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The Medical Tourism Index: Scale Development and Validation

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1. Introduction

Traveling overseas in search for quality health services and well-being is not a new phenomenon. From the 18th to the 20th century, mostly wealthy patients from developing countries traveled to medical centers in Europe and the U.S. for medical treatment. This trend began to reverse in the late 20th and increased significantly in the 21st century by means of the globalization of communication and transportation technologies where less wealthy people from developed countries started to travel to developing countries for medical treatments.

In the U.S. for example, traveling outside borders for healthcare is fueled by an aging population which needs more medical services, a growing number of people without health insurance coverage (Census, 2013; estimates about 42 million without healthcare insurance), increasing domestic healthcare costs in combination with ease of travelling overseas. Although the recent implementation of the Affordable Care Act has improved access to insurance and is reported to have reduced the number of uninsured by 30%, the demand for domestic cross-border and international medical services continues to thrive.

While a few years ago only a handful of hospitals and about 4 or 5 countries promoting themselves as medical tourism destinations, "today there are hundreds of hospitals and clinics and over thirty different countries promoting it" (Saadatnia and Mehregan, 2014, p. 156). Despite the increasing number of countries providing medical tourism, we "currently know very little about many of the key features of medical tourism" (OECD, 2011, p. 14) and the actual size of the industry. What we know, for example, is that the well-known Bumrungrad hospital in Bangkok Thailand gets out of their one million patients "some 40 percent of them are expatriates, tourists, or medical travelers from 190 different countries" (Patients Beyond Borders, 2012, p. 1). Deloitte (2009) estimates there are about 6 million people engaging in medical tourism per year inferring an estimated $100 billion dollar industry.

Despite the notable growth and size of the medical tourism industry, there is a lack of empirical insights into the construct of countries as medical tourism destinations. This lack has

been ascribed to the lack of a domain-specific and statistically sound measurement system (Riefler, Diamantopoulos, Siguaw, 2012).

Against this background, our intended contribution is threefold. First, we build upon existing literature and conceptualize the *medical tourism index* as a multidimensional construct. We hypothesize that host country factors, medical and tourism industry factors, as well as medical facility and services all impact the attractiveness of a country as a medical tourism destination. We hypothesize the first dimension focuses on the destination or the country; the second focuses on the medical tourism industry in that country, specifically the healthcare and tourism industry; and the third dimension focuses on the organization and medical facilities performing treatments and services. This conceptualization aims to contribute to a better understanding of medical tourism by delineating its conceptual domain and highlighting its key dimensions (Riefler, Diamantopoulos, Siguaw, 2012). Second, based on our conceptualization we develop a composite index[1], a country specific and statistically sound measurement instrument, the '*Medical Tourism Index'* or short MTI. Third, we offer empirically based insights by benchmarking 30 countries on our newly developed index which allows an assessment of the attractiveness of a country as a medical tourism destination and shows where and how it falls short or leads compared to other countries.

2. Theoretical Background

2.1. Definition

Regrettably, the current literature uses very loosely and unsystematically the terms 'health tourism', 'medical tourism' and 'wellness tourism'. This is probably due to the fact that sometimes the boundaries between these terms are not always clear as "a continuum exists from health (or wellness) tourism involving relaxation exercise and massage, to cosmetic surgery (ranging from dentistry to substantial interventions), operations (such as hip replacements and transplants), to reproductive procedures and even 'death tourism" (Connell, 2013, p. 2). In this

[1] We use a 'formative' model (not reflective model' as the direction of causality is from items to construct. The items are defining characteristics of the construct.

paper, we intend to make a clear distinction between these terms. First, we agree with Smith and Puczko (2009) suggestion that 'health tourism' is composed of 'medical tourism' and 'wellness tourism' and 'medical tourism" is the correct term to use in cases in which medical, surgical or dental interventions are required, anything else is 'wellness tourism' (Connell, 2006).

There are many different definitions and conceptualization provided in the literature about 'medical tourism'. Connell (2006, p. 1094) defines "medical tourism as a niche has emerged from the rapid growth of what has become an industry, where people travel often long distances to overseas countries to obtain medical, dental and surgical care while simultaneously being holidaymakers". More recently, Yu and Ko (2012, p. 81) claim "medical tourism involves not only going overseas for medical treatment, but also the search for destinations that have the most technical proficiency and which provide it at the most competitive prices […] combination of medical services and the tourism industry." We therefore provide the following definition:

The Medical Tourism Index measures the attractiveness of a country as a medical tourism destination in terms of overall country environment; healthcare costs and tourism attractiveness, and quality of medical facilities and services.

2.2. Push and Pull Factors for Medical Tourism

As one can observe, "medical tourism is conceptually full of nuances, contradictions and contrasts" (Yu and Ko, 2012, p. 82). This lack of a universally accepted conceptualization makes medical tourism a vague concept with a number of different connotations. In order to help us to conceptualize the medical tourism construct, we turn to the economic literature which broadly categorized factors into demand side or '*push factors'* and supply side or '*pull factors'* to explain economical phenomenon such as international trade and foreign direct investments (FDI) (Crompton 1992; Dann 1977). Inspired by the economic literature, Dann (1977) proposed for international tourism, which is part of the international trade and services, the concept of 'push' and 'pull' factors for tourism. Researchers of medical tourism have used the same two categories (Crompton 1992).

(1) push factors focusing on the demand-side for medical tourism. They are mainly related to consumers and includes factors such as socio-demographical (e.g., age, gender, income, education) or health related (e.g., insurance status, health status) factors generating the demand for medical tourism;

(2) pull factors focus on the offer for medical tourism. They are mainly related to the medical tourism destination such as overall country environment (e.g., stable economy, country image), healthcare and tourism industry of the country (e.g., healthcare costs, popular tourist destination) and quality of the medical facility and services (e.g., quality care, accreditation, reputation of doctors). The following Figure 1 provides an illustration how each country has push and pull factors either encouraging or attracting medical tourism.

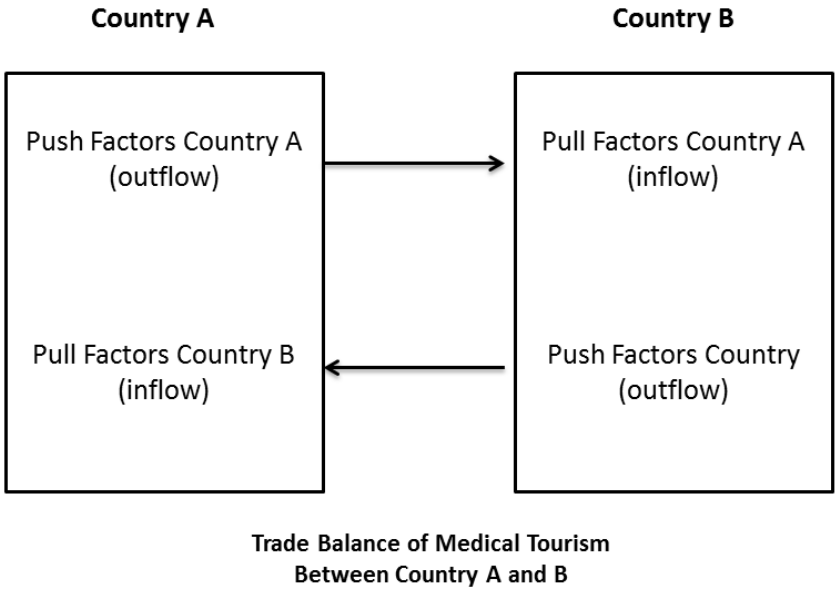

Figure 1: Pull and Push Factors of Medical Tourism

This MTI focuses on pull factors which influence the attractiveness of a country as a medical tourism destination. But by surveying people from the original country and getting socio-demographical information from respondents it also considers push factors for medical tourism.

2.3. Main Factors Affecting Medical Tourism

As the following literature review show, there are many different factors which make a destination attractive for medical tourism and they can broadly be categorized into the following groups. The first focuses on the image and overall environment of the host country. The second focuses on the healthcare and tourism industry of the host country and the third focuses on the quality of the medical facility and services. Note that the three factors are related and interdependent where the country environment provides the framework for the healthcare and tourism industry which in turn impact the quality of medical facilities and services.

2.3.1. Country Environment

There are various factors which influence the attractiveness of a country as a medical tourism destination. One of the most important factors is the country image. Extensive research shows the overall image of a destination is a key driver for tourism as well as medical tourism (Alhemoud and Armstrong, 1996, Schneider and Sönmez, 1999; Gallar-za, Saura and Garcia, 2002; Beerli and Martín, 2004). Another factors identified in the current literature for driving medical tourism are the political environment or political stability including low corruption and good rule of law (Smith, Martínez Álvarez, and Chanda, 2011) as well as general economic conditions (Yu and Ko, 2012, p. 81). As Connell (2006, p. 1095) argues, "the country's economic conditions impact the availability of medical goods and services".

Next to that, there are specific factors related to the similarities or differences between the home and host country. The Medical Tourism Association (2013, p. 13) survey identifies "cultural and religion match" or cultural similarity among the most important factors for medical tourism. Lin and Guan (2002) and later Lee and Davis (2005) refer it to cultural sensitivity of staff. Part of cultural differences or similarities is also language similarity. Fluency in patient's language has also been identified as a driver for medical tourism (Medical Tourism Association, 2013, p. 14). Some authors (Connell, 2006) also identify another factors such as "favorable exchange rate changes" (Yu and Ko, 2012, p. 81), distance or "proximity to their residency" (Alleman, et al., 2011, p. 492), or "affordability of airfares to overseas destinations… and convenience to travel" (Yu and Ko, 2012, p. 81).

2.3.2. Medical and Tourism Industry Factors

As Yu and Ko (2012, p. 81) argue, medical tourism is a "combination of medical services and the tourism industry". For the healthcare industry, probably one of the most cited factor is the overall healthcare system in the host country. As Connell (2006, p. 1095) states "since economic liberalization in the mid-1990s private hospitals have expanded and found it easier to import technology and other medical goods, thus bringing infrastructure in the best hospitals to western levels". This rapid development of medical infrastructure and systems (Yu and Ko, 2012) makes the offer for medical services more attractive and results in overall lower healthcare costs. Specifically, the difference in healthcare costs between home and host country have been identified as a key driver. As Smith and Forgione (2007, p. 25) state, "the steadily rising healthcare costs within the U.S. continue to fuel the demand for medical tourism. The number-one factor cited for why Americans travel abroad for healthcare is cost" (Connell, 2006; Yu and Ko, 2012). The Medical Tourism Association (2013) survey also identifies cost as one of the most important factors for medical tourism. Other factors are financial assistance or payment plans (Deloitte, 2009), clinical support systems for continued care, and shorter waiting times (Yu and Ko, 2012, p. 81; Horowitz and Rosensweig 2008; Connell 2006; Gill and Singh; 2011).

Related to the tourism industry, as Heung, Kucukusta and Song (2011, p. 996) state, "people travel long distances to obtain medical, dental, and surgical services while vacationing". In that respect, one of the most cited factor is the overall attractiveness of the country as a tourism destination. In fact, there is an increasing number of sea, sun and sand tourism destinations diversifying into medical tourism in order to have a more sustainable growth for their tourism industry (Connell, 2006). The opportunity to travel to a popular or an exotic destination is an additional benefit for certain medical travelers. "Many try to find a popular tourism country in which they could enjoy their trip during the treatment period" (Moghimehfar and Nasr-Esfahani, 2011, p. 1432).

2.3.3. Quality of Facilities and Services

The third group includes factors related to the quality of medical facility and services. Looking at the current literature, one can distinguish at least two groups of factors. One related to

the quality of the facility or hospital. Smith and Forgione (2007, p. 20) argue that one of the main factors for American patients is to "take into consideration the characteristic of the international facility" such as standards of hospital (ISO), international accreditation (Yu and Ko, 2012; Gill and Singh, 2011; Gan and Frederick, 2011), state of the art medical equipment (Connell, 2006), reputation of hospital (Heung, Kucukusta, and Song, 2011) or healthcare quality indicators (e.g., post-operative infection rates) (Medical Tourism Association, 2013, p. 13). The second group includes factors relating to service quality of physicians and nurses. According to the Medical Tourism Survey (Medical Tourism Association, 2013, p. 14) "respondents believe that the most important factors for medical tourists in choosing a healthcare facility in a particular country are the expertise and qualifications of the doctor/dentist" (Mattoo and Rathindran 2006). Other factors mentioned are overall quality of care (Berkowitz and Flexner, 1980), reputation of doctors (Heung, Kucukusta, and Song, 2011) among others.

The literature review above outlined the most important and widely discussed factors. We are aware that our discussion above is not exhaustive as the literature also sporadically discussed other factors but most lack of empirical support such as higher nurses per patient ratio (Demicco and Cetron 2006), past experience with hospital staff (Boscarino and Steiber 1982), cleanliness of facility (Berkowitz and Flexner, 1980), weather conditions (Qu, Kim, and Im, 2011), comments and ratings by other patients such as word of mouth (Medical Tourism Association, 2013, p. 4), or friendliness of staff and doctors (Dwyer and Kim, 2003).

3. Index Construction

In this global and highly competitive environment, to understand a complex phenomenon and compare countries in a meaningful and manageable way, we often turn to composite indicators or indexes. There is a mix of public or private and national or international institutions providing indexes of complex phenomenon such as the World Competitiveness Index (IMD), the Human Development Index (United Nations), the Globalization Index (Foreign Policy Magazine). There are also specific indexes related to tourism such as the Travel & Tourism Competitiveness Index (World Economic Forum) or the Nation Brand Index (GfK).

Indexes are very useful as they provide a simple number for a complex phenomenon and allow a relative objective comparison across countries. An index is a quantitative, qualitative or a mix measure derived from a series of observed facts that can reveal relative positions of countries for a specific phenomenon. There are basically two schools of thoughts about the usefulness of indexes (Joint Research Centre-European Commission, 2008, p. 14). The '*aggregators'* believe there are at least four reasons to justify the construction and use of indexes. First, the summary statistic can indeed capture the multi-dimensionality of the phenomenon studied. Second, the index is meaningful and easier to interpret than a set of different and separate indicators. Third, it allows conducting benchmark studies and assessing the progress of countries over time. Fourth, it facilitates the communication with other stakeholders or the general public. The second school of thoughts, the '*non-aggregators'*, believe there are at least three reasons not to construct and use indexes. First, such indexes may be misused if the construction process is not transparent or lacks sound statistical principles. Second, the selection of indicators and weighs could be the subject of political dispute (Joint Research Centre-European Commission, 2008, p. 13). Third, it may invite simplistic policy conclusions or it may lead to inappropriate policies if dimensions of performance that are difficult to measure are ignored (Joint Research Centre-European Commission, 2008, p. 14).

The aim of this paper is not to debate this, but to contribute to a better understanding of the complexity of assessing the attractiveness of a country as a medical tourism destination. We agree with the arguments provided by the '*aggregators'* but also consider and address the shortcomings mentioned by the *non-aggregators* in the index development process. In fact, our index construction process addresses the main shortcomings mentioned by the *non-aggregators* such as providing transparency of the process; providing statistical proof of the reliability and validity of the index and the index has been developed by using representative samples.

4. Scale Development

In order to overcome the above mentioned concerns for index construction, we followed the scale development procedures proposed by Churchill (1979) and Rossiter (2002) based on formative measures. We combine both procedures as Churchill's (1979) and Rossiter's (2002)

have both limitations (Diamantopoulos, 2005). The item generation effort was conducted globally by undertaking a study 1 with 394 respondents utilizing a database of global industry professionals provided by the Medical Tourism Association (MTA). The scale refinement and scale validation were conducted by using U.S. representative samples along 6 demographic dimensions according to Census (gender, marital status, ethnicity, geographical location, age and educational attainment). Figure 2 summarizes the scale development procedures.

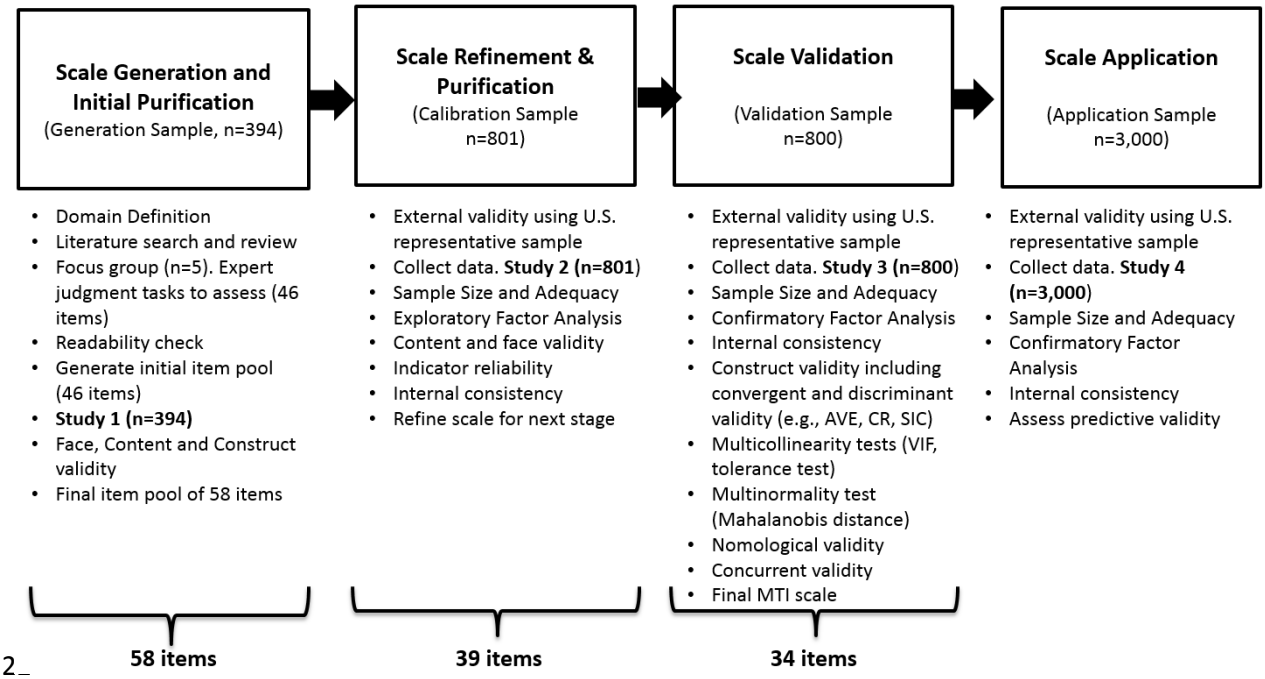

Figure 2: Scale Development Process

4.1. Domain Definition

"A sound theoretical framework is the starting point of constructing composite indicators. The framework should clearly define the phenomenon to be measured and its sub-components" (Joint Research Centre-European Commission, 2008, p. 22). Based on our previous detailed literature review, we define Medical Tourism Index (MTI) as following.

The Medical Tourism Index measures the attractiveness of a country as a medical tourism destination in terms of overall country environment; healthcare costs and tourism attractiveness, and quality of medical facilities and services. According to Rossiter (2002), our construction

definition consists of a concrete object (country) with eliciting attributes (items) and the rater entity is the public.

4.2. Study 1: Item Generation

We used a multi-source approach to generate items related to the MTI construct. First, we conducted a thorough literature search and review as outlined previously. As Churchill's (1979, p. 67) statement, "the literature should indicate how the variable has been defined previously and how many dimensions or components it has". Next, we also consulted with a focus group consisting of 5 industry experts[2] (including the president of the Medical Tourism Association) to assessed our preliminary list of items and added few more which resulted in a total of 46 items as key drivers for medical tourism.

Similar to previous scale development studies (Walsh and Beatty, 2007), the authors evaluated the face and content validity of the items (Rossiter, 2002). Survey 1 with 394 expert judges, all members of the Medical Tourism Association global network, participated in this study. They were selected as they were familiar with the medical tourism industry and almost half of them have also engaged themselves in medical tourism (cf. Dunn, Bouffard, and Rogers, 1999). The sample consists of "a judgment sample of persons who can offer some ideas and insights into the phenomenon" (Churchill, 1979, p. 67). Respondents were given our MTI definition and were asked to carefully read each item of the initial pool and rate it with regards to how important it is to attract medial tourism. A five-point Likert scale ranging 1= unimportant to 5= very important was used to assess the 46 items. Descriptive statistics of the respondents (convenience expert sample) can be found in the Appendix. We followed Rossiter (2002, p. 324) suggestions that "the order of the items should be randomized to minimize response-set artifacts in the obtained scores […] for multiple-item scales, randomize items over both the object and the attribute". The authors assessed content validity by looking at the mean values assigned by respondents for each item and looked for those with a mean value of 3 or higher[3] (i.e., Sharma, 2009). To assess the face validity, the authors eliminated items that were rated by respondents

[2] Expert judges were all familiar with medical tourism. They were informed about the aim of the study "to explore a measurement instrument for assessing the attractiveness of a country as a Medical Tourism destination." (quote from survey).

[3] [3] moderately important; [4] important; [5] very important.

having an average of 2 or lower [1= unimportant; 2= of little importance]. None of the items had mean values of lower than 2 and all items had mean values of 3 or higher (min= 3.08; max= 5.00). We therefore retained our initial list of 46 items.

The survey also provided space for the 394 expert judges to comment further about particular items or suggesting additional items. We received 551 suggestions but almost all were variations of the previously identified items. For example we received 15 variations of our item 'accreditation of the medical facility (e.g., JCI, ISQUA)'. Nevertheless, there were 12 items which were mentioned at least 5 times independently and were not part of our initial set of items. We have added those and ended up with 58 items. The objective of the item generation step was "to develop a set of items which tap each of the dimensions of the construct at issue" (Churchill, 1979, p. 68).

4.3. Study 2: Scale Purification & Measurement Development

4.3.1. Sample Size and Analysis

The external validity and generalizability of the MTI scale was achieved by using U.S. representative samples as well as the order of the items was randomized. We collaborated with the global marketing research group *Issues and Answers*. For our survey we used a representative U.S. population sample with respect to 6-demographic dimensions as identified in the 2010 U.S. Bureau of Census (gender, marital status, ethnicity, geographical location, age and educational attainment). We received 801 respondents consisting of 46% male and 54% female, 32% are single, 55% married, 17% divorced or widows. Column two of Appendix A provides further detail of our representative sample and compares it to the Census 2010 data. Respondents were asked to how important they feel each of the 58 items is to attract patients for medical tourism. Each item was assessed again on a 5 point Likert scale ranging from 1= not at all important to 5= very important.

With 801 respondents, we are above the rule of 300 (Norušis, 2005). We also calculate the sample to item ratio. The result was 13.8, which is higher than the acceptable range of 5:1 according to Gorsuch (1983) or 10:1 according to Nunnally (1978). We therefore have an adequate sample size. We calculated the Kaiser-Meyer-Olkin (KMO) as well as Bartlett's Test of

Sphericity to measure sampling adequacy. The KMO is .981 (> than .5) and Bartlett's Test of Sphericity is significant at .000 (below $p < .05$), therefore, both values are over the threshold and the data is suitable for factor analysis. We also tested each item for normality to assess the suitable extraction method for our factor analysis. According to our results, we get significant results for all items for both, Kolmogorow-Smirnow and Shapiro-Wilki 'test of normality' and therefore we will use principle component analysis.

4.3.2. Factor Analysis

We used SPSS 22 software and the principle component analysis with promax rotation and unrestricted number of factors for our factor analysis. We used promax as we expect the factors are correlated (see Table 1). As the sample size is over 300 respondents and the average communality is greater than .6, we keep all factors with Eigen values above 1 (Kaiser's criterion). The factor analysis shows 4 factors with Eigenvalues of 1 or higher and explains 66.04% of the variance in the data. Some items (e.g., visa requirement, international collaboration, availability of all-inclusive procedure packages, shorter travel time, after care services) had low item loading (< .50) but none had significant cross-factor loadings (> .50). Because items that load below .50 do not add to measure purification, as Nunally (1978) suggests, they can be removed.Before removing we showed the items to five expert judges to ensure they do not lead to any loss in the face and content validity (indicator reliability) and they concluded these items can be removed. Each of the factors has a Cronbach alpha ranging from .89 to .98 which shows internal consistency of our scale. We labeled the four new empirically derived factors as: *Country Environment, Tourism Destination, Medical Tourism Costs, Facility and Services.* The results of the exploratory factor analysis are reported in Column 2 of Table 3. Note that only items retained after the CFA are reported in Table 3. Finally, we calculated the correlation matrix between factors. As Table 1 shows, the lowest correlation is .451, therefore promax was the correct rotation method to be used.

Component	1	2	3	4
1	1			
2	.451	1		
3	.608	.619	1	
4	.673	.539	.639	1

Extraction method: Principal Component Analysis | Rotation Method: Promax with Kaiser Normalization

Table 1: Component Correlation Matrix

4.4. Study 3: Scale Validation

The objective of this step is to confirm the four dimensional structure of the new Medical Tourism Index scale and to establish its convergent, discriminant, nomological, and predictive validity.

4.4.1. Sample Size and Analysis

The same procedure was used as study 2. We used a new sample of 800 respondents consisting of 49% male and 51% female, 34% are single, 53% married and 13 divorced of widow. Column three of Appendix A provides further details. Our sample size and sample to item ratio are above suggested thresholds. The KMO was .974 and Bartlett's Test of Sphericity was significant at .000 suggesting our data is suitable for factor analysis. Our 'test of normality' of the items was for both, Kolmogorow-Smirnow and Shapiro-Wilki, significant and we therefore use principle component analysis.

4.4.2. Factor Analysis

We conducted a confirmatory factor analysis (CFA) to confirm the nature of the MTI construct and its' dimensionality. We used promax rotation with unrestricted number of factors as we expect the factors are correlated (see Table 2).

Of the 39 items, there were 5 items (e.g., food options/special diet catering, financial assistance or attractiveness payment plans) which had low item loading (< .50) but none had significant cross-factor loadings (> .50). Before removing, the items have been showed to five experts to ensure they did not lead to any loss in face or content validity and were finally removed. The remaining 34 items (cut off value ≥ .50) load on 4 factors explaining 67.2% of the variance. Each factor has a Cronbach alpha ranging from .87 to .97 which shows internal consistency of our scale. The results of the confirmatory factor analysis are reported in column 3 of Table 3. Finally, we calculated the correlation matrix between factors. As Table 2 shows, the lowest correlation is .384, therefore promax was the correct rotation method to be used.

Component	1	2	3	4
1	1			
2	.600	1		
3	.384	.554	1	
4	.597	.566	.416	1

Extraction method: Principal Component Analysis | Rotation Method: Promax with Kaiser Normalization

Table 2: Component Correlation Matrix

Table 3 provides and compares the results from study 2 and 3 including Cronbach alpha and for CFA also AVE and CR values. For space and illustrative purposes, we have excluded in the Table 3 in column 3 the items which were not significant for the CFA.

	Study 2 (n=801)	**Study 3 (n=800)**
Factor 1: Country Environment (7)	*α=.93[1]*	*α=.94, AVE =.45, CR=.60*
Stable exchange rate	.637	.764
Low corruption	.523	.735
Cultural similarity	.660	.664
Overall positive country image	.600	.660
Language similarity	.639	.650
Safe to travel to country	.646	.599
Stable economy	.612	.592
Factor 2: Tourism Destination (5)	*α= .89[1]*	*α=.87, AVE =.50, CR=.66*
Popular tourist destination	.828	.829
Exotic tourist destination	.726	.696
Weather conditions	.729	.687
Attractiveness of the country as a tourist destination	.685	.683
Many cultural and natural attractions	.640	.612
Factor 3: Medical Tourism Costs (5)	*α= .91[1]*	*α=.88, AVE =.55, CR=.72*
Low cost of treatment	.766	.825
Lower healthcare costs	.859	.771
Low cost of accommodation	.716	.732
Low costs to travel	.838	.691
Affordability of airfares	.559	.648
Factor 4: Facility and Services (17)	α= .98[1]	*α=.97, AVE =.60, CR=.79*
Doctor's training	.942	.892
Doctor's expertise	.962	.879
High healthcare quality indicators (e.g., low infection rate)	.876	.876
Reputation of doctors	.873	.866
High quality standards (e.g., ISO, NCQA, ESQA)	.918	.855
High quality of care	.855	.839

State-of-the-art medical equipment	.866	.836
Quality in treatments and materials	.908	.832
Accreditation of the medical facility (e.g., JCI, ISQUA)	.885	.797
Reputation of the hospital/facility	.828	.797
Country medical reputation	.794	.755
International certified doctors	.661	.723
Internationally certified staff	.679	.552
International educated doctors	.641	.543
Friendliness of staff and doctors	.556	.523
Family recommendation of doctors	.745	.751
Family/friend recommendation of the hospital/facility	.751	.715

[1] Values of study 2: Cronbach Alpha α were calculated with the original number and values of items from PCA. For space reasons items from the EFA which were not significant in CFA (study 3) are not reported in this table.

Table 3: PCA and CFA Results

To assess multicollinearity, we calculated the variance inflation factor (VIF) and conducted the tolerance test for multicollinearity (Kleinbaum, Kupper, & Müller, 1988). The values for VIF are between 1.412 and 2.457 and for the tolerance test between .407 and .708. While no formal, theory-based cut-off values exist, many regard a VIF > 3 and tolerance test < .33 as cut off values for multicollinearity. Our values are below the cutoffs values.

4.4.3. Validity Test

Convergent validity was examined by calculating the Average Variance Extracted (AVE) as well as the construct reliability (CR). The AVE needs to be >.50 (Fornell and Larcker, 1981) and the CR >.60 (Bagozzi and Yi, 1988) respectively. As column 3 in Table 3 shows, all items have significant loadings of .50 or higher with values between .52 and .89 *indicating* convergent validity of the constructs. Our AVE values range between .45 - .60 and our CR values range between .60 - .79. All CR values are higher than the AVE. Moreover, except in one case, all values for AVE and CR are equal or higher than the corresponding threshold. To assess if this is a problem, we have to look at the discriminate validity test. To test for discriminant validity, we compare the AVE with the squared inter-construct correlation estimates (SIC). As a rule of thumb, if all AVE > SIC, this indicates that measured variables have more in common with the construct they are associated with than they do with the other constructs. We used the Kendall's tau-b correlations, a measure of correlation between ordinal scales (we used 5 point Likert scale). Details of AVE, CR and SIC values are provided in Table 4.

	Cronbach Alpha (≥ .70)	AVE (≥ .50)	Construct Reliability (≥ .60)	SIC[1]			
Factor 1	.94	.45	.60		.53	.30	.49
Factor 2	.87	.50	.66	.53		.47	.50
Factor 3	.88	.54	.72	.30	.47		.38
Factor 4	.97	.60	.79	.49	.50	.38	

[1] SIC calculation = Kendall's tau-b correlations coefficient in the square.

Table 4: Reliability and Validity Results

We also conducted a structural equation model (SEM) by using SPSS (AMOS) to assess the relationships among underlying constructs. In order to test our model, we calculated a 4-factor model and compare it with a 1-factor model. The results show the 4-factor model has better model fit indexes (CMIN/DF =6.21, NFI =.88, IFI =.90, TLI =.88, CFI =.90, RMSEA=.07) compared to the 1-factor model (CMIN/DF =9.83, NFI =.80, IFI =.82, TLI =.79, CFI =.82, RMSEA = .11). This suggests our construct is well defined and confirms the Medical Tourism Index (MTI) is indeed a multi-dimensional construct. However, our multinormality analysis revealed a number of extreme outliers (Mahalanobis distance). We identified those and run again both models without them. For our 4-factor model we got even better results compared to the previous ones as well as compared to the 1-factor model. In fact, the difference between the two models without the outliers is even greater which further emphasizing that the MTI is a multi-dimensional construct (Table 5).

[*n*=668]	4-Factor Model	1-Factor Model	Threshold
CMIN/DF	4.557	10.451	≥ 3.0
NFI	.919	.813	≥ .90
IFI	.936	.828	≥ .90
TLI	.922	.794	≥ .90
CFI	.935	.827	≥ .90
RMSEA	.07	.12	≤ .07

Table 5: Model Fit Indexes

The following Figure 3 illustrates the standardized regression coefficients for the 4-factors which constitute the *Medical Tourism Index*.

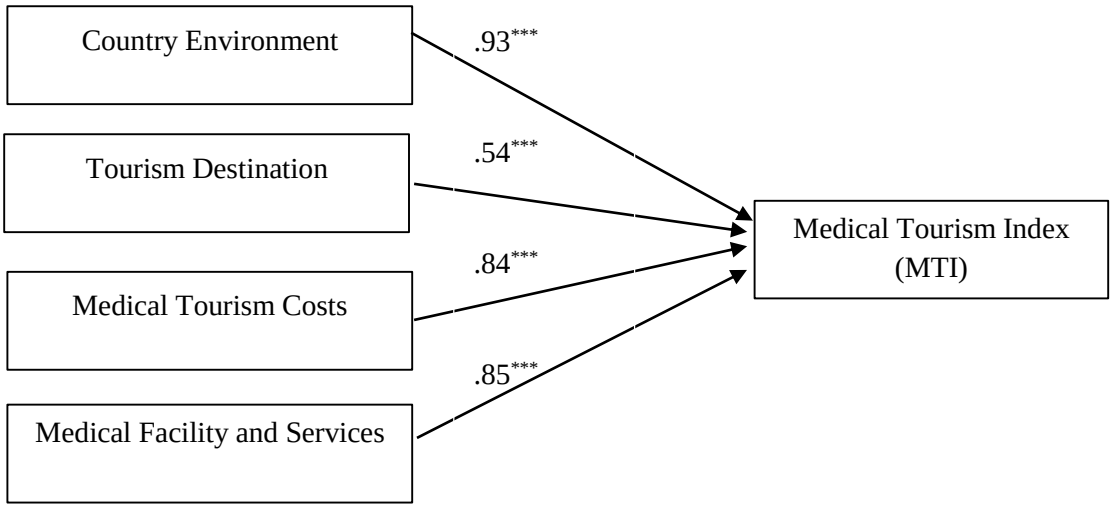

Figure 3: Structural Equation Model

Nomological validity is the degree to which a construct behaves as it should within a system of related constructs (Bagozzi 1980). Therefore nomological validity is tested with our structural equation model in Figure 3 (Cronbach and Meehl 1955). All the statistically significant relationships are in the hypothesized direction which supports the nomological validity of our MTI construct.

5. Application and Generalization

The objective of this step is to test the criterion validity by means of concurrent validity test of our scale. To achieve this we conducted another survey (study 4), assess its reliability and validity, and calculate MTI values of a set of 30 countries.

5.1. Study 4: Country Selection

Two criteria guided the selection of countries we want to apply the MTI. We first looked at current studies from academia and practices (Deloitte, 2009) to come up with a preliminary list of 27 countries which have been frequently mentioned as a medical tourism destination. Second, we conducted a global survey to assess the importance of a country as a medical tourism destination and also asked if there are other important countries which should be considered. We used the Medical Tourism Association (MTA) global industry professional mailing list to send out the survey. We received 421 responses from respondents who were asked to rate countries a

5 point Likert scale (1=unimportant; to 5= very important) as of how important that country is as a medical tourism destination. As we will use the U.S. as the home country to assess medical tourisms destinations, we selected the top 30 rated countries which got the highest ranking for both, all respondents (*n*=421) as well as U.S. respondents *(n*=124) of the survey. Table 6 shows the countries considered to test the criterion validity of our scale. The countries are sorted along the average value for both, all respondents and U.S. respondents. Note that France, Spain and the Philippines were not initially in the list of the 27 countries but as they have been overwhelmingly mentioned as potential medial tourism destination and considering also their social and economic importance we decided to include them in our survey.

#	Country	Global Respondents (*n*=421)	U.S. Respondents (*n*=124)	Average
1	Costa Rica	2.84	3.46	3.15
2	Singapore	3.12	3.12	3.12
3	Thailand	3.08	3.10	3.09
4	Germany	3.24	2.91	3.08
5	India	3.17	2.98	3.07
6	Mexico	2.84	3.21	3.02
7	Dubai	3.01	2.99	3.00
8	Canada	2.90	2.90	2.90
9	UK	3.02	2.77	2.89
10	Israel	2.75	2.69	2.72
11	Brazil	2.65	2.77	2.71
12	Abu Dhabi	2.69	2.63	2.66
13	Panama	2.43	2.83	2.63
14	Turkey	2.75	2.44	2.59
15	Japan	2.65	2.51	2.58
16	Italy	2.56	2.54	2.55
17	South Korea	2.58	2.46	2.52
18	China	2.57	2.37	2.47
19	Taiwan	2.49	2.39	2.44
20	Colombia	2.32	2.53	2.42
21	South Africa	2.47	2.32	2.40
22	Argentina	2.27	2.32	2.30
23	Poland	2.35	2.23	2.29
24	Dominican Republic	2.14	2.38	2.26
25	Jordan	2.27	2.04	2.15
26	Jamaica	2.04	2.20	2.12

27	Russia	2.18	1.78	1.98
28	France[1]	n/a	n/a	n/a
29	Philippines[1]	n/a	n/a	n/a
30	Spain[1]	n/a	n/a	n/a

1=where not included in the original survey but added due to overwhelming nominations in the survey.

Table 6: Selected Countries

5.2. Sample Size and Analysis

We then took a U.S. representative sample in respect to 6-demographic dimensions. This study used a new sample of 3,000 respondents. Each respondent was able to select a country and then rate it along 34 items. Like with the previous surveys, the items were presented in "random order to minimize response-set artifacts in the obtained scores" (Rossiter, 2002, p. 324). When selecting the country, we also asked why they choose that country. The possible reasons were: they are a citizen from this country, have family in this country, have friends from this country, have visited it, intend to visit, a combination of those or 'none of the above'.

Our sample consists of 48% male and 52% female, 33% are single, 55% married and 36% are from southern U.S.. Appendix A provides further detail of our representative sample. We asked respondents to what extent they agree or disagree with our statement as related to the items previously developed. With 3,000 respondents, our sample size is above the threshold by Norusis (2005) as well as with 81 sample to item ratio well above the acceptable range by Nunnally (1978). The Kaiser-Meyer-Olkin (KMO) was .974 and Bartlett's Test of Sphericity was significant at .000. We conclude our sample is suitable for factor analysis due to the large sample size and sample adequacy. Our 'test of normality' of the items was for both, Kolmogorow-Smirnow and Shapiro-Wilki, significant and we therefore use principle component analysis.

5.3. Factor Analysis

Unlike with the previous survey where the objective was to develop and validate the scales and underlying items, study 4 applied the scale to a number of countries. Therefore, there were some instances where respondents either didn't complete the survey or used 'don't' know' as an answer which lead to 'missing data'. We used two approaches to deal with missing data. First, we used 'case deletion' of those respondents who either didn't complete or had a significant number of 'don't know' answers. Out of the 3,000 respondents, there were 299 respondents

which had a significant number of missing data. Interestingly, but not surprisingly, almost all of those had selected their chosen country for no particular reason (e.g., not citizen, no family, no friends, not visited or intention to visit this country). We have excluded those for further analysis. Second, for the remaining 2,701 respondents, we used Missing Value Analysis (MVA) procedure of SPSS 22 and multiple imputation (Markov Chain Monte Carole algorithms). Note, the problem of missing data or incomplete data is frequently found when constructing indexes.

We then conducted a confirmatory factor analysis (CFA) to re-confirm the nature of the MTI construct and its' dimensionality. We used the principle factor analysis with promax rotation and unrestricted number of factors to be extracted. We used promax as with previous studies the factors are correlated. Again, the 34 items loaded on 4 factors explaining 69.8% of the variance. Each factor has a Cronbach alpha ranging from .82 - .97 which shows internal consistency of our scale.

5.3.1. Validity Test

As can be seen in Table 7, all items have significant loadings of .50 or higher with values between .51 to .94 *indicating* convergent validity of the constructs. We also assessed convergent and discriminant validity by calculating the AVE and CR again. Our AVE values range between .44 and .67 and our CR values range between .58 and .86. All CR values are higher than the AVE. Moreover, the majority of the values for AVE and CR are equal or higher than the corresponding threshold. To test for discriminant validity, we compare the AVE with the squared inter-construct correlation estimates (SIC). The results show promax was the correct rotation method used. Table 7 provides the results of the CFA including AVE, CR and SIC. Note, if we take in Table 7 items with .6 or higher factor loadings only, all our AVE and CR values would have been above the threshold. Therefore, one might consider dropping for future studies three items (overall positive country image; stable exchange rate and great weather).

	Factor Load / *α / AVE / CR*
Factor 1: Country Environment (7)	*α=.97, AVE =.44, CR=.58*
Has low corruption	.77
Is culturally similar to mine	.76
Has a similar language to mine	.69

Has a stable economy	.65
Is safe to travel to	.64
Has overall a positive country image	.57
Has a stable exchange rate	.51
Factor 2: Tourism Destination (5)	*α=.87, AVE = .59, CR=.77*
Is an attractive tourist destination	.89
Is a popular tourist destination	.86
Has many cultural or natural attractions/sites	.83
Is an exotic tourist destination	.66
Has great weather	.52
Factor 3: Medical Tourism Costs (5)	*α=.82, AVE=.48, CR=.62*
Is low cost to travel to	.77
Has low accommodation costs	.72
Has low treatment costs	.71
Has affordable airfares to travel to	.61
Has low healthcare costs	.60
Factor 4: Facility and Services (17)	*α=.83, AVE=.67, CR=.86*
Has quality treatments and medical materials	.94
Has hospital/medical facilities with high standards	.94
Has well experienced doctors	.94
Has well-trained doctors	.93
Has reputable doctors	.92
Has internationally certified staff and doctors	.91
Has hospital/medical facilities with good healthcare indicators	.90
Has doctors I would recommend to my family or friends	.82
Has reputable hospitals/medical facilities	.77
Has friendly staff and doctors	.77
Has overall a positive medical tourism image	.76
Is known for state-of-the-art medical equipment	.75
Has internationally accredited hospitals/medical facilities	.74
Has internationally educated doctors	.72
Has hospitals/medical facilities I would recommend	.70
Has high quality in healthcare	.64
Has internationally certified doctors	.61

Table 7: CFA Results of Study 4

5.4. Composite Indicator Calculation

What follows is the composite index calculation which consists of normalizing or standardizing the data, weighting and aggregating the data and calculating the MTI values for the various countries considered.

5.4.1. Standardizing Data

As we used for all items the same 5 point Likert scale rating, this was fairly easy to do. We used the 'Percentage of Scale Maximum' (%SM) method. It converts any Likert Scale score into a standardized score. In order to do this, we have to recode our initial score (1-5) to 0-4 score. Second, as we have different numbers of items per factor we also need to consider this. As Table 8 shows, we use the following formula to 'standardize' our Likert scale to scores between 0-100:

Likert Scale[4]	**Conversation**	**100 Point Score**
4 = Strongly agree	$score = \left(\frac{\sum ratings \times 100}{\#\ items \times 4}\right)$	100
3 = Agree		75
2 = Neither agree or disagree		50
1 = Disagree		25
0 = Strongly disagree		0

Table 8: Likert Scale Conversion Table

For example, if one have a 5 point Likert scale (0-4) with 7 items the calculation becomes: [actual total scale score is, say, 20]. Then standardized score = (20 x 100)/ (7 x 4) = 2000/28= 71.42.

5.4.2. Weighting and Aggregating Factors

There are different approaches (e.g., statistical, mathematical, equality and participatory) to calculate the weights for the factors. Each approach has its advantages and disadvantages. As the focus is on the demand side for medical tourism we chose to use the 'participatory approach' to weight the factors which were 34% for Country Environment, 16% for Tourism Destination, 16% for Medical Tourism Costs and 34% for Facility and Services

Linear aggregation can be applied when all indicators have the same measurement unit and there are no conflict effects between factors (same direction and sign). Both requirements are met and we therefore used the linear aggregation method. By far the most widespread linear aggregation

[4] Likert scale with 1-5 coding: = $\left(\frac{mean\ factor-1}{4}\right)$ x 100 or Likert scale with 0-4 coding: = $\left(\frac{mean\ factor}{4}\right)$ ×100.

is the summation of weighted and normalized sub- indicators (e.g., country environment, tourism destination, medical tourism costs and facility and services) with the following formula:

$$index = \sum_{j=1}^{n}\left(w_j \sum_{i=1}^{m} x_{ij}\right)$$

x_{ij} = item i in factor j
w_j = weight for factor j
m = number of items in factor, and
n = number of factors

5.4.3. Calculating MTI Scores

Finally, we calculated for each country the scores of each factor and the overall MTI score. The results are presented in the following Table 10. The numbers have been rounded.

Country	# respondents	Factor 1	Factor 2	Factor 3	Factor 4	MTI Score
Canada	217	79.5	70.3	75.7	78.1	76.9
UK	174	77.2	72.9	66.8	77.5	74.8
Israel	138	65.6	79.9	64.8	84.6	74.2
Singapore	33	71.1	78.6	66.7	78.2	74.0
Abu Dhabi*	14	64.9	79.2	64.4	82.3	73.0
Costa Rica	120	66.5	83.5	74.7	72.8	72.8
Italy	138	65.8	81.6	65.0	76.9	72.0
Jordan*	6	73.1	62.9	66.7	75.4	71.1
Germany	154	68.5	71.3	62.7	76.6	70.7
Philippines	95	65.3	75.9	73.2	72.1	70.7
Japan	146	64.9	79.0	62.9	75.3	70.4
France	151	65.0	80.7	58.8	75.9	70.2
South Korea	50	63.1	73.5	66.9	76.6	70.0
Taiwan*	21	64.5	70.1	66.2	75.6	69.4
Spain	105	64.0	78.6	63.9	72.7	69.3
Brazil	116	58.8	81.2	67.3	70.6	67.9
Jamaica	78	62.5	82.0	67.6	65.8	67.7
India	130	58.8	72.8	70.4	72.1	67.5
Colombia	55	60.9	73.2	72.0	68.6	67.4
Panama*	26	61.5	70.0	71.0	68.8	67.0
Dubai	39	60.2	72.7	56.4	73.6	66.1
Dominican Republic	58	62.8	76.9	67.9	62.9	66.0
Poland	53	64.2	64.0	63.3	68.5	65.5
Thailand	65	53.5	79.1	67.1	69.7	65.5

Argentina	37	57.2	74.6	62.2	67.5	64.4
China	120	56.2	70.0	60.9	67.7	63.1
South Africa	80	57.4	70.1	59.5	63.9	62.1
Mexico	189	50.0	73.7	72.1	60.2	61.0
Turkey*	17	50.9	74.4	62.1	63.8	61.0
Russia	76	40.0	58.2	52.6	55.4	50.3

528 * Cell size too small to do any further statistical analysis.

529 Table 10: MTI Scores

530

531 As we have five dependent variables (4 factors scores plus the overall MTI score) and multiple
532 countries, we conducted a Multivariate analysis of variance (MANOVA) to assess whether the
533 MTI yields significant differences of the overall MTI score and the subsequent 4 sub-indexes.
534 We obtain a statistically significant difference in respect to the overall MTI score with F (116,
535 10603) = 17.976, $p < .0005$; Wilk's $\Lambda = .492$. To determine how the four factors vary by
536 countries, we need to look at the 'tests of between-subjects effects'. Again, we obtain significant
537 results for Country Environment (F (29, 2671) = 21.33; $p < .0005$), Tourism Destination (F (29,
538 2671) = 8.96; $p < .0005$), Medical Tourism Costs (F (29, 2671) = 10.84; $p < .0005$) and for
539 Facility and Services with (F (29, 2671) = 11.41; $p < .0005$).

540 Finally, we assessed concurrent validity of the MTI scale. Concurrent validity is demonstrated
541 when a test correlates well with a measure that has previously been validated and is of similar
542 construct. We correlated our overall MTI score with the score of the Nation Brand Index (NBI).
543 The NBI seems the most suitable construct to compare to. It considers 6 dimensions (Tourism,
544 Exports, Governance, Investment & Immigration, Culture & Heritage, and People) and over 40
545 items, some of which are similar to the MTI items. We used the values of the NBI from their
546 U.S. respondents to keep it consistent with our MTI values. We obtain $r=.72$, $p < .05$ between the
547 two constructs.

548

549 **6. Discussion and Conclusion**

550 Traveling overseas in search for quality healthcare and well-being has been done for decades;
551 in the last few years medical tourism has grown exponentially. While at the beginning of the rise
552 of the medical tourism industry in the 21st century there were only a handful of hospitals and

553 countries promoting themselves as medical tourism destinations, today it is estimated that over 6
554 million patients engage in medical tourism, an estimated $100 billion dollar industry.

555 Despite this notable size and growth, empirical insights into the construct of countries as medical
556 tourism destinations have remained scant. As a result, the projected steady growth and
557 investment from nations to increase competitiveness for medical tourism has not risen to meet
558 expectations. In that respect, this paper makes three important contributions. First, it provides a
559 theoretical and empirical based conceptualization of medical tourism as a multi-dimensional
560 construct consisting of host country factors, medical and tourism industry factors, and medical
561 facility and services factors. Second, we develop a composite index, a country specific
562 performance measure and a statistically sound measurement instrument, the *Medical Tourism*
563 *Index*. Third, we offer empirically based insights by benchmarking 30 countries on our newly
564 developed index and assess their attractiveness as a medical tourism destination. Our MTI shows
565 where and how countries fall short or lead compared to others, as the most attractive medical
566 tourism destinations.

567 To achieve this, we followed a rigorous multi-steps index construction procedure as proposed by
568 Churchill (1979) and Rossiter (2002). Our MTI scale is based on a series of 4 empirical studies
569 taking into account 4,995 respondents and experts. The MTI was also subject to a series of
570 reliability and validity tests. Our results show the MTI consist of four dimension with 34
571 underlying items which enables to explain about 70 percent of the construct. In study 4, we
572 applied our newly developed scale to 30 countries and our results and tests show the MTI
573 measures meaningful differences between countries, not only on an aggregated level (MIT score)
574 but also on all four sub-indexes. Therefore, we provide a useful measurement tool for multiple
575 stakeholders such as government ministries and agencies (e.g., health, tourism, economic
576 development, foreign affairs, education, infrastructure), industry players (e.g., hospitals and
577 clinics, hotels, travel agencies, tour operators, health tourism management), third party players
578 (e.g., insurance companies, employers), associations (e.g., chamber of commerce, hotel
579 associations, medical and dental associations,) or researchers (e.g., universities, market research
580 companies) to measure and subsequently manage their medical tourism destination brand.

581

6.1. Practical Implications

The MTI provides a platform upon which a country can be measured as to its attractiveness as a medical tourism destination. Currently many efforts to promote a country's services to a list of selected target markets has been comprised of small adaptations of existing tourism marketing efforts to include health and wellness services as a tourism offering. Countries look to trends in their existing tourism demographics as a gauge to measure where to source potential medical tourists. The decision to use tourism marketing tactics to attract potential healthcare clients with little to no understanding of the healthcare clients' perception of the country as a medical tourism destination, results in lack of inbound patient volumes and the risk of inadequate and wrong investments in tourism or healthcare infrastructure or systems. Subsequently, revenues do not substantiate the investment and the country discontinues its promotion of the service line. This results in unsustainable, inconsistent messages delivered to potential health and wellness seeker, challenging perception of the country as a medical tourism destination and the opportunity to access high quality care.

The inability of most nations to define a medical tourist for the purpose of measuring them and the lack of statistical support for measuring effectiveness of promotional strategies can be improved with the utilization of the MTI over time by different countries of origin and benchmarking with other countries. A country developing a medical tourism brand promotion program may determine its effectiveness and impact in a particular target market by using the MTI to assess the perception of the country prior to and then subsequent to the program implementation. In that respect, the MTI allows to measure the effectiveness of such programs.

Further, MTI results may also provide support for the fact that tourism trends do not necessitate medical tourist trends. For example, Turkey, through is Ministry of Culture and Tourism makes a large investment promoting Turkey as a tourist destination. The Ministry of Health also manages the nation's strategic plan for medical tourism and the Ministry of Economy offers a reimbursement plan for health tourism trade missions and investment abroad. Turkish Airlines developed special pricing packages for persons utilizing the airline for health tourism, rendering it the highest share of value sales in tourism and travel. As the world fourth largest flight network, Turkish Airlines brings a large number of tourists from Russia and CIS nations, however interviews conducted by with 8 Turkish hospitals revealed the conversion rate of

inquiry to patient is less than 2%, attributing the loss of opportunity to the lack of education and awareness of Turkish health services.

The Medical Tourism Index can also serve as a tool to improve demographic diversification, narrow target market geography and measure marketing tactic effectiveness.

6.2. Limitations and directions for future research

Like any study, there are some limitations which should be noted and which provide opportunities for future research. First, the scale is based on U.S. representative samples and is subject to a series of validity and reliability tests, so future studies should test the scale cross-culturally to further establish external validity. In the same line of argument, the MTI should be expanded to include more than the 30 countries studied. Every year more destinations express a commitment to develop a medical tourism program and express an initial list of target markets. This presents an opportunity to add new countries to the list of countries studied and to cause the U.S. sample and other respondent sample types to be performed again to include the new countries.

Second, another limitation is the type of respondents. Like the Nation Brand Index, our MTI scores are based on the general public and their perception of countries as medical tourism destinations. Future research should assess people who demonstrate an interest in or who have engaged in medical tourism. Ideally pre and post visit survey should be conducted. Another important group to survey would be people from the insurance industry, the medical industry or news and media industry. Unfortunately, due to lack of information, there is now way to know who has engaged in medial tourism on a worldwide scale, however the emergence of medical tourism stakeholder groups may be utilized as a source of medical tourists to survey in the future. This provides another opportunity for future research to collect such data nationally and internationally. With the adoption of a global definition of medical tourism and a platform to collect data from patients around the globe in their native language, such data can be evaluated regularly to provide regional market evaluation as well as global impact.

Third, our scale is an overall scale of the attractiveness of a country as of medical tourism destination but does not take into account the type of procedure. We know that certain institutions, cities, regions or countries are known for providing higher volume of patient care in certain specific procedures such as Costa Rica is known for bariatric, cosmetic and dental, Mexico for dental and orthopedics, India for cardiovascular, surrogacy and orthopedics, South Korea for robotics, oncology, cardiovascular, dental and eastern medicine, Brazil for cosmetics and cardiovascular, or Germany for stem cells and oncology. It would be helpful to complement the MTI with an additional sub-ranking for various procedures such as cosmetic/plastic surgery, dental surgery, oncology, cardiology, infertility treatment, eye surgery, or aesthetic / non-invasive procedures.

Future research could also adapt the MTI for other types of destinations such as cities, regions or states. For example, Dubai was used within the MTI as a country despite it being an Emirate and part of the UAE. However, industry experts determined the distinction between medical tourism strategies, political differentiation as well as initial survey results collected from medical tourism patients was sufficient to rank it as a country for the purpose of MTI. Future studies may include smaller subdivision to allow for benchmarking efforts to improve MTI in multiple cities in one country. Examples of such interest can be identified in Colombia, for example, where the national government through the efforts of ProExport Colombia promotes medical tourism for the country but doesn't know how their different cities such as Cartagena, Bogotá or Medellin are perceived. The same holds true for the different cities in Turkey which each have distinguished themselves by the health and tourism attributes found locally. The practical value of such data would allow national organizations to realign the weight of their marketing strategies and budget towards raising awareness of the quality of services in the lower ranking cities.

Similarly, state initiatives have begun to emerge in the U.S., specifically in West Virginia, Rhode Island, the District of Columbia, Florida and Puerto Rico. Puerto Rico serves as an example of a region which understands the components of MTI and has implemented an island wide strategy to improve service development in healthcare, hospitality, airline, cruise, travel and transportation sectors and thereby improve the perception of Puerto Rico as a medical tourism destination. The state of Florida has allocated $5 million towards the promotion of Florida for

669 domestic and international medical tourism. Data providing target market perception of Florida
670 as a destination would be value added in the determination of marketing efforts, the direction of
671 the strategy and justification for future funding needs.

672 Research could be directed towards expanding the MTI with previous mentioned points such as
673 other country of origins, more country of destinations, other type of respondents and complement
674 it with additional information about type of procedures. Furthermore, it might be useful to
675 identify challenges and barriers that countries and their underlying organizations encounter with
676 medical tourism and how to develop a coherent and comprehensive Medial Tourism Strategy.
677 Some countries have started to formulate such strategy like the Philippines where the
678 Department of Tourism developed a national medical tourism plan in 2013. In early 2014, Dubai
679 revealed a master medical tourism plan to attract in the future up to 500,000 patients a year. The
680 authorities said they will build 18 private and 4 public hospitals by 2020. In 2012, 107,000
681 medical tourists visited Dubai, generating about $180 million, in 2016 they expect about 170,000
682 patients with revenues of about $300 million and by 2020 they expect about $700 million in
683 revenues and 500,000 patients. The number of private-sector healthcare staff is expected to
684 increase by about 4,000. Therefore, future research could assess the implication of medical
685 tourism on broader issues of society such as democratization of a country, its implication and
686 impact on education system, infrastructure and overall impact on the economy and society.

687

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Appendix A: Descriptive Statistics Sample

	Survey 1 (n=394) Convenience expert sample	**Survey 2 (n=801)** Representative U.S. sample	**Survey 3 (n=800)** Representative U.S. sample	**Survey 4 (n=2,701)** Representative U.S. sample	**U.S. 2010 CENSUS**
Gender	**In %**	**In %**	**In %**	**In %**	**In %**
Male	65	46	49	48	49
Female	35	54	51	52	51
Age	**In %**	**In %**	**In %**	**In %**	**In %**
18-24	14	12	12	13	
25-34	24	24	23	18	48
35-44	26	17	16	18	
45-54	23	15	16	17	35
55-64	21	15	16	16	
> 65	1	17	17	18	17
Marital Status	**In %**	**In %**	**In %**	**In %**	**In %**
Single	17	32	34	33	34
Married	70	55	53	55	52
Divorced or Widow	13	13	13	12	14
Highest Educational Level	**In %**	**In %**	**In %**	**In %**	**In %**
High School or less	2	54	51	48	67
Associate Degree	4	11	13	11	
Bachelor Degree	24	23	24	26	21
Master's Degree	38	9	9	11	10
Doctorate Degree (PhD/MD/JD)	32	3	3	4	2
Ethnicity	**In %**	**In %**	**In %**	**In %**	**In %**
White	n/a**	66	68	66	75
Black or African American	n/a**	14	14	14	14
Hispanic or Latino	n/a**	14	11	13	n/a**
Asian	n/a**	5	6	6	6
Native American and other	n/a**	1	1	1	6
Geographical U.S. region	**In %**	**In %**	**In %**	**In %**	**In %**
Northeast	n/a**	18	18	19	18
Midwest	n/a**	22	22	23	22
South	n/a**	37	37	36	37
West	n/a**	23	23	22	23

* reported in CENSUS in 'white'.

** Question not adequate as it was a 'global' survey.