

SEASONAL TOURISM DEMAND IN LEBANESE SKI RESORTS

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Abstract

Purpose of the study: The main objective of this study is to analyze the profile of Lebanese ski resorts' visitors, their motivations, preferences, and perceptions. Thus, authors seek to analyze the characteristics of seasonal tourism demand in Lebanese ski resorts for the sake of reducing seasonality.

Methodology: Quantitative methods were used and four out of the five ski resorts in Lebanon were analyzed. An online questionnaire was distributed to visitors, using a mix of self-selection and snowball sampling techniques. The questionnaire resulted in 206 respondents. Responses showed high internal validity with a Cronbach's alpha of 0.83.

Main Findings: The relationship between place attachment and annual visitations was validated and authors were able to point the deteriorated value for money among resorts. Furthermore, the K-mean clustering resulted in segmenting visitors into three groups of interest to be targeted in order to reduce seasonality.

Implications: This study helps the winter and snow tourism stakeholders in Lebanon to reduce tourism seasonality and consequently develop sustainable tourism products. It also enhances previous studies conducted on seasonal tourism demand.

Limitations: The main limitation is that not all stakeholders were examined. Further research is needed to be conducted on visitors' decision-making processes and their actual behavior. The proposed segments in this study are subject to future tests and investigations.

The novelty of the study: With no previous research attempting to analyze seasonal demand in Lebanese ski resorts; this study has a vital role to play in developing sustainable tourism products and helping winter and snow tourism stakeholders to reduce tourism seasonality. The clusters presented at the end of this paper are considered as a new proposition for ski resorts' managers who are shifting toward all-season operations.

Keywords: *Ski Resort, Seasonal Tourism Demand, Sustainability, Lebanon, Cluster Analysis.*

INTRODUCTION

The wide body of scientific research on seasonal tourism demand in ski resorts has been mainly focusing on issues such as climate change, visitor's preferences, forecasting tourism demand, effects of tourism seasonality on the behavior of skiers, as well as, sustainable tourism development of ski resorts (Chung, 2009; Vergori, 2016). According to the review of the existing literature on tourism seasonality in ski resorts, there is still little applied research examining tourism demand at ski resorts from the perspective of tourists in general, or non-skiers in particular. Moreover, limited studies on ski resorts' market segmentation have been conducted (Priporas, Vassiliadis, Bellou, & Andronikidis, 2015). This study intends to analyze the characteristics of seasonal tourism demand from the perspective of all visitors to ski resorts, being skiers or non-skiers, with emphasize on visitors' motivations, preferences, and perceptions. Furthermore, the authors propose a market segmentation plan for ski resorts according to a sustainability-based approach.

While tourism seasonality is challenging ski resorts long term operations, promoting ski resorts as only for snow tourism is no longer effective. Thus, the shifting toward all-season operations in ski resorts regions is becoming a necessity. For instance, many European destinations are repositioning themselves away from their principal focus on skiing-based operations (Pegg, Patterson, & Gariddo, 2012). Analyzing seasonal tourism demand at ski resorts is considered crucial in developing sustainable tourism products. Therefore, this study examines the characteristics of seasonal tourism demand at ski resorts in Lebanon with an emphasize on visitors' motivations, preferences, and perceptions.

Lebanon was selected to conduct the study because of its uniqueness in offering ski resorts in the Middle East region, as well as, its mild climate with four seasons, diverse topography and distinguished natural landscape characterized by snow-capped mountains (<http://www.destinationlebanon.gov.lb/en/TourismType/details/27>). Winter tourism in Lebanon is considered an important segment of the industry since it attracts a considerable number of visitors to the major mountain destinations and villages. According to the Lebanese Ministry of Tourism, the total number of tourist arrivals reached 1.96 million tourists by the end of 2018. About 600,000 tourists visited Lebanon during the winter season (December 2017-March 2018) (BLOMINVEST Bank, 2019).

There are five operating ski resorts in Lebanon: Cedars, Laklouk, Mzaar Kfardebiane, Faqra Club, and Zaarour club. Despite the fact that these resorts are characterized by their diversified resources, attractive landscapes, and tourism potentials, visitors' flow to these destinations is concentrated during the winter season.

TOURISM SEASONALITY AND SKI RESORTS

Tourism seasonality is not a new concept; it is described as one of the main problematic tourism phenomena ([Amelung, Nicholls, & Viner, 2007](#)). [Banki, Ismail, & Muhammad \(2016\)](#) describe tourism seasonality as a concern that cannot be neglected, it poses threats and pressure on the viability and sustainability of the tourism businesses. [Pegg et al. \(2012\)](#) defined seasonality as a factor affecting the performance of tourism facilities and services, because of their overuse during shoulder and peak seasons and their underuse during low tourism seasons.

The majority of authors have classified the causes of seasonality into natural and institutional ([Koenig-Lewis & Bischoff, 2010](#); [Smith, 2005](#)). The former includes natural climate, climate change, global warming, etc. The latter encompasses causes such as human decisions and social customs, business customs and calendar effects.

Ski resorts have particular consideration when analyzing the impacts of climate change and tourism seasonality. Ski resorts are traditionally defined as attractions developed mainly for snow tourism activities such as skiing, snowboarding, and other winter sports ([Chung, 2009](#); [Schrahe, 2016](#)).

Hence, this study aims at answering four main research questions: what is the profile of ski resorts' visitors in Lebanon? What are their motivations and preferences? What hinders them from visiting the resorts all year round? How do visitors perceive the image of the Lebanese ski resorts?

The clusters presented at the end of this paper serve in targeting segments that are characterized by sustainability-related variables. The results obtained will help the winter and snow tourism stakeholders in Lebanon to reduce tourism seasonality and consequently develop sustainable tourism products.

THEORETICAL FRAMEWORK

The main theory adopted in our study is tourism demand at ski resorts. Seasonality, tourists' motivational factors, preferences, constraints and destination image are all theories that have a direct relation with tourism demand and can be considered as sub-constructs of it. Furthermore, theories of recreation specialization and place attachment were integrated because they have a certain effect on some variables of tourism demand.

Push and pull motivational theory

In order to understand tourists' demand, it is critical to assess visitors' intrinsic and extrinsic factors, referred to as push and pull motivational factors. Within tourism, push factors are defined as drivers motivating tourists to travel, while pull factors are drivers that attract tourists to a certain destination because they believe it will satisfy their push factors ([Dann, 1977](#)). Regarding seasonality at ski resorts, the push and pull motivational theory has been mainly used to explore and understand the impacts and behavioral adaptation of tourists in response to climate change in winter tourism destinations and mountain landscapes ([Cocolas, Walters, & Ruhanen, 2015](#); [Gossling, Scott, Hall, Ceron, & Dubois, 2012](#)). Incorporating the push and pull motivational theory into the current study's theoretical framework enabled an in-depth understanding and analysis of tourists' seasonal demand.

Tourists' Preferences and constraints factors

Tourists' preferences are considered critical in determining tourism demand ([Lee, Lee, Kim, & Mjelde 2010](#)). Tourists' preferences at ski resorts may include seasonal and temporal preferences, such as frequency of visit, most preferred season and length of stay at the destination ([Priporas et al., 2015](#)). Facilities preferences including, preferences for accommodation, transportation, and types of restaurants, described indirectly by [Font and McCabe \(2017\)](#) as important in understanding tourism demand were additional preferences factors adopted for this particular study.

Constraints factors can be defined as "factors that limit an individual's participation in leisure activities, use of leisure services, satisfaction with and enjoyment of current activities" and can affect tourism demand in a negative way ([Khan, Chelliah, & Ahmed, 2019](#)). Many authors have attempted to categorize constraints factors. [Nyaupane and Andereck \(2008\)](#) adopted a three-dimensional model of tourism constraints: intrapersonal, interpersonal and structural constraints. Another categorization of constraint factors in tourism seasonality at ski resorts includes financial cost constraints, friends and family constraints ([Crawford, Jackson, & Godbey, 2009](#)).

Recreation specialization theory

Recreation specialization is identified as "the progression of participation in an activity on a spectrum ranging from novice to expert" ([Scott & Schafer 2001, cited in Cocolas et al., 2015](#)). This theory is mainly used to test the relation between participation in an activity and destination choice ([Won, Bang, & Shonk, 2008](#)). [Cocolas et al. \(2015\)](#) found that tourists, who visited the Australian alpine winter tourism destination to participate in skiing activity as beginner, or expert, were less likely to substitute their activity in case of reduced snow cover and were more likely to spatially substitute. In the context of this research, authors referred to this theory to study the relationship between recreation specialization in skiing activity and the willingness of visitors to come during other seasons. Instead of testing the relation between participation and destination choice, the authors tested the relation between participation levels in skiing and season choice. Based on this, hypothesis 1 was proposed:

H1: There is a direct relation between recreation specialization in skiing activity and season choice. In other words, advanced and expert skiers are less likely to visit ski resorts out of the winter season.

Place attachment theory

Place attachment theory is defined as “the extent to which individuals’ value or identify themselves with a particular environmental setting” ([Kyle, Absher, & Graefe, 2003](#)). Within winter tourism destination discourse, place attachment theory has been used with its two sub-constructs. Place dependence as “a facilitator of leisure participation”, and place identity “representing a psychological or emotional connection to place” ([Cocolas et al., 2015](#)). [Alexandris, Kouthouris, & Meligdis \(2006\)](#) have applied this theory to examine the impacts of place attachment on loyalty at ski resorts and found that place attachment was highly correlated with customer loyalty. Therefore, incorporating the place attachment construct, into the framework of the current study, was to explore and analyze the potential relationship between place attachment and loyalty measured in terms of frequency of visit per year. Consequently, the following hypothesis was formed:

H2: Visitors to ski resorts with high place attachment may be more likely to increase their annual visitations.

Personal characteristics

Personal characteristics or individual traits are identified as influencing the tourism demand of a particular tourism product or tourism destination ([Guzman, Rodriguez, & Rodriguez, 2014](#)). For instance, [Paunović and Radojević \(2014\)](#) in their study aiming at reducing the seasonality of tourism demand of Zlatibor and Kopaonik mountain destinations in Serbia investigated the relationship between age and destination choice. They found that there was a statistically significant relationship between these two variables. Personal characteristics including nationality, age, gender, level of education, monthly salary, frequent visit pattern, etc. were included in the theoretical framework of this study to explore the profile of visitors to ski resorts in Lebanon. According to [Koenig and Bischoff \(2005\)](#) elderly population is less constricted in the timing of their holidays. The following hypothesis was formed:

H3: Older tourists visiting ski resorts may be less likely to have seasonal preferences than younger tourists.

Tourist’ perceived destination image

The overall destination image is affected by tourists’ perceptions and views of this image. Concurrently, the destination image affects tourists’ travel decisions and tourism demand ([Lepp, Gibson, & Lane, 2011](#)).

[Frochot and Kreziak \(2008\)](#) investigated the perceptions of French ski resorts’ tourists on the resort attributes including authenticity, services and facilities, the beauty of the landscape... and found that the same attribute of the ski resort is perceived differently by different tourists. Thus, in order to understand tourists’ perception of destination image, and to position it in their minds, it is crucial to explore and analyze how each tourist perceives and evaluates every single aspect of the destination. Building on this discussion, the concept of destination image was included in the theoretical framework of this study, by examining tourists’ perceived importance of the ski resorts’ image attributes. Thus, it was hypothesized that:

H4: Ski resorts in Lebanon have a different perceived image.

Sustainability-based segmentation

The sustainability-based segmentation approach was adopted since sustainability is one of the most powerful concepts of tourism development. It aims at distributing demand all year round and maintaining a balance of satisfaction between the present and future needs on the economic, environmental and socio-cultural levels ([Bonzanigo, Giupponi, & Balbi, 2016](#); [Scott, De Freitas, & Matzarakis, 2009](#)).

The existing literature on the segmentation of ski resorts and winter tourism emphasizes demographic, behavioral factors and recently travel constraints ([Joppe, Elliot, & Durand, 2013](#); [Priporas et al., 2015](#)). In this study, the authors adopted a sustainability-based segmentation approach based on five sustainability-related variables: sustainability behavioral intention, length of stay, place attachment, average age, and ski level. Within Studies on tourism demand, tourists with pro-sustainability values would like to act responsibly and favor greater sustainability, they are willing to buy sustainable tourism packages, pay higher prices for sustainable tourism products, buy local products, and to visit broader range of attractions at the same tourism destination ([Font & McCabe, 2017](#); [Landon et al., 2018](#)).

[Gossling, Scott, & Hall \(2018\)](#) stressed on the indirect relation between the length of stay and sustainability performance indicators (such as infrastructure, social and environmental issues, etc.) and on its implication for effective destination management. [Longhinotti-Felippe and Kuhnen \(2012\)](#) have been able to demonstrate that place attachment is positively correlated with pro-environmental behaviors. Meaning that “place attachment and emotional connections play a vital role in defining personal identity and establishing a sense of belonging to places that encourages pro-environmental behaviors”.

The average age has been selected as being a significant predictor of environmentally friendly behavior. For instance, according to Harris (2008), young Chinese people tend to be more environmentally aware than older ones ([Harris, 2008, cited in Packer, Ballantyne, & Hughes, 2014](#)). Moreover, [Yoon and Kim \(2016\)](#) reported in their study that “younger audiences having a greater interest in participating in environmental activism than older generations”. This was also

supported by the results of [Jones and Dunlap \(1992\)](#) who demonstrated that “younger adults were consistently more supportive of environmental protection than were older adults over the 18-year span” ([Jones and Dunlap 1992, cited in Yoon & Kim, 2016](#)). Ski level has been included in the segmentation, as it will allow marketers to target different segments with varying degrees of ski experience.

METHODOLOGY

Study areas

Cedars, Mzaar Kfardebiane, Zaarour club, and Lakloulou were selected to conduct this study. According to f, Mzaar Kfardebiane and Zaarour club were most visited in 2017. Faqra club was not selected to conduct the study since it is a very small private club located in Kfardebiane village close to the Mzaar resort ([Commerce du Levant, 2018](#)).

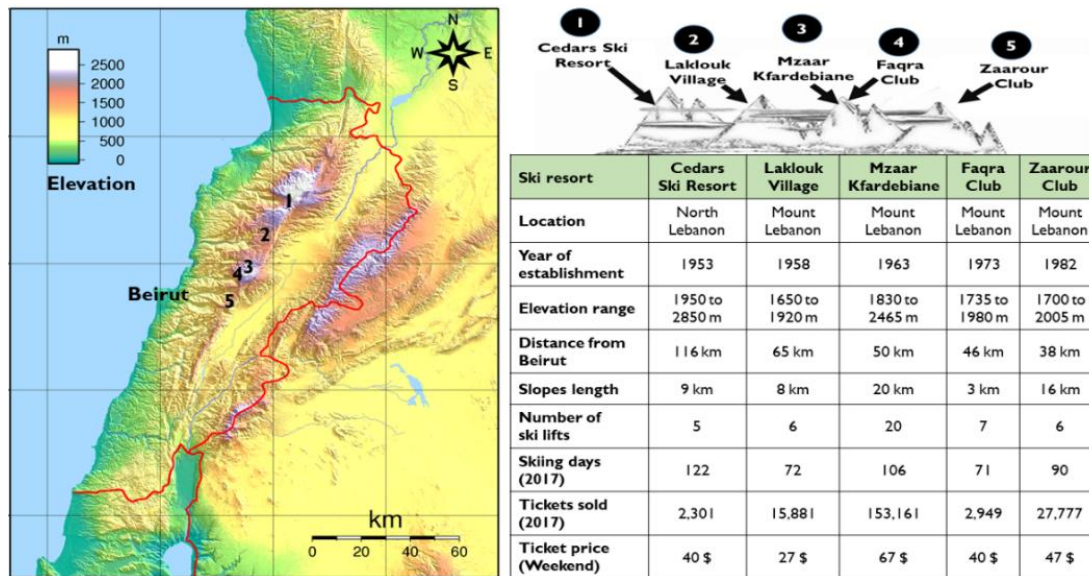


Figure 1: Lebanese ski resorts (source: [commerce du Levant, 2018](#))

Research design and sampling techniques

Data was collected using an online questionnaire administered on Google forms. This data collection tool was adopted due to weather conditions during the survey period. It was assumed that respondents will be more at ease to complete the questionnaire over the internet ([Sekaran & Wiley, 2010](#)). The research population of interest to the study was ski resorts' visitors. The online questionnaire was launched during the peak winter tourism season and data was collected during December 2017 and January-February 2018.

A mix of self-selection and snowball sampling techniques were used to reach the population via emails and social media channels. Each respondent was asked to complete the questionnaire online and to send the link to other potential respondents. Respondents were identified by reviewing the social media platforms and pages of the ski resorts. Moreover, the social media pages of Ski Lebanon and Kfardebiane municipality posted the questionnaire link on their platforms. To ensure adequate targeting of the population, the questionnaire started with a short introduction along with a screening question to guarantee that the respondents have already visited one of the targeted ski resorts, hence, ensuring no biased responses.

The questionnaire was developed in light of the literature. A pilot test was conducted with 40 university students, who were instructed in research methods and questionnaire design, and then each item of the questionnaire was validated based on group discussions.

The online questionnaire was composed of six main sections. The first section included three sub-sections: push items, recreation specialization theory and pull items. These items were adopted from [Cocolas et al. \(2015\)](#), and [Gossling et al. \(2012\)](#). In the first sub-section, respondents were asked to select all factors that motivate them to visit the ski resort; the recreation specialization sub-section was dedicated to skiers only and included the different levels of ski ranging from beginner to expert; the pull items sub-section included seven items, and respondents were asked to rate the importance associated with each item on a five-point Likert scale (0= not important at all to 4= absolutely important). Since pull factors are destination-specific, they were integrated based on the characteristics of the resorts.

Place attachment was measured as a construct of place dependence and place identity. The scale was adopted from [Alexandris et al. \(2006\)](#) using a five-point Likert scale (1= strongly disagree to 5= strongly agree). The tourist preferences section included three sub-sections. Seasonal and temporal preferences measuring three variables: annual visit, length of

stay at the ski resort, and seasonal preference that were adopted from [Priporas et al. \(2015\)](#). Respondents were asked to select the most preferred option. The second sub-section measured the constraints, by selecting the main constraints for not visiting the ski resort all year round. The constraints factors adopted from [Nyaupane and Andereck \(2008\)](#) and applied to the context of ski resorts included structural constraints (time and destination-related constraints). Two items were added to the constraints' factors: prefer to visit other regions in Lebanon, prefer to visit other regions outside Lebanon. These were identified by [Ghadban, Shames, AbouArrage, & Abou Fayyad \(2017\)](#) as factors limiting tourist choice of a destination. The third sub-section was dedicated to the facility's preferences testing three variables: the most preferred type of accommodation, restaurant, and transportation. These were adopted from [Font and McCabe \(2017\)](#).

The section "image perception", examined tourists' perceived importance of the ski resorts' image attributes. Eight items/attributes as identified by [Frochot and Kreziak \(2008\)](#) were evaluated on a five-point Likert scale (1= very poor to 5= very good), with an option of unable to evaluate. The "unable to evaluate" was integrated into the scale because not all tourists have experienced all of the attributes. The missing data resulted were imputed using Maximum Likelihood Imputation with the Expectation-Maximization (EM) algorithm ([Xie, 2017](#)).

The section of pro-sustainability values included four items adapted from [Font and McCabe \(2017\)](#) and [Landon, Woosnam, & Boley \(2018\)](#): willingness to buy sustainable tourism packages, to buy local products, to pay higher prices for sustainable tourism products, and to visit a broader range of attractions at the ski resort. The final section of the questionnaire consisted of socio-demographic variables.

The online survey yielded 295 responses, with 206 valid responses from visitors to the selected ski resorts. Cronbach's alpha registered 0.83 for all the scale items of the questionnaire, which is considered high internal reliability since a reliability coefficient of 0.70 or higher is considered acceptable in most social sciences research situations ([De Vaus, 2014](#)). The results were analyzed using XLSTAT an Add-In of Excel. Percentages and mean values were generated for the descriptive analysis, the hypotheses and other identified relations were tested using chi-square test, T-tests, ANOVA tests, and posthoc test. These statistical methods are considered very useful in analyzing quantitative data produced from a questionnaire ([Stefanowski, 2013](#)). Additionally, the K-means clustering technique was used for segmentation. Data clustering is a form of unsupervised classification, as the clusters are formed by evaluating similarities and dissimilarities of intrinsic characteristics between different cases ([Morissette&Chartier, 2013](#)).

ANALYSIS OF RESULTS

Respondents' profile

Table 1: Respondents' Profile (N=206)

Variables	%	Variables	%
Nationality		Level of education	
Lebanese	92	Less than high school	1
Other	8	High school	6
Gender		Bachelor's degree	47
Male	58	Masters' degree	35
Female	42	Ph.D.	9
Age		Vocational degree	1
14-24	35	Monthly salary (in \$)	
25-35	38	Not fixed	33
36-46	16	Less than 1000	6
47-57	10	\$1001-\$1500	17
Over 57	1	\$1501-\$2000	8
Marital status		\$2001-\$2005	10
Single	67	\$2501-\$3000	5
Divorced/separated	2	More than 3000	21
Married with no children	31		

Among 206 visitors, 132 visited Mzaar Kfardebiane during the previous two years (64%), 35 visited Zaarour club (17%), 29 visited Cedars (14%) and 10 visited Laklouk (5%). These figures are representative of the number of visitors to the ski resorts measured in terms of the number of tickets sold in 2017. There are no official statistics about the nationality distribution of ski resorts visitors in Lebanon. The negative impacts on tourism caused by the unstable political situation in Lebanon during the previous years ([Cali, Harake, Hassan, & Struck, 2015](#)) are reflected in the low percentage of foreign visitors represented in the sample (8%), and the high percentage of Lebanese visitors (92%), who are less sensitive to instability (Table 1).

Female and male's percentages were distributed quasi equally in the sample, with 42% females and 58% males. The median age of the sample was 31 years. This breakdown roughly reflects the profile of 2018 Lebanon population

characteristics, with a median age of approximately 30.5 years (https://www.indexmundi.com/lebanon/demo/graphics_profile.html).

The sample had a high representation of single visitors (67%), followed by married visitors (31%) and only 2% for divorced/separated. Concerning the level of education, the majority of the respondents are well educated. For the frequent visit pattern, the majority (77%) visit the ski resorts with their family, friends, and relatives.

Respondents' push and pull motivations

68.4% of the respondents selected skiing/snowboarding as their most important push factors, followed by 45.1% for enjoying nature. Somewhat equal percentages were associated to escape/relaxation (33.5%) and entertainment (29.6%). Also, similar percentages were associated with sightseeing (25.7%) and family gathering (21.4%). Hiking (19.9%) and stargazing (12.6%) were also important to push factors for respondents. 42.2% of respondents have attended an event at the ski resorts.

Table 2: Pull motivational factors

Ranking	Pull factors	Mean value	SD
1	Clean mountain air	3.34	0.78
2	Snow cover	3.17	0.90
3	Trails availability	3.14	0.86
4	Attractive landscape	3.00	0.89
5	Proximity from my place of residence	2.66	1.40
6	Local culture	2.58	1.17
7	The closeness of the resort from nearby accommodation options	2.24	1.21

The pull motivational factors were ranked from 1 to 7, and this was performed by estimating the mean value for each factor. According to the results, in Table 2, clean mountain air, snow cover, trails availability and attractive landscape were the most important pull factors. These results are normally giving the fact that the majority of surveyed visitors were motivated by skiing, enjoying nature, escape, and sightseeing. However, local culture and closeness of the resort from nearby accommodation options were ranked as the least important pull factors.

Preferences results

The frequent annual visit reported by 41.7% of respondents was 1-3 times per year or per ski resort season (Table 3). 54.9% preferred a one-day trip as their most preferred length of stay at the resort; this explains the finding that the pull factor of "resort" closeness from nearby accommodation options" was ranked by surveyed respondents as the least important.

Table 3: Respondents' seasonal, temporal and facilities preferences

Variables	Percentage	Variables	Percentage
Most preferred frequency of visit per year		Most preferred length of stay	
1-3	41.7%	Day trip-1 day	54.9%
4-6	17.5%	2 days	34%
7-9	11.7%	3-7 days	5.3%
>9	29.1%	More than seven days	5.8%
Most preferred season to visit		Most preferred type of accommodation	
Autumn	2.9%	Chalet	47.6%
Winter	71.8%	Hotel	30.1%
Spring	7.3%	Eco-lodge	8.7%
Summer	3.4%	Guest house	9.2%
No seasonal preference	14.6%	Other (ex. camping)	4.4%
Most preferred type of restaurant		Most preferred type of transportation	
Traditional Lebanese	40.8%	Public transportation	2.9%
Bakeries	11.2%	Personal car	90.3%
Fine dining	6.3%	Organized tours transportation	6.8%
Casual dining	29.1%		
Resto-pub	9.2%		
Other (French restaurants, mix, etc.)	3.4%		

Giving the context of the study, the majority of surveyed respondents preferred to visit the ski resorts during the winter season, the problem of seasonal demand at the ski resorts is then enhanced by this finding. Only 13.6% visit the resort during another season of the year and 14.6% have no seasonal preference.

Respondents with seasonal preferences were asked about the main constraints for not visiting the ski resorts all year round. 40.3% were hindered by “school vacation” and “timing of holidays”. 12.6% had constraints related to accessibility in terms of “not-accessible during other seasons”, it was selected by almost all surveyed visitors who reported winter as their most preferred tourism season to visit the resort. 24.3% of visitors surveyed prefer to visit other regions in Lebanon or outside Lebanon.

For the part of facilities preference, 77.7% of respondents selected chalet and hotel as their most preferred types of accommodation, since these are mostly available at the resorts’ destinations and match the context of the attraction. The most preferred type of restaurant was traditional Lebanese, selected by 40.8% of respondents. The majority of visitors surveyed selected personal cars as the most preferred type of transportation to reach the ski resort.

Recreation specialization, place attachment, and seasonal preference

61.7% of surveyed visitors were skiers, among them 16.6% beginners, 30.7% intermediate level, 43.3% advanced, and 9.4% were at an expert level of skiing. Findings showed that the percentages of beginners and intermediates going to ski resorts during the off-season was higher than the percentages of advanced and expert skiers. A chi-square test was conducted for the relation between ski level and seasonal preference (α : 0.05; df: 1; critical value: 3.841; chi-square test value: 1.399). Results showed that there is no relation between the two variables, $1.399 < 3.841$, thus the first hypothesis is rejected. This means that the ski level has no relation to seasonal preference. Additionally, the relationship was not statistically significant for skiers and non-skiers in their seasonal preference (α : 0.05; df: 1; critical value: 3.841; chi-square test value: 3.364). In this area it’s essential to be careful since at α : 0.1 the chi-square test shows a statistically significant relationship, thus a need to further analyze the link between ski level and seasonality.

Findings demonstrate high place attachment for the ski resorts visited, with 3.83 overall mean value. Place dependence yielded 4.08. This is logical since the majority is motivated by skiing and ski resorts are the best places to practice this activity. Place identity yielded 3.58. The majority of visitors who reported high place identity were Lebanese people and visited the resort between 6 and 9 times per year and even more than 9 times.

In order to test the second hypothesis, a correlation test was performed. Results in Table 4 demonstrate a positive and statistically significant relationship with a p-value of less than 0.05. The second hypothesis is accepted, increased place attachment contributes to an increase in the frequency of visits, which by turn may decrease seasonal demand.

Table 4: Correlation between place attachment and frequency of visit

Regression test	DF	α	Correlation coefficient	Test result
Place attachment with frequency of visit	162	0.05	0.3807	$1.65 * 0.8 < 0.05$

The mean age (30.7) of those having no seasonal preference is slightly greater than the mean age (30.1) of those visiting the region during winter. A two-tailed T-test was conducted (df: 325; α : 0.05; p: 0.28, test value: 1.64). The p-value was greater than 0.05, implying that there is no significant difference in age between the two groups. The third hypothesis is rejected; thus, age does not affect seasonal preference.

Respondent’ perceived image of ski resorts

Table 5: Perceived image attributes

Ranking	Image attributes	Mean	SD	Missing (N)	Variance in %
1	Beauty of the landscape	4.46	0.71	1	-0.24
2	Safety and security	3.97	0.97	3	- 0.73
3	Residents’ friendliness	3.88	0.90	4	-0.98
4	Nightlife	3.67	1.04	22	-5.52
5	Health services	3.56	1.08	17	-4.24
6	Tourists services	3.53	1.10	5	- 1.23
7	Local shops	3.16	1.05	10	-2.47
8	Value for money	3.16	1.14	2	-0.49
		3.67			-1.99%

Table 5 shows that the overall image of ski resorts was evaluated as good with a mean value of 3.67. This means that ski resorts in Lebanon have a good reputation among visitors. The standard deviation change due to the missing data was narrow as shown in Table 5, with an overall average change of 1.99%. The beauty of the landscape, safety and security were ranked in the top of mind of respondents. Meanwhile, value for money perceived as having the worst image. Being an expensive destination could be a reason for seasonality since the snow period is short and the ski resorts’ managers want to

benefit and to screen a large number of visitors (Yan & Ke, 2015). Moreover, it could be a result of a more intense seasonality, since the image created in the mind of visitors as being an expensive destination will restrain them from visiting it more often during the year (Nicolau, 2011).

Comparing between the overall perceived image, Cedars had the best image among surveyed respondents with a 3.93 mean value. In order to statistically prove this, an ANOVA single factor test was conducted (df: 202; f: 3.948; p-value: 0.009). Results showed that there is significant variance among the visitors' perceived image, confirmed with a p-value less than 0.05 (Table 6). Zaarour club and Cedars were better perceived than Mzaar Kfardebiane and Laklouk. Therefore, the fourth hypothesis is accepted.

Table 6: ANOVA single factor test of visitors' perceived image of ski resorts

Groups	N	SUM	AVERAGE	VARIANCE
Zaarour	35	136.35	3.89	0.43
Cedars	29	114.19	3.93	0.35
Mzaar Kfardebiane	132	470.84	3.56	0.50
Laklouk	10	35.054	3.50	0.40
ANOVA sig.	DF	MS	F	P-value
Between Groups	3	1.844	3.948	0.00914
Within Groups	202	0.467		

Since the value for money was interpreted as affecting seasonal demand authors further investigated this image attribute. Mzaar Kfardebiane had the lowest mean value compared to Cedars, Zaarour club and Laklouk. Testing this with ANOVA single factor test (α : 0.05, F: 5.0121; p-value: 0.002), showed that with a p-value less than 0.05, there is enough evidence to prove that Mzaar Kfardebiane is perceived to be the most expensive ski resort according to the surveyed respondents. Additionally, a post hoc T-test confirmed that Mzaar Kfardebiane is perceived as more expensive than Cedars, Zaarour club and Laklouk.

Respondents' pro-sustainability values

Table 7: Respondent's pro-sustainability values

Items	No (0)	Maybe (1)	Yes (2)	Weighted average score
Buy sustainable tourism packages	62	50	94	1.16
Pay higher prices for sustainable tourism products	96	56	54	0.8
Buy local products	27	18	161	1.65
Visit a broader range of locations in the resort' region	22	29	155	1.64

Results in Table 7 show that the weighted average of three out of four pro-sustainability items is greater than one. This implies that the majority of respondents have a tendency to behave in a sustainable way when they are at the ski resorts. Though, it is not surprising that the majority of respondents were not willing to pay higher prices for sustainable tourism packages since they perceived ski resorts as expensive.

Cluster analysis: Proposing ski resort visitors' segments

The Elbow shape of the K-means clustering resulted in forming three clusters (Figure 2). Clusters are consistent with a 74.9% variance between clusters, which is a high percentage (Morissette & Chartier, 2013). Table 8 presents the characteristics of the three clusters with their respective K-means. The first cluster named "youth, novice, and slightly attached, short staying visitors with moderate sustainability behavioral intention". Compared to other clusters, visitors forming this segment were young (33 years), had the highest sustainability behavioral intention, had moderate place attachment, were at an advanced and expert ski level, and were willing to stay no more than two days at the Lebanese ski resorts.

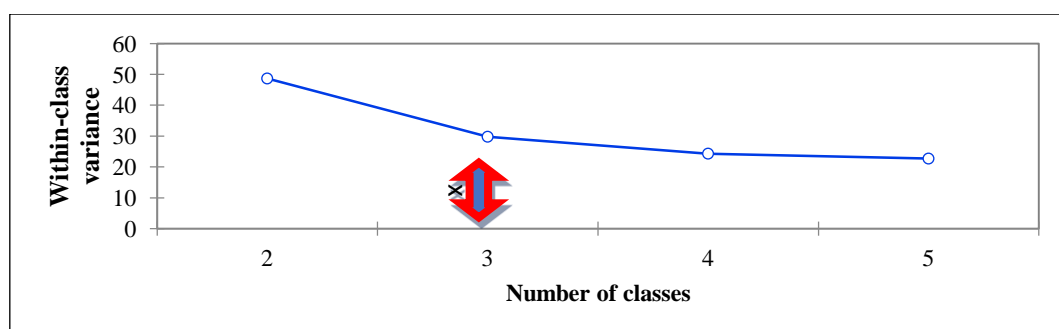


Figure 2: K-means Clustering-Elbow shape

Table 8: Visitors' clusters (K-means results) with their variance decomposition

Clusters	Length of stay	Place attachment	Average age	Ski level	Sustainability behavioral intention	Within class variance ^a
Cluster 1 (N=75)	1.933	7.640	33	2.613	8.080	26.690
Cluster 2 (N=98)	1.918	7.592	22	1.653	7.898	26.151
Cluster 3 (N=33)	2.152	7.939	49	2.455	7.879	47.866

^a Between class variance 74.90%

The second cluster “young, expert, moderately attached, short staying visitors with high sustainability behavioral intention”. This cluster corresponds to youth visitors (22 years), had a moderate sustainability behavioral intention, lowest place attachment, were no skiers and beginners and were willing to stay no more than two days at the Lebanese ski resorts. The third cluster “middle-aged, intermediate, highly attached, long-staying visitors with good sustainability behavioral intention”.

The third cluster (49 years) is characterized by the highest place attachment, had the lowest sustainability behavioral intention, were at an intermediate ski level and were able to stay longer than the other two clusters (from 2 to 7 days) at the Lebanese ski resorts.

It should be noted from the characteristics of the clusters that with age comes the ski experience, young and middle-aged visitors are more experienced than younger skiers. Additionally, middle-aged visitors have higher place attachment than young visitors. In general, middle-aged and elderly people are more attached to their place since they have more experience with their surroundings than younger people ([Stephenson, 2008](#)). Age can also predict the length of stay; middle-aged visitors may be less constricted in their length of stay than youth and young and may stay longer at the ski resorts.

CONCLUSION AND IMPLICATIONS OF RESULTS

The findings of this study have contributed to the literature on seasonal tourism demand in ski resorts with practical implications for tourism managers of ski resorts in Lebanon. The results of the push and pull motivations identified in this study complements previously published scientific research that aimed to understand tourists' demand and its relation to destination choice (ex. [Lai, 2011](#)). While a little percentage was motivated to participate in an event at the ski resorts as a push factor, 43% have attended an event during their visit. Thus, the importance of promoting offseason events at ski resorts in Lebanon with emphasize on traditions and other intangible values, because they can reduce seasonal tourism demand by maintaining sustainable tourism development ([Li & Wan, 2016](#)).

The findings have also demonstrated that some of the constraints identified by surveyed visitors (school vacation, the timing of holidays, and friends and family constraints) come to support those cited in the literature ([Crawford et al., 2009](#); [Koenig-Lewis & Bischoff, 2010](#); [Smith, 2005](#)).

Place attachment influences the frequency of visits per year and can then maintain a loyal customer ([Alexandris et al., 2006](#)). Applying this to the objective of this study can be of particular importance to ski resort managers in Lebanon in reducing seasonal tourism demand by developing sustainable tourism products and targeting visitors with high place attachment during other seasons of the year. The findings of the third hypothesis are not in line with those of [Koenig and Bischoff \(2005\)](#), suggesting that other dependent variables may play a mediating role between age and seasonal preference, such as the type of attraction.

The implications of pro-sustainability values are of importance for tourism marketers of ski resorts in and outside Lebanon. In this sense, targeting visitors with pro-sustainable values help in maintaining the sustainable tourism product and in creating a sustainable behavior ([Dolnicar, Crouch, & Long, 2008](#); [Landon et al., 2018](#); [Miller, Rathouse, Scarles, Holmes, & Tribe, 2010](#)). Since the majority of respondents were willing to visit a broader range of attractions at the ski resort region, it indicates that managers and marketers at ski resorts in Lebanon can design tourism products based on the tourism potentials of the nearby regions.

Several theoretical and practical contributions could be drawn from the findings of ski resorts' perceived image. The results of the image attributes coincide with those of [Frochot and Kreziak \(2008\)](#). Second, a destination image is closely related to its sustainable tourism development. It means that if visitors perceive a destination as expensive, they will not be able to contribute to the success of sustainable tourism, because they will not be willing to pay higher prices. Moreover, the fact that visitors perceived ski resorts as expensive can influence seasonal tourism demand. These results come to illustrate the idea that a destination image is like a puzzle, if one peace/attribute is affected or is perceived negatively, the whole

image will be affected (El Maalouf, Ghadban, & Shames, 2015). Thus, Destination Management Organizations-DMOs have a critical role not only in developing strategic marketing strategies but also in collaborating with ski resorts managers in order to develop sustainable tourism products and reduce seasonal demand (Saftic, Tezak, & Luk, 2011).

A new proposition of segmenting visitors to ski resorts based on their pro-sustainability values, place attachment, length of stay, ski level and age was also presented and discussed. It provides a wider understanding of tourists' demand and then it gives useful solutions in reducing tourism seasonality at ski resorts and targeting the right visitors developing sustainable tourism products. From a practical point of view, cluster analysis proposed by authors, provide tourism marketers at ski resorts in Lebanon with the opportunity to segment markets more effectively and redistribute demand through the year.

LIMITATION AND STUDY FORWARD

This study has some limitations that can be examined with regard to future research. The main limitation is that not all stakeholders were examined. For a better understanding of the problem of seasonal tourism demand at ski resorts in Lebanon all stakeholders must be involved, not only stakeholders of the ski resorts but also of the whole ski resort region. Identifying visitors with pro-sustainability values is critical for marketing strategies; however, according to Juvan and Dolnicar (2014), environmentally intention is not always a good predictor of behavior. Thus, another avenue of further research is to analyze and evaluate the decision-making process of visitors to ski resorts and their actual behavior. Finally, the proposed markets in this study are subject to future tests and investigations.

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