

# Factors influencing outbound medical travel from the USA

Ayse Collins, Anita Medhekar, Ho Yin Wong and Cihan Cobanoglu

## Abstract

**Purpose** – *The purpose of this paper is to explore how Americans choose a country and medical facility to travel abroad for medical treatment based on the following factors country environment, tourism destination, medical tourism costs and medical facilities and services.*

**Design/methodology/approach** – *Online survey with the help of Amazon Mechanical Turk website was used for data collection, and 541 valid cases were used of American residents who had travelled abroad for medical tourism. Exploratory and confirmatory factor analyses were undertaken to validate the scales.*

**Findings** – *Findings indicated four major factors that can influence American medical tourists' choices of medical tourism destinations. These factors are overseas' country factors, attractiveness of tourism destination, medical tourism costs and facilities and services. Both the convergent and discriminant validities for the constructs were established. The results of the measurement-model-fit based on various measures were within the suggested cut-off values.*

**Research limitations/implications** – *Out of the 541 responses of post-travel experienced medical tourists, it is hard to tell how similar/dissimilar the participants are in terms of ranking the four factors. To be competitive to attract global medical tourists, research suggests that the five popular countries of treatment, India, China, Thailand, Mexico and Turkey, identified in this study should provide high quality of medical and tourism facilities to patients.*

**Originality/value** – *This study contributes to the understanding of the underlying factors, which influence American medical tourists' choice of destinations, with validated scales. For this exploratory research, 25 new items together with 34 items from other studies were adapted.*

**Keywords** *Destination, USA, Cost, Outbound, Medical-tourism, Healthcare-quality*

**Paper type** *Research paper*

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## 1. Introduction

Medical tourism is the fastest growing multimillion-dollar niche segment of health tourism. In 2014, medical tourism market was worth approximately between \$55-65bn worldwide (Woodman, 2016). The popular destinations for outbound American medical tourists' are India, Thailand, Mexico, Costa Rica, South Korea and Singapore (Burns, 2015; Carroll *et al.*, 2013; Turner, 2010).

Travelling abroad or outbound from one's country of residence to the host-country for medical treatment, diagnostic tests and surgery is a complex phenomenon. Patients as medical tourists are travelling "Outbound" from USA for medical treatment/surgery to popular medical tourism destinations and hospitals overseas. The phrase "medical tourism" and "health tourism" is used interchangeably in the related fields of health and medical travel/tourism multidisciplinary research. This research paper considers that "Health Tourism" has two branches. "Wellness Tourism" relates to traditional medicine and therapies like Ayurveda, yoga, thermal-baths, homeopathy and acupuncture. "Medical tourism" is concerned with Western medicine such as complex diagnostic tests, surgeries related to cancer, cardiac, organ transplant, hip/knee replacements and reproductive (Medhekar *et al.*, 2014). Medical tourism phenomenon includes health-care management,

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tourism, marketing and promotion, international trade in health-care services, legal, ethical, social and regulatory issues (Bookman and Bookman, 2007; Connell, 2013; Frederick and Gan, 2015; Jones and Keith, 2006; Noree *et al.*, 2014; Smith *et al.*, 2009; Turner, 2010, 2013; Whittaker and Chee, 2015).

Therefore, medical tourism is discussed from those perspectives, emphasizing different focal points. In 2016, approximately 11-million people travelled abroad for medical reasons. Nearly 1.4-million were Americans, who travelled for cancer, heart-by-pass, dental-crowns, cosmetic-surgery and other short-stay outpatient procedures (Woodman, 2016). Further, medical tourism is travelling cross-border with an objective of getting value for money, which is affordable, comparable or better quality of surgery to improve once health, well-being and tourism opportunity (Burns, 2015; Cormany and Baloglu, 2011; Connell, 2013, 2015; Cotton *et al.*, 2014; Hanefeld *et al.*, 2015; Medhekar *et al.*, 2014). International Joint Commission International (JCI) accreditation and quantity of care attracts international medical patients (JCI, 2017; Turner, 2013).

Medical tourism is also outsourcing of primarily expensive surgeries and other medical services from high costs to low cost countries such as India, Thailand and Mexico (Bies and Zacharia, 2007; Carrera and Bridges, 2006; Gerstlberger and Schneider, 2013; Jones and Keith, 2006; Smith and Forgione, 2007; York, 2009). The dilemma according to Bies and Zacharia (2007): “is it a holiday or tourism or something that should be given a special name?” (p. 1144). This discussion will last for some time with interdisciplinary research from different disciplines. For example, Smith *et al.* (2009) apply international trade theory literature and considers medical travel as a market for global healthcare service for the international consumer. Whereas Johnston *et al.* (2010) put emphasis on the aim of medical travel and considers medical tourism where “patients leaving their country of residence outside of established cross-border care arrangements made with the intent of accessing medical care, often surgery abroad” (p. 1). Medical tourists with not so complex surgeries such as dental, cosmetic, reproductive do engage in some tourism-related activities such as sightseeing and shopping pre or post-surgery. Therefore, one can conclude that medical tourism is a synergy between medical and tourism sectors of the economy and both have to work together to provide services to patients as medical tourists.

The existing medical tourism literature focuses on conceptual models of globalisation of healthcare and medical tourism market rather than empirical studies with actual medical tourists. The objective of this research is to fill the knowledge gap by providing empirical evidence on factors influencing the choice of medical destination by outbound American medical tourists (Connell, 2013; Cormany and Baloglu, 2011; Crooks *et al.*, 2011; Drinkert and Singh, 2017; Hopkins *et al.*, 2010; Johnston *et al.*, 2010; Lunt *et al.*, 2010; Smith and Forgione, 2007). In this study, “outbound medical tourism” has been used to describe “Patients as medical tourists travelling ‘Outbound’ from USA for medical treatment/surgery to popular medical tourism destinations and hospitals to seek medical treatment abroad”.

This paper is organised as follows. After the introduction to the USA outbound medical travel, the literature review in Section 2 briefly mentions the conceptual models on medical tourism and the factors that influence out-bound medical travel by patients from home country USA to other developing countries in the world based on the four constructs. They are country environment, medical tourism destination, cost and health-care facilities and services. This is followed by methodology and data collection in Section 3. Result of exploratory and confirmatory factor analysis and descriptive statistics are presented in Section 4. Final section covers policy implications and future research directions in Section 5, followed by concluding remarks and limitations in Section 6.

## 2. Literature review

Traditionally, wealthy people were travelling from developing countries to Europe, the UK and the USA for medical surgeries. However, in the twenty-first century, many developing countries like Thailand, India, Malaysia, Poland, Turkey, Mexico, Brazil and Venezuela have emerged as popular medical tourism destinations, offering the affordable quality of JCI-accredited surgeries at an attractive destination with pre- and post-surgery nursing care (MacReady, 2007; Turner, 2010). Globalisation, privatisation of health care and the internet revolution has led to the growth of this industry. Medical tourism is driven by market forces of demand and supply, where choice of country and medical facility is based on economic, political and regulatory conditions, the health-care facility itself, costs, accreditation, physicians' level of training and quality of care (Bookman and Bookman, 2007; Connell, 2015; Heung *et al.*, 2011; Medhekar *et al.*, 2014; Smith and Forgione, 2007; Woodman, 2016).

There have been various theories, conceptual models and frameworks coming from different disciplines. For example, trade in health-care services, motivation, promotion of medical tourism, health-care quality and accreditation, bio-ethical and regulatory issues concerning surrogacy, organ transplants and clinical errors (Crooks *et al.*, 2011, 2015; Heung *et al.*, 2011; Lunt, Horsfall and Hanefeld, 2016; Kanittinsuttitong, 2015; Smith and Forgione, 2007; Smith *et al.*, 2010, 2009; Singh, 2012; Tucki and Cleave, 2014).

Medical tourism is a growing global phenomenon and several related researches and industry reports emphasize the importance of push (demand) and pull (supply) factors from developed countries like the USA, Canada, Australia and UK to developing countries. Some of the push factors have been listed as being the high cost of surgery, unaffordable health insurance, a long waiting lists, the non-availability of treatment, ethical issues and regulations, uninsured or underinsured, ease of travel, high per-capita income and the ageing population in developed economies. Those factors are pushing patients to make an informed choice to travel to developing countries for surgery. On the other hand, supply-side pull factors include high quality of overseas-educated physicians, pre and post-surgery nursing-care, no waiting period, state-of-the-art medical technology and an attractive destination (Carrera and Bridges, 2006; Jones and Keith, 2006; Horowitz *et al.*, 2007; Deloitte, 2008; Toral, 2009; Lunt *et al.*, 2010; Turner, 2010, 2013; Runnels and Carrera, 2012; Connell, 2013; Medhekar *et al.*, 2014).

### 2.1 Factors influencing outbound medical travel

There are various push and pull factors influencing the US outbound medical travel abroad. The push factors include high health costs at home, underinsured or uninsured, unavailability of treatment due to ethical and regulatory reasons, and long surgery waiting lists (Burns, 2015; Crooks *et al.*, 2011; Drinkert and Singh, 2017; Turner, 2010). The pull factors are host country environment, the destination attractiveness, the cost of the desired healthcare, overseas-educated medical staff, JCI accreditation and the comparable or better quality of the medical tourism facility and its services. These pull factors lay a theoretical foundation for this study.

*2.1.1 Host country environment.* Various researches have been conducted regarding the effect of the "host country environment" while choosing a country for medical travel/tourism. Those environment issues have been mostly relate to the influence of the social, economic, political, cultural, ethical and regulatory environment of the country on medical travel decision (Adam *et al.*, 2013; Bookman and Bookman, 2007; Esiyok *et al.*, 2016; Johnston *et al.*, 2010; McGuinness and McHale, 2014; Hanefeld *et al.*, 2015; Kanittinsuttitong, 2015; Turner, 2013; Whittaker and Chee, 2015). Moreover, some researchers have studies on the importance of "build environment" such as health-care facilities and supporting facilities (from airports to hotels or hospitals)

(Chrysikou *et al.*, 2018). However, though build environment aspect is a very important environmental component and getting a momentum recently, it has not been included in our study as a “host country environment”.

Popular medical tourism countries like Thailand, India and Singapore together account for 80 per cent of global market share with the added advantage of being attractive tourism destinations (Finch, 2014). Potential patients use various resources of information on the internet for first choosing a destination, followed by hospital and medical specialties such as cardiac, dental, surrogacy and cosmetic, hip or knee replacement surgery (Abubakar and Ilkan, 2016; Lunt *et al.*, 2016). For example, news about the political coup in Thailand on the internet, inbound medical tourist numbers declined and likewise geographical disasters like tsunamis, the SARS virus and terrorism can cause inbound tourist numbers to fall. Medical tourist consider the country environment before travelling board for surgery (Abubakar and Ilkan, 2016; Connell, 2013; Frederick and Gan, 2015; Heung *et al.*, 2011; Hopkins *et al.*, 2010; Horowitz *et al.*, 2007; Jenner, 2008; Moghimehfar and Nasr-Esfahani, 2011; Singh, 2012). In case of country environment, 12 items operationalised this construct such as stable exchange rate, low corruption, cultural sensitivity and language familiarity, positive image of the country, stable economy, political stability, legal protection, good public infrastructure, friendly people and ease of visa application. The final items that operationalised the constructs for this research are in Table I. Accordingly, the following hypothesis is proposed:

*H1.* Country environment is positively related to medical tourism.

*2.1.2 Host country tourism destination.* The most popular tourism destinations are in Asia, Eastern Europe, Latin America, the Middle East and South Africa. The leading countries in terms of the number of medical tourists are Thailand, India, Malaysia, Singapore, Dubai, Turkey, Mexico and Greece (Boston and Yalcin, 2016; Bookman and Bookman, 2007; Connell, 2013; Deloitte, 2008; Finch, 2014; Noree *et al.*, 2014; Turner, 2010; Whittaker and Chee, 2015). A potential medical tourist makes a decision to travel based on a countries tourism attractions, image, trust, safety and branded JCI-accredited hospitals. This may include tourism opportunities, safety in travel, accommodation, quality of branded hospital, accredited hospitals, familiarity with the local language and the English language and culture (Abubakar and Ilkan, 2016; Boston and Yalcin, 2016; Das and Mukherjee, 2016; Esiyok *et al.*, 2016; Frederick and Gan, 2015; Gill and Singh, 2011; Johnston *et al.*, 2010; Moghimehfar and Nasr-Esfahani, 2011; Sultana *et al.*, 2014). In case of country image as a popular tourist destination, seven items operationalised this construct such as popular tourist destination, exotic tourist destination, good weather conditions, many cultural attractions, attractiveness of a country, natural attraction and safe environment. Therefore, the following hypothesis related to host countries popularity as medical tourism destination is proposed:

*H2.* Host country's image as a popular tourism destination is positively related to medical tourism.

*2.1.3 Medical tourism costs.* A potential medical tourist when searching for information, besides choosing a destination based on its popularity and tourist attractions is also comparing costs of surgery and overall savings potential aside from the cost of travel and accommodation. According to Burns (2015), medical tourism is “travelling outside one's country (sometimes to an international centre of excellence) to obtain care at significantly reduced cost or (for those travelling to more modern countries) increased quality” (p. 15). Hence uninsured and underinsured patients from developed countries are travelling to developing countries for an affordable quality of medical treatment where they can save thousands of dollars and also engage in tourism activities and have a holiday if health permits (Burns, 2015; Deloitte, 2008; Johnston *et al.*, 2010; Smith *et al.*, 2010; Singh, 2012; Turner, 2010; Woodman, 2016). According to Bies and Zacharia (2007), it is worth

**Table I** Exploratory factor analysis, construct reliability test and other test results

Items	Factors				Mean (S.D.)
	Facilities and services	Tourism destination	Medical tourism costs	Country environment	
Country environment				0.645	3.75 (1.027)
Stable exchange rate				0.530	3.61 (0.978)
Cultural similarity				0.562	3.19 (1.158)
Stable economy				0.712	3.49 (1.108)
Reasonable political stability				0.613	3.56 (1.049)
Good infrastructure and public transportation				0.629	3.75 (0.994)
Popular tourist destination (deleted after CFA)		0.798			3.14 (1.163)
Exotic tourist destination		0.835			3.02 (1.239)
Good weather conditions		0.714			3.52 (1.092)
Attractiveness of the country as a tourist destination		0.825			3.34 (1.192)
Many cultural attractions		0.805			3.32 (1.176)
Many natural attractions		0.850			3.37 (1.172)
Low pre-treatment cost			0.787		3.94 (0.874)
Low post-treatment cost (deleted after CFA)			0.758		3.99 (0.885)
Lower health-care costs			0.763		4.00 (0.917)
Low cost of accommodation			0.743		3.90 (0.899)
Low costs to travel			0.647		3.89 (0.899)
High health-care quality indicators (e.g. low infection rate)	0.698				4.14 (0.873)
Reputation of doctors	0.717				4.15 (0.887)
High-quality international accreditation standards (deleted after CFA)	0.677				3.96 (0.921)
High quality of care	0.717				4.28 (0.810)
State-of-the-art medical equipment	0.693				4.01 (0.887)
Quality in treatments (deleted after CFA)	0.767				4.26 (0.834)
Quality in materials	0.724				4.14 (0.880)
Accreditation of the medical facility	0.642				4.06 (0.894)
Reputation of the hospital/facility	0.765				4.12 (0.861)
Country's medical reputation	0.652				4.03 (0.903)
International certified doctors (deleted after CFA)	0.626				3.93 (0.971)
Easy application procedures (deleted after CFA)	0.658				4.01 (0.909)
Accuracy of information provided to the clients	0.713				4.11 (0.848)
Detailed information provided to the clients	0.721				4.04 (0.885)
Prompt reply to inquiries	0.635				4.00 (0.892)
Reasonable waiting time for treatment	0.587				4.04 (0.814)
High pre-treatment care (deleted after CFA)	0.680				4.03 (0.928)
High post-treatment care	0.593				4.01 (0.935)
24/7 nursing care	0.615				3.97 (1.053)
Diagnostic services (deleted after CFA)	0.707				4.12 (0.857)
Bartlett's test of sphericity	$\chi^2$ (df = 369) = 612.81, $p < 0.001$				
KMO	0.95				
<i>Results after CFA</i>					
Factors	No. of items		M (SD)		Construct reliability
Country environment	6		3.56 (0.72)		0.79
Tourism destination	5		3.31 (0.99)		0.85
Medical tourism costs	4		3.29 (1.02)		0.87
Facilities and services	14		4.08 (0.63)		0.93

encouraging American patients to travel to India for medical surgery as a “social good” (p. 1147).

Americans travel from high-cost to low-cost destinations, because of being uninsured, long waiting times and facing bankruptcy due to the high medical costs in the USA. Thus, cross-border or transnational health care is based on demand-side need, where patients travel short distance to neighbouring countries due to affordability, no waiting lists, availability of

treatment, familiarity with the culture and a high quality of health care (Mainil *et al.*, 2012). The main concern for any medical tourist is not just the affordable medical treatment and travel costs but also an internationally accredited quality of medical facilities and staff (Burns, 2015; Finch, 2014; Lunt *et al.*, 2016; Turner, 2010, 2013). The US medical travellers seek value for money to have a positive health care outcome in Mexico or miles away from home in Turkey, India or Thailand. In case of medical tourism costs, 11 items operationalised this construct such as low pre-treatment costs, low cost of treatment, low post-treatment cost, lower health-care costs, low accommodation cost, low cost of travel, food and affordability of airfare, shopping, sightseeing and local transport. The final items that operationalised this construct are in Table I. Therefore, the following hypothesis related to cost of medical treatment is proposed:

H3. Medical- and tourism-related costs are positively related to medical tourism.

2.1.4 *Medical tourism facilities and services.* International patients and Americans in particular who travel abroad long distances or cross-border to Mexico for surgery are concerned about the reputed JCI-accredited quality of the hospital, clinical performance, surgeon and nurses to get positive healthcare outcomes. Hospital attracting medical tourists, are faced with a challenge of providing comparable or better quality of JCI accredited healthcare services to foreign patients (Burns, 2015; Cohen, 2012; Crooks *et al.*, 2011; Rad *et al.*, 2010; Smith *et al.*, 2009; Smith, *et al.*, 2010; Sultana *et al.*, 2014; Turner, 2013; Veerasoontorn *et al.*, 2011; Whittaker and Chee, 2015).

The US-based, health-care international accrediting body, JCI, is responsible for accrediting hospitals all over the developed and developing world that treat foreign patients. JCI is concerned that hospitals in developing countries should effectively deliver health care of accredited quality in terms of state-of-the-art health-care facilities, doctors' reputations, training and expertise, and have prescribed key performance indicators to measure clinical outcomes (JCI, 2016). These include a short waiting list, preventable medication and surgical errors, low infection rates, high success rates and pre- and post-surgery care. Medical tourists and medical tourism facilitators make their choices based on the accreditation of hospitals by professional bodies such as JCI, which is dedicated to improving the quality in health-care delivery all over the world.

Furthermore, the International Society must accredit all accrediting bodies for Quality Assurance (ISQUA) in health care to ensure that other accrediting bodies are doing their job properly. A study by Guiry *et al.* (2013) surveyed potential and experienced US medical tourists expressing an interest in travelling abroad for surgery. A medical surgeons' expertise in providing medical care to patients with positive healthcare outcomes predicts the quality of health-care services. Similarly, Manaf *et al.* (2015) empirically tested perceived value as a driver in the case of Malaysia, and they identified quality in context of medical staff, supporting services and administrative services. In their findings, quality of medical staff was considered very important for patient satisfaction.

Perfetto and Dholakia (2010) drew conclusions after reviewing freely available medical tourism US patients' internet discussions about medical tourism, who were looking for First World quality health care at Third World costs. They observed that "little cultural and economic capital in society [...] and perceive themselves feel as abandoned as well, by the American healthcare system and by society" (p. 399), further influencing the global healthcare and medical system to be like the USA in the context of quality, accreditation, and the regulation of First World health-care systems.

While these studies shed light on various issues related to the medical tourism industry, most of them are conceptual papers without much empirical evidence related to why American medical tourists are travelling abroad for surgery. The aim of

this quantitative study is to explore how Americans choose a destination and medical facility to travel abroad for medical treatment based on tourism destination attractiveness, the country itself, medical and travel costs, and the quality of medical facilities and services. In case of medical tourism facilities and services, 30 items operationalised this construct such as high pre-treatment care, diagnostic services, real-time communication and accuracy of information, prompt reply to queries and doctors training and experience. The final items that operationalised this construct are in [Table I](#). Therefore, the following hypothesis related to the quality of medical tourism facilities and services is proposed:

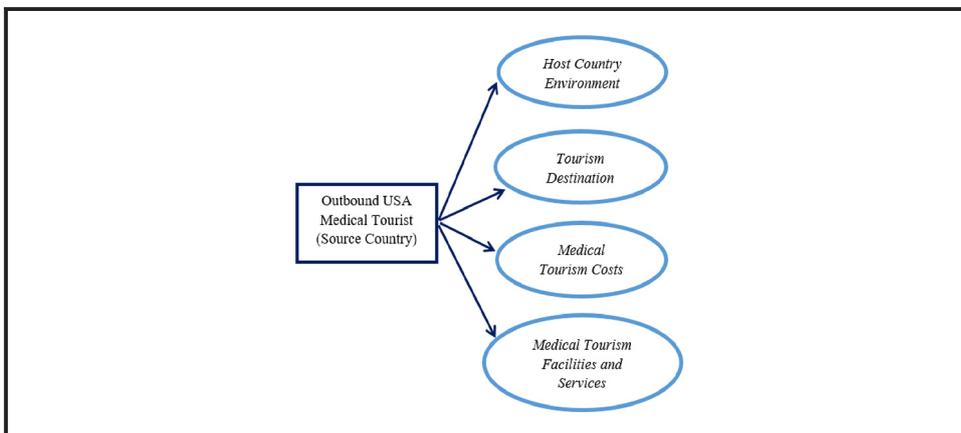
*H4.* The medical tourism facilities and services are positively related to medical tourism.

[Figure 1](#) illustrates the research model with four hypothesized paths where the USA outbound medical tourism depends on four independent factors: host country environment, tourism destination, medical tourism costs and quality of medical tourism facilities and services. This model will be tested quantitatively in the next section.

### 3. Methodology

This study used self-administered questionnaires to explore how Americans choose a destination and medical facility to travel abroad for medical treatment based on country environment, tourism destination, medical tourism costs and medical tourism facilities and services. The questionnaire started with one screening question that checked whether respondents had been to a country for medical reasons. If the respondent never travelled to another country for medical reasons, the survey ended. If they had travelled to another country for medical reasons, the questionnaire continued with questions about the country selected for medical treatment, the selection process and the importance of selection criteria. The questions about the selection criteria were grouped under: country environment, tourism destinations, medical tourism costs and medical tourism facilities and services. There were 61 items in this survey, of which 27 items were new items, and 34 of which were adopted from [Fetscherin and Stephano \(2016\)](#). The data for each of the variables were collected on a five-point Likert-type scale and respondents rated their attitude between one (1) (not at all important) and five (5) (extremely important).

**Figure 1** Factors influencing outbound medical travel from the USA



### 3.1 Study sample

A survey was conducted with US residents who travelled to another country for medical treatment within the past 12 months. A total of 1,246 respondents were collected from US residents with the help of the Amazon Mechanical Turk website. A small monetary incentive was offered to the respondents who qualified to take the survey (Cobanoglu *et al.*, 2016). Respondents who did not travel to another country for medical reasons were eliminated. A total of 541 responses were used for further analysis. Nearly 105 responses were eliminated because of not passing a validity check. According to Cobanoglu *et al.* (2016), using internal validity checks ensures the reliability of data when using Mechanical Turk as a sample source. Several internal validity questions were placed within the survey to ensure that the respondents read the questions. Any respondent who took an unusually quick time to finish the survey and those who replied to internal validity questions incorrectly were eliminated (i.e. one validity question instructed the respondent to choose "Agree" from the responses) from the data analysis, therefore yielding 436 validated responses. According to Goodman *et al.* (2013), Mechanical Turk generates high-quality reliable data. It also helps researchers to collect a more diverse demographic of respondents than with traditional methods.

Before the raw data were analysed, data cleaning was performed to achieve maximum accuracy. The number of missing responses for all items was low. Altogether, there was less than 1 per cent of missing data. The missing values were replaced with the expectation maximisation substitution method. According to Graham *et al.* (2003), the expectation maximisation substitution method renders "unbiased and efficient" parameters and is especially useful for analyses not involving hypothesis testing such as exploratory factor analysis and internal consistency calculations (p. 94).

## 4. Results

### 4.1 Descriptive analysis

The descriptive statistics and exploratory factor analysis (EFA) was conducted using the Statistical Package for Social Sciences (SPSS), version 23. The total number of usable responses was 436. About 60 per cent (260) and 24 per cent (105) of them were male and female, respectively, while 16 per cent (71) of them preferred not to answer or had missing data. The annual income of the respondents ranged from below U\$20,000 to U\$90,000 or more. Almost 35 per cent (195) of the respondents' annual income was below U\$40,000. Most (about 48 per cent or 207) of the respondents were 25-34 years old, followed by 35-44 years old (about 17 per cent or 75) of the respondents. Table II depicts descriptive statistics of the respondents.

### 4.2 Convergent validity analysis

To examine the underlying structure of the 61 items assessing medical tourism, an EFA using principal components analysis with Varimax rotation was conducted. The initial EFA results showed eight factors with a number of cross-loaded items 0.24 items were dropped because they did not contribute to a simple factor structure or failed to meet the criteria of having a factor loading of 0.5 or above and no cross-loading of 0.3 or above. Both the results of the Bartlett's test of sphericity and the KMO measure of sampling adequacy are satisfactory, with  $\chi^2$  (df = 369) = 612.81,  $p < 0.001$ , and 0.95 respectively. The remaining 37 items showed four clear factors: country environment, tourism destination, medical tourism costs and facilities and services. The communalities of all these items were all above 0.30, confirming convergent validity of the items. The four-factor solution explained about 56 per cent of the variance. Table I shows the results of the four-factor solution based on the EFA.

**Table II** Descriptive statistics of the respondents

<i>Characteristics</i>	<i>Frequency</i>	<i>(%)</i>
<i>Gender</i>		
Male	260	59.6
Female	105	24.1
Prefer not to answer/missing	71	16.3
Total	436	100
<i>Annual income US\$</i>		
Below \$20,000	71	16.3
\$20,000-\$29,999	75	17.2
\$30,000-\$39,999	49	11.2
\$40,000-\$49,999	40	9.2
\$50,000-\$59,999	36	8.3
\$60,000-\$69,999	28	6.4
\$70,000-\$79,999	23	5.3
\$80,000-\$89,999	13	3
\$90,000 or more	19	4.4
Prefer not to answer/missing	82	19.8
Total	436	100
<i>Age group</i>		
18-24	50	11.5
25-34	207	47.5
35-44	75	17.2
45-54	24	5.5
55-64	12	2.8
65 and over	1	0.2
Missing	67	15.4
Total	436	100
<i>Medical tourism destination</i>		
India	175	40.1
China	66	15.1
Thailand	57	13.1
Mexico	19	4.4
Turkey	16	3.7
Canada	8	1.8
Singapore	7	1.6
Cuba	6	1.4
Other	81	18.6
Missing	1	0.2
Total	436	100
<i>Education background</i>		
Below high school	2	0.5
High school/GED	11	2.5
Some college	39	8.9
2-Year college degree	34	7.8
4-Year college degree	162	37.2
Master's degree	106	24.3
Doctoral degree	7	1.6
Post-doctoral degree	8	1.8
Missing	67	15.4
Total	436	100

The analysis of moment structures (AMOS), version 23, was used to perform confirmatory factor analyses with an aim to further test convergent validity of the remaining 37 items. After deleting eight items, all standardized loading estimates of the 29 items are above 0.5, and loading on one factor. All AVEs of the four factors are above 0.50 except the country

environment factor of 0.47, which is marginally less than the desired level. However, it does not appear to be a significantly harming model fit or have internal inconsistency. All four factors' construct reliabilities exceed 0.7 (country environment factor = 0.79; tourism destination factor = 0.85; medical tourism cost factor = 0.87; and facilities and services factor = 0.93). The findings suggest that all the 29 items can be retained at this point and adequate evidence of convergent validity is achieved.

#### 4.3 Discriminant validity analysis

The discriminant validity was examined by comparing the average variance (AVE) extracted estimates and the squared correlation estimates (Fornell and Larcker, 1981). The discriminant validity exists when the AVE scores are greater than the squared correlation estimates between pairs of constructs. The AVE method results are shown in Table III. All AVE scores are greater than the squared correlation estimates (shown in the upper diagonal in Table III). Thus, the discriminant validity for each of these constructs is established.

#### 4.4 Results of the measurement model analysis

The measurement model fits well based on the various measures  $-c^2/df = 1.66$ ; RMSEA = 0.04 (LO90 = 0.03, HI90 = 0.04); TLI = 0.95; NFI = 0.90; SRMR = 0.06; and Hoelter's critical N = 295 (0.05 level) and 309 (0.01 level). Even though the  $c^2$  ( $n = 436$ ,  $df = 369$ ) is 612.81,  $p < 0.001$  is not desirable. This significant  $p$ -value is probably due to the large size of the samples ( $n = 436$ ) (Anderson and Gerbing, 1988; Hair et al., 2014; Ho, 2014). Nevertheless, the alternative measures to the  $p$ -value of the  $c^2$  demonstrate satisfactory results. For instance, the values of Hoelter's critical N of this study are 295 and 309 at the 0.05 and 0.01 levels, respectively. These values are much higher than the recommended cut-off of 200 (Hoelter, 1983). Furthermore, the Normed  $c^2$ , which is a ratio between  $c^2$  and degrees of freedom, being 1.66 is well below the accepted cut-off of 3.0 (Hair et al., 2014). It indicates a reasonable model fit when the sample size effect is taken into consideration. Hoelter's critical N and Normed  $c^2$  measures indicate that the model is within the acceptable range of the fit, and that the estimated  $p$ -value of the  $c^2$  value ( $p < 0.001$ ) may be due to the large sample size of this study. In terms of absolute fit indices, both the standardised root mean square residual (SRMR) and the root mean square error of approximation (RMSEA) show satisfactory results. The SRMR value of 0.06 and the RMSEA value of 0.04 are below the recommended cut-offs of 0.08 and 0.10, respectively (Hair et al., 2014). The Tucker–Lewis Index (TLI) and the Normed Fit Index (NFI) are used to examine the improvement of the theoretical model from the null model. The value of the former is 0.95, while the latter is 0.90, both of which are satisfactory because they are above the suggested cut-off of 0.90 (Hair et al., 2014).

#### 4.5 Nomological validity analysis

The purpose of testing the nomological validity is to determine whether the interconstruct correlations are consistent with the theory. In this study, the four

**Table III** Discriminant validity test using AVE and correlation methods

Constructs	AVE	Country factors	Tourism destination	Medical tourism costs	Facilities and services
Country factors	0.62	—	0.41	0.40	0.22
Tourism destination	0.64		—	0.04	0.01
Medical tourism costs	0.51			—	0.32
Facilities and services	0.47				—

constructs attain the nomological validity because they are positively correlated based on literature (correlations ranging from 0.12 to 0.64) and statistically significance ( $p$ -values ranging from = 0.03 to  $<0.001$ ). In conclusion, the EFA and CFA results indicate a four-factor model: country environment, tourism destination, medical tourism costs and facilities and services. These four constructs, which include 29 items, achieve construct reliability, convergent validity, discriminant validity and nomological validity based on various measures.

## 5. Discussion and policy implications

The findings from this research revealed that American patients desire to travel abroad for medical treatment based on various push and pull factors, and has made some theoretical and policy implications. This research has contributed to the theory and literature of outbound medical travel from the USA, identifying the pull factors that US citizens consider when travelling abroad for surgery to popular medical tourism countries. In case of practical policy implications these findings will also first inform potential US medical tourists from the demand-side what to look for when choosing a destination and hospital for medical treatment, determined by the stability of the country environment, destination attractiveness, cost of surgery and first world quality of health-care services (Burns, 2015; Drinkert and Singh, 2017; Turner, 2010). This research will have social, economic and commercial impact in terms of foreign exchange earned, employment creation in medical and tourism sectors, having excellent medical technology and other tourism related infrastructure facilities by the host-country of treatment which will also benefit the host-country's population. It will assist health-care policymakers and the supply-side stakeholders in the host-country of treatment, such as governments, destination managers and hospitals, to improve the quality of medical treatment, hospital facilities, tourism facilities and destination attractions to be competitive in developing global trade in medical tourism services. Finally, it will have a wider impact in developing countries in terms of providing access and availability of first world medical treatment for the locals and improving their quality of life. Developing countries engaging in trade of health-care services will also lead to development of medical schools, state-of-the-art hospitals, research and innovation of cost-effective medical technology and medicine, which will also benefit the local population.

Similarly, in the source-country of patients (USA) the health-care policymakers have to realise that with the rejection of the Obama-care bill in 2017, there will be an increase in outbound medical travel from the lower income level and the middle-class US citizens to popular medical tourism destinations. Further, being uninsured or underinsured, unaffordable surgery, waiting lists, unavailability of procedure due to regulatory or ethical reasons pushed the US citizens to travel abroad for surgery. The diasporic US population travelled cross-border to Latin American countries like Mexico, Cuba or to their country of birth for medical treatment/surgery. Furthermore, in case of this sample of population nearly 48 per cent or 207 of the respondents were 25-34 years old, who travelled for medical treatment and combined it with a vacation, indicating a growing niche market for younger Americans who are uninsured.

From the descriptive statistics, the data revealed that nearly 60 per cent of respondents were males who travelled abroad for medical treatment and 24 per cent were females, with 48 per cent of the respondents in the age group of 25-34. This indicates that there is a niche market for younger people, who were seeking medical procedures overseas due to being not available at home, expensive, long waiting list or uninsured for dental, cosmetic or other complex surgery along with tourism opportunity at the top five popular destinations India, China, Thailand, Mexico and Turkey. In this studies population sample, the market for younger Americans seeking medical treatment overseas is also consistent with recent

Drinkert and Singh (2017) study on America medical travellers. Nearly 35 per cent of the respondents having income levels below US\$40,000, in the case of this particular sample of data, respondents funded their own treatment abroad because they were young and uninsured/underinsured. Moreover, the largest percentage of Americans fell in the income group below \$20,000 (71 = 16.3 per cent) and between \$20,000-\$29,999 (75 = 17.2 per cent) which indicates that they fell in lower income category, were uninsured and could not afford surgery in the USA. Those in the middle-income levels of \$30,000-\$39,999 (49 = 11.2 per cent) and 40,000-49,999 (40 = 9.2 per cent) also indicates that due to unaffordability and various push factors they travelled abroad for treatment. All the medical tourists in this sample had above high school and college education, and this indicates that they were well informed about their medical condition and the destination and hospital they chose for their medical tourism (except for two respondents with below high school education).

As per the survey responses, a large percentage has travelled to India (40.1 per cent) followed by China (15.1 per cent), Thailand (13.1 per cent), Mexico (4.4 per cent) and Turkey (3.75), being popular destinations followed by neighbouring Canada (8 = 1.8 per cent) and Cuba (6 = 1.4 per cent). Nearly 81(18.6 per cent) medical tourists did not mention any destination. However, the percentage of Americans travelling to Turkey were comparatively low, which could be due to the political crisis in Turkey. From the descriptive statistics, it can be concluded that medical tourism in case of this sample is diasporic, short distance, and cross-border (Connell, 2013; Horton and Cole, 2011; Bergmark *et al.*, 2008). In other category, few of the actual medical tourists had chosen other destinations in South America, Asia and Eastern Europe. Moreover, all the five countries previously mentioned are also attractive tourism destinations, providing an affordable quality of allopathy and alternative medicine (Kanittinsuttitong, 2015; Kanittinsuttitong, 2015; Heung *et al.*, 2011; Crooks *et al.*, 2011; Runnels and Turner, 2011; Karuppan and Karuppan, 2011; Brotman, 2010).

In the quantitative analysis of the data, EFA and CFA were conducted and convergent and discriminant validity were achieved for the four constructs. Bartlett's Test of Sphericity was  $\chi^2$  (df = 369) = 612.81,  $p < 0.001$  with KMO being 0.95 (Table I). Measurement model fits on the various measures –  $\chi^2/df = 1.66$ ; RMSEA = 0.04 (LO90 = 0.03, HI90 = 0.04); TLI = 0.95; NFI = 0.90; SRMR = 0.06; and Hoelter's critical N = 295 (0.05 level) and 309 (0.01 level) are within the cut-off values recommended (Hair *et al.*, 2014; Ho, 2014).

India, China, Thailand, Mexico and Turkey have the advantage of not only being popular tourist destinations but also medical tourism destinations, due to the affordable price of medical treatment, overseas trained and experienced surgeons, pre- and post-surgery care, JCI accreditation, and state-of-the art-medical facilities. Furthermore, English is widely spoken in India (Singh, 2012; Horowitz *et al.*, 2007; Turner, 2010). That is an added advantage for medical tourists from the USA, as India specialises in high-end, complex surgical procedures compared to Thailand (Connell, 2013; Lunt *et al.*, 2016).

## 6. Conclusions

In this paper, we have presented the findings of a quantitative analysis of factors that affect the choices of destinations and medical facilities for medical tourists from the USA to other countries. Many developing countries are engaged in the treatment of foreign patients and are increasing their share in the global medical travel/tourism market (Bookman and Bookman, 2007). USA citizens will continue to travel abroad for medical surgery due to many factors, including being uninsured or underinsured, the high cost of medical procedures in the USA, the non-availability of services or long waiting times for surgery, and

the added attraction of tourism opportunities in destinations like Thailand, India, Turkey and China.

We have found four factors that affect the decisions of medical tourists: host-country environment, tourism destination, medical and tourism costs and medical tourism facilities and services, represented by 29 items that were statistically significant. The values of the measurement model are also within the cut off values as suggested by [Hair et al. \(2014\)](#). US Outbound medical tourists considered all four (pull) factors important, which influenced their decisions to travel for medical treatment.

### **6.1 Limitations**

Limitations of this research are the following. First, we are unable to determine the impacts of the non-respondents on the four-factor model. Approximately, 1,246 participants responded. However, only 541 responses could be used for data analysis because the other 705 respondents had either not travelled abroad for medical treatment or gave invalid or incomplete responses to the questions posted on the Amazon Mechanical Turk website. Second, this study does not examine why one country is more popular than the other countries, even though it provides empirical evidence of the underlying factors that affect medical tourist destination in general. The methodology of choice via online survey conducted in the USA, only takes into account US outbound medical tourists experience and based on choice of medical tourism destination.

### **6.2 Future research**

In the future, this study can be replicated for medical tourists from Canada, UK and other developed countries to popular medical tourism destinations in developing countries, along with identifying the types of medical treatment/surgery undertaken and the costs at home and abroad (e.g. cosmetic, dental, hip/knee replacement, reproductive or cardiac). The reasons for travel for these treatments based on push factors (domestic health policy, cost and insurance, waiting time) and pull factors (no waiting, affordability, JCI health-care quality, exotic destination, diaspora-visiting family). Similarly, one can also explore why people prefer to travel long distance to a particular country (for example, India or Thailand) and the medical travel risk involved, rather than short distance cross border (Mexico, Cuba, Canada or countries in South America) and if they have any intention to revisit the same hospital. Patients as medical tourists experience related to the built environment of health-care facilities, and the medical tourism destination is another area for future research, besides safety and security issues at the hospital and within the country. In addition, outbound medical tourists' lifestyle and self-expression can be further examined to understand their role in the model. Overall, this research has contributed to the literature on medical tourism in particular for host countries of treatment to maintain high ethical and regulatory standard of medical tourism health-care quality and tourism facilities for foreign patients and to cater to the touristic needs of the US medical tourists.

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