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Editorial

TREATMENT TYPE AS A FACTOR IN MEDICAL TOURISM DESTINATION PREFERENCES: THE CASE OF TURKEY

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Abstract: Medical tourism has grown rapidly with its increased availability in destination countries, which has resulted in intense competition to attract medical tourists. At the same time, the preferred destinations of medical tourists have shifted from developed to developing countries. This is a result of high costs, uneven health services and quality, long waiting lists, and poor access to health-care services in the tourists' home countries coupled with greater privacy and confidentiality available overseas. The choice of location choice is likely to be affected by the treatment needed. Currently, few empirical studies have taken into account the heterogeneity in treatment types offered at a subnational level. The present study aims to address this gap: it analyzes the factors that affect the location choice of international patients diagnosed with chronic illnesses in need of treatment at surgical or internal medicine clinics in Turkey. The researchers use a panel of annual data for Turkish cities that hosted medical tourists over a 4-year period. It is found that patients who underwent treatment at surgical or internal medicine clinics evidenced different sensitivities to climate conditions, costs, and the ratio of private to total hospitals in their destination cities. However, this research discovered no considerable differences in the responses related to travel convenience or the existence of local medical expertise.

Keywords: surgical clinic, internal medicine clinic, chronic illness, medical tourist, health infrastructure, travel convenience, climate, cost

Introduction

Medical tourism has become prominent as a rapidly growing, lucrative, and profitable business. The associated high profits have brought intense competition to this sector (Han, 2013; Heung et al., 2011; Snyder et al., 2011; Han and Hwang, 2013; Lee et al., 2012; Henderson, 2004). The strength of competition is such that the structure of medical tourism has changed over the last two decades into one of "reverse globalization." In reverse globalization, patients seeking medical care tend to travel from more developed countries to less developed ones. This reverse global flow appears to be motivated by costs, service, quality, long waiting lists, and poor access to treatments at home as well as greater privacy and confidentiality abroad (Fried and Harris, 2006; Horowitz and Rosensweig, 2008; Connell, 2013; Alsharif et al., 2010; Glinos et al., 2010; Burkett, 2007; Carrera and Bridges, 2006; Demicco and Cetron, 2006; Eggerston, 2006; Crooks et al., 2010; Lunt and Carrera, 2010; Smith et al., 2011; Hunter and Cannon, 2007; Connell, 2006; Jones and Keith, 2005).

The effects of these developments on medical tourism have been divided into two main factors: push and pull (Crompton and Ankomah, 1993). Push factors signify the demand side with respect to consumers, such as sociodemographic and health-related factors. Pull factors focus on the supply side with respect to destination of medical tourism; they involve economic stability and country image, health care and tourism attractiveness of the destination country, and quality of medical care (Fetscherin and Stephano, 2016; Alhemoud and Armstrong, 1996; Schneider and Sönmez, 1999; Beerli and Martín, 2004, Smith et al., 2011).

Beyond push and pull factors, Cohen (2008) suggested a fourfold classification of patients seeking international medical treatment. "Medicated tourists" are those who receive treatment for accidents or health problems that occur during an overseas holiday. "Medical tourists proper" are ones who visit a country for some medical treatment or may decide on a procedure once in the country. "Vacationing patients" visit mainly for medical treatment but make incidental use of holiday opportunities, usually during the convalescence period. "Mere patients" visit solely for medical treatment and make no use of holiday opportunities. It is probable that patients of different categories choose a destination in keeping with their motives.

Woo and Schwartz (2014) stated that an important issue in medical tourism is the treatment type: the importance of the treatment and recovery time are essential in the patient's choice of the destination country (Connell, 2013). Crooks et al. (2010) suggested that the travel motivations of patients can be categorized into three groups: procedure based, travel based, and cost based; the main factor is the type of medical procedure. The lower the recovery time, the more important is the touristic attraction of the destination. That is why the patient's diagnosis plays a vital role in determining the place for treatment (Lunt and Carrera, 2010; Bookman and Bookman, 2007). A patient diagnosed with a chronic illness will choose the place of care according to the treatment intensity, whereas a patient with an acute diagnosis will prefer to spend leisure time more effectively (Heung et al., 2011). Since treatment intensity plays an important role in patient preferences, different countries tend to specialize in different types of treatment (Wongkit and McKercher, 2013, 2016; Crooks et al., 2010).

Numerous countries regard themselves as ideal destinations for medical tourism; however, many of the key features of medical tourism, as presented in the OECD report "Medical Tourism: Treatments, Markets and Health System Implications," are not widely known (Connell, 2011; OECD, 2011). Among those features, consumer decision making in medical tourism is the most ignored research topic (Padma, 2013). Existent studies on this subject are inadequate because they are based on available datasets, which are subject to industry optimism and boosterism (Hopkins et al., 2010; Johnston et al., 2010; Connell, 2013). Most research on medical tourism is either theoretical or focuses on determining its social impacts. In addition, studies have hitherto disregarded differences in the decision-making process related to destination choice among patients requiring different treatments; hence, these studies have treated patients as a homogeneous group (Chou et al., 2012; Wongkit and McKercher, 2013, 2016; Johnston et al., 2010).

Viewing patients homogeneously leads to disregarding the different needs of patients requiring different types of treatment. For example, a patient with a chronic illness has to deal with many psychological and physical problems (Taylor and Aspinwall, 1996; Penninx et al., 1998; Holman and Lorig, 2004). Further, the treatment itself is usually complex and invasive. In addition, the treatment lasts much longer than with acute illnesses, and the recovery time will likewise be longer if the patient has to undergo an operation (Murrow and Oglesby, 1996). Since patients diagnosed with a chronic illness have to cope with multiple problems, their preferences are likely to differ from those of other patients. Most research has been conducted with a lack of discriminative groupings based on diagnosis and treatment type, which has a strong effect on patient preferences regarding treatment.

To the best of our knowledge, only two studies have investigated the factors that influence the preferences of international patients with respect to destination country (Johnson et al., 2015; Esiyok et al., 2016). Although the two studies obtained notable results about international patient preferences, their findings reflect only country-based choices. An international patient selects a particular country as a result of various factors related to the country itself or city of proposed treatment. At the city level, a crucial factor is its health infrastructure, which reflects the city's development level (Florida et al., 2008; Zagreb Declaration for Healthy Cities by WHO, 2008).

Hardly any study has analyzed health tourism at a city-based and health infrastructure level. There is thus a need for studies at the subnational level to examine the factors affecting patient destination choices. Such studies could offer guidance to both central and local governments with respect to strategic planning for regional health tourism development.

The aim of the present study was to determine the main factors affecting the decisions of medical tourists with a chronic illness diagnosis who visited Turkey for treatment at an internal or surgical clinic.

Materials and Methods

Design

The data is obtained from the Turkish Ministry of Health (MoH) for a 4-year period (2011–2014). The MoH categorizes citizens of other countries who receive medical care in Turkey in

two groups. The first group (tourist health) comprises patients who receive medical care owing to injury or the need for immediate medical attention during their stay. The second group consists of patients who came to Turkey to obtain medical treatment or decided to receive non-urgent medical care (health tourists; Table 1).

Table 1. International patients receiving treatment at Turkish facilities, 2011–2014

	Tourist health	Health tourists	Total
2011	59,307	18,205	77,512
2012	180,779	94,285	275,064
2013	301,778	110,715	412,493
2014	326,448	169,881	496,329
Total	868,312	393,086	1,261,398

In the present study, the second patient group is considered only as international patients seeking medical treatment. Such patients were referred to as "mere patients" by Cohen (2008). It is then categorized the patients in terms of diagnosis. It is also excluded the former group of patients following the classification of health tourists of Connell (2013).

The researchers excluded all patients diagnosed with acute illness. All the patients' diagnoses appeared on the data sheets obtained from the MoH: The data sheets were filtered according to whether the diagnoses represented acute illness. After this elimination process, the research is conducted only on tourists diagnosed with chronic illness with respect to the factors affecting their preferences (Table 2).

Table 2. International patients diagnosed with chronic illness obtaining treatment at Turkish facilities, 2011–2014

	Number of patients with chronic illness
2011	9,684
2012	64,566
2013	103,892
2014	134,494
Total	312,636

Patients with chronic illnesses were clustered according to the type of clinic where they received treatment and then categorized them as either internal medicine or surgical clinic (Table 3).

Table 3. Distribution of international patients diagnosed with a chronic illness according to the type of Turkish clinic for treatment, 2011–2014.

	Internal medicine	Surgical clinic	Total
2011	3,119	6,565	9,684
2012	27,688	36,878	64,566
2013	48,748	55,144	103,892
2014	64,246	70,248	134,494
Total	143,801	168,835	312,636

The distribution of international patients with a chronic illness diagnosis who visited Turkey to receive health care in 2011–2014 appears in Table 4.

Table 4. Distribution of international patients diagnosed with a chronic illness according to number of countries of origin, number of Turkish cities for treatment, and hospital type

Clinic type	Number of countries	Number of cities	Type of hospital	
			Private	Public
Internal medicine	193	71	74.06%	25.04%
Surgical clinic	195	72	80.3%	19.7%

Measures

Various motivational factors for medical tourism have been noted above. However, the present study focused on the following: cost; health-care infrastructure; convenience; and climate to determine whether the type of diagnosis and treatment affected those factors according to the classification of Crooks et al. (2010).

Cost is the prime motivator for most patients: the high cost of medical procedures drives patients to seek treatment elsewhere (Peters and Sauer, 2011; Padma, 2013; Altin et al., 2011; Connell, 2006; Makrai and Almsafir, 2014; Yu and Ko, 2012; Gray and Poland, 2008; Hall, 2011; Herrick, 2007; Horowitz and Rosensweig, 2007; Ormond, 2011; UNESCAP, 2007). Cost has a greater impact with respect to high out-of-pocket payments (Crooks et al., 2010). Even though traveling incurs additional expenses, patients prefer to go abroad because of significant cost savings (AMA-OMSS, 2007; Glinos et al., 2010; Demicco and Cetron, 2006; Forgione and Smith, 2006; Mattoo and Rathindran, 2006; Turner, 2007). Musa et al. (2012) found that "value for money" was the main motivating factor causing medical tourists to seek treatment in Malaysia, which underscores the importance of affordability of medical services.

Another factor to be considered is the health-care infrastructure at the selected destination (Issac et al., 2003). The number of hospitals is the most tangible indicator of service quality according to the perceptions of international patients (Ekinci and Riley, 1998; Kozak and Rimmington, 2000; Nadiri and Hussain, 2005; Padma et al., 2009). Most international patients prefer private to public hospitals because the former offer special treatment packages, including airfare and accommodations. In recent years, payments made by international patients have become increasingly attractive for the health-care market, and this has led to a rapid development of health infrastructure (Yu and Ko, 2012).

Another dimension of health infrastructure quality is the number of physicians with expertise and qualifications (Medical Tourism Association, 2013; Lunt et al., 2016; Goodman and Grumbach, 2008). Carrera and Bridge (2006) found that one of the major push factors for medical tourism was the availability of medical expertise at the destination.

Globalization has improved the convenience of travel between countries (Carrera and Bridges, 2006; Yu and Ko, 2012). At one time, patients preferred a close, neighboring country regardless

of other choices; now, because of improvements in air travel, the proximity of the destination has less importance (Connell, 2006). Air travel improvements, such as greater ease and affordability of international travel and increased flight frequencies to major destinations, are believed to be major factors for international patients (Crooks et al., 2010; Alleman et al., 2011).

Climate appears to be a significant factor. Most patients would not want to take risks regarding weather conditions. Some research has indicated that weather is an important factor in the decision making of international patients (Milman and Pizam, 1995).

Methodology and Results

It is assumed that a representative patient decides to undergo medical treatment in Turkey and then chooses a destination among Turkish cities for this treatment. Based on the research findings presented above, five factors related to cities that may affect the choice of destination were proposed: ratio of private to total hospitals; airport access; consumer price index; medical expertise; and average annual temperature. It is highly probable that the factors exerting an influence on destination selection are more extensive than those listed above. However, for the sake of reliability, an empirical study has to limit itself to variables that can be measured as accurately as possible. Taking this into account, the following specification is used to model the destination choice of the representative patient:

$$lnnumofpat_{it} = \propto_i + \beta_1 priv/total_{it} + \beta_2 lnaccesstoair_{it} + \beta_3 lnconsumpindex_{it} + \beta_4 lnexpert_{it} + \beta_5 lnaveragetemp_{it} + \varepsilon_{it} \quad (1)$$

where $lnnumofpat_{it}$ is the natural logarithm of the number of surgical or internal medicine patients who received a treatment in city *i* at time t; $priv/total_{it}$ is the ratio of private to total hospitals in city *i* at time *t*; $lnaccesstoair_{it}$ is the natural logarithm of the index of airport access for city *i* at time *t*; $lnconsumpindex_i$ is the natural logarithm of the consumption price index in city *i* at time *t*; $lnexpert_{it}$ is the natural logarithm of the number of medical experts in city *i* at time *t*; $lnaveragetemp_i$ is the natural logarithm of the average temperature in city *i* at time *t*; ε_{it} is the error term; and $\propto_i$ are the time-constant city effects.

Data about surgical and internal medicine patients for 73 cities (city *i*) over the 4-year period of 2011–2014 was obtained. Given the size of the dataset, it is estimated equation (1) either by using the fixed-effects or random-effects model. In line with empirical studies employing panel data, the test of Hausman (1978) was followed to differentiate between the two estimation methods. The test essentially examines the differences between the coefficient estimates obtained by two methods. Statistically significant differences are taken to mean that the fixed-effects model is appropriate (Wooldridge, 2006).

The number of surgical and internal medicine patients was used as dependent variables. The quality of health-care infrastructure was measured by means of two proxies: the ratio of private to total hospitals and the number of active working medical specialists. Those data were obtained from the MoH. In the absence of traditional proxies for the independent variables, some other indicators as proxies were used. For example, data concerning the cost of medical

treatment was lacked; however, it was assumed that there would be a positive correlation between the cost of receiving medical treatment at the destination and the consumer price index. Therefore, it is employed the latter as a proxy for the former. Data about the consumer price index was collected from the Turkish Statistical Institute (TUIK). It is assumed that international patients would be likely to travel by plane. Therefore, the airport access ratio was used to measure the convenience of traveling to Turkey. The TUIK calculates that ratio by dividing the number of flights to and from an airport located within a city's borders (or less than 110 kilometers from the city center) by the distance of the airport to the city center. To determine whether patient preferences were affected by climate, the mean annual air temperature was used. those data were collected from the Web site of the Turkish State Meteorological Services.

The descriptive statistics and estimation results appear in Tables 5 and 6 for both internal medicine and surgical patients. The results in the lower panel of Table 6 are the sample size and diagnostic test statistics. As that panel indicates, year dummies were used to control for cyclical effects.

Table 5. Descriptive statistics

Variables	**Mean**	**Standard deviation**	**Min.**	**Max.**
lnsurgical clinic	4.310	2.484	0	10.169
lninternalclinic	4.259	2.462	0	9.941
priv/total	32.654	0.160	5	69.432
lnaccesstoair	4.903	2.098	-2.302	9.0197
lnconsumpindex	5.421	0.0765	5.248	5.551
lnexpert	5.934	0.870	4.304	8.507
lnaveragetemp	2.564	0.257	1.609	2.944

Two points should be noted related to the patient sample size. First, missing data on explanatory variables left only 59 cities in the sample of surgical and 58 cities in that of internal medicine patients; 13 cities were excluded from each patient group. Second, there were a couple of blank entries for patients for some cities throughout the sample period. As a result, the research had an unbalanced dataset with 184 observations for surgical and 180 for internal medicine patients, respectively.

Table 6. Regression results

Independent variables	**Dependent variables**	
	lnsurgical	lninternal
Constant	83.451** (41.556)	94.556** (42.972)
Priv/total	0.043***	0.036***

	(1.326)	(1.305)
lnaccesstoair	0.126* (0.069)	0.129* (0.067)
lnconsumpindex	-16.653** (7.761)	-18.453** (8.024)
lnexpert	1.535*** (0.207)	1.591*** (0.211)
lnaveragetemp	-1.450** (0.736)	-2.192*** (0.647)
Number of observations	184	180
Number of cities	59	58
Hausman test *Probability value*	0.53	0.80
Wald test Probability value	0.00	0.00
Year dummies	Yes	Yes

Auto-correlation and heteroscedasticity robust standard errors are presented in parentheses.
***, **, * represent statistical significance at the 1%, 5%, and 10% level, respectively.

The insignificant p-value for the Hausman test favors the random-effects over the fixed-effects model (lower panel, Table 5). Hence, only the estimation results of the random-effects model were reported.

All the coefficients for the explanatory variables were statistically significant for both patient groups. In addition, all the explanatory variables affected surgical patients in the same direction as internal medicine patients. *Priv/total*, *lnaccesstoair*, and *lnexpert* affected the dependent variables positively; the remaining explanatory variables were negatively related for the surgical and internal medicine patients. However, there were differences in the magnitude of the coefficients between the two groups of patients. Relative to the other explanatory variables, the differences were large in the case of the ratio of private to total hospitals, consumption index, and average temperature. With the other variables constant, a 1-percentage-point increase of *priv/total* ratio led on average to a 4.36% increase in the number of surgical patients. The corresponding effect of that variable on the number of internal medicine patients was only 3.68%.

The difference in the magnitude was also considerable for the impact of *lnconsumpindex* on the dependent variables. If *lnconsumptindex* increased by 1%, the number of surgical patients decreased by about 16.6%. The impact of *lnconsumpindex* on the number of internal medicine

patients was somewhat stronger: it led to a decrease by about 18.4%. Average temperature was another variable with a sizeable gap between its strength of influence on the dependent variables. An increase of *lnaveragetemp* by 1% led to a decrease of 1.4% in the number of surgical patients and of 2.1% in that of internal medicine patients. Compared with the other explanatory variables, the differences in the magnitude of *lnaccesstoair* and *expert* were very small. This implies that these two variables had similar effects on both dependent variables.

Discussion and Conclusions

International patients wish to obtain the best health care for a low price. In this study, cost was identified as the most important factor in the preference of international patients seeking treatment in Turkey in 2011–2014 (Table 6). This result is in keeping with those of other studies. Although the effect of cost appears to be similar, its impact differs with respect to the type of clinic selected. It seems that international patients who visited Turkey for treatment at an internal medicine clinic assigned much more importance to cost than those seeking treatment at a surgical clinic. The difference may be due to the nature of treatment. This finding implies that the priorities of patients may vary according to treatment type. With a surgical procedure, for example, patients are usually concerned about the clinician's reputation and expertise. Though patients may seek the lowest prices, their priorities likely vary according to the degree of treatment severity (Wongkit and McKercher, 2016). To lower the price sensitivity of prospective patients, hospitals should cite their surgeons' expertise and reputations, especially in their promotions.

Following rapid developments in technology and globalization, the health tourism market has become more competitive. By means of the Internet, it is now possible to obtain information about any country. Through developments in the airline industry, traveling has become much easier and more convenient. Greater information about destination countries and ease of travel produce different priorities. That is why the health infrastructure in many countries prioritizes international patients. International patients today pay greater attention to details than before and carefully evaluate all attributes related to prospective medical treatment and medical service providers (Wongkit and McKercher, 2016; Han and Hyun, 2015).

Table 7. Summary of empirical results

Statistically significant relationships			
Independent variables		**Internal medicine**	**Surgical clinic**
Cost		-	-
Health infrastructure	Hospital ratio	+	+
	Number of specialists	+	+
Climate		-	-
Travel convenience		+	+

Patients prefer to go to developing countries to obtain the same level of medical care as that in their home countries but at a lower cost. This reverse global flow leads to the possibility of poor health care. Because of this risk, international patients focus more on medical service quality than on a destination's attributes (Ye et al., 2011). To eliminate that risk, the ratio of private to total hospitals and the number of active specialists has assumed greater importance. This point is confirmed by results: in terms of health infrastructure, both private hospital ratio and number of medical specialists were important preference factors for international patients. The impact of the private hospital ratio is more conspicuous among surgical clinics. The success of a surgical operation depends on effective postoperational care, which is affected by multiple factors, such as hospital infections and number of specialized staff. It is widely believed that private hospitals provide better postoperational care.

An important decision-making factor is travel convenience (Ormond, 2015). The existence of international terminals, number of flights, and distance from the airport to the city center play an important role in the preferences of international patients. It is found that the airport access ratio was positively correlated with the number of patients (Table 7). This finding can be explained by the method used to calculate that ratio. The airport access ratio was determined by dividing the number of flights to and from an airport located within a city's borders (or less than 110 kilometers from the city center) by the distance of the airport to the city center; thus, The impact of the proximity effect couldn't be precisely determined. Since cost and travel convenience play an important role in the preferences of international patients, Turkish Airlines (which has the world's fourth-largest flight network) has developed special pricing packages for international patients (Fetscherin and Stephano, 2016).

Health-care providers' experiences and some studies point to the importance of climate among patients seeking prospective treatment. Spring and fall are the preferred seasons for hospital stays. Our results indicate that climate conditions played an important role among the international patients who visited Turkey. This significant effect has greater impact on internal medicine clinics. The finding can be explained by the type of treatment received. International patients who underwent minor treatment perceived the treatment value differently from those who underwent major or invasive treatment (Wongkit and McKercher, 2016). Patients receiving treatment from internal medicine clinics have more time for touristic activities in the country they are visiting and greater opportunity to choose the time of treatment. They can choose the season for treatment owing to the lack of emergency.

This study determined the main factors affecting the decision of medical tourists diagnosed with a chronic illness who visited Turkey for treatment at an internal medicine or surgical clinic. Our results demonstrate that cost, health infrastructure, climate, and travel convenience have an effect on international patients' preferences. Future research should examine international patients' preferences in terms of the treatment they received and their seasonal choice.

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