



Impact of political instability on 1948-Palestinian shoppers' satisfaction: Palestinian tourist destination as a case study

Jafar Abahre^{a,*}, Hussein Al-Rimmawi^b, Loai Abu Raida^c, Mohammad Alkhateeb^d, Wasim Bishawi^e, Sameer Mahmoud^f, Akram Suleiman^g, Zuheir N. Khlaif^h

^a Department of Tourism and Archaeology, Faculty of Humanities, An-Najah National University, Palestine

^b Department of Geography, Birzeit University, Palestine

^c Department of Geography, Faculty of Economics and Social Sciences, An-Najah National University, Palestine

^d Department of History, Faculty of Humanities, An-Najah National University, Palestine

^e Department of French Language, Faculty of Humanities, An-Najah National University, Palestine

^f Department of English, Faculty of Humanities, An-Najah National University, Palestine

^g Department of Civil and Infrastructure Engineering, Al-Zaytoonah University of Jordan, Amman-Jordan

^h Faculty of Educational Sciences and Preparing Teachers, An Najah National University, Nablus, Palestine

ARTICLE INFO

Keywords:

Motivation
Visitor satisfaction
Factor analysis
West Bank
Palestine

ABSTRACT

This study examines tourist satisfaction and its relationship with demographic variables in Nablus, Palestine. Two hundred two tourists were surveyed using a structured questionnaire to collect data on their satisfaction level and demographic information. The results reveal that the overall tourist satisfaction level in Nablus is high. However, significant differences in satisfaction were found based on gender, education level, number of family members, occupation, and income. The study highlights the importance of considering demographic factors in shaping visitor satisfaction and tailoring tourism services to meet the needs and preferences of diverse clients. The findings also shed light on the negative impact of tourist blackmailing, which is the exploitation of tourists by various stakeholders, and the role of positive perceptions of the destination in attracting tourists and mitigating the impact of security threats. The study provides valuable insights for tourism service providers and stakeholders in promoting sustainable and competitive tourism in Nablus and the West Bank region.

1. Introduction

Tourism is one of the most significant economic activities in the world, and it is seen as a cornerstone to development, wealth, and well-being. According to the United Nations World Tourism Organization (UNWTO), the tourism industry is a “major engine of socioeconomic advancement through the creation of new jobs.” Regarding jobs and businesses, export incomes, and infrastructural development. Tourism has grown practically continuously over the previous six and a half decades, proving the industry’s strength and endurance. Tourism is becoming one of the essential components of the global economy. In the case of the Palestinian tourism destination, Palestine has various historical and religious sites that justify its designation as a “holy land” [1,2]. Palestine is also a cradle of civilization and possesses several of the following: Attractions include archeological, cultural, and natural wonders.

* Corresponding author.

E-mail address: abahre@najah.edu (J. Abahre).

Moreover, various tourism providers in Palestinian cities such as East Jerusalem, Bethlehem, Jericho, Ramallah, and Nablus, among others, welcome visitors from around the world. As per the Palestinian Central Bureau of Statistics, the number of Palestinians worldwide who visited these cities until mid of last year was 13.8 million, belonging to four groups, each having their approach towards tourism. The first group comprises indigenous Palestinians living within Israel's Green Line, totaling around 1.96 million. The second group consists of Palestinians residing in the West Bank and East Jerusalem, with a population of approximately 3.5 million. The third group includes Palestinians living in the Gaza Strip, totaling 2.1 million [3].

In contrast, the fourth group constitutes Palestinian refugees forced to leave their homes in Historical Palestine by Zionist gangs in 1948. They total around 2 million, with the rest living in the diaspora worldwide. A study focuses on the visiting practices of Palestinians residing in areas previously under Israeli control in 1948 and East Jerusalem. A first group is a minority group under Israeli rule since 1948, mainly living in villages and urban areas like Nazareth, Haifa, Ramla, Lod, Jaffa, and Beer Al-Saba [4,5]. This group can travel freely within the Green Line and the West Bank, divided into three areas: A, B, and C, as per the Oslo Accords II signed by the Palestine Liberation Organization and Israel in 1995 (Fig. 1). Area A is under Palestinian civil and security rule, whereas Israelis are prohibited from entering this area. Area B is under Palestinian civil control but shares security control with Israeli occupation forces (Fig. 2). Area A and B accommodate the majority of the West Bank Palestinians. Area C is entirely under Israeli control and encompasses 532 Palestinian localities, with an estimated Palestinian population of around 300,000, and Israeli settlers are about 400,000

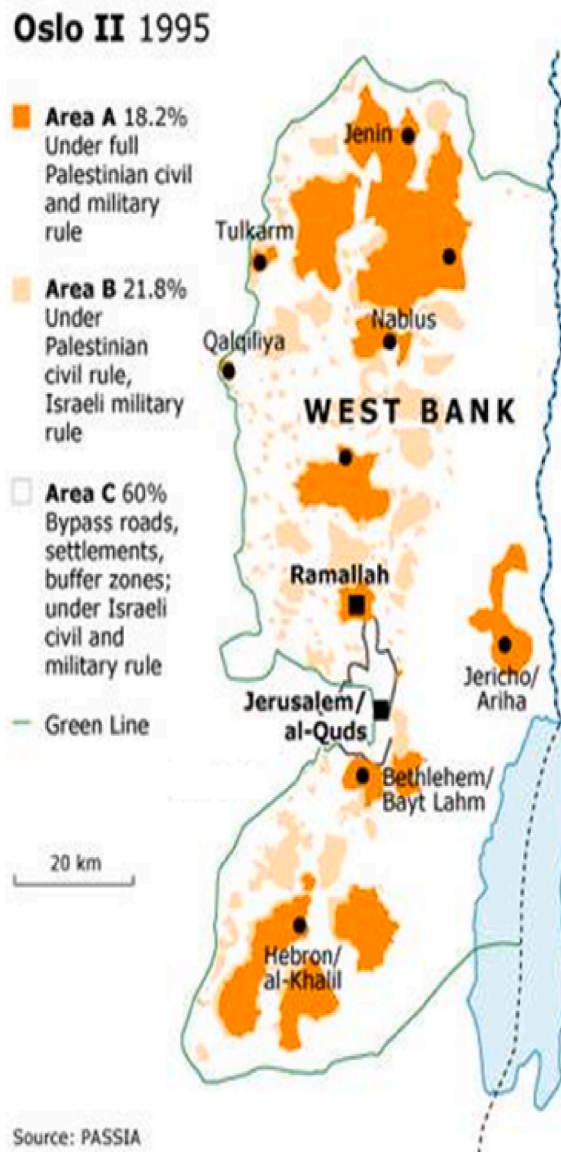


Fig. 1. Oslo Accords II. Source: Fanack, 2021.



Fig. 2. Sign warning Israelis of entering Palestinian area A.

[6].

However, regarding traveling or visiting any area in the West Bank, Palestinians prioritize security issues, safety, and peace of mind regardless of their residence. These issues are especially real for Palestinians living in the 1948 territories who visit the West Bank. However, many still take the risk of traveling to Nablus for various reasons, such as visiting friends and family, dining, touring, studying, and shopping. The lower prices of various goods in Nablus than in Israel attract many visitors. However, due to security concerns, only a small percentage of Palestinians living in the West Bank engage in domestic trips within the region, with only 20% having gone on such trips, with an average daily expenditure of \$79.

Regarding the duration of local trips, 82% of households take trips for one day, while 18% go for two days or more. Regarding satisfaction, 48% of families who take local trips rated their experience as good or very good regarding the available services at the visited sites [7]. In contrast, 91% of those who travel abroad spend around \$1,160 on average.

1.1. Problem statement

While several studies have examined the changes in Palestinian tourism and the factors affecting it, such as political instability, financial resources, infrastructure, and facilities, a noticeable research gap exists. The current literature does not adequately address the experiences and motivations of Palestinians living in Israel (1948-Palestinians) who visit the West Bank cities and towns, specifically Nablus, despite their significant contribution to the local economy.

Moreover, there is a lack of research focusing on tourism in countries with mobility restrictions due to the complexities of the regional political situation. This gap is particularly evident in the occupied Palestinian territories, where severe restrictions on the movement of the Palestinian population have led to ongoing suffering for those living in the West Bank, East Jerusalem, and the Gaza Strip.

1.2. Study purpose

This study aims to fill these research gaps by being the first in Palestine to concentrate on Palestinian visitors from within the Green Line, investigating their reasons for visiting, the areas they come from, their experiences during their visits, and their satisfaction with tourist destinations. Additionally, it will explore the critical factors affecting their visit preferences, contributing to a more comprehensive understanding of tourism dynamics in politically complex regions.

2. Literature review

2.1. Political instability and tourism

The tourism industry and tourist destinations are influenced by many factors, such as hospitality from local communities, availability and quality of tourism services, good weather, cleanliness of the tourist destination, prices, accommodation and transportation facilities, and gastronomy services (restaurants, bars, coffee shops). These factors combined affect the number of people visiting these areas. Security, safety, and political stability are among the most important aspects [8]. Political instability has a negative impact on tourist flow. In other words, political conflict in the destination affects the traveler's choice of destination [8,9]. Borders between states play a pivotal part in the tourist movement. Unstable relations between states drive less tourism flow. Political instability always conflicts with tourists seeking a quiet state of mind while traveling [10]. Several researchers have carried out studies that primarily laid down conceptual frameworks of borders and tourism [11,12,13]. Traveling and tourism practically always include crossing international or regional political borders [14]. As Timothy (2001) stated, the interaction between tourism and boundaries has many facets and is affected by several elements. International borders are places where political entities collide, cultures mix, and economies meet, and tourism is undoubtedly influenced by them [15]. The border area is an essential economic, tourism and social zone strongly influenced by political borders [14]. Every country in the world has different conditions, and within its borders, these conditions are affected by policies and ideologies; sometimes, borders are open to human movement, and sometimes they constitute an obstacle [13].

Quite good research has been conducted in developed and developing countries (mainly in the USA, Canada, and the European Union) on borders and tourism. Most of this research highlighted border safety matters and their effects on traveler records and chances for tourism growth at borders [16,17,18,19,20,21].

On the other hand, Getmansky (2014) found that borders did not constitute any pacifying effect on tourism between close neighboring countries. Neighboring countries host more tourists from either side of the borders and do not affect violence [22]. Andrews tackled the concept of tourism and violence; he drew a range of disciplinary approaches, including social anthropology, cultural geography, sociology, and tourism studies [23]. Neumayer (2004) found strong evidence of human rights violations, conflict, and other politically motivated violent events which harmed tourist arrivals. In a dynamic model, even if autocratic regimes do not resort to violence, they have lower numbers of tourist arrivals than more democratic regimes" [24]. Rozenholc- Escobar (2021) [25] reported that despite the continuous violence in Israel and Palestine, the religious sites of the three religions continue attracting tourists: pilgrimage sites, religious theme parks, and alternative tourism [26]. These are called "places of mobility," producing "mobility of places."

2.2. Tourist satisfaction

Tourist satisfaction refers to visitors' emotional and cognitive reactions to their experience. It represents their overall level of contentment following a particular opportunity. Contentment can be measured by a consumer's judgment of a product or service after experiencing it. Baker and Crompton suggest that "gap variables" influence satisfaction, such as tourists' individual characteristics, behavior, desires, and external factors like weather and social interactions [24]. At the same time, total satisfaction is visitors' overall enjoyment when their expectations and requirements are met [26]. According to Beard and Ragheb, tourist satisfaction is a favorable perception created by visitors when they participate in leisure activities. It is quantified by the degree of enjoyment they experience. Overall, visitor satisfaction is positively correlated with the quality of the tourist experience [27].

Tourist satisfaction is a critical concern for destination managers, as it impacts future visitor behavior and selection. Research has shown that customer satisfaction is influenced by a destination's image and service quality [27,28]. Positive experiences lead to positive future behaviors, such as increased willingness to return and recommend the goal to others. However, Bigne and others found that tourist satisfaction only impacts the propensity to recommend a location to friends and relatives, not the intention to return [29].

The quality of the lodging, accessibility of the location, landscape beauty, weather, and cleanliness are the most critical factors contributing to overall visitor satisfaction [30,31]. Tourists' feelings are also crucial to the service, as most of their experience is based on their emotions and enjoyment [32]. The services provided to meet the needs of tourists are related to infrastructure, attention, cleanliness, and parking availability, which all positively impact the tourist experience and encourage visitors to return [33]. The service delivery method also plays a significant role in tourist satisfaction, as committed consumers provide present and future value to the organization and its competitiveness [34].

To summarize, the tourism industry comprises a chain of interdependent services, including hotels, travel agencies, transportation, and restaurants, that aim to meet visitors' needs during their stay at a destination [35,36]. Access to information helps tourists plan their vacation and stay safe during their visit. Therefore, accurate and up-to-date information about entertainment, leisure activities, restaurants, and lodging is crucial [37].

2.3. Palestinian tourist destination

On the other hand, Svetlova (2019) tackled tourism from another perspective. She maintained that Israel and Palestine are witnessing a new wave of tourism in which tourists come to learn about the Palestinian – Israeli conflict [38]. They tour Israel, the West Bank, and the Gaza Strip border. In addition, Svetlova dwelt on Israel's preparation for these learning tourists who become aware of the conflict and more critical. Isaac found that "the violence between Palestinians and Israelis has caused a drastic reduction in pilgrimages [39]. With virtually no access to religious sites, the blockade of border crossing points, the closure of Gaza Airport, the

Apartheid Wall, and the image of insecurity projected abroad, tourism in Palestine has effectively come to a halt”.

Centre for Research on Multinational Corporations Global Legal Action Network (GLAN) and Centre for Research on Multinational Corporations (SOMO) (2021, 1–53) advised tourism bodies and networks not to make or conclude any business links/deals with Israeli tourism agencies involved in settlements in Occupied Palestinian Territories and the Golan Heights. Ahmad argues Israel, since its establishment in 1948, has used tourism as a tool to propagate biblical stories to emphasize eternal Jewish belonging to Palestine [40].

The trend of 1948-Palestinians visiting Nablus contributes to the reinforcement of cultural bonds. Over the past several decades, tourism researchers and authorities have noticed shifts in Palestinian tourism [2,26,41,42,43]. They have examined factors influencing tourism, such as travel, as well as delved into political instability, financial resources, infrastructure, and facilities [2,44,45].

In the context of the occupied Palestinian territories, the tourism sector differs from that of many other countries due to its focus on religious tourism. Christian pilgrims from across the globe travel to Jerusalem, Bethlehem, and Jericho. Additionally, numerous Palestinian residents within the Green Line frequently visit West Bank cities and towns, often on Saturdays, due to the proximity of Palestinian markets to their residences.

With this backdrop, the study aims to identify these visitors (Palestinians residing in Israel), their motivations for visiting, their origins, their experiences during visits, and their satisfaction with tourist destinations. The goal was to uncover the most vital factors affecting their visit preferences. This research is the first in Palestine to concentrate on Palestinian visitors from within the Green Line, who bolster the West Bank’s economy, including markets, hotels, restaurants, shops, and more. Furthermore, few studies have investigated tourism in countries with mobility restrictions due to the region’s complicated political situation. These complexities involve stringent limitations on the movement of the Palestinian population from their villages and urban areas to other parts under the guise of security and political circumstances. This has resulted in ongoing hardships for the Palestinian people within the West Bank, East Jerusalem, and the Gaza Strip.

3. Methods

3.1. Study area and research instruments

For data collection, the researchers have developed a questionnaire to identify the factors influencing Palestinians living inside the Green Line and their attitudes towards Nablus. The researchers developed the study tool based on the research questions guided by the findings of previous studies [33,34,46]. The first step of generating the tool was creating a pool of items from the literature studies. Then, the researchers choose the items to build the initial draft of the instrument. The questions in the questionnaire asked for some demographic information about the visitors.

A pilot study of the questionnaire was conducted with 30 visitors to Nablus to evaluate its validity and comprehensiveness. Moreover, participants were asked about the frequency of their visits to Palestinian territories. Subsequently, four experts were consulted to assess the content validity, item structure, phrasing, and relevance to the study’s objective.

The questionnaire consisted of three sections: The first section gathered demographic information about the visitors, such as gender, marital status, age, religion, purpose of travel, number of visits, sites visited in the Nablus governorate, duration of stay, transportation mode, and experiences at Israeli border crossings and military roadblocks in the West Bank. The second section focused on factors that could impact the respondent’s future visits to Nablus, emphasizing the city’s tourist services. A five-point Likert scale, presented in Arabic, was utilized [34,47,48,49].

In March 2020, five tourism professionals reviewed and assessed the questionnaire. After conducting a pilot study with 30 visitors to Nablus to ensure its validity and comprehensiveness, some modifications were made. The researchers then administered the questionnaire face-to-face to a random sample of 202 visitors. Prior consent was obtained from all participants for the publication of this study. The questionnaire was administered on Saturdays during lunchtime at a local restaurant in July, August, and September 2021.

Table 1
Demographic variables of study participants.

Item	Frequency	%	Item	Frequency	%
Gender			Age		
Male	70	34.6	Less than 18	22	10.9
Female	125	61.9	19–30	135	66.8
Missing data	7	3.5	31–40	29	14.4
Total	202	100	41–60 +	13	6.4
Marital status			Missing data	3	1.6
Single	141	69.8	Total	202	100
Married	55	27.2	Religion		
Divorced	5	2.5	Islam	168	18.1
Widow	1	0.5	Christianity	29	14.4
Total	202	100	Others	5	2.5
			Total	202	100

3.2. Research design and hypothesis

This study adopted a descriptive research design to provide a comprehensive and transparent experience of the visitors' demographics and to explain the relationships between satisfaction and tourist behavioral intentions of domestic visitors. Additionally, we aimed to explore the factors affecting visitors' overall satisfaction regarding tourist services at the destination.

To study the relationships between the constructs, we applied a quantitative method. We formulated two hypotheses for this study. The first hypothesis (H1) assumes a significant relationship between demographic variables and tourist services. The second hypothesis (H2) proposes that local visitors' overall tourist satisfaction is positively related to their intention to revisit.

4. Results

Table 1 presents the frequency and percentage distribution of demographic variables of the 202 local visitors to Nablus. Most visitors were female (61.9%), while 34.6% were male, and 3.5% had missing data. In terms of age, the most significant proportion of visitors was in the 19–30 age group (66.8%), followed by less than 18 years (10.9%), 31–40 years (14.4%), and 41–60+ years (6.4%). Only 1.6% of respondents had missing data regarding their age.

Regarding marital status, the majority of visitors were single (69.8%), followed by married (27.2%), divorced (2.5%), and widowed (0.5%). In terms of religion, the vast majority of visitors were Muslims (83.6%), followed by Christians (14.4%) and others (2.5%).

These findings provide valuable insights into the demographic profile of local visitors to Nablus. They can help inform tourism planning and marketing strategies to better cater to the needs and preferences of this particular visitor segment. For instance, since most visitors were young females, tourism businesses could tailor their offerings to appeal to this group, such as providing female-friendly accommodations and activities. Similarly, given the high proportion of Muslim visitors, companies could offer halal food options and prayer facilities.

4.1. Frequency of visits

Table 2 presents two sets of results. The first set of results shows the frequency and percentage of visitors based on the number of visits to Nablus. Of the 202 visitors, 6% visited Nablus for the first time, 80% visited Nablus multiple times, and 14% had missing data.

The second set of results shows the frequency and percentage of visitors based on the border crossings they used to enter Nablus. The majority of visitors, 50%, used Jebara and Taibeh border crossings, followed by Qalqelia with 19%, Jalameh with 12%, Qalandia with 13%, and Barta' and Bisan with 6%.

Furthermore, the table presents the purpose of the visitors' visit to Nablus. 59.4% of the visitors visited Nablus for study purposes, 29.7% for shopping and eating, 9.4% for business, and 1.5% for cultural and historical sites. Overall, the table provides insight into the patterns of visitation to Nablus and the ways visitors access the city.

Table 3 displays the distribution of visitors' origin locations based on their city or town/village. The majority of visitors (61%) were from Palestinian Triangle Area Towns, including Baqa Gharbieh, Kufr Qasem, Jet, Tirah, Taibeh, Qalansouh, Kufr Qara'a, Arara, Jajulieh, Um Fahem, Zalfeh, and Barta'a. 14% of the visitors were from Nazareth and its surrounding areas, including Sakhneen, Shafa Amer, and Araba. 7.5% of visitors were from East Jerusalem and Sur Baher. 6.5% of visitors were from Acre and its surrounding areas including Kufr Yaseef, Deir Assad, Kawkab Abu Hejjah, and Eliout. 5% of visitors were from Jafa and Lid, while 4% were from Haifa. Lastly, 1.5% of visitors were from Beersaba, and there was only one missing data point.

4.2. Comparison between variables

Table 4 presents the mean differences in satisfaction between visitors during their visit to Nablus. To observe the differences in tourist service's relationship with demographic variables, we find there is statistical significance between gender (male and female), education level, number of family members, occupation, and income. To test hypotheses regarding the effects of each variable on visitor satisfaction, if there are any differences between males and females towards constructs, female visitors (2.61) have higher levels of visitor satisfaction than male visitors (2.29). Likewise, if there are any differences between education levels toward constructs, we

Table 2
Visits: Numbers and reasons.

Number of visits	Frequency	%	Border Crossing	Frequency	%
First visit	12	6	Jebara and Taibeh	101	50
Multiple visits	161	80	Qalqelia	38	19
Missing data	29	14	Jalameh	26	12
Total	173	100	Qalandia	25	13
Purpose of visit			Barta' and Bisan	12	6
Study	120	59.4	Total	202	100
Shopping and eating	60	29.7			
Business	19	9.4			
Cultural and historical sites	3	1.5			
Total	202	100			

Table 3
Visitors' towns and villages.

City	Town/village	Frequency	%
Palestinian Triangle Area Towns	Baqa Gharbieh, Kufr Qasem, Jet, Tirah, Taibeh, Qalansouh, Kufr Qara' a, Arara, Jajulieh, Um Fahem, Zalfeh and Barta'a	124	61
Nazareth	Sakhneen, Shafa Amer, Araba	28	14
East Jerusalem	East Jerusalem & Sur Baher	15	7.5
Acre	Kufr Yaseef, Deir Assad, Kawkab Abu Heijah and Eliout	13	6.5
Jafa and Lid		10	5
Haifa		8	4
Beersaba		3	1.5
Missing Data		1	0.5
Total		202	100

Table 4
Comparison between demographic variables and tourist service with satisfaction.

Independent variables		Tourist Services			F.	Significance
		Count	Mean	Standard Deviation		
Gender	Male	72	2.29	.38	6.746	0.01
	Female	125	2.61	.49		
Education	less than school	26	2.23	.39	2.990	0.03
	Diploma	30	2.33	.60		
	Bachelor	130	2.58	.44		
	Post-graduate	15	2.50	.42		
Number of family members	1-	5	2.51	.64	2.247	0.04
	1-3	32	2.30	.37		
	4-6	95	2.51	.45		
	7+	57	2.59	.57		
Income	5,000-	72	2.44	.45	3.730	0.03
	10,000-15,000	95	2.45	.47		
	15,000+	30	2.73	.49		
Occupation	Government	53	2.46	.37	4.812	0.05
	Private	115	2.44	.47		
	Others	24	2.71	.55		
Are you satisfied with your visit to Nablus in Palestine	Yes	176	2.43	.43	10.910	0.00
	No	27	2.84	.60		

found Bachelor's degree of visitors (2.58) has higher levels of visitor satisfaction than all of the education degrees. Also, we found the number of family members between four to six persons (2.51) has higher visitor satisfaction than others. Income is higher than those who earn monthly salaries between 10,000 and 15,000 shekels (3,000\$-4,500\$). Visitors working or owning private businesses have a higher level (2.45) of satisfaction than the government sector.

Table 4 presents the results of a study on the relationship between various independent variables and tourist services in Nablus, Palestine. The mean and standard deviation of the tourist services rating were calculated for each independent variable level, and the results were analyzed using a one-way ANOVA.

The results show that gender and education significantly affect tourist services, with males and those with less than a school education rating the services lower than females and those with higher education levels. The number of family members and income also have a significant effect, with those with larger families and lower incomes rating the services lower. Occupation also has a considerable impact, with those working in other industries ranking the services higher than those in the government or private sectors.

Additionally, the study found that overall satisfaction with the visit to Nablus was significantly related to tourist services, with those who were satisfied rating the services lower than those who were not happy. This suggests that tourists' overall experience in Nablus may be influenced by their perception of the quality of tourist services.

4.3. Uses of factor analysis

The Principle Component Analysis (PCA) results showed the assumptions to be adequately fulfilled. First, Bartlett's Test of Sphericity, which tests whether the correlation matrix is an identity matrix, was significant: $\chi^2 = 1095.6$, $df = 351$, $p = .000$. The significance of Bartlett's test indicated that the overall correlations within the correlation matrix were adequate. Second, the KMO value revealed a high degree of inter-correlation among the 27 items at 0.775, surpassing the recommended value of 0.70. In short, these results show the factorability of the data, hence justifying the use of PCA in the analysis. After that, the researchers identified the number of underlying dimensions that characterized the topic data. The decision to retain a specific number of factors was based on three criteria: (i) eigenvalues equal to or greater than 1 for factor retention [50,51,52], (ii) the percentage of Variance extracted, with a range of 50-60% considered acceptable in social sciences research [31,53,54], and (iii) factor interpretability and usefulness.

Researchers also conducted factor interpretation analysis. Overall, 27 items were assigned to four factors based on their highest loading levels. Four factors were identified in the factor analysis using these 27 variables, accounting for 54% of the total Variance. The remaining 46% of the Variance was attributed to other variables not included in this study due to the complexity of political and security issues in the West Bank and Israel stemming from the strained relationship between the Palestinian Authority and Israel. Factors with an eigenvalue greater than 1.5 were considered significant in this study, and variable loadings of +0.50 or more were considered.

The first factor, Visitors' Satisfaction, had an eigenvalue of 7.89 and accounted for 29.2% of the total Variance. This factor included variables related to visitor satisfaction concerning ease of access to destinations, fair treatment by shopkeepers, high-quality services at restaurants and cafes, and reasonable meal prices (Table 5).

The second factor, Positive Impressions of the West Bank, had an eigenvalue of 3.49 and accounted for 12.9% of the total Variance. This factor comprised variables associated with the West Bank, such as skilled tour guides, enjoyable visits, learning about local Palestinian culture and traditions, high-quality West Bank products, eagerness to visit the area, top-notch tourist services, and encouraging others to see (Table 5).

The third factor, Tourist Satisfaction with Services, had an eigenvalue of 1.60 and accounted for 6% of the total Variance. This factor included variables related to service quality, such as the availability of adequate tourism infrastructure, recreational facilities, health services, security services, and road signage (Table 5).

The fourth factor, Tourist Blackmailing, had an eigenvalue of 1.56 and accounted for 5.8% of the total Variance. This factor consisted of variables like the limited presence of tourists and the feeling of being overcharged in shops, restaurants, and hotels. The absence of fixed prices for goods and services in the West Bank creates difficulties, as similar goods and services have set prices within the Green Line. Purchasing goods and services in Nablus and other West Bank locations involves negotiation, which can lead to Palestinians living within the Green Line being exploited due to their unfamiliarity with local prices. This issue may negatively affect their visitation behavior. The Palestinian Authority should enforce fixed pricing for goods and services to address this problem (Table 5).

The factor analysis results indicate that four primary factors influence tourists' satisfaction in the West Bank.

Factor 1, labeled "Visitors Satisfaction," is characterized by high loadings on items related to fair treatment by shopkeepers, high-quality services at restaurants and cafes, and reasonable meal prices. This factor has the highest eigenvalue and explains 29.2% of the Variance, indicating that it is an essential factor in overall tourist satisfaction.

Factor 2, labeled "Good Impressions about the West Bank," is characterized by high loadings on items related to skilled tour guides, enjoyment of visiting the West Bank, learning about local Palestinian culture, high-quality West Bank products, enthusiasm for visiting the West Bank, and encouragement of others to see. This factor has the second-highest eigenvalue and explains 13% of the Variance, indicating that it is also an essential factor in overall tourist satisfaction.

Factor 3, labeled "Tourist Satisfaction of Adequate Services," is characterized by high loadings on items related to the availability of good tourism infrastructure, such as recreational facilities, health services, security services, and road signs. This factor has a lower eigenvalue and explains 6% of the Variance, indicating that it is less important than the first two factors.

Factor 4, labeled "Tourist Blackmailing," is characterized by high loadings on items related to the poor appearance of tourists, the existence of price blackmailing in shops, the fact of price blackmailing at restaurants, the presence of price blackmailing in hotels, and

Table 5
Extracted factors, loadings, eigenvalues, and Variance.

Factors and Items	Factor Loadings	Eigenvalues	% of Variance Explained
Factor 1: Visitors satisfaction	0.69	7.89	29.2
Fair treatment by shopkeepers	0.59		
High-quality services at restaurants and cafes	0.70		
Fair meals prices.	0.61		
Factor 2: Good Impressions about the West Bank		3.49	13
Skilled tour guides,	0.57		
Enjoyment visiting the West Bank,	0.82		
Learning about Palestinians' local culture,	0.79		
High-quality West Bank products,	0.51		
Enthusiasm for visiting the West Bank,	0.72		
High-quality West Bank tourist services	0.56		
Encouragement of others to see the West Bank	0.84		
Factor 3: Tourist Satisfaction with Adequate services	0.51	1.60	6
Availability of good tourism infrastructure, such as recreational facilities,	0.86		
Health services,	0.70		
Security services	0.72		
Roads signs	0.86		
Factor 4: Tourist Blackmailing		1.56	5.8
Poor appearance of tourists	0.75		
Existence of price blackmailing in shops	0.79		
Existence of price blackmailing at restaurants	0.85		
Presence of price blackmailing in hotels	0.82		
Facing the problem and not getting assistance	0.67		

facing problems and not getting assistance. This factor has the lowest eigenvalue and explains only 5.8% of the Variance, indicating that it is the least important factor in overall tourist satisfaction.

Overall, this factor analysis suggests that tourists in the West Bank are most satisfied when they are treated relatively by shopkeepers and restaurants, have a positive impression of the West Bank, and have access to adequate tourism infrastructure. Additionally, tourists will likely be dissatisfied if they experience price blackmailing or cannot get assistance when facing problems. These findings can help tourism providers in the West Bank improve their services and better meet the needs and expectations of tourists.

5. Discussion

The study investigated the correlation between demographic factors and tourist satisfaction in Nablus, uncovering significant differences in satisfaction based on gender, education level, family size, occupation, and income [2,55,56]. These results align with prior research emphasizing the significance of demographic variables in determining visitor satisfaction [57,58]. The findings of this study add to the ongoing discourse on how demographic factors influence visitor satisfaction levels during their stay in Nablus, as supported by earlier research [59,60]. These insights may aid tourism service providers in customizing their offerings to accommodate their clientele's diverse needs and preferences and identifying areas where further research is needed to comprehend these relationships better.

Tourist Blackmailing is a concern that has been addressed within the tourism industry and can negatively impact both tourists and service providers [61]. Blackmailing, in this context, refers to the exploitation of tourists by various parties, such as tour operators, hotel staff, or even local inhabitants. In certain instances, tourists may be pressured into paying higher prices or confronted with threats if they do not comply with specific demands [62]. Such behavior can result in negative outcomes, including job dissatisfaction and turnover intentions among tour leaders [63]. It can damage a destination's reputation, dissuading potential visitors from selecting it as their travel destination.

Positive Impressions of the West Bank can significantly encourage tourism and counteract the adverse effects of security threats on the global travel and tourism industry performance [64]. A favorable perception of a destination can help alleviate security concerns, as tourists may be more inclined to visit a location if they perceive it as safe and hospitable. West Bank tourism stakeholders must highlight the region's positive aspects, such as its rich history, cultural heritage, and natural beauty, to attract more visitors and stimulate the local economy. By creating positive impressions and ensuring tourists' safety and well-being, the West Bank can enhance its competitiveness as a tourist destination and overcome potential challenges posed by security threats [65].

In conclusion, addressing tourist blackmailing issues and promoting positive impressions of the West Bank is essential for the sustainability and growth of the region's tourism industry. By resolving these concerns and improving the destination's positive image, tourism stakeholders can contribute to the overall success of the travel and tourism industry and enhance visitor experiences.

6. Implications

Today's destinations face fierce competition, and the issues will only grow in the coming years. As a result, it is critical to obtain a more profound knowledge of why travelers are devoted to a location and what motivates them. The findings of this study make theoretical and practical contributions to the service literature and managers in the tourist sector. The results assist managers and tourism policymakers in better grasping tourist satisfaction and propensity to return. Managers may boost visitor happiness and loyalty by increasing their support, empathy, and efficiency with tourists. Tourist input is significant in enhancing service quality. Tourism locations that follow a market-oriented attitude should deliver higher-quality services than other destinations to prosper. Tourism managers should investigate and analyze service quality and identify their strengths and weaknesses to meet the increased needs of tourists and ensure their survival because no tourism destination is meaningful without tourists. Without a doubt, faults and defects are unavoidable in tourism activities. Still, the essential element in tourism service activities is to answer visitors' concerns to draw their attention and loyalty, thus, their return. As a result, tourism managers working in the tourism business should be trained to respect guests' long-term relationships while also improving destination image, quality, and value. There must be a plan to confront the exploitation of the visitor concerning prices, quality, and services provided. The implications of the study are as follows:

1. Most tourists visiting Nablus in Palestine make multiple visits, indicating a positive experience and satisfaction with the destination.
2. The most visited border crossings are Jebara and Taibeh, followed by Qalqelia, Jalameh, Qalandia, Barta' and Bisan. This information can help authorities to allocate resources and improve infrastructure at these border crossings.
3. Most tourists come from Palestinian triangle area towns, Nazareth, and East Jerusalem, which may indicate a potential to target marketing efforts to these areas to increase tourist numbers.
4. Male tourists generally rate tourist services lower than female tourists, indicating a possible need to improve services for male tourists.
5. Tourists with less than a high school education, a family size of 1–3 members, and an income of 5,000–10,000 NIS are generally less satisfied with their experience in Nablus. Authorities can focus on improving services and experiences for these groups to increase their satisfaction.
6. The factor analysis shows that fair treatment by shopkeepers, high service at restaurants and cafes, and reasonable meal prices influence visitors' satisfaction. The quality of tourist services, tour guides, local culture, product quality, and encouragement of

others to visit also positively influence visitors' impressions of the West Bank. The availability of good tourism infrastructure, health services, security services, and road signs are key factors influencing tourists' satisfaction with services.

7. The existence of price blackmailing in shops, restaurants, and hotels, as well as the poor appearance of tourists, negatively impacts tourist satisfaction.

7. Conclusion

This study has addressed the 1948- Palestinians who visit the West Bank towns and cities. These Palestinians identify with their brethren in the West Bank, which motivates them to see the Occupied Palestinian Territories. These Palestinians have other reasons for visiting the West Bank. These include common religion, language customs and traditions, lower prices of products, low cost of education, shopping and eating meals in the Palestinian territories, compared to the skyrocketing prices inside the Green Line. This study has found that a large group of the 1948 Palestinians preferred to return to Nablus and were satisfied with the level of services provided to them. However, they expressed some criticisms of the infrastructure and metadata of the city. This study showed that these visitors did not visit Nablus archeological, historical, and religious sites due to the lack/absence of a marketing strategy to attract them to visit places. This study recommends that the decision makers in the Palestinian government, officials, and private sector institutions show a serious interest in these visitors and take the necessary measures to meet all their needs/expectations, such as tourism services and facilities, and prevent their exploitation. As they play a major role in boosting the Palestinian economy. There are some results as follows:

1. Nablus has the potential to attract and retain tourists who are satisfied with their experience.
2. Border crossings at Jebara and Taibeh, Qalqelia, Jalameh, Qalandia, Barta', and Bisan are essential tourist entry points.
3. Tourists from Palestinian triangle area towns, Nazareth, and East Jerusalem are important target markets for marketing efforts.
4. Authorities need to focus on improving services for male tourists and tourists with less than a high school education, a family size of 1–3 members, and an income of 5,000–10,000 NIS to increase their satisfaction.
5. The factors influencing tourist satisfaction can be used to develop strategies to enhance the overall visitor experience.

7.1. Recommendations

1. Authorities should focus on improving services for male tourists, including gender-specific facilities, activities, and promotions.
2. Authorities can create targeted marketing campaigns for areas that tourists commonly originate from, such as Palestinian triangle area towns, Nazareth, and East Jerusalem.
3. Tour guides and local culture can be emphasized to enhance the visitors' impressions of the West Bank.
4. To increase tourist satisfaction, authorities should develop good tourism infrastructure such as recreational facilities, health services, security services, and road signs.
5. Efforts should be made to minimize price blackmailing in shops, restaurants, and hotels and improve tourists' appearance.

7.2. Limitations

1. The data is limited to visitors to Nablus in Palestine, and the results may not generalize to other destinations or tourist groups.
2. The sample size is relatively small, which may affect the reliability and generalizability of the findings.
3. The data was collected at a single point in time, and the results may not reflect seasonal variations in tourism.
4. The data is self-reported, leading to social desirability bias, and responses may not accurately reflect tourists' experiences.

Author contribution statement

Jafar Abahre: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; analyzed and interpreted data.

Loai Aburaida: Conceived and designed the experiments; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Wasim Bishawi: Contributed reagents, materials, analysis tools or data; Wrote the paper.

Mohammad Alkhateeb, Hussein Al-Rimmawi: Analyzed and interpreted the data; Wrote the paper.

Sameer Mahmoud: Performed the experiments; Wrote the paper.

Akram Suleiman: Analyzed and interpreted the data; Wrote the paper.

Zuheir N Khlaifh: Contributed analysis tools or data conceived and designed the experiments; Wrote the paper.

Data availability statement

The data that has been used is confidential.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgment

We would like to express our profound gratitude to ChatGPT, the advanced AI language model developed by OpenAI, for its invaluable assistance in rewriting and proofreading our research paper. The model's powerful natural language processing capabilities greatly enhanced our work's clarity, coherence, and overall quality. We are truly appreciate support provided by ChatGPT and the team behind its development, as they have significantly contributed to the successful completion of our study.

References

- [1] J. Abahre, Tourism sector in Palestine: profiling visitor characteristics in Nablus and Ramallah-, ISSN 1567-214x, Palarch's J. Arch. Egyptol. (10) (2020) 17, 2243-2255.
- [2] H. Ahmad, Tourism in Service of Occupation and Annexation, Al-Shabaka, 2021, 12 10 2020. [Online]. Available: <https://al-shabaka.org/briefs/tourism-in-service-of-occupation-and-annexation>.
- [3] H. Al-Rimmawi, S. Butcher, Trends of tourism in Bethlehem, Palestine: 1994-2015, Tourism Int. Interdiscipl. J. 317 (3) (2015) 63.
- [4] W. Anderson, H. Maoh, C. Burke, Passenger Car Flows across the Canada– US Border: the Effect of 9/11, Transport Policy, 2014, pp. 50–56.
- [5] S. Bradbury, The impact of security on travelers across the Canada–US border, J. Transport Geogr. (2013) 139–146.
- [6] Y. Eilat, L. Einav, Determinants of International Tourism: a Three-Dimensional Panel Data Analysis, Applied Economics, 2004, pp. 1315–1327, <https://doi.org/10.1080/000368404000180897>.
- [7] A. Getmansky, Tourism and cross-border conflict: an empirical analysis of the Israeli-Palestinian case, J. Terr. Marit. Stud. (2014) 49–74.
- [8] A. Gelbman, D. Timothy, Border complexity, tourism and international exclaves: a case study, Ann. Tourism Res. (2011) 110–131.
- [9] R. Isaac, Palestinian tourism in transition: hope, aspiration, or reality? J. Tour. Peace Res. (2010) 23–42.
- [10] R. Isaac, Moving from pilgrimage to responsible tourism: the case of Palestine, Curr. Issues Tourism 13 (6) (2010) 579–590, <https://doi.org/10.1080/13683500903464218>.
- [11] R. Isaac, Alternative tourism: new forms of tourism in Bethlehem for the Palestinian tourism industry, Curr. Issues Tourism (2010) 21–36.
- [12] R. Isaac, T.A. Eid, Tourists' destination image: an exploratory study of alternative tourism in Palestine, Curr. Issues Tourism (2019) 499–1522, <https://doi.org/10.1080/13683500.2018.1534806>.
- [13] 30 12, Israeli Central Bureau of Statistics, Media Release, 2020 [Online]. Available: https://www.cbs.gov.il/he/mediarelease/DocLib/2020/438/11_20_438e.pdf.
- [14] J. Jannit, A. Aeka, Important factors influencing the decision of international tourists to travel in Thailand, in: Proceeding of Academics World 52 International Conference, Los Angeles, USA., 2016.
- [15] M. Kozak, J. Crotts, R. Law, The impact of the perception of risk on international travellers, Int. J. Tourism Res. (2007) 233–242, <https://doi.org/10.1002/jtr.607>.
- [16] G. Kwanisai, T. Mpofu, S. Vengesayi, C. Mutanga, H. Brighton, K. Mirimi, Getrude kwanisai, tapiwa mpofu, sebastian vengesayi, chiedza mutanga, hurombo brighton, and kumbirai mirimi. Borders as barriers to tourism: tourists' experiences at the beitbridge border post (Zimbabwean side), Afr. J. Hosp. (2014) 1–13, 20.
- [17] E. Neumayer, The impact of political violence on tourism, J. Conflict Resolut. (2004) 2–48, <https://doi.org/10.1177/0022002703262358>.
- [18] Palestinian Bureau of Statistics, Domestic Tourism, Palestinian Bureau of Statistics, Ramallah, 2018.
- [19] Palestinian Bureau of Statistics, Estimated Population in Palestine Mid-year by Governorate, 1997-2026., " Ramallah, Palestine, Palestinian Bureau of Statistics, 2021.
- [20] E.-K. Prokkola, Resources and barriers in tourism development: cross border cooperation, regionalization and destination building at the Finnish-Swedish border, Fennia (2008) 31–46.
- [21] C. Xueqing, H.J. Gibson, J.J. Zhang, Perceptions of risk and travel intentions: the case of China and the Beijing Olympic Games, J. Sport Tourism (2009) 43–67, <https://doi.org/10.1080/14775080902847439>.
- [22] A. Röder, M. Pröpper, M. Stellmes, A. Schneibel, J. Hill, Assessing urban growth and rural land use transformations in a cross-border situation in Northern Namibia and Southern Angola, Land Use Pol. (2015) 340–354, <https://doi.org/10.1016/j.landusepol.2014.08.008>.
- [23] B. Rittichainuwat, G. Rittichainuwat, Perceived Travel Risks Regarding Terrorism and Disease: the Case of Thailand, Tourism Management, 2008, pp. 1–9.
- [24] C. Rozenholc-Escobar, "Implications, Actors, and Geopolitical Levers of Tourism. Israel/Palestine: What Religious Places Tell Us.," Tourisimes et géopolitiques, 2021.
- [25] S. Sonmez, E. Sirakaya, A distorted destination image? The case of Turkey, J. Trav. Res. (2002) 185–196, <https://doi.org/10.4000/viatourism.7038>.
- [26] J. Suleiman, B. Mohamed, Jafar Suleiman, Badrudden Mohamed, Palestine's international visitors' barriers: case studies of Bethlehem and Ramallah, 2012, Int. J. Tourism Res. (2012) 177–191, <https://doi.org/10.1002/jtr.845>.
- [27] D. Timothy, Tourism and Political Boundaries, Routledge, London, 2001.
- [28] Dallen Timothy, Relationships between tourism and international boundaries, in: H. Wachowiak (Ed.), Tourism and Borders: Contemporary Issues, " Policies and International Research, Ashgate Publishing Limited, Aldershot, 2006, pp. 12–25.
- [29] Dallen Timothy, Cevat Tosun, Tourists' Perceptions of the Canada – USA Border as a Barrier to Tourism at the International Peace Garden, Tourism Management, 2003, pp. 411–421, [https://doi.org/10.1016/S0261-5177\(02\)00113-9](https://doi.org/10.1016/S0261-5177(02)00113-9).
- [30] Dallen Timothy, Saarinen, Cross-border co-operation and tourism in Europe, in: C. Costa, E. Panyik, D. Buhalis (Eds.), Trends in European Tourism Planning and Organisation, Channel View Publications, Bristol, 2013.
- [31] D. Timothy, International boundaries: new frontiers for tourism research, Prog. Tourism Hospit. Res. (1995) 141–152.
- [32] Dallen Timothy, Cross-border partnership in tourism resource management: international parks along the US–Canada border, J. Sustain. Tourism (1999) 182–205, <https://doi.org/10.1080/09669589908667336>.
- [33] Dallen Timothy, Tourism and international parks, in: R.W. Butler, S.W. Boyd (Eds.), Tourism and National Parks: Issues and Implications, 2000, pp. 263–282.
- [34] D. Timothy, Tourism in borderlands: competition, complementarity, and cross-frontier cooperation, in: S. Krakover, Y. Gradus (Eds.), Tourism in Frontier Areas, Lexington Books, Lanham, MD, 2002, pp. 233–258.
- [35] D. Timothy, R. Butler, Cross-border shopping: a North American perspective, Ann. Tourism Res. (1995) 16–34, [https://doi.org/10.1016/0160-7383\(94\)00052-T](https://doi.org/10.1016/0160-7383(94)00052-T).
- [36] D. Timothy, in: A. Lew, M. Hall, A. Williams (Eds.), Political Boundaries and Regional Co-operation in Tourism, Blackwell. A companion to tourism, Oxford, UK, 2004, pp. 584–595, <https://doi.org/10.1002/9780470752272.ch46>.
- [37] F.J.C. Vázquez, Reviewing the Spanish-Portuguese Border: Conflict, Interaction and Cross-Border Cooperation, Border Studies, 2015, pp. 65–89.
- [38] Y.M. Walle, Tourist Flow and its Determinants in Ethiopia, Ethiopia Research Institute Development., " Addis Ababa University, Ethiopia, 2010.

- [39] M. Pett, N. Lackey, John Sullivan, *Making Sense of Factor Analysis: the Use of Factor Analysis for Instrument Development in Health Care Research*, AGE Publications, Thousand Oaks, 2003.
- [40] G. Skåremo, *Cross-border Tourism Development: A Case Study of the Öresund Region*, Umeå University: Department of Geography and Economic History, London, 2016.
- [41] Svetlova, *New tourism: learning about the Palestinian-Israeli conflict*. *Al-monitor, Pulse Middle East* (2019) 1–8.
- [42] Fanack, *Politics in Palestine*, Available:, 2021 <https://fanack.com/ar/palestine/politics-of-palestine>.
- [43] ChichesterWiley, Dallen Timothy, *Tourism and Political Boundaries*, Routledge, London, 2001.
- [44] H. Andrews, *Tourism and Violence*, Routledge, London, 2014.
- [45] Anera, *What area A, Area B, Area C in the West Bank*, Available:, 2021 [Anera.org/what-are-%20area%20a-%20area%20b-%20and%20area%20c-%20in%20the%20west%20bank](https://anera.org/what-are-%20area%20a-%20area%20b-%20and%20area%20c-%20in%20the%20west%20bank).
- [46] S. Irving, *Palestine Bradt Travel Guide Palestine*, first ed., Bradt Travel Guides, London, 2012.
- [47] D.J. Timothy, *Relationships between tourism and international boundaries*, in: *Tourism and Borders*, Routledge, 2016, pp. 29–38.
- [48] J. E. M. I. S. a. J. S. Bigne, *Tourism image, evaluation variables and after purchase behaviour: inter-relationship*, *Tourism Manag.* (2001) 607–616, [https://doi.org/10.1016/S0261-5177\(01\)00035-8](https://doi.org/10.1016/S0261-5177(01)00035-8).
- [49] M.a.B.M. Ranjanthran, *Domestic tourism: perception of domestic tourist on tourism products in penang island*, *Asian J. Manag. Res.* (2010) 795–816.
- [50] D. A. a. J. L. C. Baker, *Quality, satisfaction and behavioral intentions*, *Ann. Tourism Res.* (2000) 785–804.
- [51] C.-F. a. D. T. Chen, *How destination image and evaluative factors affect behavioral intentions?* *Tourism Manag.* (2007) 112–115, <https://doi.org/10.1016/j.tourman.2006.07.007>.
- [52] J.A. Lee, *Tourists' Intention to Visit a Country: the Impact of Cultural Distance*, *Tourism management*, 2007, pp. 497–1506, <https://doi.org/10.1016/j.tourman.2006.11.005>.
- [53] J.a.T.S. Tribe, *From SERVQUAL to HOLSAT: Holiday Satisfaction in Varadero, Cuba*, *Tourism management*, 1998, pp. 25–34.
- [54] S. H. U. a. J. C. Tian-Cole, *A conceptualization of the relationships between service quality and visitor satisfaction, and their links to destination selection*, *Leisure Stud.* (2003) 65–80, <https://doi.org/10.1080/02614360306572>. D.
- [55] Y.a.M.U. Yoon, *An examination of the effects of motivation and satisfaction on destination loyalty: a structural model*, *Tourism Manag.* (2005) 45–56, <https://doi.org/10.1016/j.tourman.2003.08.016>.
- [56] K. M. a. N. T. T. Ngoc, *Factors affecting tourists' return intention towards Vung Tau City, Vietnam-A mediation analysis of destination satisfaction*, *J. Adv. Manag. Sci.* 3 (4) (2015).
- [57] W.-H. a. N. Q. V. Lai, *An application of AHP approach to investigate tourism promotional effectiveness*, *Tourism Hospit. Manag.* (2013) 1–22, <https://doi.org/10.1079/9781845933234.0151>.
- [58] E. J. G. a. L. A. Bigné, *Advanced topics in tourism market segmentation*, *Tourism Manag.: Anly. Behav. Strat.* (2004) 151–173.
- [59] H.a.S.B. Arasli, *European Tourist Perspective on Destination Satisfaction in Jordan's Industries*, *Procedia-Social and Behavioral Sciences*, 2014, pp. 1416–1425, <https://doi.org/10.1016/j.sbspro.2013.12.645>.
- [60] G. a. G. B. C. Luna Cortés, *Distintas etapas del uso de las fuentes de información de los turistas en Valencia, España*, *Estud. Perspect. Tur.* (2013) 410–424.
- [61] E. Alén, *Determinant factors of senior tourists' length of stay*, *Ann. Tourism Res.* (2014) 19–32, <https://doi.org/10.1016/j.annals.2014.08.002>.
- [62] G. B. A. a. G. Mendes, *Innovación en la promoción turística en medios y redes sociales: un estudio comparativo entre destinos turísticos*, *Estud. Perspect. Tur.* (2013) 102–119.
- [63] M. A. N. N, M.M.G. abhu, *An empirical study on the satisfaction level of national and international tourists towards natural Attractions in kurdistan*, *Afr. J. Hosp. Tour. Leis.* 8 (2019) 1–8.
- [64] H. A. D. P. N. Christina Catur Widayatia, *The role of destination image on visiting decisions through word of mouth in urban tourism in*, *Int. J. Innov. Creat. Change* 12 (2020) 1–20.
- [65] A. Suleiman, *Causes and effects of poor communication in the construction industry in the MENA region*, *J. Civ. Eng. Manag.* 28 (2022) 365–376, <https://doi.org/10.3846/jcem.2022.16728>.