EVALUATING THE STRATEGIES OF MEDICAL TOURISM SECTOR THROUGH AHP AND MOORA IN A SWOT FRAMEWORK

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ABSTRACT

SWOT analysis is a systematic instrument to determine the strengths and weaknesses of an organization or industry by seeking out opportunities and threats within the environment. Thus, competitive strategies could be developed through the evaluation of related factors. In this study the advantages and disadvantages of medical tourism in Turkey are explored as well as the analyzation of opportunities and threats. Factor elements of classical SWOT matrix display an ambiguous side by the complex layering of elemental importance. Therefore, the Analytic Hierarchy Process (AHP) method is utilized to define their relevance by order of importance. After constructing the evaluation criteria hierarchy, SWOT factor weights are calculated by applying the AHP method. Finally, the multi-objective optimization on the basis of ratio analysis (MOORA) method is conducted to achieve the strategy alternatives ranking results for medical tourism sector.

Keywords: *Strategy, SWOT, AHP, MOORA.*

INTRODUCTION

Illnesses are the basic facts that are threatening the existence of humans and also in many cases decreasing the life quality. From the beginning of ancient times, health issues have been systemized by local health structures. Natural borders of countries were limited and a rare population was able to go abroad to be cured. Globalization resulted in the high liberalization of many orders besides contributing to the high speed and mobility of long distances. Those facts not only provided a high acceleration in the transfers of commodities many patients were now able to find a better alternative and started to check those places where they could be cured faster with a higher quality and lower cost possibility. In addition to those facts, it combined with a tourism effect and this resulted in combined need integrity by binding health and tourism together. Medical tourism is evolving to include the possibility of being cured in a different country, while achieving a touristic experience simultaneously.

Healthcare tourism over and above medical tourism is a fruit of globalization process. Patients are no longer just focusing on local conditions and solutions for their health issues but are now checking all other alternatives in other countries such as doctors, facilities, prices and evaluating those conditions with a comparison method and afterwards giving a decision (Tontuş, 2016). Till the end of 20th century, only wealthy patients were able to use such alternative conditions which did not exist in their country but with the onset of the 21st century, patients' movement started to change direction. In the last few decades, individuals started to go to the countries where they could find a better service for a higher quality (Kaya et al., 2013). The services which are provided by the healthcare industry could be classified as below (Tontuş, 2016):

Services Related to Improving Health: Complementary alternative activities, SPA Wellness, healthcare with thermal sources, herbal cures, etc.

Services Related to Cure: Medical Tourism (cosmetic surgeries, heart surgeries, eye surgeries, transplantation of organs, cancer treatment, etc.)

Services Related to Rehabilitation: Dialysis, Addiction treatment programmes, etc.

Services Related to Home Care: All the caregiver services for elderly people who have no need for emergency care due to any critical health issue.

There are not many academical researches about the position of medical tourism in Turkey however there are some various essays in periodicals and TV programmes. In those studies, it has been suggested that some patient focus groups and countries should be defined to analyze the targets and develop the brand equity of the country in the healthcare industry. Resources and capabilities of private and university hospitals have to be analyzed thus the related prominent areas could therefore be defined (Gülen and Demirci, 2012).

In the study, the strengths and weaknesses of Turkey in conjunction with opportunities and threats has been examined. Related literature has been researched and SWOT analysis has been generated through interviews with the professionals in the area. Analytic Hierarchy Process (AHP) method was used to define the order of importance between various facts, and multi-objective optimization on the basis of ratio analysis (MOORA) applied to rank the alternative strategies. The aim of this study is to develop and evaluate strategies for Turkey in the healthcare industry which could create an important resource separated from the fluctuation of tourism due to seasonal changes.

MEDICAL TOURISM

The aim of Medical Tourism is to cure, resulting in the need for resources such as technology, education, and a highly skilled and experienced labour force. In medical tourism, the base selection criteria are the doctor selection and the hospital that the doctor is residing in. In both cases, it is a necessity that the related hospital should have the technical and physical facility capabilities as well as doctors having the necessary expertise. In the related research, the competitive strategies of Turkey have been pointed out as the following (Barca et al., 2013): Cost effective service, Experienced staff, High quality and faultless processes, Service speed, Tailor-made service and attention, Rich cultural legacy.

In the literature, the main properties of medical tourism have been summarized as below (Özsarı and Karatana, 2013):

- Medical tourism is a type of tourism which requires technical equipment and labour force.
- Medical tourism institutions should provide a service upholding international standards.
- Medical tourism institutions should contain some labours that are able to speak commonly spoken languages.
- Besides healthcare, other touristic value should be obtained for patients and their attendants.
- Government also plays an important role in the integrated marketing strategy of medical tourism by supporting several advertorials in different languages and promoting marketing activities.

In the global arena, nearly 80 countries are promoting activities in this area. Interestingly, some specific countries have taken steps forward in the last two decades. Turkey, USA, India, Singapore, Malaysia, South Korea, Thailand, Hungary, Brazil, Argentina, South Africa, Cuba, Mexico, Germany, Italy, France, Poland, Spain, Greece and UAE are all countries who have started to invest more in the area of medical tourism (Kaya et al., 2013; Medigo, 2016).

Turkey is first in line in comparison to other countries with 51 JCI accredited and certified hospitals. Additionally, it is able to provide several service options in over 1200 state and private hospitals. Over 300 private healthcare institutions are well connected to other international healthcare organizations. Some of those institutions are: Harvard Medical International, Johns Hopkins, Mayo Clinic, Memorial Sloan-Kettering and New York Presbyterian. Some critical successes in healthcare that has been achieved in creating a strong position for Turkey in the medical tourism area. Those successful surgeries are in the areas of Transplantation, Neurosurgery, Eye Surgery, Cardiology, Orthopedics, Plastic Surgery and Dental Implementations.

Medical tourism is one of the most important 2023 tourism strategies that has been provisioned by the Ministry of Culture and Tourism. Additionally, the ministry has underlined this area in the 2013-2017 strategical plan. The Ministry of Development has also included the medical tourism opportunities in the 10^{th} Development Plan. The target is to be included in the top 5 global destinations of the most preferred list.

Data from various sources shows an alteration. The reason for this is mainly due to data being sourced from different areas of healthcare and tourism sectors. According to the data, the medical tourism and thermal tourism has a revenue of 100 billion $ (Kaya et al., 2013; Medigo, 2016). In 2013, the revenue of

the medical tourism and thermal tourism is 2.5 billion $ provided by 308.500 visitors. According to the Ministry of Health the target for 2017 is around 8 billion $. The targeted revenue from medical tourism in Turkey for 2023 is 20 billion $ (Kaya et al., 2013; Medigo, 2016). The most referenced and applicable 10 hospitals in Turkey for medical tourism according to 2012 data are:

- Private Anatolian Healthcare C. Hospital
- Private Alanya Anatolian Hospital
- Private Mediterranean Hospital
- Private Medical Park Bahçelievler Hospital
- Private Acıbadem Maslak Hospital
- Private Medical Park Göztepe Hospital
- Private Bilgi Hospital
- Private World Eye Hospital Ataköy
- Private Medicana Int. Ankara Hospital
- Private Bayındır Hospital

Private Anatolian Healthcare Center Hospital, located in Kocaeli Gebze, is the most preferred out of those 10 hospitals. One of Anatolian Healthcare Center's top priorities is in the catering of international patients. Center has a separate hotel between its facilities specifically designed for medical tourism. As an overview, hospitals that are located in Istanbul, Antalya and Ankara are the facilities which are most selected by patients who are coming to Turkey for healthcare reasons. As a result, there is a correlation between the touristic place selection and medical tourism. Likewise, Istanbul and Antalya are the cities where direct flights are easily accessible from all over the world making it easy to travel abroad directly. The numbers of hospitals that have a high brand equity are considerably superior when compared with other cities and has a natural impact on medical tourism patients. On the other hand, Ankara comes into prominence as being a capital city, has direct flight capabilities and is geographically close to Middle East countries (Kaya et al., 2013).

Medical tourism is a type of tourism which is aiming to provide cures for patients while balancing the need for technical equipment, while employing an educated and experienced staff. The needs of medical tourism visitors are differentiated from normal tourism visitors (Gülen and Demirci, 2012). The service expectation of those patients has to be evaluated specifically and should be planned appropriately. The tourists who are joining to medically aimed travels are classified as (Baynazoğlu and Serce, 2014):

Cured tourists during travel: These patients experienced an injury during their vacation.

Tourists targeting travel and cure: The main target of the travel is to vacation while simultaneously checking for supportive healthcare activities and integrating both targets.

Patients who make vacation secondary: The primary target is to be cured. As a secondary activity, patients could participate in some touristic activities in the area.

Just patients: These patients are only targeting to be cure. They are not going to make any touristic visits.

The motivational aspects of the patients who are considering to go abroad has been researched by Ehrbeck et al. (2008). According to this study many various reasons were determined after interviews had accomplished with 49.980 patients. Those reasons could be classified as (Ehrbeck et al., 2008; Baynazoğlu and Serce, 2014);

- Better technical equipment
- Demand for experience
- Faster cure, less waiting time
- Lower cost
- Demand for expertise
- Higher level of quality
- More care and attention
- Confidentiality

Cost is an important driver for cure oriented tourism. For example, an identical patella surgery is affording one third of the cost in Turkey, and half the cost in Britain when compared to USA (Woodman, 2009). The extensive wait list is one of the top problems in European countries. Turkey has no waiting list when compared to those countries (Gülen and Demirci, 2012).

Diseases of the eye are placed in the top tier of Turkey's medical tourism with 20.822 patients according

to 2012 data coming from clinics. The main reasons for higher demand in the area of eye disease are due to the availability of more sophisticated technical equipment, higher quality, accreditation and international certification of those clinics located in Turkey. But this data was not evaluated according to subsidiaries. When subsidiaries are considered Oncology, Cardiovascular and plastic surgeries are also prominent areas (Kaya et al., 2013).

METHODS

SWOT Analysis

In today's world, countries could contribute to the success of this highly competitive market which is a direct result of intensive changes in macro and micro environments (economic, sociocultural, technological and etc.) by defining the strengths and weaknesses while seeking opportunities in the environment and also by minimizing threats. This could be accomplished by developing matching strategies suitable within the environment (Bozkurt and Altundaş, 2013).

SWOT analysis which is one of the main tools of strategic management is accommodating the investigation simultaneously in the internal and external framework. In the SWOT analysis internal evaluation ensures to define strengths and weaknesses, external evaluation ensures the realization of opportunities and threats within the environment (Eren et al., 2000; Kangas et al., 2003; Yüksel and Dağdeviren, 2007). SWOT analysis could be utilized not only by organistions, but also by industries, countries and even by individuals.

The concept of the SWOT is shown in Table 1 (Alshomrani and Qamar, 2012):

Table 1. SWOT Framework

Internal Factors	**External Factors**
Strengths Available resources which can be effectively used to achieve the objectives.	**Opportunities** Favorable situation in the external environment.
Weaknesses Limitations and faults that makes achieving objectives difficult.	**Threats** Unfavorable situation in the external environment.

SWOT analysis is an instrument to support decision making processes through a systematic approach (Kurtilla vd., 2000). Another aim of the SWOT analysis is to develop strategies in the context of defined opportunities, threats, strengths and weaknesses (Arslan, 2010). After defining those factors, strategical development is the next phase.

The correlation between internal and external factors, referred to as TOWS, is the most important and challenging factor in SWOT analysis (Al-Refaie et al., 2016). The TOWS Matrix is a strategic, analytical and planning tool (basically, a modified SWOT analysis) which cross-references the Strengths, Weaknesses, Opportunities and Threats facing an enterprise or organization in order to generate strategies. TOWS analysis helps you get a better understanding of the strategic choices that you face (Brunger, 2016). TOWS Matrix is utilized to develop four types of strategies. These strategies are shown in Table 2 (Al-Refaie et al., 2016).

This framework helps you to identify strategic alternatives that address the following additional questions (Brunger, 2016):

Strengths and Opportunities (SO)–How can you use your internal strengths to take advantage of the existing external opportunities?

Strengths and Threats (ST)–How can you take advantage of your strengths to avoid or mitigate real and potential external threats?

Weaknesses and Opportunities (WO)–How can you use the external opportunities to overcome the internal weaknesses you are experiencing?

Weaknesses and Threats (WT)–What can you do to minimize your internal weaknesses and avoid external threats?

Table 2. TOWS Matrix

		Internal	
		Strengths	**Weakness**
External	**Opportunities**	SO Strategies	WO Strategies
	Threats	ST Strategies	WT Strategies

Analytic Hierarchy Process

The AHP is an effective decision making method to solve multi-dimensional and complex problems. AHP performs pairwise comparison matrices to decompose and solve a decision-making problem with different and conflicting criteria. AHP method is based on three main principles: structure of the model; comparative judgment of the criteria and/or alternatives; synthesis of the priorities. Steps of the AHP method as follows (Saaty, 1980, 1990):

Step 1- Developing the hierarchical structure: A decision problem is structured as a hierarchy. With the AHP, the goal, decision criteria and alternatives are arranged in a hierarchical structure similar to a family tree (Albayrak and Erensal, 2004; Liu et al., 2012).

Step 2- Perform the pairwise comparisons: In this step, comparison matrices are formed and pairwise comparisons are conducted. Decision criteria are compared in the corresponding level using the fundamental comparison scale. The table below shows the comparison scale used by AHP.

Table 3. The Fundamental Scale for Pairwise Comparison

Intensity of importance	**Explanation**
1	Two activities or criteria contribute equally to the objective
3	Experience and judgement slightly favor one over another
5	Experience and judgment strongly favor one over another
7	An activity or criteria is strongly favored and its dominance is demonstrated in practice
9	Importance of one over another affirmed on the highest possible order
2, 4, 6, 8	When compromise is needed

This pairwise comparison can be shown by a square and reciprocal matrix, (see Eq. (1)). The result of the pairwise comparison on n criteria can be summarized in an (n x n) evaluation matrix.

$$A=\left(a_{ij}\right)_{nxn}=\begin{bmatrix} a_{11} & a_{12} & \ldots & a_{1n} \\ a_{21} & a_{22} & \ldots & a_{2n} \\ . & . & . & . \\ . & . & . & . \\ . & . & . & . \\ a_{n1} & a_{n2} & . & a_{nn} \end{bmatrix} \quad (1)$$

Step 3- Calculating the relative importance weights: In the last step, each matrix is normalized and calculations are performed to check consistency. Via normalization, the weight vectors and priority of criteria can be obtained.

The number 0.1 is the accepted upper limit for consistency ratio (CR) (Dağdeviren et al., 2009). The CR is calculated as the ratio of the consistency index (CI) and the random index (RI). The CI and CR can be computed with the use of following equations:

$$CI=\frac{\lambda_{\max}-n}{n-1} \quad (2)$$

$$CR=\frac{CI}{RI} \quad (3)$$

Table 4. Random Index (Saaty, 1980)

n	1	2	3	4	5	6	7	8
RI	0.00	0.00	0.58	0.90	1.12	1.24	1.32	1.41

Multi-Objective Optimization on the Basis of Ratio Analysis

The multi-objective optimization on the basis of ratio analysis (MOORA) method, first used by Brauers (2003), is relatively new multi-criteria decision making method. The method based on ratio system and dimensionless measurement (Brauers et al., 2008, 2010). MOORA method is composed of five major steps (Brauers and Zavadskas, 2006; Chakraborty, 2011; Gadakh, 2011; El-Santawy and Ahmed, 2012):

Step 1-Creating the decision matrix: The method starts with a decision matrix of responses of different alternatives to evaluation criteria.

$$X = \begin{bmatrix} x_{11} & x_{12} & \dots & x_{1n} \\ x_{21} & x_{22} & \dots & x_{2n} \\ . & & & . \\ . & & & . \\ . & & & . \\ x_{m1} & x_{m2} & \dots & x_{mn} \end{bmatrix} \tag{4}$$

where x_{ij} is the performance measure of ith alternative on *j*th criteria, *m* is the number of alternatives, and *n* is the number of criteria.

Step 2- Normalization procedure: MOORA refers to a ratio system in which each response of an alternative on criteria is compared to a denominator, which is representative for all alternatives concerning that objective. This ratio can be expressed as below:

$$x_{ij}^{*} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^{m} x_{ij}^{2}}} \qquad (j = 1, 2, \dots, n) \tag{5}$$

where x_{ij}^{*} is a dimensionless number which belongs to the interval [0, 1] representing the normalized performance of *i*th alternative on *j*th criteria.

Step 3- Evaluation of positive and negative effects: For optimization, these normalized performances are added in case of maximization (for beneficial criteria) and subtracted in case of minimization (for nonbeneficial or cost criteria) by solving the following equation:

$$y_i = \sum_{j=1}^{g} x_{ij}^{*} - \sum_{j=g+1}^{n} x_{ij}^{*} \tag{6}$$

where g is the number of criteria to be maximized, (n−g) is the number of criteria to be minimized, and y_i is the normalized assessment value of *i*th alternative with respect to all the criteria.

Step 4-Determine the weighted assessment value: Generally, it is often observed that some decision criteria are more important than the others. In order to increase priority of criteria, it could be multiplied with its weight. When these criteria weights are taken into consideration, Eq. 7 becomes as follows:

$$y_i^{*} = \sum_{j=1}^{g} w_j \, x_{ij}^{*} - \sum_{j=g+1}^{n} w_j \, x_{ij}^{*} \qquad (j = 1, 2, \dots, n) \tag{7}$$

where w_j is the priority of *j*th criteria, which can be assigned using different multi-criteria decision making method.

Step 5-Ranking of alternatives: Decision alternatives should be ranked the preference order according to

decreasing values of y_i^*. Assessment value can be positive or negative depending of criteria situation and priority values.

Integrated AHP-MOORA Approach for SWOT Framework

Analytic Hierarchy Process, aims to define the importance degree of existing factors by using pairwise comparison matrixes. As a general view the stronger and weaker sides, opportunities and threats are ranked according to their relevance (Yüksel and Dağdeviren, 2007). Therefore, especially for the analyses which have a higher number of factors, it is crucial to define importance degree while developing strategies. AHP method is making it possible to model the hierarchy of the main and subsidiary factors according to their role of significance (Kangas, 2001; Kajanus, 2004; Shinno et al., 2006)).

Determination of SWOT analysis factors by AHP method is consisting of the following steps (Kangas, 2001; Gallego and Juízo, 2011):

- Listing internal and external factors which are located in the center of SWOT analysis
- Pairwise comparison of the main groups partaking in the analysis
- Determination of importance degree of factors in each main group
- Determination of integrated importance degree for each factor
- Defining strategies according to factors and their importance degree
- Evaluating strategies in the context of factors

MOORA Method was selected to be used in the process of the evaluation between strategies as it is comparably a new methodology and as a plus comprehensibly applicable. The methodology to prioritize the strategies has been used in various studies since 2006 (Karande and Chakraborty, 2012; Akkaya et al., 2015; Patel and Maniya, 2015).

APPLICATION

During the application data was collected through semi-structured interviews. The semi-structured interview form contains a basic explaination of SWOT analysis and medical tourism with an overview of the related literature. Participants are asked to provide their opinions using the SWOT matrix. Participants include two high-level executives from the international patient sector of two top tier hospitals, which are preferred amongst medical tourism patients, a general surgeon, an otorhinolaryngologist, two specialist doctors, an ophthalmologist, an academician from tourism management area, an academician from healthcare management, and another academician related to the area are attending these semi-structured interviews.

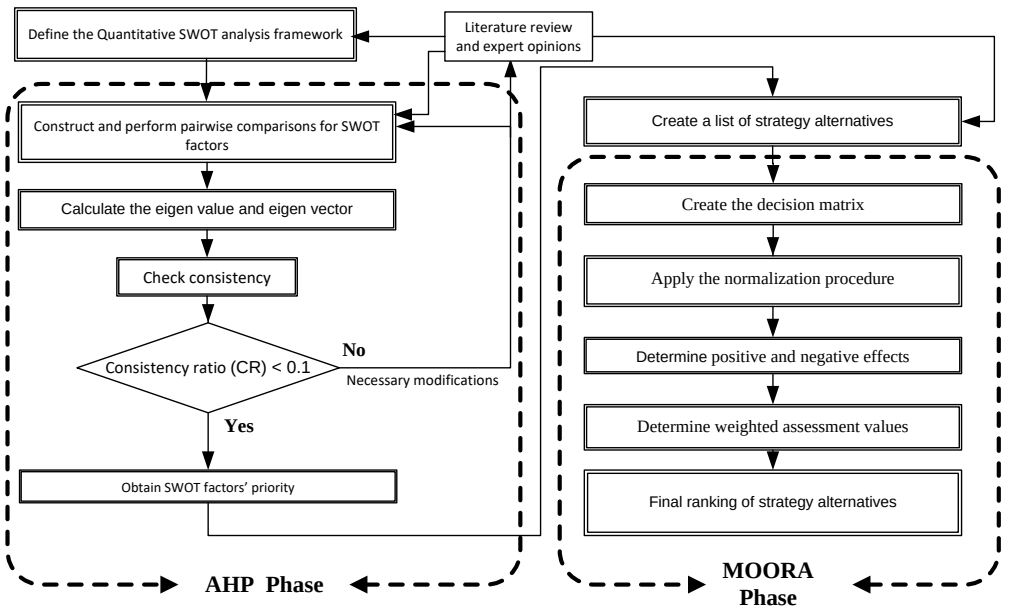

Fig 1. General Structure of the Quantitative SWOT Analysis Framework

The main aim of this research is to define the strengths, weaknesses, opportunities and threats of medical tourism in Turkey. Another phase is to develop and evaluate related strategies in the area. The main reason to use the AHP method is to define the importance degree of these factors and to determine the most suitable strategies for the industry (Gallego and Juízo, 2011). MOORA method is applied to rank strategy alternatives of medical tourism sector. The general structure of the proposed framework is given in the Figure 1.

Table 5. SWOT Matrix for the Turkey Medical Tourism Sector

Strengths (S)	**Weaknesses (W)**
(S1) Effortless Transportation **(S2)** Price Advantage **(S3)** Technical Equipment **(S4)** Experienced Doctors **(S5)** Speed of Service **(S6)** Increase in the number of JCI certified hospitals **(S7)** Existence of supportive hotels after treatment **(S8)** Existence of various tourism possibilities which could affect the demand for healthcare services in Turkey (cultural tourism, belief tourism, nature tourism, thermal tourism, etc.) **(S9)** Existence of some basic target defined by the ministries	**(W1)** Exiguity of executive who could coordinate medical tourism **(W2)** Exiguity of educated and experienced consultants and staff who are directly communicating with patients **(W3)** Weakness of coordination between institutions **(W4)** Lack in promotion of marketing activities **(W5)** Inadequacies in the infrastructure
Opportunities (O)	**Threats (T)**
(O1) Geographical advantage of being in close proximity to many countries in Europe, Middle East and Turkish Republics **(O2)** Increasing consciousness in healthcare and new treatments in the international arena **(O3)** Ease of visa applications **(O4)** Increase of disease **(O5)** Simple and free of charge inquiries about healthcare services of institutions abroad (websites, emails and etc.)	**(T1)** Competitiveness in international markets **(T2)** Global economic recession **(T3)** War and terror activities **(T4)** Risks related to international relations

SWOT matrix was formed by examining the collected data. Subsequently, the generated structure was sent to 9 interviewees who have decision making capabilities. They were then asked to compare the factors that were generated. Saaty (1980) 1-9 comparison was used for the comparitive estimate. The decision making group was taken into consideration to define the importance degree of the factors. Geometric mean method was used for the integration of expert opinions (Saaty, 2008; Zangeneh et al., 2009; Konaklı and Göksu, 2011). Table 5 shows the generated SWOT matrix in accordance with expert opinions.

Table 6. Pairwise Comparisons of SWOT Groups

	S	**W**	**O**	**T**	**Importance Degrees of SWOT Groups**
Strengths	1.00	**2.36**	**1.13**	**3.00**	0.3830
Weaknesses	0.42	1.00	**0.46**	**0.50**	0.1292
Opportunities	0.89	2.19	1.00	**1.68**	0.3030
Threats	0.33	2.00	0.59	1.00	0.1849
CR = 0.03					

Table 7. Comparison Matrix of Strengths Group

Strengths	S1	S2	S3	S4	S5	S6	S7	S8	S9	Importance Degrees
S1	1.00	**0.32**	**1.56**	**0.29**	**1.26**	**1.26**	**0.24**	**3.10**	**5.08**	0.0890
S2	3.09	1.00	**2.03**	**2.12**	**2.71**	**3.12**	**4.64**	**5.42**	**6.65**	0.2481
S3	0.64	0.49	1.00	**0.17**	**0.46**	**1.08**	**2.29**	**2.00**	**4.40**	0.0819
S4	3.48	0.47	6.00	1.00	**2.96**	**3.10**	**2.92**	**5.63**	**6.08**	0.2291
S5	0.79	0.37	2.19	0.34	1.00	**2.00**	**2.00**	**5.88**	**6.21**	0.1249
S6	0.79	0.32	0.93	0.32	0.50	1.00	**2.00**	**2.00**	**5.00**	0.0799
S7	4.23	0.22	0.44	0.34	0.50	0.50	1.00	**1.47**	**4.20**	0.0841
S8	0.32	0.18	0.50	0.18	0.17	0.50	0.68	1.00	**4.42**	0.0426
S9	0.20	0.15	0.23	0.16	0.16	0.20	0.24	0.23	1.00	0.0204
CR = 0.08										

Primarily Table 6 was extracted as a result of geometric mean calculation of the expert opinions related to main groups in the SWOT analysis. In this regard, it is avowable that the experts of the area are sharing a common idea that the primary objective is focusing on strengths and opportunities in the medical tourism area. After confirming the main group comparisons and consistency ratios of the matrix, the importance degree of the factors was evaluated. Table 7 and 8 are showing the strengths and weaknesses within pairwise comparisons.

Table 8. Comparison Matrix of Weaknesses Group

Weaknesses	W1	W2	W3	W4	W5	Importance Degrees
W1	1.00	**2.62**	**3.70**	**0.42**	**2.83**	0.2702
W2	0.38	1.00	**2.09**	**0.42**	**3.10**	0.1667
W3	0.27	0.48	1.00	**0.34**	**2.36**	0.1083
W4	2.41	2.41	2.92	1.00	**4.80**	0.3893
W5	0.35	0.32	0.42	0.21	1.00	0.0655
CR = 0.05						

Table 9 and 10 are matrixes related to opportunities and threats.

Table 9. Comparison Matrix of Opportunities Group

Opportunities	O1	O2	O3	O4	O5	Importance Degrees
O1	1.00	**4.98**	**4.15**	**3.91**	**3.41**	0.4684
O2	0.20	1.00	**2.39**	**1.79**	**0.36**	0.1258
O3	0.24	0.42	1.00	**0.34**	**0.35**	0.0673
O4	0.26	0.56	2.92	1.00	**0.34**	0.1133
O5	0.29	2.76	2.89	2.94	1.00	0.2252
CR = 0.07						

Table 10. Comparison Matrix of Threats Group

Threats	T1	T2	T3	T4	Importance Degrees
T1	1.00	**3.20**	**4.31**	**5.51**	0.5605
T2	0.31	1.00	**2.39**	**2.74**	0.2300
T3	0.23	0.42	1.00	**1.79**	0.1254
T4	0.18	0.36	0.56	1.00	0.0842
CR = 0.02					

Finally, the overall priority scores of the SWOT factors are calculated. Overall priorities are shown in Table 11.

According to the literature review and decision making group, the strengths include: cost advantage, experienced doctors, and speed of service comes into prominence. Weaknesses: lack in the promotion of marketing activities, and the exiguity of executives and consultants who could coordinate medical

tourism. The important opportunities: geographical advantage, simplified informational inquiries and increasing consciousness about medical treatment abroad. The most critical threats: increasing international competetition, global economic recession, wars and terror activities in the world.

After the determination of important factors, the strategies are targeted to be developed. This level of the study is still in progress. The importance degree of factors will be shared with the decision making group and afterwards they will be asked to provide input into the development of strategies. Ultimately, the quantitative analysis will be executed to see how much the new strategies will ameliorate the factors. Suggested strategies of the researchers in the literature are generated in Table 12. Strategies can be applied for Medical Tourism Sector, but the evaluation, selection and implementation of best strategies are vital.

Table 11. Priority Scores of SWOT Groups and Factors

Group	Group Priority	SWOT Factors	Factor Priority	Overall Priority
Strengths	0.3830	Effortless Transportation	0.0890	0.0341
		Price Advantage	**0.2481**	**0.0950**
		Technical Equipment	0.0819	0.0313
		Experienced Doctors	**0.2291**	**0.0877**
		Speed of Service	**0.1249**	**0.0478**
		Increase in the number of JCI certified hospitals	0.0799	0.0306
		Existence of supportive hotels after treatment	0.0841	0.0322
		Existence of various tourism possibilities which could affect the demand for healthcare services in Turkey (cultural tourism, belief tourism, sea and nature tourism, thermal tourism, etc.)	0.0426	0.0163
		Existence of some basic target defined by the ministries	0.0204	0.0078
Weaknesses	0.1292	Exiguity of executive who could coordinate medical tourism	**0.2702**	**0.0349**
		Exiguity of educated and experienced consultants and staff who are directly communicating with patients	**0.1667**	**0.0215**
		Weakness of coordination between institutions	0.1083	0.0140
		Lack in promotion of marketing activities	**0.3893**	**0.0503**
		Inadequacies in the infrastructure	0.0655	0.0085
Opportunities	0.3030	Geographical advantage of being close in proximity to many countries in Europe, Middle East and Turkish Republics	**0.4684**	**0.1419**
		Increasing consciousness to healthcare and new treatments in the international arena	**0.1258**	**0.0381**
		Ease of visa applications	0.0673	0.0204
		Increase of disease	0.1133	0.0343
		Simple and free of charge inquiries to institutions about healthcare services abroad (websites, emails, etc.)	**0.2252**	**0.0682**
Threats	0.1849	Competitiveness in international markets	**0.5605**	**0.1036**
		Global economic recession	**0.2300**	**0.0425**
		War and terror activities	**0.1254**	**0.0232**
		Risks related to international relations	0.0842	0.0156

Thereafter a focus group study was executed among an expert from the medical tourism sector who is a manager, a general surgeon and two academicians. Within this group, suggested strategies was debated that especially which resulted factors from SWOT analysis are supplying those strategies. According to experts' views, the factors of those strategies were scored between 1 to 10. Scoring methods related to experts' views has been in numerous studies (Ying, 2010; Alptekin, 2013). Arithmetical average of the scores was calculated and afterwards MOORA method was used to sort the strategies according to their priorities.

Table 12. TOWS Matrix for Medical Tourism Sector in Turkey

	Strengths	***Weaknesses***
Opportunities	**SO Strategies** SO1-Efficient and consistent publicity activities for price focused markets SO2-Focusing on innovative treatments which are related to experienced staff, effortless transportation, technology and service speed SO3-Highlighting possible tourism alternatives	**WO Strategies** WO1-Training qualified executives specializing in medical tourism WO2-Marketing activities through social media WO3-Marketing activities focusing on accelerated diseases WO4-Building healthcare campus areas
Threats	**ST Strategies** ST1-Managing local and global risks by driving the facilities and touristic wealth forward ST2-Expertise in urgent care treatments and making price focused marketing in economic recession periods ST3-Designing governmental incentives for infrastructures to attract investors even in economic recession periods ST4-Developing the marketing activities that are focused on the JCI accreditation and experiences of the patients who benefited from the services	**WT Strategies** WT1-Special interest in close regions and signing bilateral agreements WT2-Diversification of international marketing activities and publicity

It is summarized in Table 13 that how much each of those 13 strategies are counterbalancing SWOT factors as in the matrix. For example; SO1 strategy pushes "Effortless Transportation" factor to forefront in which extent is shown in the intersecting cell of SO1 header and S1 line. The effects of all factors were thought as in the positive direction.

Table 13. Values for Evaluation Criteria to Alternative Strategies

SWOT Factors	**Alternative Strategies**										
	SO1	***SO2***	***SO3***	***WO1***	***WO2***	**.**	**.**	**.**	***ST4***	***WT1***	***WT2***
S1	2	10	3	1	3	.	.	.	5	6	4
S2	10	6	2	1	3	.	.	.	7	3	4
S3	2	10	1	1	3	.	.	.	6	2	3
S4	2	10	1	1	3	.	.	.	6	2	3
S5	3	10	1	5	5	.	.	.	7	2	3
.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.
T2	6	2	3	2	4	.	.	.	4	6	5
T3	2	1	1	1	1	.	.	.	2	2	2
T4	3	1	1	1	1	.	.	.	2	6	5

Decision matrix for MOORA method with factor weight and dimensionless number calculations are presented in Table 14.

Table 14. Dimensionless Number (x_{ij}^*) for Each Strategy

	S1	S2	S3	S4	S5	. . .	T2	T3	T4
SO1	0.131	0.552	0.134	0.154	0.174	. . .	0.359	0.270	0.268
SO2	0.654	0.331	0.671	0.769	0.580	. . .	0.120	0.135	0.089
SO3	0.196	0.110	0.067	0.077	0.058	. . .	0.179	0.135	0.089
WO1	0.065	0.055	0.067	0.077	0.290	. . .	0.120	0.135	0.089
WO2	0.196	0.166	0.201	0.231	0.290	. . .	0.239	0.135	0.089
.	.	.	.	.	.	. . .	.	.	.
.	.	.	.	.	.	. . .	.	.	.
.	.	.	.	.	.	. . .	.	.	.
ST4	0.327	0.387	0.403	0.462	0.406	. . .	0.239	0.270	0.179
WT1	0.392	0.166	0.134	0.154	0.116	. . .	0.359	0.270	0.537
WT2	0.261	0.221	0.201	0.231	0.174	. . .	0.299	0.270	0.447
Factor Weight	0.034	0.095	0.031	0.088	0.048	. . .	0.043	0.023	0.016
Factor Situation	(+)	(+)	(+)	(+)	(+)	. . .	(+)	(+)	(+)

Based on factor weights obtained by AHP, the results of MOORA, as presented in Table 15, shows the ranking of strategy alternatives. In Table 15, weighted assessment values are listed for all strategies. SO2 coded strategy is the strongest one when it is based on the improvement effect of the strategies on the factors. "Focusing on innovative treatments which are related to experienced staff, effortless transportation, technology and service speed" is the appropriate strategy alternative with the highest score. "Developing the marketing activities that are focused on the JCI accreditation and experiences of the patients who benefited from the services" is taking in the second place. In the rank, the third one is "Efficient and consistent publicity activities for price focused markets".

Table 15. Weighted Assessment Values (y_i^*) and Ranking for Strategies

Strategy	y_i^*	Rank
SO1	**0,281**	**3**
SO2	**0,339**	**1**
SO3	0,146	11
WO1	0,157	10
WO2	0,266	6
WO3	0,175	9
WO4	0,127	12
ST1	0,192	8
ST2	0,213	7
ST3	0,101	13
ST4	**0,308**	**2**
WT1	0,273	4
WT2	0,273	5

CONCLUSION

SWOT approach is a crucial way to evaluate the sector analyses and also beneficial to offer fruitful solutions. It comes to light that some basic factors play a more significant role after the evaluation of medical tourism in Turkey. Primarily, those factors should be considered to develop strategies. The country should keep the competitiveness of price advantage and experience of doctors in the sector. Effortless transportation and technological capabilities are especially underlined. Continuity of publicity and promotions in marketing activities should be provided to increase the awareness of medical tourism in Turkey in the global arena of increasing patient selectivity. At this point the experiences of patients who has already taken services could be taken to forge ahead. The main approach should be to focus on the patients' satisfaction during the initial welcoming, treatments and hospitality, touristic activities and departures. Social media should be given a high-level of importance due to the viral impact on today's environment. Employment of qualified staff in those hospitals is equally as an important. The hospitals which are also targeting service for medical tourism should hire employees who are fluent in a foreign language, trained about the culture of the countries whom they are serving, and experienced in their job role.

After this point of the study the alternative strategies could be increase with further investigations. These strategies will be measured to see as to what extent they are able to maximize or minimize the factors within the different decision making models. More stakeholders from the area could be selected for a further in depth interview. A more objective study could arise with the integration of governmental agencies and international patients. And fuzzy logic can be applied for uncertainty in human preferences.

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