21.3
Monthly Income (TL)	≤ 4254	97	7.9
	4255-6000	113	9.2
	6001-8000	196	15.9
	8001-10000	163	13.2
	≥ 10001	418	33.9
	No income	246	20.0
Vaccinated against Covid-19	Yes	1169	94.8
	No	64	5.2
	Total	1233	100.0

Source: Authors

Exploratory Factor Analysis

Table 2 presents the normality test results. Since the Likert type scale is used and due to the large sample size, we applied multivariate normality by considering the central limit theorem. According to the central limit theorem, it is assumed that the data are normally distributed since the sample size is larger than 30. The central limit theorem is considered as the second fundamental theorem of probability theory. Let X_1, X_2, X_3, ..., X_n be independent random variables with the same finite mean μ and variance σ^2. According to the central limit theorem, as the sample size (n) increases, the distribution of the sample mean converges to a normal distribution with mean μ and variance σ^2/n, regardless of the original distribution (Rempala & Wesolowski, 2002). It was determined that the distribution was normal since the skewness and kurtosis values were between -2 and +2, as well as the closeness of the mean and median among the central tendency measurements (Ivanova et al., 2020).

Table 2 - Normality test results of the latent variables

Sub-Dimensions	Central Tendency Measurements			
	Mean	Median	Skewness	Kurtosis
CRP	3.56	4.13	-0.743	-0.797
RRB	3.95	4.25	-1.542	1.632
AT	2.71	2.63	0.219	-0.908
SN	2.90	3.00	-0.042	-1.048
PBC	3.01	3.40	-0.213	-1.290
INT	2.98	3.18	-0.249	-1.124

Source: Authors

The criterion of having a factor load above 0.50 was used to decide whether an item should remain on the scale (Seong & Hong, 2021). Factor loading values were determined to vary between 0.535 and 0.925. To check the instability of the item, the distance between the factors was examined. There was no instability in the items because the distances between the factors were greater than 0.10. Items and factors are presented in Table 3. When the items collected under factors 1, 2, 3, 4, 5, and 6 are examined, these factors are "Intention to Travel" (INT), "Risk Reduction Behavior" (RRB), "Covid-19 Risk Perception" (CRP), "Attitude" (AT), "Subjective Norm" (SN), and "Perceived Behavioral Control" (PBC). When the internal consistency levels of each factor were calculated, it was determined that the reliability levels of each factor were 0.974, 0.952, 0.972, 0.958, 0.943, and 0.940, respectively, and these values were at an acceptable level of reliability.

Table 3 - Factor loads of the scale items

Items	Factors						
	1	2	3	4	5	6	Cronbach's α
Intention to Travel							*0.974*
I choose the accommodation facility that has a safe tourism certificate.	0.773						
I determine my vacation destination according to the number of cases.	0.797						
I would recommend others to travel.	0.798						
It's a good idea to travel.	0.803						
I would like to travel.	0.810						
I set aside time and money to travel.	0.817						
I am sure I will travel.	0.827						
I guess I will travel.	0.828						
I plan to travel often.	0.829						
I intend to travel.	0.839						
I try to travel.	0.893						
Risk Reduction Behavior							*0.952*
I choose to travel to places with a low number of cases.		0.741					
I choose to travel to places with health care.		0.767					
I choose to travel to places that are not crowded.		0.771					
I pay more attention to my health.		0.851					
I wash my hands frequently.		0.855					
I follow the rules regarding Covid-19.		0.862					
I pay attention to social distancing.		0.869					
I often wear a mask.		0.887					
Covid-19 Risk Perception							*0.972*
There is a high probability of dying from Covid-19.			0.856				
I have a high probability of catching Covid-19.			0.863				
It is not safe to travel long distances on vacation due to Covid-19.			0.865				
It is not safe to travel to crowded cities due to Covid-19.			0.879				
The probability of contracting Covid-19 is higher than in other diseases.			0.884				
I am aware of the danger associated with Covid-19.			0.895				
I am afraid of contracting Covid-19.			0.925				
Attitude							*0.958*
It is unusual to travel.				0.670			
I would be happy to travel.				0.720			
It is necessary to travel.				0.725			
Traveling is positive.				0.748			
It's nice to travel.				0.758			
It's good to travel.				0.758			
It makes sense to travel.				0.790			
Subjective Norm							*0.943*
People who are important to me agreed with my idea of traveling.					0.728		
People who are important to me supported me to travel to places that are not affected by the pandemic.					0.731		
People who are important to me show understanding when I travel.					0.735		
People who are important to me thought positively about my travel.					0.783		
Perceived Behavioral Control							*0.940*
If I want to travel, nothing can stop me.						0.535	
It is convenient for me to travel.						0.605	
I have the resources and opportunities to travel.						0.652	
I research the place where I will travel.						0.667	
Traveling is completely under my control.						0.689	

Source: Authors

Confirmatory Factor Analysis

Confirmatory factor analysis was performed in the LISREL to verify the explained factor structure. Table 4 depicts factor loads of confirmatory factor analysis (CFA) and t values of these factors. According to Table 4, the factor loadings of the items were determined to be between 0.72-0.98. Since all factor loads and t values are greater than 0.50 and 2.58 respectively, it can be said that all standardized factor loading values obtained as a result of CFA were significant at the 99% confidence level.

Table 4 - CFA findings of research scales

Scales	Items	Factor Loads	R^2	t
CRP	CRP_1	0.98	0.96	47.21**
	CRP_2	0.94	0.88	44.34**
	CRP_3	0.88	0.77	39.13**
	CRP_4	0.91	0.83	41.74**
	CRP_5	0.87	0.76	38.8**
	CRP_6	0.88	0.77	39.66**
	CRP_7	0.92	0.85	42.37**
RRB	RRB_1	0.93	0.86	43.09**
	RRB_2	0.90	0.81	40.92**
	RRB_3	0.90	0.81	40.69**
	RRB_4	0.90	0.81	40.66**
	RRB_5	0.88	0.77	39.27**
	RRB_6	0.75	0.56	30.62**
	RRB_7	0.72	0.52	28.76**
	RRB_8	0.74	0.55	30.3**
AT	AT_1	0.93	0.86	43.21**
	AT_2	0.90	0.81	40.73**
	AT_3	0.89	0.79	40.11**
	AT_4	0.86	0.74	37.56**
	AT_5	0.89	0.79	40.25**
	AT_6	0.78	0.61	32.33**
	AT_7	0.88	0.77	39.21**
SN	SN_1	0.94	0.88	43.83**
	SN_2	0.89	0.79	39.85**
	SN_3	0.91	0.83	41.22**
	SN_4	0.86	0.74	37.52**
PBC	PBC_1	0.96	0.92	45.81**
	PBC_2	0.86	0.74	37.87**
	PBC_3	0.87	0.76	28.03**
	PBC_4	0.82	0.67	35.05**
	PBC_5	0.85	0.72	36.73**
INT	INT_1	0.96	0.92	46.44**
	INT_2	0.85	0.72	36.85**
	INT_3	0.90	0.81	40.93**
	INT_4	0.93	0.86	42.99**
	INT_5	0.91	0.83	41.76**
	INT_6	0.89	0.79	40.42**
	INT_7	0.86	0.74	38.07**
	INT_8	0.91	0.83	41.90**
	INT_9	0.88	0.77	40.38**
	INT_10	0.81	0.66	34.53**
	INT_11	0.78	0.61	32.55**

**p<0.01

Source: Authors

The goodness of fit criteria of CFA is depicted in Table 5. For the scale to be accepted, the goodness of fit indices must satisfy at least acceptable limits. Acceptable and excellent fit ranges of indices can be found in the study of Schermelleh-Engel and Moosbrugger (2003). When the values of indices are examined, it is seen that the value of χ^2/df is at an acceptable level with 4.741 (p=0.000). RMSEA value is at an acceptable level. Other fit values satisfy excellent and acceptable fit values. According to these findings, it was determined that the factor structure of the scale was confirmed.

The reliability of the scale was assessed by examining the average variance extracted (AVE) and composite reliability (CR) values. Since CR and AVE values in Table 6 were determined above limits (CR > 0.70 and AVE > 0.50) (Han et al., 2020), the reliability and convergent validity of the scale were ensured.

Table 6 - AVE and CR values of the scale

Measurements	CR	AVE
CRP	0.97	0.83
RRB	0.95	0.71
AT	0.96	0.77
SN	0.94	0.81
PBC	0.94	0.76
INT	0.97	0.78

Source: Authors

Fornell Larcker Criterion was calculated to ensure discriminant validity in the study (Fornell & Larcker, 1981). According to this criterion, the square root of the mean explained variance value of each structure must be greater than the associated correlations of the structure to provide discriminant validity. As given in Table 7, all values presented in bold are greater than the associated correlations of the structure. Therefore, discriminant validity for the research model was provided.

Table 7 - Discriminant validity for the research model (Fornell Larcker Criterion)

Variables	CRP	RRB	AT	SN	PBC	INT
CRP	0.91	0.542	-0.119	0.002	-0.019	-0.036
RRB		0.84	0.051	0.175	0.159	0.178
AT			0.88	0.677	0.744	0.767
SN				0.90	0.666	0.697
PBC					0.87	0.785
INT						0.88

Source: Authors

The relationships between the variables are shown in Table 8. When the relationships were examined, it was determined that only the relationship between the INT and the CRP was not significant (p>0.05). Other independent variables had significant and positive correlations with the dependent variable.

Table 5 - Goodness of fit indices of the CFA model

χ^2	df	χ^2/df	RMSEA	CFI	GFI	AGFI	NNFI	NFI	RMR	SRMR
3811.57	804	4.741	0.055	0.99	0.93	0.91	0.99	0.99	0.065	0.041
		Acceptable	Acceptable	Excellent	Acceptable	Excellent	Excellent	Excellent	Acceptable	Excellent

Source: Authors

Table 8 - Measurement model assessment

Variables	CRP	RRB	AT	SN	PBC	INT	Mean	SD
CRP	1	0.542**	-0.119**	0.002	-0.019	-0.036	3.56	1.21
RRB	-	1	0.051	0.175**	0.159**	0.178**	3.95	1.01
AT	-	-	1	0.677**	0.744**	0.767**	2.71	1.10
SN	-	-	-	1	0.666**	0.697**	2.90	1.11
PBC	-	-	-	-	1	0.785**	3.01	1.20
INT	-	-	-	-	-	1	2.98	1.13

**p<0.01

Source: Authors

Table 9 - The goodness of fit values for model 1

χ^2	df	χ^2/df	RMSEA	RMR	SRMR	GFI	AGFI	CFI	NFI	NNFI
3077.27	801	3.841	0.048	0.065	0.041	0.92	0.91	0.99	0.99	0.99
		Acceptable	Excellent	Acceptable	Excellent	Acceptable	Excellent	Excellent	Excellent	Excellent

Source: Authors

Evaluation of the Structural Model

Before the SEM analysis, confirmatory factor analysis was performed, and it was determined that the variables contained sufficient statistics for analysis. The first model given in Appendix 1 is evaluated to examine the effect of CRP, AT, SN, PCB, and RRB on the INT. The model has χ^2 = 3077.27, df = 801, p = 0.0000<0.01. χ^2/df is calculated as 3.841. Since it is below 5, it means an acceptable fit. Table 9 presents the goodness of fit indices. Calculated values represent an excellent and acceptable fit of the constructed structural model.

Based on these results, Table 10 shows the evaluations of the research hypotheses.

Table 10 - Results of the structural equation modeling 1

Hypotheses	Coefficients	t-Values	Result
CRP→RRB	0.56	20.48**	Accepted
CRP→INT	-0.03	-1.73	Rejected
RRB→INT	0.08	3.85**	Accepted
AT→INT	0.32	10.93**	Accepted
SN→INT	0.18	7.15**	Accepted
PBC→INT	0.43	14.44**	Accepted

Source: Authors

H1: CRP has a positive effect on RRB.

When the path diagram in Appendix 1 and the values in Table 10 are examined, it is seen that the CRP has a positive effect on RRB (β= 0.56; t= 20.48; p<0, 01), and the H1 hypothesis of the research was accepted. This result shows that a one-unit risk perception will have a positive effect on RRB (0.56).

H2: CRP has a negative effect on tourists' INT.

There was a negative effect on the CRP and tourists' INT, but this effect was not significant (β=-0.03; t= -1.73; p>0.05), so the H2 hypothesis was rejected.

H3: RRB has a positive effect on tourists' INT.

It was determined that RRB had a positive effect on tourists' INT (β = 0.08; t= 3.85; p<0.01), therefore H3 hypothesis was supported. This result shows that if one unit of RRB is exhibited, it will have a positive effect on tourists' INT, at a low level (0.08).

H4: AT has a positive effect on tourists' INT.

It was found that the AT had a positive effect on the tourists' INT (β= 0.32; t= 10.93; p<0.01), and the H4 hypothesis was accepted. This result shows that a one-unit improvement in AT will have a positive effect of 0.32 units on tourists' INT.

H5: SN have a positive effect on tourists' INT.

SN was determined to have a positive effect on INT (β= 0.18; t= 7.15; p<0.01), and the hypothesis H5 hypothesis was supported. A one-unit improvement in SN will have a positive effect of 0.18 units on tourists' INT.

H6: PBC has a positive effect on tourists' INT.

It was seen that PBC has a positive effect on tourists' INT (β= 0.43; t= 14.44; p<0.01), so the H6 hypothesis was accepted. A one-unit improvement in PCB will have a positive effect of 0.43 units on tourists' INT.

Effect of Mediation

The mediating role of RRB between CRP and tourists' INT has been assessed in Model 2. The method of Zhao et al. (2010) was implemented instead of Baron and Kenny (1986) method since the effect of the independent variable on the dependent variable was insignificant. The path diagram for the mediation model is given in Appendix 2.

Table 11 - The goodness of fit values for model 2

χ^2	df	χ^2/df	RMSEA	RMR	SRMR	GFI	AGFI	CFI	NFI	NNFI
1232.65	293	4.206	0.051	0.072	0.046	0.93	0.91	0.99	0.99	0.99
		Acceptable	Acceptable	Acceptable	Excellent	Acceptable	Excellent	Excellent	Excellent	Excellent

Source: Authors

The goodness of fit values for Model 2 are shown in Table 11. χ^2/df is found as 4.206 (χ^2 =1232.65, df = 293, p = 0.000) and it is below 5 (acceptable fit). Calculated goodness of fit indices represent that the constructed model is acceptable and has a perfect fit.

Path coefficients of the mediation model are provided in Table 12. The mediating role of RRB has been evaluated by the method of Zhao et al. (2010). When Appendix 2 and Table 12 are examined, it is seen that all paths (paths a, b, and c') are significant (t>2.58; p<0.01) in Appendix 2. After observing the road significance of the c', the multiplication of the coefficients of the a, b, and c' roads are calculated. The negative result of the product (-0.19 × 0.56 × 0.25 = -0.0266) indicates that there is a partial mediation. In other words, partial mediation of RRB was observed between CRP and INT.

H7: RRB has a mediating role in the effect of CRP on tourists' INT.

Therefore, the H2 hypothesis, rejected in the former model, is accepted here. Considering this information, the H7 hypothesis of the research was supported. Compared to hypothesis H3, the effect level of RRB on the INT increased from 3.85 to 7.14.

Table 12 - Results of the structural equation modeling 2

Hypotheses	Coefficients	t-Value	Result
CRP→RRB	0.56	20.48**	Accepted
CRP→INT	-0.19	-5.50**	Accepted
RRB→INT	0.25	7.14**	Accepted

Source: Authors

4. Discussions and Conclusion

Theoretical Implications

In this study, it was aimed to evaluate whether the vaccination has changed the risk perception and the impact of mass vaccination on travel intention. The effect of perceived risk on travel intention during Covid-19 was analyzed by extended TPB, and the mediating effect of RRB between CRP and INT was examined. Furthermore, the effects of AT, SN, and PBC on the INT were evaluated. In this study, it was found that CRP does not affect travel intention during the mass vaccination and normalization period in Türkiye. The effect of CRP on INT becomes meaningful when the RRB is implemented in the model. Many academic inferences can be made from the results obtained. In the first research model, no effect was observed between CRP and INT. However, due to the partial mediation of the RRB variable in model 2, the CRP had a negative effect on INT. The most important conclusion to be drawn here is to emphasize the importance of the mediation effect. It has been revealed that when risk reduction behaviors come into play, risk perception levels of people negatively affect their travel intention. In the former model, the insignificant effect of CRP on INT is believed to be related to the elimination of pandemic restrictions, the start of the normalization period, the increase in vaccination numbers, trust in the vaccine, and safe tourism brands. The Covid-19 risk perception negatively affects the travel intention of tourists in studies published in 2020 when the Covid-19 vaccine is still being developed, and in 2021, when the vaccine was just started to be applied (Bae & Chang, 2021; Bratić et al., 2021; Han et al., 2020; Liu et al., 2021; Nazneen et al., 2022; Neuburger & Egger, 2021; Sánchez-Cañizares et al., 2021; Seong & Hong, 2021; Sujood et al., 2022). A similar result was reported for Türkiye. Garipağaoğlu Uğur et al. (2021) conducted an online survey of domestic tourists living in Türkiye and they found that the CRP negatively affects travel intention. In studies conducted at the very beginning of the vaccination period, the mediating role of the vaccine between CRP and intention to travel was examined, but no significant results could be obtained (Onat et al., 2021).

In articles published in 2022, it is stated that the Covid-19 vaccine and trust in the vaccine reduce risk perception. A study conducted in Türkiye mentioned that thes Covid-19 vaccine reduced risk perception and, therefore, the intention and behavior of travel increased (Kırlar-Can & Ertaş, 2022). Shah Alam et al. (2022) reported that CRP did not affect travel intention due to reliance on the vaccine. The Chinese, who trust the effect of the vaccine, were found to have an increased intention to travel abroad (Fan et al., 2023). The Covid-19 vaccine was applied for the first time in Türkiye on January 13, 2021. Since then, the vaccination campaign has been started. During the data collection period of this study, more than 53 million people were vaccinated. This number corresponds to 85% of Türkiye's population over the age of 18. Additionally, 94.8% of the participants in our study had the Covid-19 vaccine (Table 1). Therefore, it can be said that Covid-19 risk perception did not affect the travel intentions of our sample consisting mostly of vaccinated individuals. Moreover, Zaman et al. (2021) stated that the safe tourism label increases the trust of tourists and reservations. Implementing the Safe Tourism Certificate Program in the accommodation facilities in Türkiye (Zeydan & Gürbüz, 2021), made accommodation more suitable for pandemic conditions. This causes people to act more fearlessly while on travel. To sum up, this paper contributes to literature by revealing the effect of risk reduction behaviour on travel intention. In the period of mass vaccination and normalization, individuals did not recognize Covid-19 as a risk, and the negative impact of risk perception on travel was observed with the implementation of RRB. It is advisable for tourist to get vaccinated against Covid-19 for safer tourism. Normalization after pandemic can be achieved by only mass vaccination.

In literature, AT, SN, and PCB variables have a positive effect on INT (Bae & Chang, 2021; Bratić et al., 2021; Han et al., 2020; Liu et al., 2021; Nazneen et al., 2022; Neuburger & Egger, 2021; Sánchez-Cañizares et al., 2021; Seong & Hong, 2021; Sujood et al., 2022). Similar results were obtained in our study. AT on INT during the pandemic was more important than the effect of SN. It can be concluded that the attitude toward traveling for Turkish tourists is more important than the thoughts of the people in their immediate surroundings. While this situation is like studies conducted in China (Liu et al., 2021) and Spain (Sánchez-Cañizares et al., 2021), it differs from studies conducted in the USA (Han et al., 2020), Indonesia (Rahmafitria et al., 2021), and South Korea (Lee et al., 2012; Seong & Hong, 2021). Cultural differences between countries can be a reason for this situation.

Practical Implications

The findings show that the CRP for tourists disappears in the third year, but the risk is significant when it comes to the mediating effect of RRB. Mass vaccination of the public, implementing hygiene and safety measures in accommodation facilities, and safe tourism practices are believed to play a key role in this regard (Burhan et al., 2021). The effect of RRB on INT reveals the importance of tourists applying non-pharmaceutical precautions during pandemic periods (Lee et al., 2012; Liu et al., 2021). In a study conducted in Spain, the effect of CRP on INT was investigated, and it was stated that the perceived risk negatively affected AT and PBC. It was concluded that giving importance to risk reduction behaviors (security, cleanliness, hygiene, etc.) in tourism enterprises is necessary to overcome the psychological barriers of tourists and remove their risk perceptions related to travel (Sánchez-Cañizares et al., 2021).

Since elements of TPB affect intention, it is necessary to conduct tourism marketing in a way that is aimed at tourists' attitudes and subjective norms (Liu et al., 2021). To minimize the effects of the pandemic and continue their activities, tourism enterprises can apply an emergency response procedure to be prepared for a possible pandemic again, to increase their resilience, and combat the pandemic. They can prepare strategic plans and protocols to cope with the pandemic in their workplaces (Brown et al., 2017; Herbane, 2013).

Limitations and Further Research

The work has a peculiar nature. More studies are needed to confirm the conclusions obtained from this study. The first limitation is that the study is performed in Türkiye, with its unique features in terms of pandemic risk perception, precautions, and results. So, it is not possible to generalize the results. For this reason, it is especially recommended to repeat the study in other countries to make comparisons among diverse cultures. Second, the study is based on an online survey so, it may not represent the entire population. The sample collected largely reflects the characteristics of tourists in Türkiye. Lastly, the survey was implemented when the vaccination process was completed, the pandemic restrictions were relaxed, and progress toward the full normalization process was observed. So, the results acquired reflect a view of tourists during the third year of the pandemic.

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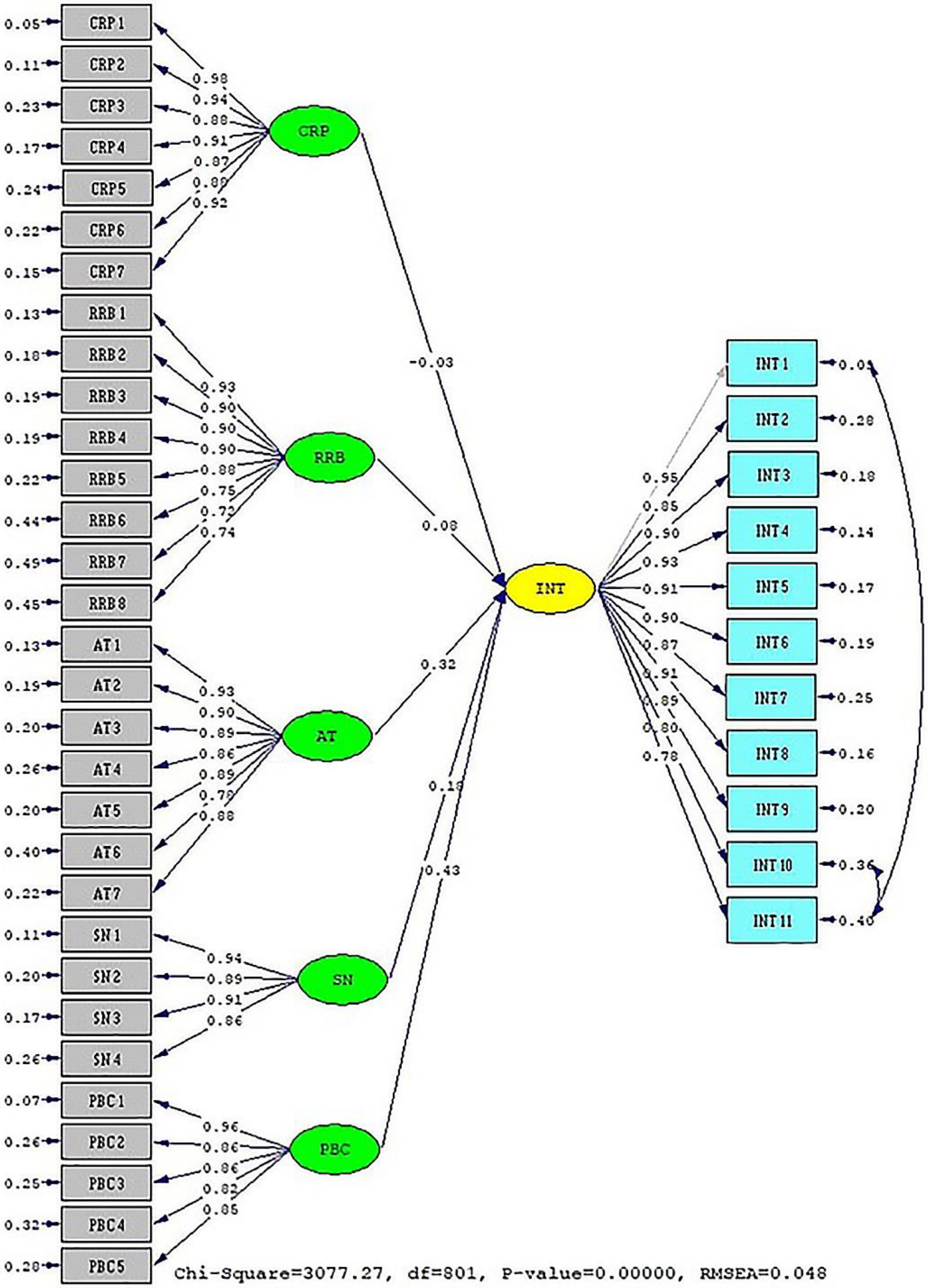
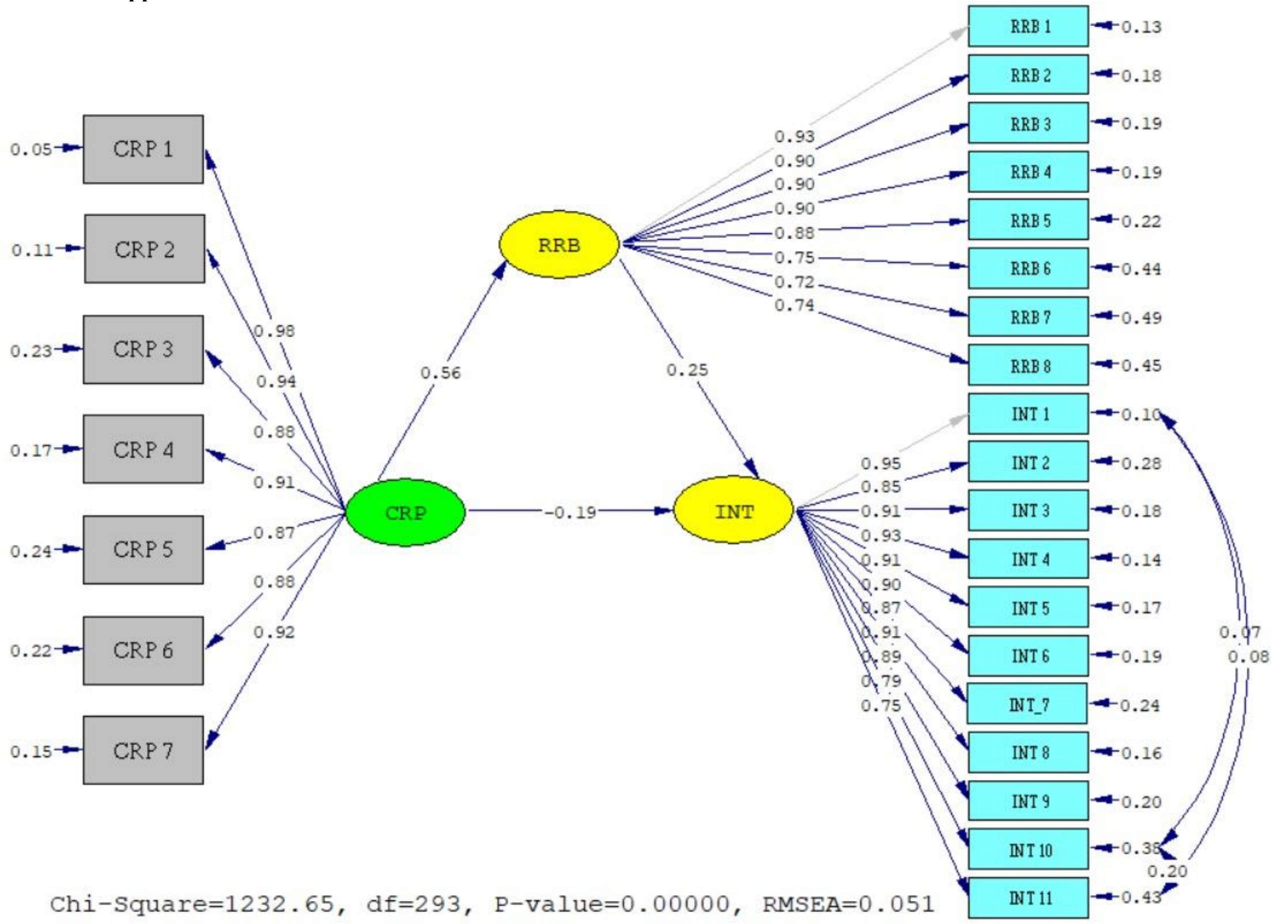
APPENDIES

Appendix 1: Model 1 evaluation results



Source: Authors

Appendix 2: Model 2 evaluation results



Source: Authors

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INFO PAGE

Examining tourists' travel intentions in Türkiye during pandemic and post-pandemic period: The mediating effect of risk reduction behavior.

Abstract

In the first two years of the Covid-19 pandemic, risk perception negatively affected travel intention. Whether the vaccination has changed risk perception and the impact of vaccination on travel intention has not been fully evaluated in the literature. This study aims to examine the effects of the Covid-19 pandemic on tourists' travel intentions during the mass vaccination and normalization period by the Theory of Planned Behavior (TPB). The mediating role of risk reduction behavior between risk perception and travel intention is also investigated. An online survey was conducted with 1233 tourists in Türkiye. As a result of the Structural Equation Model (SEM), it was found that the variables of attitude, subjective norm, and perceived behavioral control had a positive effect on tourists' travel intentions. However, no significant effect of the Covid-19 risk perception on travel intention was determined. When the mediation is tested, the effect of Covid-19 risk perception on travel intention became significant. Since most of our sample population was vaccinated (94.8%), tourists did not perceive Covid-19 as a risk at first. When they applied risk reduction behaviors, they began to perceive Covid-19 as a risk and realized that the pandemic was still not over and necessary precautions had to be taken. While this study emphasizes the importance of the mediation effect risk reduction behavior, it provides us with new ideas about the changes in the travel intention of tourists during the pandemic period.

Keywords: *Covid-19, Travel intention, Risk reduction behavior, Mediation effect, TPB*

Authors

Full Name	Author contribution roles	Contribution rate
İlknur Zeydan:	*Conceptualism, Software, Investigation, Data Curation, Writing - Review & Editing*	*80%*
Ahmet Gürbüz:	*Writing - Review & Editing, Supervision*	*20%*

Author statement: *Author(s) declare(s) that All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.* ***Declaration of Conflicting Interests:*** *The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article*

Ethics Committee Satatement: Ethics committee report is available for this research and it has been documented to the journal.

Ethics committee: *Karabük Üniversitesi Sosyal ve Beşeri Bilimler Araştırmaları Etik Kurulu*

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Evaluation of recreation activities in nature parks and tourism potential*

Zeynep Yamaç Erdoğan

ABSTRACT

The desire of people to escape from cities to rural areas for various reasons increased the importance of ecotourism in general, nature parks and recreational activities. In this study, it is aimed to determine the recreational activities in nature parks and to shed light on the tourism potential of nature parks. In this context, 33 nature parks located in the Eastern Marmara Region focused in the study. The focus is on the eastern Marmara region, as it is a region with the potential to attract more tourists due to its close location to large cities with high populations. The distribution of the nature parks by the cities examined and specifically, which recreational activities could be carried out in each nature park determined and conducted a content analysis with the help of secondary data. The intensity of recreational activities mapped according to the cities, and the richness of recreational activities in nature parks compared within itself. Findings obtained from the research shows that among the cities in the Eastern Marmara Region, the most nature parks are located in Bolu. The nature park with the most activities is Harmankaya Canyon in Bilecik with 15 different activities. The most common activities in the nature parks are listed as; hiking, photography, picnic, cycling.

Keywords:
Nature park,
Recreation,
Ecotourism,
Sport tourism.

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1. Introduction

The increase in migration from rural areas to the cities and the intense tempo brought by the complexity of urban life revealed and nurtured the need for people to turn to natural areas (Long & Lane, 2000; Johnson & Beale 2002; Walmsley, 2003; Çelik & Göçmen, 2013; Sop, Ongun & Abalı, 2020; Kılıç & Buzlukçu, 2021). The desire of people who migrated from rural areas to repeat their past natural life practices, and those who want to rest, find peace, do sports or have different experiences with various activities became inevitable today (Özgen, 2010; Bozok & Kahraman, 2015; Batman & Demirel, 2015; Akyol & Uygun, 2017; Erken, Atanur & Tanrıöver, 2019; Kumlu, Altıntaş & Özkul, 2019). Nature parks stand out as important recreation areas with their clean air, vegetation, wildlife, and suitability for various nature sports and activities in parallel with the fact that nature-based sustainable approaches are frequently on the agenda in the world and the increase in studies on this subject (Mann & Absher, 2008; Koynova, Koleva, Dragoeva & Natchev, 2019; Aliyeva, Sakypbek, Aktymbayeva, Assipova & Saidullayev, 2020; Olenych, 2020).

Nature parks, which have suitable areas for many alternative tourism types –especially ecotourism and sports tourism– and various recreational activities, are very popular destinations for nature-friendly visitors. The areas separated as nature parks in accordance with the criteria determined by the law became destinations offering touristic attractions by offering the opportunity to see the unique flora and fauna, geographical features, and the other values it reserves (Wood, Guerry, Silver & Lacayo, 2013; Oktay, İşlek & Yaşar, 2016; Koday, Kaymaz & Kaya, 2018). Identifying touristic and recreational activity opportunities in these destinations would play an important role in the development and sustainable protection of nature parks.

The aim of the study is to shed light on the tourism potential of the nature parks in the Eastern Marmara Region by analysing these areas and the recreation activities offered. As alternative tourism types become more important over time, it is thought that studies revealing and analysing nature-based tourism and recreation activities contribute the field more. As a matter of fact, such studies can provide readers information about nature parks that creates a driving force for future touristic activities. This research is unique in that there is no study in the literature dealing with the nature parks in East Marmara within this framework. In addition, detecting deficiencies and propose various measures and standards against negative situations in more extended and comprehensive studies would also be beneficial for destination stakeholders.

Research paper

Zeynep Yamaç Erdoğan: *Asst. Prof. Dr., Bilecik Seyh Edebali University, Bilecik, Türkiye, Email: zeynep.erdogan@bilecik.edu.tr, Orcid Id: 0000-0002-7677-8738*

**This study, which is presented at the 22nd. National Tourism Congress hosted by Burdur Mehmet Akif Ersoy University between the dates 27-29 October 2022 and included in the proceedings book, is prepared as an article by reviewing, expanding, and translating into English.*

2. Literature

According to the definition of the The International Ecotourism Society/TIES, ecotourism is; responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education" (TIES, 2015). The increase in the importance of the concept of sustainability has paved the way for the proliferation of nature-based activities in tourism and the emergence of alternative tourism types that care about nature (Kasalak, 2015, p. 20).

As an important form of the sustainable tourism approach, ecotourism is a tourism type grows three times faster than tourism in general and includes nature-friendly activities and visiting natural areas to contribute to environmental care. It also promotes natural and cultural diversity by providing a solution for sustainable social, economic, and environmental development (Carrascosa-López, Carvache-Franco & Carvache-Franco, 2021).

Tourism and sports are related and complementary concepts. Sports tourism includes traveling to different destinations for the purpose of attending or watching competitions as a professional, amateur or leisure activity. Today, regardless of whether the main purpose of travel is sports or not, it is possible to say that more and more tourists are interested in sports activities on their trips (World Tourism Organization/UNWTO, 2022). It is possible to perform many nature-based sports activities in nature parks. For example, at least 25 of the 54 activity categories determined for nature parks in protected areas are direct sports activities. These include hiking, cycling, mountaineering, rock climbing, swimming, rafting, archery, horseback riding, rope course and pentathlon, volleyball, basketball, and canoeing (T.C. Tarım ve Orman Bakanlığı Doğa Koruma ve Milli Parklar Genel Müdürlüğü, 2022a).

There are a total of 262 nature parks in Türkiye (T.C. Tarım ve Orman Bakanlığı Doğa Koruma ve Milli Parklar Genel Müdürlüğü, 2022b). Based on the content of ecotourism and sports tourism, it is possible to say that nature parks are natural areas suitable for many alternative tourism types under the roof of ecotourism and sports tourism. According to the National Parks Law No. 2873 dated 1983 in Türkiye, the legally protected areas within the forest area are national parks, nature parks, nature monuments and nature protection areas. Areas that can be used for recreation/tourism purposes within the protected areas; national parks, nature parks (especially different and rich in terms of outdoor recreation) and forest resting areas (open air recreation at local level) (Milli Parklar Kanunu, 1983; Gül *et al.,* 2005, p. 424; İnanır & Ongun, 2019).

According to the National Parks Law No. 2873 and the 6/B Article of the Forest Law No. 6831, the places to be allocated as a nature park must have the following features:

1- It should have a superior natural physiogeographic structure, vegetation and wildlife characteristics, landscape beauties and recreation potential at national or regional level.
2- It should be large enough to provide source and landscape integrity.
3- It should have a different and rich potential, especially in terms of outdoor recreation.
4- It should also contain interesting examples of local customs, traditional land use patterns and cultural landscapes.
5- It should be state-owned.

There are many national and international studies on nature parks in the literature. For example; Deng *et al.* (2002) emphasized that as nature-based tourism grows, protected areas will be subject to increasing pressure from tourists and the quality of destination attributes will have a significant impact on tourists' experiences. Huayhuaca *et al.* (2010) examined the Frankenwald Nature Park in Germany and the relationship between the inhabitant's perceptions of the four dimensions of sustainability (environmental, economic, socio-cultural, and institutional) and tourism development. Stankov *et al.* (2011) presented alternative ecotourism projects for the Stara Planina Natural Park in Serbia and highlighted that ecotourism can have a positive impact on other tourism development approaches in this area. Akten and Gül (2014) determined the resource values where the adverse effects of recreational activities in Gölcük Nature Park are likely to be "vegetation, visual quality, water quality, soil quality, noise pollution, air quality and fauna" and suggested measures and standards. Armaitiene *et al.* (2014) highlighted new initiatives in health tourism for the development of protected areas in Europe and for utilizing the health benefits of natural heritage and resources. Lee (2015) demonstrated the success of the Regional Nature Park in preserving and presenting the richness of natural and cultural heritage, forest management, recreational development, and tourism.

While examining the literature, it is also found that there are studies breaking the perception that ecotourism forms are shaped in the focus of nature parks and ecotourism can only be done in rural areas. The thought of ecotourism and recreation activities can be done in cities as well, is highlighted through these studies. One of them is the study of Kaae *et al.* (2019) in which the main focus is the transformation of the urban wastelands into areas suitable for recreation and urban ecotourism. In the study, it was determined that Nature Park Amager, which was originally an urban wasteland, is a good example of its transformation into a nature park with recreational experiences, facilities and guided ecotourism tours for tourists. Duglio and Letey (2019) revealed in their study that a protected area does not always contradict the tourism industry, but can support local development by adopting sustainable development.

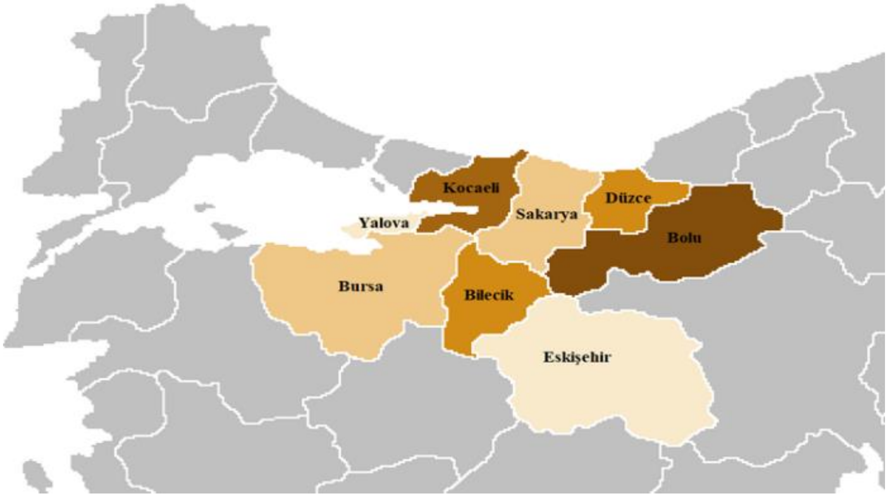

Figure 1. Nature park distribution map by cities

Source: *Wikipedia, 2022.*

Yener (2021), on the other hand, evaluated the nature parks in Türkiye and examined the recreational activities offered to the visitors in these parks.

Literature shows that the studies on nature parks are handled by different disciplines and are the subject of rich research. In this study, nature parks are discussed in the context of tourism and recreational activities, and the research is detailed in the following part.

3. Method

In the study, it is aimed to determine the recreational activities nature parks provide and to shed light on the tourism potential of the parks. Since there are 262 nature parks throughout Türkiye, the nature parks located in the Eastern Marmara Region were considered in order to limit the research. Therefore, the population of the research is nature parks located in Türkiye, and the sample is 33 nature parks located in the Eastern Marmara Region. The focus is on the eastern Marmara region, as it is a region with the potential to attract more tourists due to its close location to large cities with high populations.

The data about nature parks retrieved from the official website of Republic of Türkiye Ministry of Agriculture and Forestry, General Directorate of Nature Conservation and National Parks. For the nature parks that are not included in the aforementioned website, different websites were also examined. In this context, the nature parks was examined by the cities they are located and the recreational activities that can be carried out in each nature park were determined, and related frequencies, percentages, and tables were given with the help of secondary data. In addition, the cities in the Eastern Marmara Region were coloured and mapped according to the intensity of recreational activities. Finally, the richness of the recreational activities in the nature parks of the Eastern Marmara Region has been compared within itself and tried to shed light on the tourism potential of the nature parks.

4. Findings

The cities in the Eastern Marmara Region which constitute the sample of the research are Bursa, Eskişehir, Bilecik, Kocaeli, Sakarya, Düzce, Bolu, and Yalova. The distribution of 33 nature parks in 8 cities in the Eastern Marmara Region; in Bolu (8), Kocaeli (7), Bilecik (4), Düzce (4), Sakarya (3), Bursa (3), Eskişehir (2), Yalova (2) respectively.

The distribution of nature parks in the Eastern Marmara Region by cities is given in Figure 1. Colouring was done on the map according to the number of nature parks. While the cities with the least number of nature parks are shown in lighter colours, the cities with the same number of nature parks are shown in the same colour tones, and the cities with the most nature parks are shown in the darkest tone. Accordingly, Bolu, as the city with 8 nature parks, is coloured in the darkest tone.

The distribution of nature parks by cities is given in Table 1. The names of the nature parks and the city they are located are grouped under the table.

Table 1. Distribution of nature parks by cities

Location	Nature Parks
Bursa	Suuçtu, Sadağı Kanyonu, Sansarak Kanyonu
Eskişehir	Musaözü, Yunus Emre
Bilecik	Küçükelmalı, Harmankaya Kanyonu, Kınık Şelalesi, Erikli
Kocaeli	Ballıkayalar, Beşkayalar, Suadiye, Eriklitepe, Kuzuyayla, Ormanya, Gazilerdağı
Sakarya	Kuzuluk, İl Ormanı, Poyrazlar Gölü
Düzce	Kurugöl, Güzeldere Şelalesi, Aydınpınar Şelaleleri, Geyiklibel
Bolu	Göksu, Beşpınarlar, Bolu Karagöl, Sünnet Gölü, Bolu Gölcük, Sülüklügöl, Kargalı Gölcük, Ayıkayası
Yalova	Harmankaya, Delmece Yaylası

Source: *T.C. Tarım ve Orman Bakanlığı Doğa Koruma ve Milli Parklar Genel Müdürlüğü, 2022b.*

The nature parks in 8 cities in the Eastern Marmara Region and the recreational activities in these parks are given in Table 2. According to Table 2; a total of 33 nature parks and 35 different recreational activities were identified.

Although there is a significant number of common activities in recreational activities, some specific activities can be done only in a single nature park.

Table 2. Nature parks and recreational activity opportunities

Nature Parks	Activity Opportunities
Suuçtu	Picnic, wildlife watching, canyoning, hiking, rock climbing, photography, birdwatching
Sadağı Kanyonu	Picnic, wildlife watching, canyoning, hiking, rock climbing, photography, birdwatching
Sansarak Kanyonu	Wildlife watching, hiking, photography, tent camping, scenery watching
Musaözü	Hiking, angling, caravan camping, tent camping
Yunus Emre	Picnic, hiking, photography, tent camping
Küçükelmalı	Picnic, wildlife watching, hiking, photography, birdwatching, angling, orienteering, horseback riding
Harmankaya Kanyonu	Picnic, canyoning, hiking, rock climbing, photography, caravan camping, tent camping, mountain biking, mountaineering, skiing, cave exploring, scenery watching, daily use, rafting, skiing
Kınık Şelalesi	Picnic, hiking, tent camping, cycling
Erikli	Wildlife watching, trekking
Ballıkayalar	Picnic, wildlife watching, hiking, rock climbing, photography, scenery watching, daily use, pond, excursion route, nature/outdoor sports area, climbing track
Beşkayalar	Wildlife watching, hiking, tent camping, cave exploring, scenery watching
Suadiye	Picnic, hiking, cycling, mountain biking, skiing, nature/outdoor sports area
Eriklitepe	Picnic, hiking, photography, caravan camping, tent camping, scenic watching, accommodation, village market
Kuzuyayla	Picnic, wildlife watching, hiking, photography, biking, daily use
Ormanya	Picnic, wildlife watching, hiking, daily use
Gazilerdağı	Picnic, hiking, photography, tent camping, cycling, horseback riding
Kuzuluk	Hiking, photography, cycling, nature-themed festivities
İl Ormanı	Hiking, photography, cycling, nature-themed festivities, accommodation
Poyrazlar Gölü	Photography, birdwatching, cycling, nature-themed festivals, ATV safari, lake tour by train, lake tour by horse, paintball
Kurugöl	Wildlife watching, hiking, photography
Güzeldere Şelalesi	Hiking, photography, tent camping, cycling, horseback riding
Aydınpınar Şelaleleri	Hiking, photography
Geyiklibel	Picnic, hiking, angling, cycling, photo safari
Göksu	Hiking, cycling
Beşpınarlar	Rope course and pentathlon, nature/outdoor sports area
Bolu Karagöl	Picnic, hiking, photography, angling, cycling, nature/outdoor sports area
Sünnet Gölü	Picnic, hiking, angling, cycling, nature/outdoor sports area
Bolu Gölcük	Picnic, hiking, photography, angling, cycling, nature/outdoor sports area
Sülüklügöl	Picnic, hiking, angling, tent camping
Kargalı Gölcük	Wildlife watching, hiking, tent camping, scenery watching
Ayıkayası	Hiking, photography, cycling
Harmankaya	Picnic, hiking, photography, angling, tent camping
Delmece Yaylası	Picnic, wildlife watching, hiking, photography, tent camping, orienteering, cycling, highland tourism, Botanical excursion

***Source:** T.C. Tarım ve Orman Bakanlığı Doğa Koruma ve Milli Parklar Genel Müdürlüğü, 2022a; Beşkayalar Tabiat Parkı, 2022; Erikli Tabiat Parkı, 2020; Geyiklibel Kanyonu Tabiat Parkı, 2022.*

In order to understand which activities are repeated more frequently among the activities carried out in 33 nature parks, in other words, which activities are performed more frequently in nature parks, frequency analysis is performed and percentage rates are calculated. According to Table 3, the activity with the highest frequency is “hiking” (F: 30, M: 16.76%). It is understood from this that only 3 nature parks do not specify "hiking" as an activity opportunity. These nature parks; Harmankaya Kanyonu, Poyrazlar Gölü, and Beşpınar.

Table 3. Frequency and rate distribution of recreational activities

Activity	Frequency	Rate (%)	Activity	Frequency	Rate (%)
Hiking	30	16,76	Mountain biking	2	1,12
Photography	21	11,73	Cave exploring	2	1,12
Picnic	19	10,61	Accommodation	2	1,12
Cycling	15	8,38	Rafting	1	0,56
Tent camping	13	7,26	Rope course and pentathlon	1	0,56
Wildlife watching	12	6,70	Pond	1	0,56
Angling	8	4,47	Excursion route	1	0,56
Nature/outdoor sports area	6	3,35	Climbing track	1	0,56
Scenery watching	6	3,35	Highland tourism	1	0,56
Rock climbing	4	2,23	Mountaineering	1	0,56
Daily use	4	2,23	Botanical excursion	1	0,56
Birdwatching	4	2,23	Village market	1	0,56
Canyoning	3	1,68	ATV safari	1	0,56
Horseback riding	3	1,68	Lake tour by train	1	0,56
Nature-themed festival	3	1,68	Lake tour by horse	1	0,56
Caravan camping	3	1,68	Paintball	1	0,56
Skiing	3	1,68	Photo safari	1	0,56
Orienteering	2	1,12	Total	175	100

***Source:** T.C. Tarım ve Orman Bakanlığı Doğa Koruma ve Milli Parklar Genel Müdürlüğü, 2022a; Beşkayalar Tabiat Parkı, 2022; Erikli Tabiat Parkı, 2020; Geyiklibel Kanyonu Tabiat Parkı, 2022.*

Other activities with the highest frequency; “photography”, “picnic”, “cycling”, “tent camping”, “wildlife watching”. The frequency value of the remaining activities is below 10.

14 activities with a frequency of 1; rafting, rope course and pentathlon, pond, excursion route, climbing track, highland, mountaineering, botanical excursion, village market, ATV safari, lake tour by train, lake tour by horse, paintball, photo safari. This means that these activities are held in a single nature park in the Eastern Marmara Region.

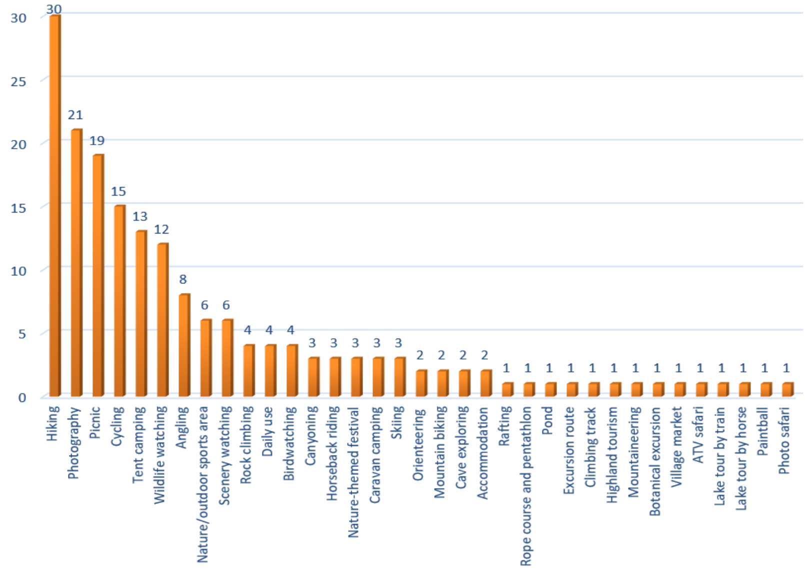

Figure 1. Frequency distribution of activities

Source: *Created by the author.*

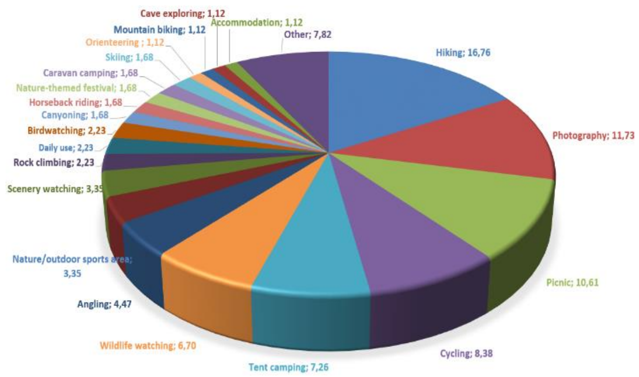

Figure 2. Rate distribution of activities

Source: *Created by the author.*

Figure 3 shows the proportional distribution values of the activities that can be done in nature parks. Accordingly, "hiking" is the activity with the highest percentage with 16.76%, while 14 activities have the lowest percentage with a value of 0.56. In order to show Figure 3 more clearly, these 14 activities were named as "Other" and their percentage values were added together and given as 7.82.

As can be seen in Figure 4, the richness of nature parks in terms of recreational activities is listed; offering 15 different activities, Harmankaya Kanyon in Bilecik ranks first. Ballıkayalar with 11 different activity opportunities and Delmece Yaylası with 9 different activity opportunities are followed.

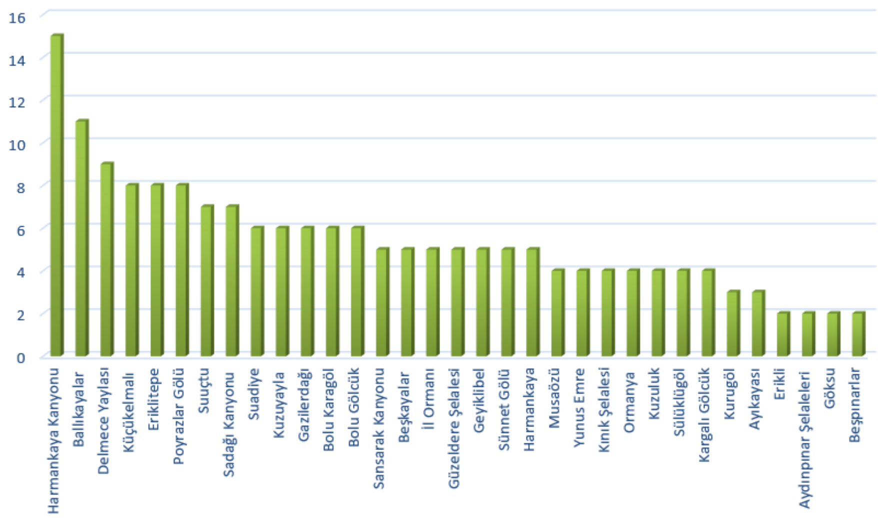

Figure 3. Distribution of the number of activities in nature parks

Source: *Created by the author.*

When the findings are evaluated in general; in the Eastern Marmara Region, the most nature parks are in the city of Bolu, a total of 35 different recreational activities are carried out in all the parks in the region, the most frequent recreational activity is hiking, and when the nature parks are compared within themselves according to the number of activities, Bilecik Harmankaya Kanyonu has the most activities with 15 different activities. It was understood that the least activity was done in Erikli, Aydınpınar Şelalesi, Göksu and Beşpınarlar nature parks with 2 different activities.

5. Conclusion and Recommendations

Today, many reasons such as escaping from the suffocating environment of cities, the desire to listen to oneself, and the fact that healthy life becomes a popular lifestyle paved the way for people to be more interested in sports activities on their trips, as well as touristic trips. In addition to this, by evaluating the suitability of nature parks for nature/outdoor sports and various recreational activities and presenting these opportunities to tourists as an attraction factor, it became possible to increase the awareness of destinations and to host more and more visitors every day. In this context, thanks to the number, prevalence, and daily transportation opportunities of nature parks in Türkiye, favourable conditions have developed for them to be visited by more people.

When the activities carried out in nature parks with important tourism potentials are examined, it is understood that the potential of ecotourism and sports tourism is quite strong in these destinations. The fact that hiking is the most prominent among the recreational activities in the nature parks that are subject of the research, can be associated not only with the fact that these natural areas are suitable for walking, but also walking is the most common activity carried out in destinations today. As a matter of fact, today, the tourism perception of the visitors and the content of tourism are gradually changing and becoming to reflect more unusual patterns. One of the most popular ways to experience a destination is now seen as walking tourism. It also becomes possible for tourists to interact better with local people, nature, and culture through walking tourism. Because outdoor activities in general meet the increasing nature-based activity demand of travellers (UNWTO, 2019).

Among the cities in the Eastern Marmara Region, the fact that the most nature parks are located in Bolu is related to the geographical and climatic characteristics of the city. The fact that the nature park offering the most activity possibilities is Harmankaya Kanyonu in Bilecik with fifteen different activities, is a good example that activities can be diversified in other nature parks, and can be shown as a remarkable result of the research. Hiking, photography, picnic, and cycling are the most common activities in nature parks, and this can be associated with these activities can be easily done by anyone within a daily visit.

The fact that almost half of the nature parks in the Eastern Marmara Region host unique activities can be evaluated from different perspectives. When evaluated in terms of tourism, it is possible that the resource values making these nature parks different from the others will bring a separate attraction to the destination. In this way, nature parks could use the advantage of offering a unique experience to attract specific visitors. At the same time, it is possible to host new types of tourism by expanding and diversifying recreational activities in nature parks. Thus, it will be possible to make a significant contribution to domestic and foreign tourism movements. In this context, the point to be considered is the activities aimed at protecting the unique resource values in the nature parks. As a matter of fact, the deterioration of the biological diversity and natural resources in the nature parks will render the area dysfunctional in a short time and thus destroy its tourism potential.

As a result; it is understood that the focused nature parks offer rich recreational activities and are suitable for various types of tourism, which will respond to the changing tourism perception and needs of the visitors. When evaluated from this point of view, the inference made from the research agrees with the result of Yener's (2021) study on nature parks in Türkiye, highlighting "nature parks are used as an effective and widespread tool in meeting the recreation needs". In addition, as Akten and Gül (2014) stated in their study, the fact that the reasons for taking nature parks under protection cannot compete with recreation and tourism activities is an important threat. In addition, as Akten and Gül (2014) stated in their study, sensitivity should be paid to ensure that recreation and tourism activities do not interfere with the protection of nature parks. At this point, it is important that the activities are carried out with nature-friendly approaches in a conscious and controlled manner with a sustainable approach. It is a basic requirement to establish and develop environmental awareness not only among visitors but also in society. Until this awareness is established, the uncompromising application of the rules in protected areas and the standardization of deterrent criminal procedures are necessary. In this way, it will be possible to "really protect" protected areas. Recreational activities offered in nature parks must be fully included in the official websites. It would be useful to specify the scope of the activities and to provide general information about the relevant equipment. In addition, the promotion and advertisement of the destination managers by highlighting the activities that can be done in the nature parks will increase the tourism potential of the destination.

The scope is limited as there are enough nature parks and activity diversity in the region where the research is handled. In this direction, it will be useful to conduct studies that will examine the nature parks and activities of different regions. Moreover, in the new researches, the possible positive and negative aspects of offering recreation and tourism activities within the nature parks as the protected areas can be addressed, various comparisons can be made between regions, and the current situation can be followed up at regular periods by interviewing the visitors participating in these activities.

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INFO PAGE

Evaluation of recreation activities in nature parks and tourism potential

Abstract

The desire of people to escape from cities to rural areas for various reasons increased the importance of ecotourism in general, nature parks and recreational activities. In this study, it is aimed to determine the recreational activities in nature parks and to shed light on the tourism potential of nature parks. In this context, 33 nature parks located in the Eastern Marmara Region focused in the study. The focus is on the eastern Marmara region, as it is a region with the potential to attract more tourists due to its close location to large cities with high populations. The distribution of the nature parks by the cities examined and specifically, which recreational activities could be carried out in each nature park determined and conducted a content analysis with the help of secondary data. The intensity of recreational activities mapped according to the cities, and the richness of recreational activities in nature parks compared within itself. Findings obtained from the research shows that among the cities in the Eastern Marmara Region, the most nature parks are located in Bolu. The nature park with the most activities is Harmankaya Canyon in Bilecik with 15 different activities. The most common activities in the nature parks are listed as; hiking, photography, picnic, cycling.

Keywords: *nature park, recreation, ecotourism, sport tourism*

Authors

Full Name	Author contribution roles	Contribution rate
Zeynep Yamaç Erdoğan:	*Conceptualism, Methodology, Validation, Formal Analysis, Investigation, Resources, Data Curation, Writing - Original Draft, Writing - Review & Editing, Visualization, Supervision*	*100%*

Author statement: *Author(s) declare(s) that All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.* ***Declaration of Conflicting Interests:*** *The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article*

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Justification: The methodology of this study does not require an ethics committee report.

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Metaverse as fusion of B2C &G2C: A new business model for tourism

Mune Moğol Sever

ABSTRACT

The Metaverse, a buzzword after last pandemic, is accepted as a functional tool enable for multi sided platforms in a single phygital world. The key contributions of this article include an organized evaluation of metaverse concepts, components, main facilitator technologies and implementation in tourism and a critical analysis of how metaverse can be facilitated in tourism including designing a new metaverse ecosystem by means of Metaverse as a service (MaaS) platform. In designed metaverse, it is aimed to merge two business models B2C &G2C to construct a new hybrid business model B2CG2Ccamping, glamping activities. In order to concrete the designed metaverse, two scenarios were generated by means of scenario-based approach. The metaverse designed by means of Spatial.io on a desktop computer with a 512 GB capacity with processor 11th Gen Intel(R) Core (TM) i9-11950H @ 2.60GHz 2.61 GHz, 16.0 GB RAM, 64-bit -Windows 10 Enterprises. Results show that designed metaverse is applicable for tourism activities such as glamping as a case on this study. Besides, the designed ecosystem approved the two business models can be merged in a one platform: Metaverse.

Keywords:
Metaverse,
B2B,
G2C,
Tourism,
Glamping.

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1. Introduction

The idea behind transferring the physical world to the virtual one is an emerging new reality after so - called Corona-19 pandemic. The buzzword "metaverse", as a facilitator of socializing and doing business at the same time in the same ecosystem, can be described as a fusion of cyber-physical systems: phygital universe!

Metaverse provides a convenient ecosystem for managing and doing business; in manufacturing, for patients and medical operations remotely, without man via avatars, as a digital identity in metaverse, in an immersive ecosystem.

The developing technologies up to now make the readiness and facilitate the digital transformation for example 3Ds.

As resembled and used firstly in Snow Crash, a novel by Neal Stepheson in 1992, metaverse defines as a universe apart from and different environment than augmented reality (Zenou, 2022). It defines a virtual environment that is constructed by 3D objects (Amorim et al., 2014). Metaverse makes the process more interactive than ever was done via 2 dimensions (2D) internet. It also creates a more social ecosystem than 2D internet. Mixing socializing with interactivity, ecosystem becomes Cyber Physical Social Systems (CPSSs). It is not a utopia shopping via your avatar in the metaverse while talking with your friends than going to your office in metaverse and doing business at the same time in the same ecosystem.

Besides 3D objects, there are some facilitator technologies for metaverse such as mirror worlds, lifelogging, virtual environments, augmented reality, extended.

The Mirror world can be described as a digital definition of physical world. A Mirror world is an open, interactive space to create a big project (Ricci et al., 2015). In other words, it is the extension of physical world by means of objects in the virtual world.

Another facilitator to transform into a digital world is Lifelogging. It is basically, the cross section of one's life and records for specific purposes. They are mainly the display of daily life that can be recorded via wearable devices, sensors and cameras (Bolaños et al., 2016). By means of those input devices and records one's life transfer to digital platforms.

The main feature of metaverse is constructing a virtual ecosystem by means of relevant technologies such as Virtual Reality (VR). VR is the constructed fictional ecosystem by 3 dimensions (3D) display technologies (Azuma et al., 2001). In VR, places and objects are all virtual. VR is main virtual technology in tourism especially in cultural heritage sites visualizing. VR with 3D objects is enriched the virtual environment to create an immersive and realistic travel experience (Huang et al., 2013).

Another main element of metaverse is AR. Apart from VR, in AR the place is real and objects are 3D (Azuma et al.,

Research paper

Mune Moğol Sever: *Asst. Prof. Dr.,,Anadolu Üniversitesi, Eskişehir, Türkiye, Email: mmogol@anadolu.edu.tr, Orcid Id: 0000-0003-4706-5859*

2001). To augmenting the reality, 3D objects are dressed into real displays. Reality perception increase by enriching the environment with3D objects.

In Milgram's virtual reality continuum, virtual and real-world objects were combined under the Mixed Reality (MR. By means of MR and metaverse, virtual objects are trying to integrate with the physical world (Lee et al, 2021).

The last facilitator for metaverse is Extended Reality (XR). Extended Reality (XR) is the umbrella term for VR, AR and MR (Kwok & Koh, 2021). It is the idea of visualizing 3D objects for example as a hologram in a physical environment. XR is an appropriate tool almost in every sector and have being using in medical education and manufacturing already. For example, in medical education, the anatomy of the human body can be visualized as a hologram in class. Another example is mechanical parts of a car or airplane engine can be visualized and designed in the physical place in a factory.

Metaverse is a harmony of all types of realities (VR, AR, MR, XR) and have a great impact on all over the world recently. Depending to studies in China, people spend 57 hours per week on metaverse ecosystem, respectively 34 hours in the USA and 24 hours in Germany. They also spend 304 € in China, 124€ in the USA and 42€ in Germany monthly (Duwe et al., 2022).

Ongoing trends and recent development in internet technology urge enterprises for being in the 3D internet: metaverse. Because of the last pandemic, people were forced to stay at home and work, do shopping, have their medical appointment and if possible treatment also, attend a class at university via internet. Besides, ongoing innovations and challenging technological development increase the intelligence on the phenomenon of digital transformation and also the number of tech - savvy digital natives, as a main actor on metaverse. Remote working & living conditions, as a ruin of last pandemic, change the way of life, working, learning etc., and resulted in an addiction to the colorful and convenient digital world for so many individuals besides, enterprises. In such a closed - loop internet ecosystem, every actor of a physical world has created their echo and replica digitally in a multi - task & compact world: metaverse. This colorful real-artificial world is designed conceptually to shrink the real world provide to survive in real world by doing all activities & jobs in a different dimension or universe ubiquitously and uninterruptible.

The key contribution of this article is an organized evaluation of metaverse concepts, components, main facilitator technologies to show the applicability in tourism industry. The main aim of this study is to show the implementation of metaverse by merging two business models for tourism industries. After a critical analysis, designing a new metaverse ecosystem using of Metaverse as a Service (MaaS) platform is the core of the study. In the designed metaverse, two business models, Business to Customer (B2C) & Government to Citizen (G2C) models, were merged to construct a new hybrid business model B2CG2C in order to make a compact and multi task ecosystem. Scenario based approach will be implemented to concrete the idea. In this context, two scenarios were generated as an example in a constructed metaverse. The metaverse was designed by means of Spatial.io on a desktop computer with a 512 GB capacity with processor 11th Gen Intel(R) Core (TM) i9-11950H @ 2.60GHz 2.61 GHz,

16.0 GB RAM, 64-bit -Windows 10 Enterprises. Results show that designed metaverse is applicable for tourism activities such as glamping activities as a case in this study.

2. Theoretical background: The state of the art

Metaverse as nested digital environment and universes, it is a kind of fusion of so many hypermedia that can work together interoperable by means of web 3.0. It is the hypermedia environment, collections of 3 D objects and a platform consist of different kinds of media such as displays, videos, graphics and also texts.

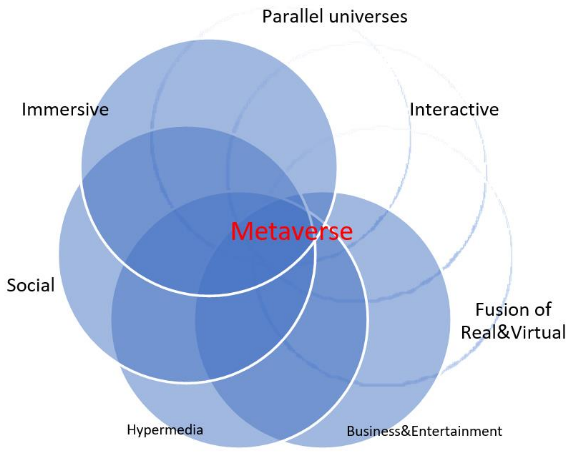

Figure 1: The main characteristics of metaverse
Source: Elaborated by Authors

Metaverse is accepted as parallel universes. In other words, it is a combination of universes. Users can pass through from one to another easily and seamlessly. While working you can walk and do shopping in the metaverse ecosystem by passing from one universe to the other.

As a fusion of real and virtual life, metaverse tries to creates a persistent ecosystem for virtual and real- life continuity as a ubiquitous service for users. Besides its social connection principle, it also creates a sense of presence that is accepted by attracting effect, especially for tourism and hospitality (Gürsoy et al., 2022). To achieve this objective, real life objects are imitated by means of 3D objects, NFTs. A roughly sketch of the real environment appears on metaverse using digital twins. Besides, interactivity is another criterion to create the link between the real and virtual environment. Also, interactivity increases the immersiveness and time spent on metaverse.

Accepted as a parallel universe, metaverse, is a collection of all kinds of media sounds, texts, videos, etc. Besides, it is possible to add content by the user and within an interactive environment. There is another key technology for metaverse. That is blockchain.

Blockchain is the main infrastructure technology and cryptocurrencies are the main currencies that metaverse ecosystems are using already. By means of blockchain technology data are protected with passwords. To access this password, user needs permission. Besides, any data or process can be deleted or disappeared. Thus, a secure, trusted and transparent system can be designed That is the main aim of metaverse ecosystems: trading, doing business, socializing in a multi sided platform.

Metaverse is known as a combination of virtual universes that you can go through from one to another freely. This means metaverse has a layered structure in which you can go shopping, gaming, do business, socialize, design your assets and sell, trade, etc. while entering this 3D virtual layered platform. There are so many metaverse service providers for different purposes. Some of the metaverse service providers listed in this study only give a service for hiring and selling land while some others give a chance for game, fun and entertainment.

Centralized in Silicon Valley in California Myland is selling land that is the digital copy of real world. They created a digital twin of physical world by means of VR and some other virtual technologies and called it Myland Earth (https://myland.earth/about_us).

They use blockchain technologies as infrastructure and facilitate selling land, office, buildings, shopping mall etc. virtually by cryptocurrencies using a developed custodial wallet. This type of virtual wallet makes the process secure and convenient which is the problem while trading on internet. Second Life, as created by Linden Research in 2003 is the most popular virtual world (Villar, 2022). In Second Life (SL) they promise the user another life apart from real life. They use Linden dollars for shopping on their platform. You can choose and buy an avatar and dress it and use it in SL. Also, you can make money doing business in SL. Another role of second life is make a social interactive place for avatars. By means of avatars, users can interact and socialize in a virtual ecosystem which is aimed at metaverse platforms.

Decentraland is another virtual world owned by its users (decentraland.org/). You can create your virtual world, trade and do your business in your virtual world.

In the beginning, it was known as a game platform Roblox now known as Roblox Metaverse because it consists of 3D virtual environment, the possibility of user interactions, developing your own avatar, ability to use cryptocurrency Robux (roblox.com).

Developed by Marcus Alexej Persson in 2011 Minecraft is the game portal at first glance (Minecraft.net). But looking in detail it is a primitive type of metaverse. Because in this game users can create their own world, characters from blocks, can interact with each other in a 3D virtual environment same as in metaverse. Developed and published in 2017 by Epic Games, Fortnite is another type game- based metaverse (Epicgames.com).

Game platforms are the primitive type of metaverse for creating interactive, social, and immersive environments. Interactivity, social interaction and immersiveness are the main features of metaverse on which it is strongly insisted on.

Besides those service providers, brands, enterprises, sports clubs, etc. are now developing their own metaverse environments to increase their sales, profits, customers and do their business in such a competitive digital ecosystem.

Figure 2: The screenshot from Myland

Source: Elaborated by Authors

In this digital ecosystem, there are also social platforms serving for social shopping. Social shopping process started as users tag the product on the related social platforms (Alaimo & Kallinikos, 2017). Each tag means the demand for the product. For forecasting demand and determining shopping potential social networks and platforms change the way of doing business and it creates a big potential for whom want to make business via virtual platforms such as metaverse.

Doing business and socializing on the same platform such as in metaverse, users should be online and active in a virtual environment. To keep users busy and active in a metaverse, there should be 3D objects and avatars in the ecosystem. Also, cooperation among users can increase interoperability in the system. Besides, some entertainment and fun factors such as gamification make the virtual world immersive and make the increase augment the reality. Thus, interaction levels between users increase time spent in the metaverse (Quintana &Fernández, 2015).

Metaverse is not only limited to small business operations. There are some attempts for metaverse on a city scale as a smart tourism example Incheon Craft is an XR metaverse project for Incheon City in South Korea. It is a local government project in case of reaching smart city goals for Korea. In this project participants designed a digital twin and 3D space of 3.8 million m² in the metaverse (Smart City Korea).

Research revealed that metaverse has already written on so many developed countries such as the USA, Japan, China, South Korea, the United Arab Emirates, in their strategic plans, development plans and also in their action plans. Besides, they have already implemented metaverse in daily life through Amazon, Facebook, Roblox, Epic Games, Disney, Alibaba, Decentraland, Sony, Samsung, Sotheby's etc., for shopping, fun & entertainment, marketing, advertisement (Ning et al., 2021). Acting such as globally by countries shows the directions, future and increasing trends of metaverse in the near future.

The reason behind the metaverse spreading quickly is that it is applicable for almost every area such as online conference, virtual education, digital real estate, medical care, shopping, arts, tourism etc. with the help of blockchain, artificial intelligence and learning algorithms. By means of such technologies data quality increases and integration of data will be quite possible and easy, also smart contracts and NFTs is make the metaverse more secure and applicable technology for almost enterprises and individuals (Gadekallu et al.,2022).

The time that is accelerated in developing NFTs facilitates to enter the metaverse ecosystem quite easily and possible for service industries such as; fun & entertainment, recreation, museums etc. Marriott Hotel is the pioneer in tourism area for participating in metaverse (Weinstein, 2022). In their metaverse, one of the fine art artists designed an NFT that explains the travel experience. The brand has already developed some other NFTs. Although NFTs are emerged a trending topic in the arts today, it possibly will become an actor in business operations in near future.

Metaverse has already been using in business operations in retail and fashion (Bourlakis et al., 2009; Periyasami & Periyasamy, 2022). Scholars claimed that metaverse has a great impact on retailing operations (Bourlakis et al., 2009). They investigate the SL as a retailing example and conclude that the designed metaverse should be overarching and holistic for retailing.

Metaverse as a new business model has the potential to succeed in the healthcare industry. Some platforms are creating an immersive metaverse ecosystem for medical operations, surgical operations, surgical training, patient training, etc. (Choe, 2023). 3D visualization, treatment virtually, virtual rehabilitation and psychotherapy, virtual diagnosis, designing digital twins of hospitals and doing surgical operations virtually that are only some examples are already done and planned to do on metaverse ecosystem (Mozumder et al., 2022).

Governments also want to take a part of this ecosystem and doing investment in this field to facilitate public services becoming online (Barrera & Shah, 2023). It has a deep impact on the private sector, government also wants to transfer their operations and investing related emerging technologies of metaverse. Traffic control, air quality control, noise and temperature monitoring and real time data collecting on a city scale are only some examples of government operations are now being held using IoTs, digital twins and some other metaverse technologies (Geraghty et al., 2022).

Tourism industry including hospitality, travel, food and beverage, and some other related sectors has great potential in metaverse. Also, Metaverse is a double sided 'Damocles Sword' for tourism industry. It has pros and cons for tourism stakeholders. On tourist side, to experience a destination digitally instead of going there is an advantage for those who have not able to go there physically. While looking at business side, tourism enterprises or tourism service providers established in the related destination, metaverse seems to a big loss in touristic expenditure. To change the loss into a yield, need a great effort to generate a new business model. In this metaverse ecosystem, it is suggested to deal with two subjects: multiuser virtual worlds and integrated digital space of social, economic, tourism and political sides (Koo et al., 2022).

Table 1: Metaverse and tourism

Year	Author	Context
2022	Koo et al.	Metaverse & tourism: core technologies, metaverse tourism& experience, tourist profile and multi identification of tourist and metaverse tourism as a new business model
2022	Gürsoy et al.	Dimensions of metaverse experience, metaverse & marketing
2022	Buhalis et al.	Customer Experience in metaverse in three phases before, during and after visit
2023	Buhalis et al.	Pros&cons of metaverse in context of competitiveness, touristic destinations, revolutionize effect on touristic effect on physical destinations in case of marketing and management. Pragmatic role of metaverse such as having information about a destination's pre- trip
2022	Fan et al.	Construction of metaverse for cultural heritage destinations
2022	Zhang et al.	Metaverse and cultural heritages
2022	Abass & Zohry	Hotel guest awareness & acceptance level of metaverse, impact of metaverse to hotel business
2022	Tsai	Experimental approach to determine the actual visiting intentions to specific touristic destinations after metaverse experience
2023	Volchek& Brysch	Literature review of metaverse under four categories: tourist needs, destinations, metaverse ecosystem & escaping with metaverse.
2023	Koohang et al.	Metaverse tourism, hospitality and some other industries in the aspects of opportunity, challenges, potential and research agenda.
2023	Prodinger& Neuhofer	Never ending tourism, metaverse, VR, MR technologies
2022	Suanpang et al	Measuring customer satisfaction after real experience on generated metaverse for a specified touristic destination.
2022	Um et al.	Real based and virtual based metaverse case of a smart city
2022	Go & Kang	Metaverse as a tool decrease Over tourism &human foot print help to reach Sustainable Development Goals (SDGs)
2022	Martins et al.	Implementation of metaverse service providers: second life

Source: Elaborated by Authors

Metaverse studies fall between; designing a metaverse for a cultural destination (Fan et al., 2022; Martins et al., 2022; Zhang et al., 2022), marketing and city branding, smart city (Um et al., 2022; Yoo et al., 2022), hospitality& tourism and hotel business (Abass & Zohry, 2022; Koohang et al., 2023; Martins et al., 2022; Wei, 2022), a tool to help decrease over tourism and sustainability (Go & Kang, 2022), to determine and measure customer preferences, motivations, satisfaction and experience (Buhalis et al., 202; Buhalis et al., 2023; Gürsoy et al., 2022; Koo et al., 2022; Suanpang et al., 2022; Tsai, 2022; Volchek & Brysch, 2023).

As quoted after the restrictions of the last pandemic, business travel has recovered better than leisure travel (Buhalis et al., 2023). It is because people get used to attending leisure activities virtually not physically. But it cannot be concluded that every part of tourism suffered from the metaverse or other virtual world technologies. In other word metaverse cannot accept as a challenge for all types of tourism and all tourism suppliers. It depends on which point of view you are looking to the metaverse. After the last pandemic service industries including, health, education, tourism take an action for being in the metaverse ecosystem, which is a great opportunity for generating revenue as a new business model for all stakeholders.

Tourism and metaverse studies are strictly based on virtual technologies like VR, and AR and there are examples on the creation of digital twins and also smart cities in the case of smart tourism. However, the theoretical background of metaverse and tourism are based on customer experience, technology acceptance, and visitors' intentions, yet literature reveals that so far, no study was designed to create a metaverse ecosystem for tourism industry.

The rule of the physical world has already been changed with the cyclone of metaverse. However, metaverse has great potential in business operations, new business model creations, etc. in all industries with tourism being no exception. Therefore, structuring the metaverse, designing and deciding the contents, and rethinking the concept as a new business model is still a gap that needs to be filled in tourism studies

3. Materials and Methods

This is a conceptual study. Hence, no sampling methodology was utilized due to the aim of the study is not to measure nor testify a variable but overlay a fact that metaverse ecosystem if neatly constructed would be beneficial for the tourism sector. Camping and glamping (glamorous camping), for touristic purposes is an increasingly trending topic after so called, corona pandemic (Craig, 2020). Thus, the study is based on designing a metaverse ecosystem for B2CG2C as a fusion of B2C &G2C business models for camping and glamping purposes conceptually using Spatial.io which is one of the popular Metaverse as a Service (MaaS) platforms. The designed metaverse ecosystem by the researcher consists of four parts. Besides, since two business models are melted in one pot, in the designed metaverse ecosystem for the study, there exist two scenarios to explain how the metaverse is serving as a new hybrid business model.

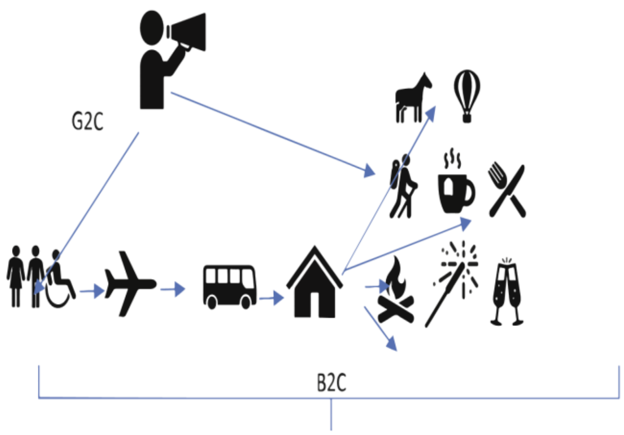

Figure 3: The general Framework of the designed metaverse
Source: Elaborated by Authors

Two business models are subjected to this study as B2B and G2C. In B2B part of the metaverse that is subjected to this study, there are touristic facilities to serve visitors in glamping area. These facilities fall between travel and transportation, hotels, and food & beverage facilities. Moreover, the designed metaverse consists of another universe for government announcement and informing the visitors as a G2C business model. Both B2B and G2C models were combined in one platform. So, the problem statement in this study is:

Can metaverse ecosystem be designed as a fusion of two business models B2B & G2C for glamping? The aim of the study to design a metaverse ecosystem for hybrid business model by means of a scenario- based approach. Scenario based method is firstly represented by Henry Kahn in 1940 as an applicable and strategically futuristic planning tool to have an idea about prospective results for a phenomenon (Horwath, 2006).

In scenario-based approaches real case examples and cases are used to enhance the active learning environment (Erol et al., 2016). This makes the ecosystem more realistic and immersive. In this way, the designed models will be more realistic and understandable.

Scenario based approaches help business to plan for the future and create a business model within the prospected parameters (Ahmad, 2018). When the business makes the strategic planning and takes the position, they are almost ready for real conditions and enable to compete in the market.

Two scenarios were given in this study aimed to make the metaverse phenomenon more tangible and concrete for the tourism industry. Generated scenarios for two business models B2C and G2C are explained respectively in Table 2.

Table 2: Metaverse scenarios for each business models.

Business Model	Scenarios
B2C	Scenario 1. Glamping consists so many activities and related with so many operations such as accommodations, food & drink, entertainment, etc. Study is limited with accommodation, food & drink, entertainment activities. Visitors want to have a rest in designed accommodation facility, after they walk, hunt, eat and drink something. This layer of the metaverse give them a chance to make all those activities by means of designed new B2C metaverse ecosystem.
G2C	Scenario 2. Government warn and inform the citizens about protecting environment while doing glamping activities. They use government announcement layer for this purpose.

Source: Elaborated by Authors

Data subjected to the B2C layer is based on any touristic necessities such as accommodation, food& beverage. Since glamping is an epicenter for this study, a unique camping area was designed. Besides, the camping area is designed to allow overlays and trespasses between Government to Citizen (G2C) layer. The metaverse constructed in this study has four layers. Users can pass through from one layer to another. In the first layer tourist appears in the camping area. In this part of the metaverse visitor should choose the hotel for their holiday. After the visitor goes through to the hotel from the glamping area, the first scenario will step in. Visitors can walk, hunt, ride a horse, eat and drink in the places designed on metaverse as explained in the first scenario as a B2C model. As explained in the second scenario as a G2C model, the authorities want to warn about protecting the environment while camping in a selected destination. As explained on Table 2 the two business models and related scenarios are all independent universes and can accept as a layer of the designed metaverse.

The metaverse is designed using Spatial on a desktop computer with a 512 GB capacity with processor 11th Gen Intel(R) Core (TM) i9-11950H @ 2.60GHz 2.61 GHz, 16.0 GB RAM, 64-bit -Windows 10 Enterprises.

4. Results

The Metaverse ecosystem designed in this study is a combination of different universes. Users can pass from universe to universe. It facilitates to construct a hybrid model for different business models. The Metaverse subjected to this study is illustrated on Figure 4.

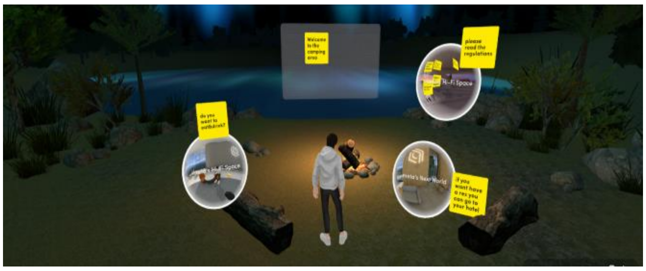

Figure 4: The designed metaverse ecosystem
Source: Elaborated by Authors

The constructed metaverse consists of four different universes. Figure 4 displays the general framework of the metaverse. It is the main entrance of the metaverse. In Figure 4 visitors arrived at the designed camping area. In this layer there are three entrances for independent universes. Users can enter those universes by double clicking on the bubble. In another word, each bubble means an entrance to different universes. Although it is the entry for other universes, it is also the first universe where the user can arrive have a rest, set fire and plan glamping and do some other activities. It means the first layer has a function other than being an entrance to the other universes in the designed metaverse.

Figure 5: The hotel on the metaverse
Source: Elaborated by Authors

The other universe is designed for accommodation. If the visitor wants to have a rest they can just go to their hotel by double clicking on the bubble at the right corner in Figure 5. The print screen of the designed hotel showed on Figure 6. Users can see the hotel room with a 360 degree by clicking the link: https://www.spatial.io/s/metas-Next-World-63a2e2168d0e320001347b04?share=5689580318236612434.

Figure 6: The food & drink facility on metaverse
Source: Elaborated by Authors

If the visitor wants to pass through the food & beverage facility they do it by double clicking on the bubble at the left corner (https://www.spatial.io/s/metas-Hi-Fi-Space-63a2e2df8d0e320001347b0b?share=6469500126889583450). They can have a rest, eat and drink something and pass through either to a hotel, camping area or designed other universes. This part of the metaverse is a model for B2C. Accommodation, food and beverage facilities are revenue generating platforms for selling products, services, NFTs etc. in this designed metaverse with any cryptocurrencies. Entering a hotel or food & beverage facilities and getting any services will be charged to a user. It depends on the rules determined by service providers. This part of the metaverse is proposed as a B2C model.

Users can enter the metaverse through the link given above by their avatars. So that, avatars can take a tour inside the designated area in the metaverse. Avatars can communicate with each other, interact, socialize, eat and drink while doing meetings etc.

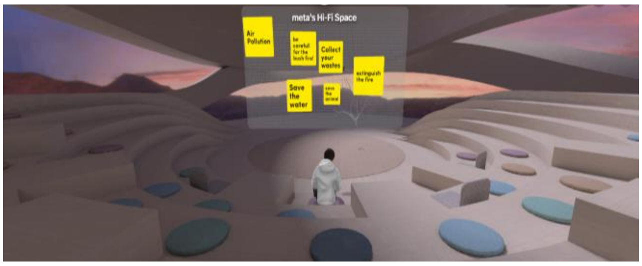

Figure 7: The digital government layer for announcing rules and regulations
Source: Elaborated by Authors

The screenshot of the digital government is shown in Figure 7. In this part of the metaverse government wants to inform the visitor about the rules and regulations on glamping areas such as saving water, collecting wastes, informing about bush fire, etc. Here is the link to enter and test the government universe:

https://www.spatial.io/s/metas-Hi-Fi-Space-6391960d0c56c5000134a279?share=7141453698716071276. By clicking this link users can log in with their avatar and see the designed ecosystem and take part in this universe. This part of the universe was designed as a G2C business model and the scenario was explained in Table 2 in this study. The user can enter this universe in the designed metaverse using an avatar and to listen the conference and read the regulations on a meeting room.

In designed digital government universe, there were no bureaucratic methods and waste of time that were faced in the physical world. While doing any other work in metaverse, visitors or users of the system just can enter digital government universe and listen, read, inform about the latest announcement, updates, and regulations declared by government.

The metaverse that has been created for the study has parallel universes that visitors can cross from one to the other. Moreover, all the universes in this study can be accepted as a platform for mentioned tourism stakeholders and also for governments.

5. Conclusion

Metaverse makes the process more interactive than ever was done via 2 dimensions (2D) internet. It creates a multi-dimensional, interactive cyber-physical space for users and businesses who are willing to transform their operations into a digital ecosystem. This paper seeks to opens a theoretical discussion for the applicability of metaverse for tourism stakeholders. Besides, with two scenarios in this paper, it is also aimed to show the implementation of metaverse for practitioners.

Metaverse enables to create a multi side by crossing from one universe to the other. Multi sides of business can be melted in one pot and designed ecosystem enables one to do business from peer to peer. This can make it possible to use more than one business model in one ecosystem. Designed metaverse in this study is make it feasible to combine B2C and G2C business models in a one platform. Although the study is based on the business side, the study has also an impact on relations between society and government.

The scope of the Metaverse for previous literature fall between visiting virtually cultural heritage, measuring awareness and customer experience, expectation and satisfaction, etc. designing a metaverse for a cultural destinations (Fan et al., 2022; Martins et al., 2022; Zhang et al., 2022;), marketing and a city branding & smart city (Um et al., 2022; Yoo et al., 2022), hospitality & tourism and hotel business (Wei, 2022), a tool to help decrease over tourism and sustainability (Go & Kang, 2022), to determine and measure customer preferences, motivations, satisfaction and experience (Buhalis et al., 2023; Gürsoy et al., 2022; Volchek & Brysch, 2023). Accepting all, this paper has implications for practitioners to use metaverse as a business model and maybe an extend for business operations as a new digital tool.

In this study the novel approach was followed to develop a parallel universe for different types of business models. Eventually, the most prominent outcome of this study is designing a metaverse for so many stakeholders of tourism.

The Study adds value on:

•Tourism literature on designing a unique metaverse. It is the first study on designing a metaverse for tourism.

•To show the feasibility to merge two business models in one ecosystem, in metaverse.

•Concretize the metaverse phenomenon for tourism industry by means of a scenario-based approach as a practical implication of the study.

6. Discussion and Implications for Future Studies

Metaverse known as uninterrupted internet. However, people do have not an equal chance to reach internet at high speed and from every place. Reaching the aim of “make business via metaverse “is utopic under this condition. First of all, non-stop and high-speed internet should provide for everybody. Besides, the awareness of IT technologies, coding, content creation and internet literacy should be increased. The users who have those abilities will a have chance to become a pioneer.

Metaverse ecosystems create big data because of the multi user, interactive and 3D properties. Besides, data created by means of internet of everything and everyone is huge to manage and control. Storage capacity and computing ability of cloud & servers are other criteria for the widespread of the metaverse. Data analytics and analysis of data should be put on the agenda.

Cyberbullying on social media is becoming again a hot topic after metaverse phenomenon. Abnormal user behavior, abusing or creating so many accounts for one user and deleting accounts in a very short time after creating etc. can be considered as a problematic face of the metaverse. Besides, the lack of norms and regulations is another drawback of metaverse. Now metaverse is seen as a free land to play on freely. After entering and spending time on metaverse by so many users, the aforementioned rules and regulations should be on the agenda for the government side to regulate and control user content, cyberbullying and abnormal behavior in this ecosystem.

Users can also use glasses, HMDs and some other input devices to enter a metaverse. After spending so much times in the metaverse, returning to the physical world can cause some problems. Sociopathy and anti-social behavior, alienation from the physical world, not to delight in the physical world is another face of the medallion.

The Tangibility of services is also another issue to consider on metaverse feasibility in tourism. To enhance the existing reality, the services in metaverse are expected to be designed to carefully make the ecosystem more tangible and concrete. The metaverses can enrich with developing technologies that they appeal to the human senses. The evolving technologies would require time to be seamless. Even so, the cost and accessibility of such technologies would remain an issue for some time. If equipped with sensual technologies new studies would certainly reveal more reliable results. Such technologies would make the ecosystem more powerful and revenues generating. Individual experiences are one of the main pillars of metaverse. As explained above such experiences can certainly be enriched with the help of utilizing sensual technologies. Due to the limitations stated above, this study lacks such a component. Future studies, if researchers acquired the necessary funds should be based on the use of more such technologies.

By its nature, there are bundles of operations in service facilities. Accordingly, the study should handle the subject from a limited point of view. The study is limited to two business models and a few tourism stakeholders. The study can be extended with different cases by giving a role to other tourism partners. Apparently, a similar approach can be followed for any other touristic or recreational activities. Besides, operational areas of touristic facilities can be considered and researchers can follow the same steps to develop a convenient and efficient digital ecosystem

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INFO PAGE

Metaverse as fusion of B2C &G2C: A new business model for tourism

Abstract

The Metaverse, a buzzword after last pandemic, is accepted as a functional tool enable for multi sided platforms in a single phygital world. In designed metaverse, two business models were merged to construct a new hybrid business model B2CG2C. Study aimed on designing a new metaverse ecosystem for B2CG2C as fusion of B2C &G2C for a camping, glamping activities. The key contributions of this article include an organized evaluation of metaverse concepts, components, main facilitator technologies and implementation in tourism and a critical analysis of how metaverse can be facilitated in tourism including designing a new metaverse ecosystem by means of Metaverse as a service (MaaS) platform. In designed metaverse, it is aimed to merge two business models B2C &G2C to were merged to construct a new hybrid business model B2CG2C. Study aimed on designing a new metaverse ecosystem for B2CG2C as fusion of B2C &G2C for a camping, glamping activities Scenarioactivities. In order to concrete the designed metaverse, two scenarios were generated by means of scenario-based approach. based approach will be implemented for testing and validating the designed metaverse ecosystem. In this context, two scenarios were generated to test and summarize the developed application. The metaverse designed by means of Spatial.io on a desktop computer with a 512 GB capacity with processor 11th Gen Intel(R) Core (TM) i9-11950H @ 2.60GHz 2.61 GHz, 16.0 GB RAM, 64-bit -Windows 10 Enterprises. Results show that designed metaverse is applicable for tourism activities such as glamping activities as a case on this study. Besides, the designed ecosystem approvedvalidates the two business models can be merged in a one platform: Metaverse.

Keywords: *Metaverse, B2B, G2C, Tourism, Glamping*

Authors

Full Name	Author contribution roles	Contribution rate
Mune Moğol Sever:	*Conceptualism, Methodology, Software, Validation, Formal Analysis, Investigation, Resources, Data Curation, Writing - Original Draft, Writing - Review & Editing, Visualization, Supervision, Project administration, Funding acquisition*	*100%*

__Author statement:__ Author(s) declare(s) that All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. __Declaration of Conflicting Interests:__ The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article

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Attractiveness Centrality: A new centrality formula for travel planning

Eren Erkılıç, Ali Akay, İbrahim Çifçi*

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ABSTRACT

This current study aims to establish a new centrality formula for tourism destinations in effective travel planning. Based on network analysis, the results provide several formulas for measuring centrality derived from our basic algorithm, which we call the attractiveness centrality for effective travel planning. Since the attractions at some tourist hup-points have an impact on the centrality scores of each destination, they can be utilized for more effective trip planning based on spatial patterns. With this in mind, several implications for future studies and destination authorities were also discussed.

1. Introduction

Many studies suggest that tourists tend to visit more than one destination in a country or more than one tourist' spot in a given destination (Caldeira & Kastenholz, 2018; Hwang & Fesenmaier, 2003; Hwang et al., 2006; Koo et al., 2012; Santos et al., 2012; Wu et al., 2011). For an industry like tourism, where intangible features are emphasized, it might be challenging to choose from a wide range of possibilities. In other words, even with complete knowledge of all the factors, it is nearly impossible for the tourist to make a completely reasonable decision (Karakuş, 2020). It is important to remember that while analyzing an individual's economic behavior, they may not always act rationally or may only show limited rationality (Sredl et al., 2013). The process by which tourists organize their trips is currently an intriguing subject for research. As a result, many research has focused on multi-destination travel rather than a single destination and has used the graph theory-based network analysis to study tourists' behavior and understand their decision-making processes (Shih, 2006; Lee et al., 2013; Yang et al., 2013; Wu & Carson, 2008). In this regard, network analysis techniques offer quantitative methods for assessing various centrality measures such as degree, betweenness, closeness and eigenvector of a node in a network (Hwang et al., 2006; Pavlovich, 2003; Shih, 2006). Each measure of centrality indicates the centrality of a node from a different point of view. Hence, the node's role in the network- whether it is a start, end, or hub (transit) node- can be determined upon its measures of centrality (Jeon et al., 2019). In this context, employing the network analysis techniques, some researchers examined the trip patterns of tourists in their studies (e.g., Shih, 2006), while some of them focused on tourists' behavioral differences according to the actual travel data (Šauer & Bobkova, 2018).

On the other hand, several technological developments, such as the growth of the internet and mobile device usage, affect tourists' behaviors substantially (Law et al., 2018). Nowadays, most people find much information about a destination without visiting it through internet technologies (Chung et al., 2017; Xiang et al., 2015). Thanks to map applications, people can plan their itinerary in detail. Almost all map applications label the point of interest (POI) in their maps and allow their users to share their reviews/experiences about that POI with others. Additionally, many sites on the internet, such as map applications, including hotel-booking sites, rate the POIs according to the users' scores. Consequently, many scholars (e.g., Bizirgianni & Dionysopoulou,, 2013; Fotis et al., 2012; Gretzel & Yoo, 2008; Sparks & Browning, 2011; Vermeulen & Seegers, 2009) previously suggested some substantial pieces of evidence that this kind of online

*Corresponding Author
Theoretical Article
Eren Erkılıç: Assoc. Prof., Recep Tayyip Erdogan University, Rize, Turkey, Email: eren.erkilic@erdogan.edu.tr, Orcid Id: 0000-0002-0449-7099
Ali Akay: Assist. Prof., Recep Tayyip Erdogan University, Rize, Turkey, Email: ali.akay@erdogan.edu.tr, Orcid Id: 0000-0003-3512-0523
İbrahim Çifçi: Assoc. Prof., Istanbul University, İstanbul, Turkey, Email: ibrahim.cifci@istanbul.edu.tr, Orcid Id: 0000-0001-7469-1906

reviews affects tourists' behaviors and their decision-making process.

However, despite great endeavors to build tourism networks through tourist mobility (e.g., Asero et al., 2016), it is still a challenging problem for an ordinary tourist to make an optimal travel plan, which maximize his/her satisfaction in a restricted time and with a restricted budget. From this perspective, the fact that individuals with limited rationality make these decisions may cause obstacles in the formation of a sense of satisfaction towards the tourism product, which has an integrated structure. Additionally, the intention of tourists to visit many destinations in one trip complicates optimal travel planning (Jeuring & Haartsen, 2017; Park et al., 2019). Numerous studies (e.g., Han et al., 2018; Kang et al., 2018; Šauer & Bobkova,, 2018) have attempted to better understand the tourists' multi-attraction travel network patterns by simply comparing the centrality, and density scores and interpreting the structural characteristics of the existing travel networks, but have wholly failed to come up with an attractiveness centrality (AC) based applicable formula. Therefore, in our study, to fill this omitted gap by suggesting a new centrality measure entitled "attractiveness centrality" that denotes the proximity of a node to other nodes in the network in terms of travel time. Compared to Ho and McKercher's (2014) and Park et al.'s (2019) studies, we focused on travel time rather than distance because time constraint in a touristic trip is one of the essential constraints and affects the other constraints as budget substantially. Thence, the AC of a node is an average of the node scores (e.i., the attractiveness score of a touristic point), weighted according to travel time from that node to all others. Here, it is assumed that a node score denotes the attractiveness of that node. So, it is purposed to obtain a new criterion representing the gathered scores per unit travel time for a node. This new criterion will reduce the complexity of the trip planning problem and help develop new ones of trip planner algorithms whose number has been rapidly increasing recently. Also, it could be utilized for creating attractiveness maps of a city or a destination, etc.

The study of human behavior within the scope of behavioral economics theory is very important for the tourism and hospitality industries, as well as many other industries. When we consider destinations as an integrated tourism product (Middleton, 1989), it becomes difficult to ensure the satisfaction of tourists towards this product. The fact that tourists tend to visit as many locations as possible while making travel plans (Caldeira & Kastenholz, 2018; Hwang & Fesenmaier, 2003; Hwang et al., 2006; Koo et al., 2012; Santos et al., 2012; Wu et al., 2011) makes it difficult to create optimum product designs (Bramwell, 1998). At the same time, although tourists want to use their values such as time and money in the most appropriate way, the lack of information about potential tourism attractions and their translation into a tour plan may reduce the rationality of the individual's purchasing behavior (Asero & Patti, 2009; Mosalev, 2020). This may lead to low consumer satisfaction and may harm the success of tourism activities in the long run. The concept of attraction centrality developed in this current research and the possibility of creating optimal tour itineraries may facilitate tourists' decision-making actions. According to the theory, also called the cognitive principle of least resistance or the principle of least effort, people are predisposed to choose the course of action that involves the least amount of work on their part (Önder et al., 2020). The principle of least effort implies that people frequently choose the option that is simplest or most convenient for them when making decisions. At this point, a reliable tool that can be most suitable for the tourism industry and can save time and money for tourists can be very valuable.

2. Calculation Model for Attractiveness Centrality

A node's attractiveness centrality measure (ACM) is calculated using the node scores in this study. However, even though the node scores themselves take an essential role in the calculation, the measure does not depend on how they are computed. We assume that all node scores denote the individual attractiveness measure for each node. Therefore, a node score can count website users' " like " votes or obtained from different quantitative methods such as surveys and like scoring from travel platforms.

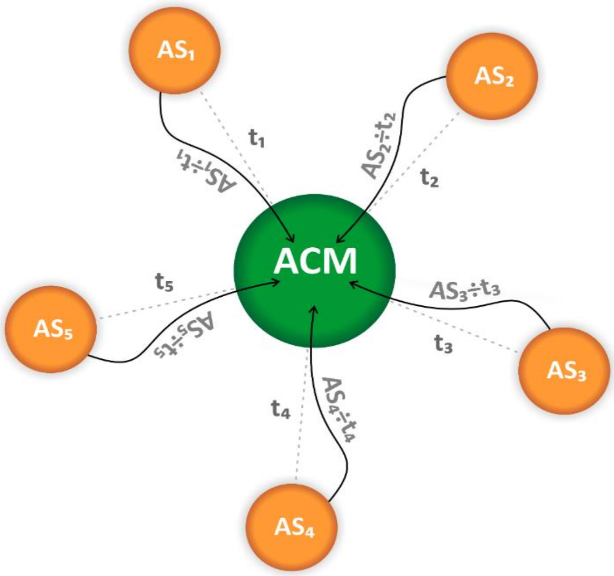

Figure 1. The illustration of ACM calculation
Source: Elaborated by Authors

After node scores (attractiveness scores) are obtained or calculated using any one of the methods mentioned above, attractiveness centrality would be computed using the following formula:

$$AC_i = \frac{n}{\sum_{j=1}^{n} \frac{TC(N_i, N_j)}{AS_j}}$$

F1 – Formula of the global AC

where TC is the travel cost function between i-th and j-th nodes (touristic point), and n is the number of nodes in the network.

AC is calculated on attractiveness scores (AS) of points other than a touristic point (TP) itself; the attractiveness score of the point whose center of gravity is calculated is not included in the calculation (Figure - 1). Therefore, our formula does not involve a prior gravity model that has its root in Newton's gravity theory and uses the concept of gravitational force as a comparison to illustrate the level of trade, financial flows, and migration between countries (Roy & Thill, 2004). While AC is being calculated, the AS of each TP included in the calculation is divided by the travel cost (time or distance) of the calculated point to this point. Thus, the total AS (as a unit benefit) to be obtained in return per unit cost in a visit from one TP to another TP is calculated. Finally, the average of unit benefits from a node to all others is constituted the AC of that node. (Figure - 1).

Since the unit benefits are proportional (rate) values, it has been deemed appropriate to use the harmonic mean to calculate the average. However, when calculating the ACM, there may be situations where it would be appropriate to use different average types according to the characteristics of the attractiveness scores of the TPs. For example, suppose that visitors vote for each TP on a portal where TPs are listed with one of the options "like" or "dislike". Suppose the AS is measured by the difference between the number of "likes" and "dislike" votes; negative and positive AS values may arise. It may be preferable to use the mean square instead of the harmonic mean to calculate AC scores. In another scenario, the median can be used instead of the mean so that AC scores are not affected by extreme values or an average calculated over quartiles as in the formula F2 may also be preferred.

$$\bar{X} = \frac{Q_1 + 2Q_2 + Q_3}{4}$$

F2 – An alternative formula that could be used instead of the mean

Conditional Attractiveness Centrality

In model F1, it is clear that the more nodes would need, the more calculations for travel cost between the node pairs. Thus, it would be necessary to restrict the number of connections between the nodes in large networks to keep the calculation time in a permissible range. The entire network could be confined to nodes in a single city or connections between the nodes to reduce the number of nodes used in the calculation. Only the node pairs whose travel cost is under a pre-defined value could be taken into account. Therefore, model F1 is the unconditional or global form of AC, and various conditional models can be derived from F1 due to multiple conditions. The following models demonstrate some examples of conditional attractiveness centrality (CAC). The difficulty of unconstrained calculating the AC scores of all APs in an extensive network such as a country was mentioned above. Furthermore, it is not possible to think that a TP at a destination will affect the attractiveness of a TP located far away, and it is evident that this effect will be close to zero mathematically due to the considerable distance. Therefore, it would not be very meaningful to include a parameter whose effect can be considered as zero in the calculation. For this reason, it is easier and more meaningful to do the calculation under various constraints.

Time-Restricted Conditional Attractiveness Centrality (TRCAC)

An ACM of a TP can be calculated using time-constrained AC by considering only the TSs whose distances from it are less than a predefined maximum travel time. The restriction on the ultimate travel time can be determined by considering the full travel time in the literature that a tourist can afford to visit a tourist spot.

$$TRCAC_i = \frac{|TD(t, N_i)|}{\sum_{j=1}^{|TD(t,N_i)|} \frac{TT(N_i, N_j)}{NS_j}}, N_j \in TD(t, N_i)$$

F3 – The formula of TRCAC

where TD is a subset of the nodes, consisting of the nodes whose travel time from N_i is less than the pre-defined constant value of t.

Distance Restricted Conditional Attractiveness Centrality (DRCAC)

The distance-constrained ACM is calculated by considering the ASs of the TPs located less than a maximum distance from the relevant TP. Thus, ACMs suitable for different travel scenarios can be calculated based on distances such as walking distance or scooter/bike driving distance.

$$DRCAC_i = , N_j \in DD(d, N_i)$$

F4 – The formula of DRCAC

where DD is a subset of the nodes, consisting of nodes whose distance from N_i is less than the pre-defined constant value of d.

Regional Attractiveness Centrality (RAC)

$$RAC_{i,R_k} = \frac{|RD(R_k)|}{\sum_{j=1}^{|RD(R_k)|} \frac{TT(N_i, N_j)}{NS_j}}, N_i \in RD(R_k), N_j \in RD(R_k)$$

F5 – The formula of RAC

$$EnAC_{R_k} = \frac{\sum_{i=1}^{|RD(R_k)|} RAC_{i,R_k}}{|RD(R_k)|} = \frac{\sum_{i=1}^{|RD(R_k)|} \frac{|RD(R_k)|}{\sum_{j=1}^{|RD(R_k)|} \frac{TT(N_i,N_j)}{NS_j}}}{|RD(R_k)|} = \sum_{i=1}^{|RD(R_k)|} \frac{1}{\sum_{j=1}^{|RD(R_k)|} \frac{TT(N_i,N_j)}{NS_j}}$$

F6 – The formula of the EnAC

where RD is a subset of the nodes in a certain geographically restricted region k (e.g., city, destination, etc.) and R_k denotes k-th region.

Endogenous and Exogenous Attractiveness Centrality

Endogenous attractiveness centrality (EnAC) is TPs' average attractiveness centrality score in a geographically limited region (country, province, county, etc.). Although this value alone does not make much sense, it is an important parameter that can be used to calculate a region's exogenous attractiveness.

Let the set of the nodes in a network split into none-intersected m subsets, and R_k denotes the k-th subset. An endogenous attractiveness centrality has been defined as average attractiveness centrality of the nodes in a subset that can be computed using F6 for each subset.

The formula above assumes that the subsets are geographically restricted regions like RAC.

Exogenous attractiveness centrality (ExAC) can be defined as an ACM of cities in a country. When calculating the attractiveness centrality of a city, the EnAC measures of other cities (the average AC scores of the TPs in these cities) are used as the attractiveness scores. The F2 formula is calculated over these values for each city.

Let $M(R_i)$ denotes the node whose AC is highest in the Ri region, and TT is a function that returns travel time between the nodes with the highest AC in two areas. An exogenous attractiveness centrality represents the AC score of a region according to its endogenous AC score and would be computed as in formula F7.

$$ExAC_{R_k} = \frac{n}{\sum_{i=1}^{n} \frac{TT(M(R_i), M(R_k))}{EnAC_{R_i}}}$$

F7 – The formula of ExAC

where n denotes regions count.

ExAC can be calculated for cities or generalized for different geographical regions (province, country, etc.). It is also possible to calculate the AC scores of countries in a hierarchical way using ExACs. For example, if you take the average of the AC scores of the TPs in a district, you can calculate its EnAC score. Then the ExAC scores of the districts are calculated over these scores. These scores give the AC score of each district. The average of these scores can be considered the EnAC score of the province. The provincial ExAC scores are thus calculated using these scores. As a result, the AC scores of all provinces are calculated in this way. This process is continued hierarchically; it is possible to calculate the AC scores of the countries.

Categorical Attractiveness Centrality (CAC)

Depending on their characteristics, TP (node) can have various properties that attract tourists' interests and travelling aims. Therefore, labelling touristic places categorically is trending in most internet and mobile applications. So, users can be informed about a touristic area whether it is in a category that he/she is interested in. For that reason, representing a categorical attractiveness centrality of a touristic place would be appropriate for this study's purpose.

Let C_k is a set of nodes that belong to a specific category and $N_i \in C_k$. Categorical attractiveness centrality represents the AC score of a node among all nodes in the same category and would be computed similar to conditional attractiveness centrality as in Formula F8.

$$CAC_k = \frac{n}{\sum_{i=1}^{n} \frac{TT(N_i, N_k)}{NS_i}}$$

F8 – The formula of the categorical AC

where n is the nodes count that belongs k-th category.

Personalised Attractive Centrality Measure

It is also possible to calculate AC measures weighted based on category prioritization, rather than AC scores calculated for one category only. For example, when it is known how much priority the different tourist profiles give to which category - and this can be determined with different scales - a weighted AC can be calculated according to the identified priorities instead of calculating the AC measure according to a category. Thus, an AC, which is adjusted to the preferences of the respective profile, provides a more meaningful measure of attractiveness. In another scenario, the AC, calculated based on personal priorities, provides a more specific measure of personal attractiveness than a profile pattern.

The weighted averages of the categorical AC scores can easily be used to calculate personalized AC measures. This problem fits very well with the issues of multi-criteria decision making (MCDM). Therefore, using one of the

MCDM methods may be preferred in the personalized AC calculation.

3. Discussions and Conclusions

Recently, many researchers (e.g., Han *et al.*, 2018; Kang *et al.*, 2018; Šauer & Bobkova, 2018) have focused on examining tourist flows utilizing centrality measures in network analysis techniques. Unlike prior research, we suggest a new measure of centrality named *Attractiveness Centrality* to address the issue based on an applicable formula.

AC indicates the centrality of a tourist spot relative to the surrounding attractions around it. For most tourist trips, the answer to "Where do I start?" is not easy for visitors. A TP with a high AC value indicates many other APs with high appeal near that point. Therefore, it is a valuable and straightforward solution for visitors to start their visit at a point with a high AC score and follow the same route in the next step when selecting possible visit points.

AC measurements also offer an easy and efficient way to create AC maps of a city or country. The easy dimensions' calculation also allows these maps to be created digitally and in real-time. Even for a professional travel company, planning an itinerary takes many years of experience. Furthermore, even if the destinations to be visited are known, planning the best route between the destinations remains complicated. Calculating the absolute optimal solution to these problems, called as combinational problems in the literature, is impossible for most cases. This situation highlights using heuristic methods and artificial intelligence algorithms to solve such problems. As in many other fields, artificial intelligence has recently become widespread in tourism, and intelligent systems based on artificial intelligence algorithms have been developed to solve the problem of travel planning and many other tourism issues. Therefore, this current study suggests that ACMs can be used in travel planning or that new artificial intelligence algorithms can be developed based on ACMs. Moreover, it seems possible to create auxiliary algorithms to accelerate the convergence of heuristic methods to the absolute optimum using ACMs.

Nodal attractiveness metrics can be used to plan a trip more effectively and be more manageable for an ordinary tourist. Therefore, it is suggested that local or central authorities include the attractiveness metrics of the tourist attractions in their informative publications or advertisements, such as brochures and other promotional materials. In addition, the attractiveness centrality measures can be used to speed up the techniques of travel planning algorithms to find optimal solutions more quickly. It is thought that attractiveness centrality would increase tourists' satisfaction and meet their expectations in their limited holiday time. ACs, which can be designed as a highly reliable and customizable tool for individuals who tend to prefer easy by nature and have asymmetric information in order to act rationally, and the ability to set effective and efficient tour routes have the chance to be quickly accepted and adopted by the society. In this way, a very important, useful and efficient source of information can be obtained for the decision-making mechanisms of tourism providers as well as tourism travelers.

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Attractiveness Centrality: A new centrality formula for travel planning

Abstract

This current study aims to establish a new centrality formula for tourism destinations in effective travel planning. Based on network analysis, the results provide several formulas for measuring centrality derived from our basic algorithm, which we call the attractiveness centrality for effective travel planning. Since the attractions at some tourist hup-points have an impact on the centrality scores of each destination, they can be utilized for more effective trip planning based on spatial patterns. With this in mind, several implications for future studies and destination authorities were also discussed.

Keywords: *Formula, Attractiveness centrality, Travel planning, Destinations.*

Authors

Full Name	Author contribution roles	Contribution rate
Eren Erkılıç:	*Conceptualism, Methodology, Resources, Writing - Original Draft, Writing - Review & Editing*	*40%*
Ali Akay:	*Conceptualism, Methodology, Resources, Writing - Original Draft, Writing - Review & Editing*	*40%*
İbrahim Cifci:	*Writing - Original Draft, Writing - Review & Editing*	*20%*

Author statement: *Author(s) declare(s) that All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.* ***Declaration of Conflicting Interests:*** *The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article*

This paper does not required ethics committee report

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