Satisfaction Level of Medical Tourism Services Based on Classified Factors - A Discriminatory Approach

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KEYWORDS

Health tourism, Health care, Destination, Treatment, Medical tourism, Tourists

ABSTRACT

Medical tourism has the potential to promote high-class learning, well equipped human resources, flattering visa policies, nations' charisma, and sound flourished infrastructure facilities available in the nation. Countries have recognized this opportunity as a means in support of overall communal and economic upliftment. More governments are valuing these advantages and developing plans and policies for the sector as a result, WTTC states that by means of the appropriate policies, guidance and regulation mechanisms, medical tourism can achieve sustainable growth among the developed and developing nations. With a sample of 600 respondents, the data related to satisfaction in the medical tourism services is directly observed at the hospitals from the International Patients in the six states of Tamil Nadu, Kerala, Karnataka, Telungana, Andhrapradesh, and Pondicherry. Data collected are compiled for the analytical purpose and the hypothesis is framed with regard to the opinion of the patients regarding various facilities and services offered and their satisfaction level towards the medical tourism services. In this present study, the Canonical Discriminate statistics was successfully employed for identifying the satisfaction over various reasons for preferring the medical tourism services in India. The outcome of the study is the classification of different groups under the satisfaction derived from the medical tourism services of four continuous variables are assigned and they are general reasons, treatment reason, cost reason, and sources reason with all 600 respondents. Findings reveal that Treatment Factor is the strong reason contributing towards the construction of low satisfaction group, followed by general reasons. The study highlights that cost is the least reason for low level satisfaction and reveals that cost of medical tourism services are nominal in India.

1. Introduction

Increasingly more nations are realizing the prospective of medical tourism as a driver of social and monetary growth. As India's reputation towards the top destination for international medical tourism grows, patients from Europe and North America are beginning to select India as their place of medical care. With its strengths in AYUSH, or Ayurveda, Yoga, Unani, Siddha, and Homeopathy, as well as its strong reputation for curative treatment, India is also establishing itself as the all-encompassing destination for alternative medicine. India is a popular destination for medical tourism because it has many advantages over many other nations, including its neighbors in Asia. The four subcategories of medical tourism in India include wellness treatments, alternative medical tourism, cosmetic surgery tourism, and surgical treatment tourism. India further assured to deliver the ultra-competitive cost advantage for the Holistic Complicated surgical treatments are achievable at the lowest possible cost because to medical destinations like Ayurveda, Yoga, Homeopathy, and Therapeutic Massage. In addition, quality medical services are available at lower costs. By examining how much various elements contribute to tourists' satisfaction levels, this study makes sound recommendations for improving medical tourism in a creative way and ensuring higher tourism revenue to India.

2. Literature Review

Haeok Liz Kim and Sunghyup Sean Hyun, 2022 argues that fostering medical tourism could serve as a springboard for expanding travel overall, enhancing cross-cultural interactions and strengthening ties

among South Korea and the UAE particularly by fostering the latest mutual relationships in the wellbeing and medical sector. This article focuses on the historical roles of medical travel and its potential future roles, which could have a big impact on South Korea-UAE relations.

Hasan Mosazadeh et al 2022 conducted their study with the intention of rethinking medical tourists' perceptions of risk during the COVID-19 epidemic and developing strategies to reduce those perceptions. These two procedures were referred to as "strategic-based approaches". The personal/cognitive (mind-driven) outlook and the purpose/genuine (valid-picture driven) judgment regarding the pessimistic outcome /losses previous to/subsequent in framing travel decisions to a risky COVID-19 site are how the first phase defines the apparent hazards of medical tourists. Following that, it was identified which dimensions were connected, including those relating to mental, fiscal, health, legal, performance, ability, and time threats. Two essential strategies (country-based and hospital/clinic-based) were famed to create a secure COVID-19 destination. The theoretical understanding of strategic medical tourism management could be very beneficial.

Dr. Vishal Soni, 2020 noted that although the Indian medical tourism business has lately flourished, there is still significant room for expansion and development in the future. Using Karnataka as an example, other states are able to use Karnataka's initiatives as a template and put them into practise in their respective jurisdictions. To achieve successful patient care, the departments of tourism, communication, health, and information must collaborate. These include enhancing and promoting Northern Karnataka's image as a top-notch medical tourism destination, promoting and coming up with fresh combinations and alternatives of medical tourism products, maintaining high standards of quality care at reasonable costs, offering thorough offline and online materials, and even making them readily available to desired clients.

Kamassi et al., 2020 in their study, pinpointed the significance of the treatments provided, the medical amenities, the practitioners' expertise, the service excellence, and the values of health care facilities offered by the institutions that supplied the services. They discovered that technical development and medical modernism are two additional crucial reasons associated to the growth of this medical Segment.

Research Gap

Based on the reviews which focuses on Indian medical tourism development and its lag during COVID Situations India Medical Tourism Sector needs to revamp the various strategies related to the Patients satisfaction level in India. So, the study has been carried out to understand the various factors Influencing the satisfaction level and its contribution in each level.

Statement of Problem

The medical tourism is emerged as recent promotion by other nations but India has its own history of medical tourism. The measuring current performance of medical tourism in India is vital to compete with other nations offering the combo services of medical treatment with tourism services. In order to compete with other countries that offer medical care combined with tourism services, India's medical tourism industry must function at its level best with a good satisfactory level of the patients. The opinion of the patients regarding various facilities and services offered during the medical tourism are vital to evaluate and to forecast their intention to revisit to India and their loyalty to recommend the Indian medical tourism to others in general. In spite of such issues, it is essential to study how far the factors are satisfying the tourists in medical treatment which bring them back to India.

Objectives of the study

1. To examine the Socio- economic and demographic sketch of the respondents.

2. To analyze the various factors influencing the level of Satisfaction and its discrimination based on Reasons for the preference of medical tourism services.

3. Methodology

Sampling and sources of data

The Data for the analysis is gathered from 600 tourists of various countries in the six states like Tamilnadu, Kerala, Karnataka, Telungana, Andhra Pradesh, and Pondicherry. Research study was conducted by collecting data including Demographic details, travel details of the respondents, healthy medical tourism in India, Factors attracting medical tourism, Reasons for medical tourism in India, Problems, List of Treatment and Services connected to Medical Tourism from the foreign patients. The secondary data was collected from the Internet sources and from top journals.

Tools Applied

In this present study, the canonical discriminant statistics was successfully employed for satisfaction over various reasons for preferring the medical tourism services, and the classification of intention to revisit India to avail various medical tourism services.

4. Results and discussion

Satisfaction discrimination based on the factors in the preference of Medical Tourism Services

The key pillars determining the respondents' degree of satisfaction have developed to include the reasons why they chose Indian medical tourism services. It is entirely generated from the justifications given by the respondents as the foundation or benchmark for claiming the benefits of medical tourism. They then contrasted the actual treatments received and extrapolated their satisfaction from that. Based on the explanations given for why they choose the medical tourism services provided in India, it is further divided into low and high level of satisfaction. It is underlined to study the relationship between the four continuous variables such as general reasons, treatment reason, cost reason, and sources reason and the only categorical variable satisfaction on medical tourism services by the way of defining the many different dimensions of expressing the stated relationships.

Using the underlined relationship, it helps to forecast a sorting based on the continuous variables and also the extent of active performance of these continuous variables in separating the different category under the categorical variable.

To perform this classification of different groups under the satisfaction derived from the medical tourism services, four continuous variables are assigned they are general reasons, treatment reason, cost reason, and sources reason and it is performed through SPSS using the canonical linear discriminant analysis being the typical outline of discriminant analysis.

Table – 1 Analysis Case Processing Summary for Satisfaction discrimination

Unweighted Cases	**N**	**Percent**
Valid	600	100.0
Excluded Missing or out-of-range group codes	0	.0
missing at least one distinguishing factor Both absent and out of bounds group codes and a minimum of one lacking distinguishing factor	0	.0

	0	.0
Total	0	.0
Total	600	100.0

The investigation of case dispensation table for Satisfaction discrimination summarizes the total number of cases included to validate the discriminant analysis. In this study there are as many as 600 cases included and all the cases are validated and agreed to proceed to further analysis under discriminant analysis, and no cases are excluded due to invalidity. Hence the 100 per cent cases are considered to perform the discrimination function as well.

Table – 2 Group Statistics for Satisfaction discrimination

Satisfaction based group		**Valid N (listwise)**	
		Unweighted	**Weighted**
Low	General Reason	72	72.000
	Treatment Reason	72	72.000
	Cost Reason	72	72.000
	Sources Reason	72	72.000
High	General Reason	528	528.000
	Treatment Reason	528	528.000
	Cost Reason	528	528.000
	Sources Reason	528	528.000
Total General Reason		600	600.000
Treatment Reason		600	600.000
Cost Reason		600	600.000
Sources Reason		600	600.000

The group statistics table for Satisfaction discrimination describes the method of distribution of cases in to two different groups under satisfaction variable. The numbers of cases loaded under each group are clearly noticed from the above table, in which 72 cases are grouped under low satisfaction group and 528 cases are classified under High satisfaction group. The default weight assigned each case is 1

in both the group, and it is evidenced through the equal weightage for both weighted and non-weighted cases in both the group.

Table – 3 Eigen values for Satisfaction discrimination

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.009[a]	100.0	100.0	.097

a. First 1 Canonical Discriminant functions were used in the analysis.

In the above table, the function represents total number of functions loaded under the canonical linear discriminant analysis. Finally, the analysis highlights the satisfaction variable is classified in to two major groups namely low satisfaction and high satisfaction, so the number of discriminant function will be a smaller amount less than the entire number of groups and results one function. The canonical correlation between the different groups under the satisfaction variable is calculated as 0.097.

Table – 4 Wilks' Lambda for Satisfaction discrimination

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	.991	5.633	4	.028

The Test of Function(s) deliberates the number of functions derived from the analysis, in this study only one function is derived as a result from two different groups. Wilk‟s lambda value is (1-(0.097)2) = 1- 009409 = 0.991. The Sig. value is describing the test statistical results of Chi-Square analysis and calculated p-value is less than 95% statistical significance (p<.05), hence the null hypothesis is rejected and proved that the function has the discriminating ability.

Table – 5 Structure Matrix for Satisfaction discrimination

	Function
	1
Treatment Reason	.667
Cost Reason	-.509
Sources Reason	.242
General Reason	.098

The above table deliberates the canonical structure, and it shows the correlations among the observed variables like general reasons, treatment reasons, cost reasons and sources reasons and the magnitude created among the unnoticed discriminant functions that is low and high level of satisfaction on medical

tourism services. In this study, treatment reason, sources reason and general reasons are grouped under one dimension and the cost reason is grouped uniquely under different dimension.

Table – 6 Canonical Discriminant Function Coefficients for Satisfaction discrimination

	Function
	1
General Reason	.062
Treatment Reason	.728
Cost Reason	-.687
Sources Reason	.207
(Constant)	-1.146

Unstandardized coefficients

The unstandardized Canonical Discriminant Function Coefficients for Satisfaction discrimination is applied. The score is arrived as a predicted value from a linear regression by applying the standardized coefficients along with the standardized variables. The function score can be calculated using the following equation,

Discriminant function Score = -1.146 + 0.062 *z General Reason + 0.728 * z Treatment Reason - 0.687 * z Cost Reason + 0.207 *z Sources Reason

Finally, the allocation of the values among the given function is standardized to arrive at a mean of „0" and standard deviation of „1". The magnitudes of these coefficients point out the extent of the discriminating variables strongly affect the values. In this study, Cost Reason is negatively influencing the score of discriminant function, treatment reason is the highly positive influencing reason followed by the sources reason for contributing towards the discriminant function and general reason stands at the last position in determining the discriminant score.

Table - 7 Functions at Group Centroids for Satisfaction discrimination

Satisfaction based group	**Function**
	1
Low	.263
High	-.036

It is observed from the calculated function centroids, the low-level satisfaction group is deserved with cases having more than .263 as average. The function score has a mean of „0" that can be cross verified using the following formula [Sum (Function centroid score * number of cases loaded under each group)] = [Sum (0.263 *72) + (-0.036 *528)] = [19-19] = 0.

Table – 8 Prior Probabilities for Groups for Satisfaction discrimination

Satisfaction based group	**Prior**	**Cases Used in Analysis**	
		Unweighted	**Weighted**

Low	.500	72	72.000
High	.500	528	528.000
Total	1.000	600	600.000

The Prior Probabilities for Groups for Satisfaction discrimination is assigned with equal weightage of 500 each. The numbers of cases loaded under weighted and unweighted cases are the same, thus it is proved that equal allocation of cases was ensured before initializing the discriminant analysis in between the groups.

Table – 9 Classification Function Coefficients for Satisfaction discrimination

	Satisfaction based group	
	Low	**High**
General Reason	1.966	1.948
Treatment Reason	2.166	1.948
Cost Reason	1.527	1.732
Sources Reason	1.691	1.629
(Constant)	-14.955	-14.577

Fisher's linear discriminant functions

The fisher linear discriminant function for Satisfaction discrimination helps to derive the contribution given by each one of the continuous variables towards the construction of each group. The low and high satisfaction group is built through the contribution of all the four continuous factors, and the same can be expressed in the following equations,

Low satisfaction group = -14.955 + 1.966 * z General Reason + 2.166 * z

Treatment Reason + 1.527 * z Cost Reason + 1.691 * z Sources Reason

High satisfaction group = -14.577 + 1.948 * z General Reason + 1.948 * z

Treatment Reason + 1.732 * z Cost Reason + 1.629 * z Sources Reason

From the equation it was observed that, treatment reason is the strong reason contributing towards the construction of low satisfaction group, followed by general reasons, whereas general reason and treatment reason are having the same level of contribution towards the construction of high-level satisfaction group followed by cost reason. Cost reason is least reason for low level satisfaction; thus, it is viewed as cost of medical tourism services are nominal in India. It is again a third pushing factor for high satisfaction level, so the respondents‟ feels that the medical tourism services offered in India are cost effective.

Table – 10 Classification Results[a,c] for Satisfaction discrimination

Satisfaction based group			Predicted Group Membership		Total
			Low	High	
Original	Count	Low	45	27	72
		High	247	281	528

	%	Low	62.5	37.5	100.0
		High	46.8	53.2	100.0
Cross-validated[b]	Count	Low	39	33	72
		High	253	275	528
	%	Low	54.2	45.8	100.0
		High	47.9	52.1	100.0

The categorization outcome for Satisfaction discrimination summarized the actual output of the canonical discriminant analysis and states that Predicted Group Membership is defined as the forecasted frequencies of groups based on the study. The figure obtainable under each group point to the total number of cases was appropriately and wrongly classified. The unique row describes the total number of frequencies of under the groups. From the 72 loaded cases under low satisfaction group, 45 cases are loaded correctly under the low satisfaction group but 17 cases are classified under High satisfaction group. Likewise, 528 cases loaded under high satisfaction group, 281 are loaded correctly and 247 are wrongly classified under low satisfaction group. Cases which are included in the study are subjected to cross validation. Every case is categorised in cross validation using the functions generated since all cases apart from the case which results with from the 72 loaded cases under low satisfaction group, 39 cases are loaded correctly under the low satisfaction group but 33 cases are classified under High satisfaction group. Likewise, 528 cases loaded under high satisfaction group, 275 are loaded correctly and 253 are wrongly classified under low satisfaction group, after the cross-validation 52.3% cases are correctly classified between low satisfaction and high satisfaction group.

Outcome/ Findings of the study

The classification of different groups under the satisfaction derived from the medical tourism services of four continuous variables are assigned and they are general reasons, treatment reason, cost reason, and sources reason with all 600 respondents. It is further being classified into two level viz., low level and high level of satisfaction derived from the medical tourism services based on the reasons they used to prefer the medical tourism services offered in India. There are 72 cases are grouped under low satisfaction group and 528 cases are classified under High satisfaction group. The canonical correlation between the different groups under the satisfaction variable is calculated as 0.097. With appropriate statistical summary it was proved that the function has the discriminating ability.

Cost Reason is negatively influencing the score of discriminant function, treatment reason is the highly positive influencing reason followed by the sources reason for contributing towards the discriminant function and general reason stands at the last position in determining the discriminant score. Further, treatment reason is the strong reason contributing towards the construction of low satisfaction group, followed by general reasons, whereas general reason and treatment reason are having the same level of contribution towards the construction of high-level satisfaction group followed by cost reason. Cost reason is least reason for low level satisfaction; thus, it is viewed as cost of medical tourism services are nominal in India.

It is found that, from the 72 loaded cases under low satisfaction group, 39 cases are loaded correctly under the low satisfaction group but 33 cases are classified under High satisfaction group. Likewise, 528 cases loaded under high satisfaction group, 275 are loaded correctly and 253 are wrongly classified under low satisfaction group, after the cross-validation 52.3% cases are correctly classified between low satisfaction and high satisfaction group satisfaction group, after the cross-validation. 52.3% case of Foreign Tourists.

Suggestions

Treatment Factor is the strong reason contributing towards the construction of low satisfaction group,

followed by general reasons. So, the treatment levels in medical tourists' can be further enhanced. Cost reason is least reason for low level satisfaction and reveals that cost of medical tourism services are nominal in India. Extensions may be granted for e-Medical Visas and e-Medical Attendant Visas of up to 6 months depending on the circumstances. Patients are encouraged to contact designated facilitators in their home countries so that their experiences can be improved and facilitators will be encouraged to invest in human resources, technology, etc. by offering value-added services like answering questions about medical, financial, travel, and support for data management.

Medical care providers might levy similar charge to all patients inspite they arrive through facilitators or from other channels, so that the lack of faith between patients can be erased.

Scope of Further Research

The research in the future can be to

- Focus on the medical insurance facility and its performance in India
- Focus on inter-state medical tourism performance within India

5. Conclusion and future scope

The Providing for the sustained sectoral growth of numerous sectors is vital to the development of medical tourism services. Additionally, it supports the hiring of medical experts, travel agents, airline operators, hoteliers, tour guides, media and advertising agencies, bio-medical engineers, bankers, and insurance firms in addition to the medical and hospital sectors. India offers several benefits over many other countries, particularly its neighbors in Asia, making it a popular location for medical tourism. The study emphasizes that cost is the least important factor in low level satisfaction and finds that medical tourism services in India are inexpensive. The primary factor influencing the development of the poor satisfaction group is treatment procedures, which is followed by general causes. In this sense, this research offers valid suggestions to improve the medical tourism in an innovative way and ensure the increased tourism revenue to India by analyzing how far the various factors contribute the satisfaction level of the tourists.

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