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Original Article

Value-Based Market Segmentation of West Asian Medical Tourism Market: A Case of Iran

Leila Torkzadeh [1,2], Habib Jalilian [3], Hojjat Rahmani [4], Milad Bakhshi [5], Saeed Hashemzadeh [6], Mohammad Faryabi [7], *Rahim Khodayari-Zarnaq [2,8]

1. *Student Research Committee, Tabriz University of Medical Sciences, Tabriz, Iran*
2. *Department of Health Policy and Management, School of Management and Medical Informatics Tabriz University of Medical Sciences, Tabriz, Iran*
3. *Department of Health Services Management, School of Health, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran*
4. *Department of Health Management and Economics, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran*
5. *Department of Business Management, Science and Research Branch, Islamic Azad University, Tehran, Iran*
6. *The Chief Executive Officer at Mostafa Hospital, Tehran, Iran*
7. *Department of Management, Faculty of Economics, Management, and Business, University of Tabriz, Tabriz, Iran*
8. *Tabriz Health Services Management Research Center, Tabriz University of Medical Sciences, Tabriz, Iran*

***Corresponding Author:** Email: rahimzarnagh@gmail.com

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Abstract

Background: Identifying different groups of customers and their preferences and needs enable countries to gain a competitive advantage in the medical tourism market. We aimed to segment medical tourists from West Asian countries seeking medical services in Iran.

Methods: This cross-sectional study was conducted on 596 medical tourists who sought medical services in Iran in 2021. Data were collected using a valid questionnaire. Segmentation was performed based on medical tourism attributes (medical, destination, and tourism attributes), using cluster analysis methods; wards, and K means. The segments ' evaluation and profiling were conducted using discriminant analysis, chi-square, and one-way ANOVA tests.

Results: Our study divided the market into five segments: health seekers (3.8%), health and destination seekers (8.9%), tourism seekers (17.8%), infrastructure seekers (10.23%), and perfectionism (59.45%). In all segments, the health attributes were of high importance. The perfectionism segment registered the highest score in all three attributes (more than 5 of 6).

Conclusion: Improving health attributes and offering luxurious medical services can be the main strategy for Iran to attract the most medical tourists and achieve a good position in this marketplace. The implication of this study is policymaking for targeting the most profitable segment of this marketplace.

Keywords: Medical tourism; Health tourism; Market segmentation; Marketing; Clustering

Introduction

Tourism is one of the most competitive industries in international trade, and one of its new forms is health tourism (1). Because this industry directly affects the economic growth and welfare

of the host countries, most countries are interested in developing the medical tourism industry. Therefore, the high attractiveness of this market has increased competition around the world rapidly (1-4). Like many industries, tourists do not have common preferences, a product cannot satisfy everyone, and tourism suppliers will not be able to meet all customers' preferences. Therefore, it is better to focus on one or more segments rather than to be sparsely active in all segments (5, 6). Market segmentation leads providers to adopt theoretical marketing frameworks to operational difficulties and get a better understanding of the market and enabling them to produce the products matched mostly with customers' needs and create a competitive advantage (7-9).

There are two main approaches to market segmentation: a priori and posteriori (data-driven). Priori approach segments the market based on predefined customer characteristics, such as demographic variables and buying behavior (Profile-based variables), while the posteriori approach segments the market by analyzing the market data (value-based variables) (10, 11). In the medical tourism market, the mixed approach is suggested to take advantage of both approaches (12). Since segmentation facilitates the process of creating value for customers, segmentation usually begins with value-based variables and is completed with profile-based variables (12, 13).

Although many studies have addressed segmenting the healthcare market, a few have addressed health tourism and its subsets market, and most of them have mainly focused on profile-based segmentation. For instance, Konu et al. segmented wellness tourists in Finland based on their lifestyle into three segments (14). Mueller & Kaufmann conducted segmentation based on components and elements of the wellness tourism market in Switzerland and extracted 4 clusters of wellness tourists (15). Another study segmented wellness tourists to Serbia based on their travel motivations (16). Due to value-based variables being more appropriate for a deeper understanding of the market and, consequently, more accurate marketing, the main focus of market segmentation should be on value-based variables (12).

This study followed two aims: First, we segmented patients who sought medical services in Iran based on their preferences as a kind of value-based variable. Second, we profiled the extracted segments and evaluated the quality of the segmentation.

Materials and Methods

Ethics approval

This study was a part of a research project and was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Regional Research Ethics Committee of Tabriz University of Medical Sciences (protocol code IR.TBZMED.REC.1400.021). Informed consent was obtained from all subjects involved in the study.

This cross-sectional study was conducted on medical tourists from West Asian countries who sought medical services in Iran in 2020. Based on available official data in the health tourism system in the Ministry of Health and Medical Education (MOHME), the number of medical tourists from these countries to Iran in 2020 was estimated to be 35,246. According to the Cochrane formula, the sample size (n) was estimated at 596. The list of patients, their phone number and their original country was drawn from the health tourism database. Sampling was conducted using a random stratified sampling method and based on the number of individuals from each selected country who sought treatment in Iran.

A standardized questionnaire was utilized for data collection, which had been employed in previous studies(17). The questionnaire consisted of two parts: the first part was designed to describe the socio-demographic profile of participants (7 questions) and the second part was designed to obtain the perceptions of participants regarding the attributes of health, destination, and tourism. This part consisted of 28 questions with three components: health attributes (12 items), destination attributes (9 items), and tourism attributes (7

items). The items were rated using a 6-point Likert scale, ranging from 1 (very unimportant) to 6 (very important).

The questionnaire was translated into Kurdish, Arabic, and Azeri Turkish. In order to ensure that questions were understood by the respondents, three trial interviews were conducted in any of the three languages (Kurdish, Arabic, and Azeri Turkish). The questionnaires were completed by interviewers who were fluent in the native language of the participants and were thoroughly trained before the survey. Interviews were conducted via telephone by interviewers. Participants were informed that data was kept confidential and anonymous. Cronbach's alpha was used to determine the reliability of the questionnaire, indicating a high degree of consistency (91.3%). Participants were interviewed by telephone from Mar to Jun 2021.

Data-driven approach and value-based variables were used for segmentation. Data were analyzed in two steps. In the first step, medical tourists were segmented based on the main three components (e.g., the attributes of health, destination, and tourism) using the Ward Agglomerative method. This method is hierarchical in segmentation and effectively isolates homogeneous segments (18). The optimum number of homogeneous segments of tourists was determined using a dendrogram obtained from grouping by Ward's method. After determining the optimum number of segments, the k-means method, a non-hierarchical cluster analysis method, was used to determine the final composition of the segments. This non-hierarchical method is one of the most popular clustering algorithms used in marketing studies in the field of tourism (19).

In the second step, the profiling of extracted segments and the assessment of segmentation quality was conducted. Discriminant analysis was used to evaluate the segmentation quality, one-way ANOVA was applied to show the extent to which each attribute is important in differentiating extracted segments. Chi-square tests were used to assess the association between sociodemographic characteristics and extracted segments. The number of samples and population per country are listed in Table 1.

Table 1: Distribution of study population and related samples

Country of origin	*Number in population*	*Number in samples*
Iraq	27595	106
Azerbaijan	4642	92
Bahrain	163	39
Kuwait	367	51
Qatar	233	61
Oman	191	74
Syria	407	60
Yemen	148	41
Lebanon	103	49
Saudi Arabia	85	23
Other	1233	-

Results

According to the segmentation results, medical tourists were divided into five segments. The mean of each of the medical tourism attributes in each of the five extracted segments is presented in Table 2. Health attributes had a high score in all five segments. Destination attribute had a high score in two segments, a moderate score in two segments, and a low score in one segment. Moreover, the tourism attribute had a high score in three segments, a moderate score in one segment, and a low score in one segment. The ma-

jority of individuals were in the fifth segment, in which all three attributes had a high score. After analyzing the distribution of mean values for each attribute in separated segments, the segments were named as follows: health seekers, health and destination seekers, tourism seekers, infrastructure seekers, and perfectionism.

Table 2: Medical tourism attributes mean among segments

Variables	*Segment 1 n=23 per-cent=3.8*	*Segment 2 n=53 per-cent=8.9*	*Segment 3 n=107 percent=17.8*	*Segment 4 n=61 percent=10.23*	*Segment 5 n=352 per-cent=59.45*	*F*	*Total mean (±SD)*
Health attribute	4.88	5.04	4.74	4.03	5.36	214.92*	5.06 (±0.55)
Destination attribute	2.03	4.90	3.99	3.55	5.51	835.179 *	4.85 (±1.01)
Tourism attribute	4.02	3.47	4.63	2.65	5.16	528.163 *	4.6124 (±0.94)

The results of One-way ANOVA are presented in Table 2. Each of the three components played an important role in distinguishing between the extracted segments (P<.001). Post hoc analysis with Bonferroni tests showed a significant difference (P<.001). This meant that the quintet segments were satisfactorily separable.

The results of Wilks' lambda and chi-square values are presented in Table 3. All three functions distinguished significantly different segments of tourists based on the attributes of medical tourism in Iran.

Table 3: Discriminant analysis of medical tourism attributes factors

Function	*Eigenvalue*	*Percentage of variance explained by the function*	*Canonical correlation*	*Wilks' lambda*	*Chi-square*	*df*	*Significance(p-value)*
1	8.202[a]	83.4	.944	0.037	1949.45	12	<0.001
2	1.419[a]	14.4	.766	0.34	637.74	6	<0.001
3	.216[a]	2.2	.422	0.822	115.78	2	<0.001
Discriminant loading		Function 1		Function 2			Function 3
Destination attribute		-.144		-.593			.792*
Tourism attribute		-.226		.789*			.572
Health tribute		.904*		.182			.387

The computed canonical correlation coefficient was rather high for the first and second functions (0.944 & 0.766) and was moderate for the third function (0.422). The first, second, and third functions, respectively, determined 83.4%, 14.4%, and 2.2% of the intergroup variance, respectively.

In discriminant function analysis, all variables were significant in the discriminant model according to Lambda, Wilks and f. Destination attributes had the highest tolerance (0.995), indicating a level of 0.5% redundancy. Tourism attributes with 0.974 tolerance indicated a redundancy factor of 2.6%, and health attributes with 0.970 tolerance indicated a redundancy factor of 3% (Table 4).

Table 4: Wilks' lambda and F test for medical tourism attributes

Attributes	*Wilks' lambda*	*F*	P-*value*	*Tolerance*
Destination attribute	0.150	435.449	<0.001	0.995
Tourism attribute	0.048	229.130	<0.001	0.974
Health attribute	0.037	42.688	<0.001	0.970

Table 5 shows the evaluation of segment formation by classification results. The results showed a high percentage of prediction accuracy in the segmentation. In all five segments, 98.7% of individuals were classified properly.

Table 5: Evaluation of segment formation by classification results

Variable	*Segment 1 Number (%)*	*Segment 2 Number (%)*	*Segment 3 Number (%)*	*Segment 4 Number (%)*	*Segment 5 Number (%)*	*Total Number (%)*
Segment1	22 (95.7)	0 (0)	0 (0)	1 (4.3)	0 (0)	23 (100)
Segment 2	0 (0)	50 (94.3)	1 (1.9)	1 (1.9)	1 (1.9)	53 (100)
Segment 3	1(0.9)	0 (0)	105 (98.1)	0 (0)	1 (0.9)	107 (100)
Segment 4	1(1.6)	0 (0)	0 (0)	60 (98.4)	0 (0)	61 (100)
Segment 5	0 (0)	0 (0)	1 (0.3)	0 (0)	351 (99.7)	351 (100)

Table 6 presents the status of socio-demographic characteristics. The gender had no significant difference among different segments (P=0.92). Other variables were different among extracted segments significantly (P<0.001).

Most participants in the health seekers segment were female, had moderate-income levels (50.5%), had a bachelor's degree, middle-aged, and were from Kuwait and Lebanon. In the health and destination seekers segment, most participants were female, of moderate-income level, with a bachelor's degree, middle-aged, and were from Iraq and Azerbaijan. In the tourism seekers segment, most participants were female, had moderate-income levels, had a high school degree, middle-aged, and were from Azerbaijan. In the infrastructure seekers segment, most participants were men, had moderate-income levels, of a bachelor's degree, aged 40-50 yr, and were from Iraq. Most participants in the perfectionism segment were female, had a high-income level, of a bachelor's degree, middle-aged, and were from Iraq.

Table 6: Socio-demographic profiles of medical tourism attribute segments

Variables	*Modes*	*Health seekers 23 (3.8%) N(%)*	*Health and desti-nation Seekers 53 (8.9%) N(%)*	*Tourism seekers 107 (17.8%) N(%)*	*Infrastructure seekers61 (10.23%) N(%)*	*Perfectionism 352(59.45%) N(%)*	*Total 596 (100%) N(%)*	*X^2*	*P-value*
Gender	Male	11 (47.8)	23 (43.4)	57 (53.3)	32 (52.5)	169 (48)	292 (49)	3.21	0.920
	Female	12 (52.2)	30 (56.6)	50 (46.7)	29 (47.5)	181 (51.4)	302 (50.7)		
Age(yr)	< 20	0 (0.0)	3 (5.7)	8 (7.5)	6 (9.8)	23 (6.6)	40 (6.8)	60.19	<0.001
	20-30	4 (17.4)	8 (15.1)	19 (17.9)	5 (8.2)	98 (28.2)	134 (22.7)		
	30-40	11 (47.8)	19 (35.8)	28 (26.4)	15 (24.6)	112 (32.2)	185 (31.3)		
	40-50	3 (13.0)	14 (26.4)	19 (17.9)	17 (27.9)	71 (20.4)	124 (21)		
	50-60	0 (0.0)	7 (13.2)	17 (16)	8 (13.1)	34 (9.8)	66 (11.2)		
	> 60	5 (21.7)	2 (3.8)	15 (14.2)	10 (16.4)	10 (2.9)	42 (7.1)		
Income	low	2 (9.1)	5 (10.2)	19 (18.8)	14 (25)	6 (1.8)	46 (8.3)	149.21	<0.001
	Moderate	12 (54.5)	25 (51.0)	69 (68.3)	34 (60.7)	99 (30.2)	239 (43)		
	High	8 (36.4)	19 (38.8)	13(12.9)	8 (14.3)	223 (68.0)	271 (48.7)		
Education	High school	8 (34.7)	22 (17.4)	66 (43.3)	28 (22.8)	117 (24.1)	241 (41.9)	55.67	<0.001
	Bachelor	12 (52.2)	20 (37.7)	32 (29.9)	15 (31.3)	155 (45.2)	234 (40.8)		
	Master	3 (13.1)	11 (20.8)	9 (8.4)	5 (10.4)	69 (20.1)	97 (16.9)		
	PhD	0 (0)	0 (0)	0(0)	0 (0)	2 (0.6)	2 (0.3)		
Origin Country	Iraq	0 (0)	12 (24)	10(9.4)	27 (46.6)	54 (15.6)	103 (17.7)	308.78	<0.001
	Bahrain	0 (0)	0 (0)	0(0)	0 (0)	39 (11.3)	39 (6.7)		
	Kuwait	9 (39.1)	2 (4)	11(10.4)	3 (5.2)	24 (6.9)	49 (8.4)		
	Lebanon	9 (39.1)	2 (4)	11(10.4)	3 (5.2)	24 (6.9)	49 (8.4)		
	Oman	4 (17.4)	10 (20)	12(11.3)	9 (15.5)	38 (11)	73 (12.5)		
	Qatar	7 (30.4)	7 (14)	7(6.6)	9 (15.5)	30 (8.7)	60 (10.3)		
	Syria	2 (8.7)	2 (4)	5(4.7)	0 (0)	51 (14.7)	60 (10.3)		
	Yemen	0 (0)	2 (4)	1(0.9)	0 (0)	38 (11)	41 (7.0)		
	Saudi Arabia	0 (0)	1 (2)	4 (3.8)	0 (0)	18 (5.2)	23 (3.9)		
	Azerbaijan	1 (4.3)	12 (24)	56 (52.8)	10 (17.2)	12 (3.5)	91 (15.6)		

Discussion

We aimed to segment medical tourists in Iran based on their preferences as a kind of value-based variable and profiling the extracted segments. Our results divided medical tourists into five segments: health seekers, health and destination seekers, tourism seekers, infrastructure seekers, and perfectionism. The demographic and socio-economic profiles were significantly different among five segments.

The health seekers segment mainly consisted of women aged >50 yr, had moderate-income levels, and had a university degree. Most of them were from Kuwait, Lebanon, and Qatar. For individuals in this segment, health attributes were of the highest importance. Tourists in this segment pay more attention to factors such as the price, medical staff skills, waiting time, international accreditation, access to a translator, and high medical technologies rather than the tourist and destination attractions. Healthcare seekers accounted for almost 42% of medical tourists in Thailand (20). A destination country's policy to serve this segment should improve the quality of health services by reducing the waiting time for treatment and eliminating medical errors. The patient follow-up and post-discharge keeping in touch with doctors as part of the treatment process can reduce treatment procedures' side effects (21). To facilitate this, strengthening the IT infrastructure is crucial to attract more tourists and increase market share. A previous study has demonstrated therapeutic services accessibility and making effective communication between medical teams and patients were the most important attributes for medical tourists (22). The use of multilingual physicians and nurses can positively affect the relationship between the medical team and the patient (23).

In our study, health and destination seekers accounted for 9% of Iran's medical tourists. Most of the participants in this segment were women, had a university degree, and were the richest after the perfectionism segment. The individuals in this segment, while paying attention to the quality and reputation of medical services, etc., look for a place in which security, health indicators, expedited visa issuance, destination transportation system status, hospitality, and hotel industry, convenient and shopping facilities, information and landscapes be accessible easily. To target this segment, inter-sectoral cooperation is essential. Destination attributes are strong predictors of tourist destination choice (24). Therefore, to attract health and destination seekers, infrastructure improvements such as natural attractions and tourism, transportation system, and medical visa issuance by the Ministry of Interior must be upgraded and improved in addition to providing quality and accessible services by the Ministry of Health (MoH).

In the tourism seekers segment, most participants were middle-aged men with high school education levels and moderate-income levels. In this segment, people care about tourism attributes alongside health attributes. Tourism seekers look for good, comfortable, and attractive trips. Access to various and interesting tour packages that contain many entertainment programs, access to travel information, accessible travel agencies, and customers' image of the destination is so important for this segment. Therefore, tourism providers should facilitate access to travel information and tour packages for tourists and offer comprehensive information by enriching their websites and designing travel package applications. Contracting with health providers could be another component of the tour package for this segment.

In the infrastructure seekers segment, more than half of the participants were men, and almost two-thirds of them had a moderate-income level. Azerbaijanis accounted for more than half of this segment, and Omanis were ranked second by a wide margin. Both health and destination attributes had almost the same priority for this segment. However, compared to the fifth segment, these two attributes had fewer scores. Our results suggested that destination attributes, such as se-

curity, the status of the destination in health indicators, expedited visa issuance, destination transportation system status, hospitality, and hotel industry, convenient and accessible shopping, and access to information and landscapes appeared to be of importance for individuals in this segment. To target this segment, marketers and health managers should speed up the issuance of treatment visas and improve the transportation system and its infrastructures (roads, airlines, and railways), improve the infrastructure of the tourism industry, creating a good image of the destination country by providing high-quality tourist services, political security in the host country (23, 25).

In the perfectionism segment, most of the participants were women and had high incomes and university degrees. Attributes of tourism, health, and destination, respectively, were of the highest importance among participants in this segment. These individuals tend to gain new experiences (26), meaning that essential and emergency treatments are not of great importance. However, to target this segment, Iran needs to perform reasonably well in the areas of health services, destinations, and tourism. The development of services such as cosmetic services as one of Iran's competitive advantages can be effective in this regard. Because individuals in this segment have a relatively high socioeconomic level, their expectation of the quality of medical services is relatively high (27). In this segment, investing in the private sector and strengthening it to provide medical services to people will be very helpful.

Attractive hospitality and travel options in medical tourism should be taken into account in addition to medical treatment (28). Most importantly, given that Iran's tourism services are of the highest importance to individuals in this segment, the strategies mentioned above can be useful to strengthen the tourism industry.

Limitations

The limitation of our study is that due to the COVID-19 pandemic and considerable decline in medical trips, access to required data was limited, and only tourists who sought medical services in Iran during the year were included.

Conclusion

Medical tourists in Iran encompassed five segments, and most of them were young and middle-aged and had moderate-to-high income levels. In all five segments, health attributes were of the highest importance. The perfectionism segment was the largest segment, in which all attributes had the highest importance, albeit tourism attributes registered the highest score. Iran's marketing efforts should be focused on providing quality and relatively luxurious medical services. This means that by supporting the private sector and facilitating their presence in this industry, the services needed for these tourists can be provided.

Furthermore, in the design of patient service packages, their expectations regarding all three components of health services, destination, and tourism, should be taken into consideration. Since tourism attributes were of the highest importance for this segment, cooperation between the MoH, Foreign Affairs, Cultural Heritage and Tourism, and policymakers in other areas seems highly important to attract these customers successfully. In addition, marketers and policymakers can successfully attract these customers by strengthening the public sector or offering discount packages to those customers with lower incomes. Our findings have important implications for researchers and policymakers to obtain accurate information about the characteristics of medical tourists and their preferences. Policymakers must decide whether to target a larger segment of the market or seek to attract a larger share of the smaller segments, as it may not be possible to improve all three attributes simultaneously.

Journalism Ethics considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflict of interest

The authors declare that there is no conflict of interest.

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