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Medical hotels in the growing healthcare business industry: Impact of international travelers' perceived outcomes

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ABSTRACT

Despite the international healthcare industry's rapid growth, little research exists about medical hotels. To fill this gap, this study identifies international patients' possible outcomes of staying in a medical hotel and investigates their intention formation by considering attitudes and desires as well as the perceived outcome's moderating impact. A qualitative approach identifies the possible outcomes of staying in a medical hotel, which can be distinctive from common medical/healthcare clinics, as perceived by international medical customers. Confirmatory factor analysis verifies a four-factor structure of the perceived outcome model (financial saving, convenience, medical service, and hospitality product). Structural equation modeling reveals that attitudes, desires, and intention significantly associate, and desires act as a mediator. Additionally, a metric invariance test shows that convenience, medical-service, and hospitality-product factors of the perceived outcomes significantly moderate forming intentions. Study results help medical hotel operators create effective strategies to attract more international tourists.

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1. Introduction

In recent decades, medical tourism has become a popular and rapidly evolving tourism trend (Connell, 2006; Han, 2013; Reddy, York, & Brannon, 2010). Medical tourism occurs when patient-customers travel across national borders to achieve better health by engaging in operations/treatments and relaxation during a type of holiday. Increasingly, people seeking health treatment or beautification travel overseas for basic treatment (e.g., skincare, diet program, tooth whitening, dental fillings, wrinkle removal) and for highly advanced operations (e.g., cardiac surgery, cancer treatment, orthopedic surgery, ophthalmologic care, organ and cellular transplantation, gender reassignment procedures) (Connell, 2006; Horowitz, Rosensweig, & Jones, 2007; Reddy et al., 2010). On average, Asia's medical tourism industry grows 20% annually, generating approximately \$4 billion USD per year (Crozier & Baylis, 2010). A number of destination countries, particularly in Asia, compete for medical tourism patients by offering various medical, surgical, healthcare, and esthetic services (Horowitz et al., 2007).

While the medical tourism market has huge potential and substantial opportunity for further growth, the existing volume remains modest (Ehrbeck, Guevara, & Mango, 2008). Some researchers agree that several deterrents and structural barriers prevent this market's faster growth including inconvenience, lack of continuity of care, medical negligence and malpractice concerns, medically-necessary procedure delays, unreliable health insurance, high costs, uncomfortable environment for treatment/recovery, and unfamiliar foods and beverages (Ehrbeck et al., 2008; Gan & Frederick, 2011; Han, 2013; Horowitz & Rosensweig, 2008). Medical tourists face dilemmas relating to these potential difficulties when making the decision to travel overseas for treatment. Medical tourism's globalization provides a motive for entrepreneurs to start a new hotel concept that combines the functions of hospital, hotel, and healthcare/esthetic center into one operation (hospital + hotel + healthcare/esthetic centers = medical hotel) (Han, 2013). Medical hotels offer high quality care (e.g., surgical outcomes, nurse-patient ratio), quick access to medically necessary procedures (e.g., minimal waiting list), cost saving, and advanced medical technology/equipment (Bass, 1986; Docrates, n.d.; Han, 2013; Hume & DeMicco, 2007). Minimizing potential concerns relating to medical tourism, this hotel category provides an opportunity to increase international patient-customers. Despite the growing economic and social importance of international medical tourism, the medical hotel receives limited research attention. Medical hotel studies and potential outcomes/benefits for international patient-tourists are rare in the literature.

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To address this gap, the following study identifies possible outcomes of staying in a medical hotel and investigates the moderating role of perceived outcomes forming the intention to stay in a medical hotel. In addition, attitudes toward and desires for a specific behavior explain/predict human behavior, particularly in socio-psychological/attitude theories (Bagozzi & Dholakia, 2006; Han & Ryu, 2012b; Perugini & Bagozzi, 2001, 2004; Poels & Dewitte, 2008); however, researchers to date fail to incorporate these critical variables in international patient-travelers' decision to stay at medical hotels. The present study also examines the role of attitudes and desires in determining intention and investigates desire's mediating role.

2. Theoretical framework

2.1. Emerging medical tourism and the medical hotel

Seeking expertise, advanced technology, and better price, medical tourists travel to diverse areas to receive medical/healthcare services and treatment (Gan & Frederick, 2011; Han, 2013; Horowitz et al., 2007). This emerging tourism trend provides potential opportunities for health service and tourism industries (Horowitz et al., 2007). Particularly, medical tourism's recent growth gives rise to the medical hotel. The medical hotel combines the services found in a conventional hotel and health services in the same location. Medical hotels offer a wide range of hotel services/products. Customers purchase cost-saving packages including medical treatment services, rooms, and meals at a reasonable rate. The combination of medical treatment, restaurants, and rooms on one property offers convenience to customers. Bilingual translators and medical coordinators help international patient-travelers easily and effectively communicate in their own language. Customers enjoy greater privacy/confidentiality due to the medical hotel's proximity to medical facilities. Finally, individuals feel more secure due to the close proximity of medical personnel and reliable post-care services, particularly for visitors who require a complete recovery before returning home (Hume & DeMicco, 2007; Sheehan-Smith, 2006).

2.2. Medical tourism in an international tourism space

While many studies discuss tourism-related behaviors in general (e.g., Hosany, Ekinci, & Uysal, 2006; Hosany & Martin, 2012), medical tourism offers a new tourist attraction. Medical tourism's history extends to at least the 19th century when people traveled to other areas for healing and relaxation (e.g., spas and hot springs) (Hunter, 2007; Lee, Song, Bendle, Kim, & Han, 2012). Global healthcare influences the rise of health tourism. Borman (2004) defines health tourism as attracting tourists to a destination with healthcare services (Yu & Ko, 2012). Connell (2006) notes that a distinction exists between health tourism and medical tourism. Medical tourism refers to cases requiring medical interventions (Yu & Ko, 2012). Key factors influencing medical tourism's growth include increasing domestic medical costs, aging societies, expanding economies, and the equalizing of medical technology worldwide (Yu, Lee, & Noh, 2011). Medical tourism integrates features of the medical industry and international tourism. Medical tourism programs provide excellent medical service and tourism to foreign visitors (Han, 2013). This industry earns foreign revenue and develops supporting industries beyond leisure travel (Bookman & Bookman, 2007; Hunter, 2007; Lunt & Carrera, 2010; Yu et al., 2011).

2.3. Research efforts explicating decision/intention formation

While early marketing and consumer behavior research attempts to explain customer's decision making with a cognitive centered approach, recent literature views cognition and affect as essential underlying elements (Han, Back, & Barrett, 2009; Oliver, 1997). Socio-psychological

theory suggests a comprehensive approach involving volitional and non-volitional dimensions as well as factors relating to past behavior, desire, cognition, and affect, and evaluation improves the predictive ability of individuals' decisions/intentions (Ajzen, 1991; Ajzen & Fishbein, 1980). This intricate decision-making process likely differs across fields, personal characteristics, and consumption situations (Evanschitzky & Wunderlich, 2006; Han et al., 2009; Ranaweera & Prabhu, 2003).

2.4. Attitudes, desires, and intention

Prior studies suggest that attitudes and desires are the most proximal determinants of intention and behavior (Han & Ryu, 2012a; Lee et al., 2012; Poels & Dewitte, 2008). Compelling evidence demonstrates that attitude and desire are powerful forces in decision formation (Bagozzi & Dholakia, 2006; Prestwich, Perugini, & Hurling, 2008; Taylor, Ishida, & Wallace, 2009). Arguably, a lack of clarity exists when conceptualizing desires, attitudes, and intention as well as differentiating desires from attitudes and intentions. Removing ambiguity helps distinguish desires from attitudes and intentions. Desires are "a state of mind whereby an agent has a personal motivation to perform an action or to achieve a goal" (Perugini & Bagozzi, 2004, p. 71). Incorporating dissimilar sources of emotional, social, or evaluative appraisals provides a base for the generating motivations—an initial step to making a decision. Unlike desires, attitudes refer to "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagry & Chailen, 1993, p. 1). Attitudes are not a motivation-related concept; instead, they serve as an evaluative concept based on cognitive/affective elements (e.g., good–bad) (Ajzen & Fishbein, 1980). Although desires and intention appear highly connected, these variables differ theoretically and conceptually, particularly for perceived performance, action-connectedness, and temporal frame (Prestwich et al., 2008). People tend to perceive desired behaviors as less performable than intended behaviors (Perugini & Bagozzi, 2004). Desires generally have a weaker connection to actions than intention because the latter includes some form of planning to perform actions (action-connectedness). While intention is present-oriented, desires tend to be time-indefinite. Previous studies distinguish desires from attitudes and intention by supporting convergent and discriminant validity (e.g., Han & Ryu, 2012a; Lee et al., 2012; Prestwich et al., 2008).

Recent studies find that individuals more likely form a favorable intention to perform a particular action when they have positive attitudes and desire strength toward the action. Lee et al. (2012) conclude that both desires and desire's antecedents affect intention to travel internationally. Bagozzi and Dholakia (2006) find that attitudes and desires affect social intention and group/brand behavior. Taylor et al. (2009) confirm the significance of attitudes and desires toward the act of digital privacy. Finally, Han and Ryu (2012a) demonstrate that attitudes and desires are important drivers of intention for the post-purchase decision-making process of hospitality products. The literature confirms that attitudes and desires are vital components of one's decision-making process and they predict behavioral intention. H1: Attitudes positively influence desires. H2: Attitudes positively influence intention. H3: Desires positively influence intention.

2.5. Moderating impact of perceived outcomes

Perceived outcomes refer to expected consequences of a behavior (Ajzen & Fishbein, 1980; Eagry & Chailen, 1993). International medical tourists could perceive staying in a medical hotel as experiencing reliable medical treatment/healthcare/aesthetic services while enjoying hotel-style services/products (e.g., comfortable room and better quality food). When deciding whether or not to conduct a particular act, individuals likely assess the outcomes/losses resulting from the act and evaluate the significance of the consequences (Cheng, Lam, & Hsu, 2006; Eagry & Chailen, 1993; Han, Hsu, & Sheu, 2010). Not surprisingly,

the expected outcome plays an important role in a decision-making process. Hospitality and tourism literatures demonstrate that perceived outcomes expected from a certain behavior are essential to understanding decisions to perform acts (Han, Lee, & Lee, 2011; Lee, Han, & Willson, 2011).

The switching cost literature provides logic to conceptualize perceived outcomes as moderators. Recent literature shows that financial and non-financial costs (e.g., monetary loss, psychological stress, time and effort, perceived risk) likely occur when changing service providers. Switching costs moderate customers' intentions to maintain relationships with their providers (Fullerton, 2003; Jones, Mothersbaugh, & Beatty, 2000; Patterson & Sharma, 2000). As discussed earlier, key benefits/outcomes that international medical customers receive are monetary benefits (e.g., low-cost healthcare and hotel products) and non-monetary psychological/physical conveniences (e.g., time and effort saved on information search and psychological alleviation from stress) (Bass, 1986; Hume & DeMicco, 2007). The literature suggests that monetary/convenience outcomes moderate international medical tourists' decision formation.

Relational benefit/outcome studies also support the perceived outcome's role as a moderator (e.g., Gremler, Gwinner, & Brown, 2001; Gwinner, Gremler, & Bitner, 1998). Customers' outcome/benefit perceptions from relationships and interactions with a firm and employees build long-term relationships and increase profits (Gwinner et al., 1998). Researchers identify these service provider impacts as moderators on decision-making. Specifically, Han et al. (2009) show that outcomes/benefits from service provider relationships moderate intention formation. The association between intentions and antecedents is stronger when customers perceived high relational outcomes. Jones et al. (2000) demonstrate that the linkage's strength between behavioral intentions and antecedents depends on perceived outcomes/benefits from customer interpersonal relationships with employees. These studies suggest that distinctive outcomes derive from visiting a medical hotel. Outcome perceptions moderate customer decision formation. Specifically, the relationship between intention and predictors is greater for tourists who perceive higher outcome levels. H4a: Attitude's impact on intention is stronger for tourists who perceive high financial saving (high perceived monetary benefits from medical hotels versus regular medical clinics). H4b: Desire's impact on intention is stronger for tourists perceiving high financial saving. H5a: Attitude's impact

on intention is stronger for tourists perceiving high convenience. H5b: Desire's impact on intention is stronger for tourists perceiving high convenience. H6a: Attitude's impact on intention is stronger for tourists who perceive high medical-service outcomes (high level of perceived benefits relate to the certainty of medical quality and reliable post-care service from the use of a medical hotel versus regular medical clinics). H6b: Desire's impact on intention is stronger for tourists who perceive high medical-service outcomes. H7a: Attitude's impact on intention is stronger for tourists who perceive high hospitality-product related outcomes. H7b: Desire's impact on intention is stronger for tourists who perceive high hospitality-product related outcomes.

2.6. Research model and hypotheses

Fig. 1 displays the research model. The model shows associations among attitudes, desires, perceived outcomes, and intention informed by a thorough literature review. Procedures to identify perceived outcome dimensions (e.g., financial saving) in Fig. 1 and hypotheses (H4–H7) are specified in the Methodology section.

3. Methodology

3.1. Identification of perceived outcomes

Limited research examines medical hotel attributes and customer benefits/outcomes. Thus, a qualitative approach identified possible outcomes of staying in a medical hotel. A focus-group discussion and literature review identified perceived outcomes. The focus-group participants were knowledgeable experts in this topic area, including two medical hotel operators, two medical tourism experts, three medical clinic managers, and three academics. Prior to meeting, they reviewed various materials related to the topic. Academic articles, magazines, and online materials were provided to them. During the focus-group meeting, participants shared their opinions, beliefs, and knowledge about medical hotels. The moderator steered the meeting toward identifying possible outcomes/benefits of the medical hotel concept. Thirteen outcomes were identified through this process. Focus-group participants articulated possible categories for the identified outcomes (see Bergadaa, 1990; Spiggle, 1994). This procedure generated four major category outcomes distinctive to staying in a medical hotel

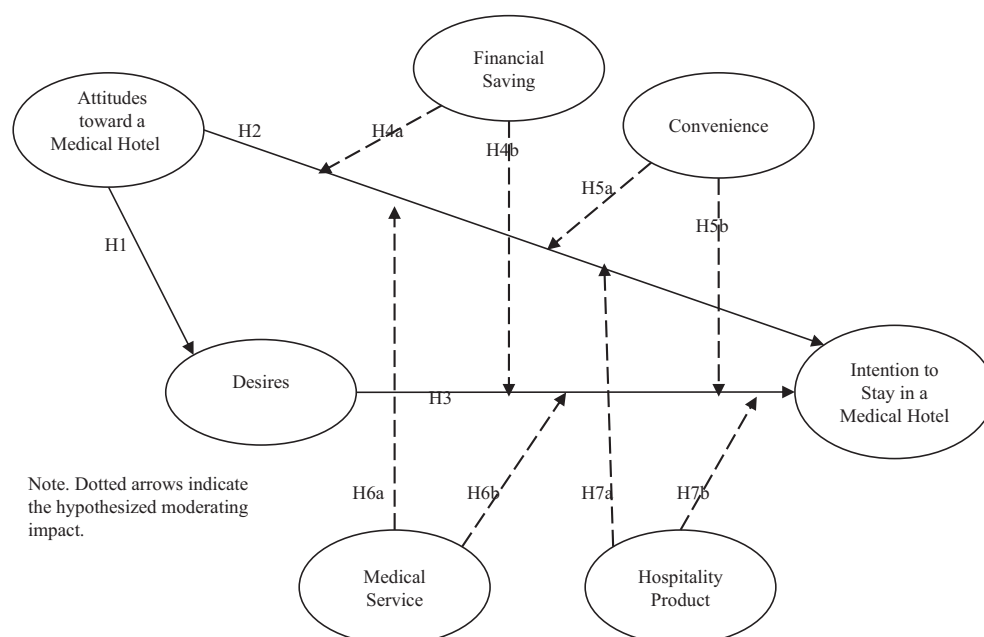


Fig. 1. Proposed model.

Table 1a
Results of the confirmatory factor analysis for the perceived outcomes (n = 387).

Dimensions (composite reliability)	Loadings	t-Value
Staying in a medical hotel when traveling abroad for healthcare/medical treatment/esthetic services would enable me to:		
Financial saving (0.86)		
Pay a reduced rate for receiving medical treatment/healthcare/esthetic services and using hotel room/meal/services together.	0.93	-
Reduce expense for using multiple medical treatment/healthcare/esthetic-service related facilities together.	0.92	26.55
Convenience (0.71)		
Enjoy physical convenience because of the relatively short distance between medical/healthcare/esthetic-service facilities and rooms/restaurants.	0.84	-
Reduce the time and effort needed to find various medical/healthcare clinics and hotels separately.	0.82	26.04
Possibly receive treatment in my room from highly trained professionals.	18.48	18.48
Easily communicate using my own language because of capable specially trained medical tourism translators.	0.81	18.95
Medical service (0.69)		
Reduce the uncertainty of medical quality such as surgical outcomes (e.g., less malpractice/medical accidents) and nurse–patient ratio.	0.74	16.38
Receive reliable post-care service remaining in the hotel longer if necessary.	0.80	18.57
Have greater privacy and confidentiality for surgery (e.g., cosmetic/plastic surgery) and esthetic healthcare (e.g., diet programs) than other clinics.	0.85	-
Hospitality product (0.79)		
Use a medical tourist package that relates medical treatment/healthcare/esthetic services to hotel room use and meal services to suit my individual needs.	0.94	-
Stay in comfortable hotel rooms of various sizes/types with my family/friends/others if necessary.	0.84	14.56
Enjoy a wider range of quality foods and beverages at a reasonable price.	0.90	15.59
Possibly use various hotel services (e.g., room service, concierge service, business center, valet parking).	0.83	14.48

(i.e., financial savings, convenience, medical service, and hospitality product). Lastly, item measures reflecting identified outcomes for all categories were developed. Table 1a lists the measurement items developed through this process. Financial savings, convenience, medical service, and hospitality product were assessed with two items, four items, three items, and four items, respectively, using 7-point Likert scales (strongly disagree = 1; to strongly agree = 7).

3.2. Measures for attitudes, desires, and intention

To assess attitudes, desires, and intention to stay, previously validated measurement items were adopted (Han & Ryu, 2012a; Maxham & Netemeyer, 2002; Oliver, 1997; Perugini & Bagozzi, 2001). Attitudes were measured using four semantic differential items on 7-point scales, defined by the pairs “disadvantageous–advantageous,” “unpleasant–pleasant,” “ineffective–effective,” and “unattractive–attractive.” Desires and intention to stay in a medical hotel were assessed by three items with 7-point Likert scales.

Table 1b
Correlations among components of perceived outcomes (squared).

	Financial saving	Convenience	Medical service	Hospitality product	AVE
Financial saving	-				0.86
Convenience	0.74 (0.55)	-			0.67
Medical service	0.64 (0.41)	0.79 (0.62)	-		0.64
Hospitality Product	0.65 (0.42)	0.76 (0.57)	0.74 (0.55)	-	0.77

Goodness-of-fit statistics: $\chi^2 = 148.03$, $df = 55$, $p < 0.001$, $\chi^2/df = 2.69$, RMSEA = 0.07; CFI = 0.98; NFI = 0.96.

3.3. Questionnaire development and data collection procedure

The survey instrument was pre-tested with hospitality and tourism academics and reviewed by industry experts. The questionnaire includes a description of medical hotels and questions on study variables and demographic information. A slight improvement was made through these processes. A self-administered survey was conducted at several medical/healthcare clinics located in Korea's metropolitan cities, where the majority of their customers are international medical tourists. The original survey questionnaire in English was translated into Chinese, Japanese, and Korean since most of the international-patient tourists who visit these clinics speak one of these languages. Back-translation was performed to check the survey's translation accuracy. The translated questionnaires were delivered to hospitality and tourism academics whose first language is one of these three, for reviews. Feedback resulted in slight modifications to the survey instrument. Trained students conducted a survey in the main lobby of the clinics. Only international customers whose major purpose was medical treatment, healthcare, or esthetic services were asked to participate. Prior to receiving the questionnaire, the respondents were briefed about the study. Questionnaires were provided and retrieved on site. A total of 395 questionnaires were returned and 387 usable surveys were retained for data analyses.

3.4. Demographic profiles of the samples

Among the 387 international-medical tourists who participated in this survey, more respondents were women (62.3%) than men (37.7%). Respondent's average age is about 37 years. Most participants (49.1%) graduated from a university at the baccalaureate level or have a high school diploma only (20.5%). Participants report that their annual household income is \$40,001–\$60,000 USD (31.3%), \$80,001–\$100,000 (29%), and \$40,000 or less (23.1%). Survey participants' nationalities are Japanese (30.0%), Chinese (26.9%), American (11.9%), Canadian (4.1%), Russian (3.9%), Filipino (3.9%), Taiwanese (3.1%), and Singaporean (2.3%). Reflecting on their frequency of medical tourism-related trips, respondents report that they had twice traveled abroad previously for medical treatment/healthcare/esthetic services within the last five years (43.2%), one time (30.4%), and 3 or more times (26.4%). Nearly two-thirds of respondents report that they had no prior knowledge about medical hotels (63.9%). Finally, few respondents report previously visiting a medical hotel (16.5%).

4. Results

4.1. Confirmatory factor analysis

Using SPSS and AMOS 5 Confirmatory Factor Analysis (CFA) identified perceived outcomes and tested whether or not the four-factor structure adequately captures the outcomes. CFA measures internal consistency for latent constructs, and determines whether construct validity exists. The CFA results indicate that the model fits the data ($\chi^2 = 148.03$, $df = 55$, $p < 0.001$, $\chi^2/df = 2.69$, RMSEA = 0.07; CFI = 0.98; NFI = 0.96). All measurement items load to their related construct ($p < 0.01$). Table 1a shows that the construct measures have a high degree of reliability (0.69 to 0.86). Convergent and discriminant validity is

Table 2
Results of the measurement model involving all study constructs.

Measures (mean, SD)	Attitudes	Desires	Intention to stay	Financial saving	Convenience	Medical service	Hospitality product
Attitudes (4.12, 1.07)	–						
Desires (3.88, 0.96)	0.53 (0.28) ^a	–					
Intention to stay (3.86, 1.00)	0.58 (0.34)	0.72 (0.51)	–				
Financial saving (4.06, 1.23)	0.55 (0.30)	0.47 (0.22)	0.45 (0.12)	–			
Convenience (4.27, 1.12)	0.60 (0.35)	0.51 (0.26)	0.54 (0.29)	0.74 (0.55)	–		
Medical service (4.17, 1.12)	0.65 (0.42)	0.54 (0.30)	0.60 (0.36)	0.64 (0.41)	0.79 (0.62)	–	
Hospitality product (4.06, 1.01)	0.60 (0.36)	0.52 (0.27)	0.61 (0.37)	0.65 (0.42)	0.76 (0.57)	0.74 (0.55)	–
Ave	0.81	0.80	0.74	0.86	0.67	0.64	0.72
Composite reliability	0.82	0.82	0.77	0.86	0.71	0.69	0.75

Goodness-of-fit statistics: $\chi^2 = 474.67$, $df = 205$, $p < 0.001$, $\chi^2/df = 2.32$, RMSEA = 0.06; CFI = 0.97; NFI = 0.94.

^a Squared correlations between constructs are in the parentheses.

evident. The constructs' AVE values (see Table 1b) exceed the minimum criterion of 0.50 (Hair, Anderson, Tatham, & Black, 1998), and squared correlations between a pair of constructs are less than the AVE values (Fornell & Larcker, 1981). These findings demonstrate that the factor structure adequately captures the four factors of possible outcomes of staying in a medical hotel.

Following Anderson and Gerbing (1998), a measurement model including all study variables was estimated using CFA. The findings show that the measurement model satisfactorily fits the data ($\chi^2 = 474.67$, $df = 205$, $p < 0.001$, $\chi^2/df = 2.32$, RMSEA = 0.06; CFI = 0.97; NFI = 0.94). All factor loadings are significant ($p < 0.01$). Table 2 shows that composite reliability values (0.69 to 0.86) are greater than the recommended cutoff (0.60) (Bagozzi & Yi, 1988). All AVE values (0.64 to 0.86) provide evidence of convergent validity. These AVE values exceed the square of correlation between a pair of related variables, confirming discriminant validity (Fornell & Larcker, 1981).

4.2. Structural equation modeling

SEM results demonstrate the model's fit to the data ($\chi^2 = 72.39$, $df = 30$, $p < 0.001$, $\chi^2/df = 2.41$, RMSEA = 0.06; CFI = 0.99; NFI = 0.98). Table 3 summarizes the findings. This model's predictive ability explains about 67% of the variance. Testing Hypotheses 1 and 2, the results show that desires and intention to stay are a positive function of attitudes (β Attitudes \rightarrow Desires = 0.56, $p < 0.01$; β Attitudes \rightarrow Intention to Stay = 0.28, $p < 0.01$). This result supports Hypotheses 1 and 2. For Hypothesis 3, the findings indicate that desires significantly and positively associate with intention to stay (β Desires \rightarrow Intention to Stay = 0.63, $p < 0.01$). Desire's mediating role between attitudes and intention suggests an indirect and positive impact of attitudes through desires on intention (β Attitudes \rightarrow Desires \rightarrow Intention to Stay = .35, $p < 0.01$).

4.3. Measurement invariance test

One common method to assess a construct's moderating role is testing for measurement and structural invariance by grouping based on the survey participants' responses for the specific construct (see Steenkamp & Baumgartner, 1998). Respondents were divided into high and low groups on each dimension using a K-means cluster analysis. Results partition groups for financial savings (254 cases high versus 133 low), convenience (122 high versus 133 low), medical service (255

high versus 132 low), and hospitality product (225 high versus 162 low). Prior to structural invariance testing, a measurement invariance test was conducted across the divided groups (Steenkamp & Baumgartner, 1998; Yoo, 2002). Table 4 summarizes the results. The non-significant chi-square test supports full-metric invariance for: financial savings ($\Delta\chi^2 (7) = 6.95$, $p > 0.01$), convenience ($\Delta\chi^2 (7) = 7.14$, $p > 0.01$), medical service ($\Delta\chi^2 (7) = 14.65$, $p > 0.01$), and hospitality product ($\Delta\chi^2 (7) = 6.02$, $p > 0.01$).

4.4. Structural invariance test

Baseline models, including the proposed study construct links, were generated. These baseline models were compared with nested models, with a particular path between groups constrained to be equal by using a chi-square difference test. Chi-square difference test results are not significant (see Table 5 and Fig. 2). These results do not support Hypotheses 4a and 4b. The second baseline model for the convenience groups satisfactorily fits the data ($\chi^2 = 114.81$, $df = 67$, $p < 0.001$, $\chi^2/df = 1.71$, RMSEA = 0.04; CFI = 0.98; NFI = 0.96). As expected, this model significantly differs from the nested models' constraining attitudes – intention link ($\Delta\chi^2 (1) = 4.65$, $p < 0.05$) and restraining the desires – intention path ($\Delta\chi^2 (1) = 6.92$, $p < 0.01$). Findings indicate that attitudes' and desires' impact on intention is stronger for the high group (β Attitudes \rightarrow Intention to Stay = 0.31, $p < 0.01$; β Desires \rightarrow Intention to Stay = 0.70, $p < 0.01$) than the low group (β Attitudes \rightarrow Intention to Stay = 0.20, $p < 0.01$; β Desires \rightarrow Intention to Stay = 0.52, $p < 0.01$), supporting Hypotheses 5a and 5b. The baseline model for medical-service groups adequately fits the model to the data ($\chi^2 = 120.24$, $df = 67$, $p < 0.001$, $\chi^2/df = 1.795$, RMSEA = 0.05; CFI = 0.98; NFI = 0.96). The paths from attitudes ($\Delta\chi^2 (1) = 4.41$, $p < 0.05$) and desires ($\Delta\chi^2 (1) = 4.00$, $p < 0.05$) to intention significantly differ across groups, and the links are stronger in the high group (β Attitudes \rightarrow Intention to Stay = 0.27, $p < 0.01$; β Desires \rightarrow Intention to Stay = 0.63, $p < 0.01$) than in the low group (β Attitudes \rightarrow Intention to Stay = 0.18, $p > 0.05$; β Desires \rightarrow Intention to Stay = 0.54, $p < 0.01$). This result supports Hypotheses 6a and 6b. Finally, the hospitality-product group model demonstrates a good fit to the data ($\chi^2 = 128.15$, $df = 67$, $p < 0.001$, $\chi^2/df = 1.91$, RMSEA = 0.05; CFI = 0.98; NFI = 0.97). As hypothesized, the paths from attitudes ($\Delta\chi^2 (1) = 9.73$, $p < 0.01$) and desires ($\Delta\chi^2 (1) = 7.60$, $p < 0.01$) to intention significantly differ between groups. In addition, the impact of

Table 3
Structural model results.

Hypothesized direct effect	Coefficient/t-value	Result	Indirect effect
H1: Attitudes \rightarrow Desires	0.56/10.61**	Supported	β Attitudes \rightarrow Desires \rightarrow Intention to Stay = 0.35**
H2: Attitudes \rightarrow Intention to Stay	0.28/5.85**	Supported	
H3: Desires \rightarrow Intention to Stay	0.63/12.10**	Supported	

R² for Desires = 0.32.

R² for Intention to Stay = 0.67.

Goodness-of-fit statistics: $\chi^2 = 72.34$, $df = 30$, $p < 0.001$, $\chi^2/df = 2.41$, RMSEA = 0.06; CFI = 0.99; NFI = 0.98.

** $p < 0.01$.

Table 4
Results of the measurement invariance tests.

Variables	Models	χ^2 (df)	RMSEA	CFI	NFI	$\Delta\chi^2$
Financial saving	Non-restricted model	109.43 (60)	0.05	0.98	0.97	$\Delta\chi^2$ (7) = 6.95, $p > 0.01$ (non-significant)
	Full-metric invariance	116.38 (67)	0.04	0.98	0.96	
Convenience	Non-restricted model	107.66 (60)	0.05	0.98	0.96	$\Delta\chi^2$ (7) = 7.14, $p > 0.01$ (non-significant)
	Full-metric invariance	114.80 (67)	0.04	0.98	0.96	
Medical service	Non-restricted model	105.59 (60)	0.04	0.99	0.97	$\Delta\chi^2$ (7) = 14.65, $p > 0.01$ (non-significant)
	Full-metric invariance	120.24 (67)	0.05	0.98	0.96	
Hospitality product	Non-restricted model	122.13 (60)	0.05	0.98	0.96	$\Delta\chi^2$ (7) = 6.02, $p > 0.01$ (non-significant)
	Full-metric invariance	128.15 (67)	0.050	0.98	0.960	

attitudes and desires on intention is stronger in the high group (β Attitudes \rightarrow Intention to Stay = 0.35, $p < 0.01$; β Desires \rightarrow Intention to Stay = 0.77, $p < 0.01$) than the low group (β Attitudes \rightarrow Intention to Stay = 0.03, $p > 0.05$; β Desires \rightarrow Intention to Stay = 0.57, $p < 0.01$), supporting Hypotheses 7a and 7b.

5. Discussion

The present study provides a deeper understanding of tourists' medical hotel purchasing decision-making process. Specifically, this study identifies the possible distinctive outcomes of staying in a medical hotel. In addition, the present study tests an identified outcome's impact on relationships among attitudes, desires, and intent. The associations

proposed by the theoretical framework generally are supported. The model explains a considerable amount of total variance to explain why tourists visit medical hotels.

An exploratory identification procedure identified four major categories of possible outcomes from staying in a medical hotel. International travelers unlikely perceive that these outcomes exist at medical/healthcare clinics. In particular, financial savings involves bundling both medical amenities and hotel products. Convenience includes physical convenience, time and effort savings, in-room treatment, and communication. Medical service includes medical quality, post-care service, and privacy and confidentiality. Finally, the hospitality product includes a medical-tourist package, rooms, foods and beverages, and hotel services. Results indicate that these outcomes have an excellent level of

Table 5
Results of the structural invariance tests.

Hypothesized moderating impact of financial saving						
Paths	High (n = 254)		Low (n = 133)		Baseline model (freely estimated)	Nested model (constrained to be equal)
	β	t Value	β	t Value		
Attitudes \rightarrow IS	0.27	4.72**	0.24	2.38*	χ^2 (67) = 116.38	χ^2 (68) = 116.38 ^a
Desires \rightarrow IS	0.63	10.27**	0.62	6.03**		
Chi-square difference test:					Other goodness of fit indices of the baseline model: RMSEA = 0.04; CFI = 0.98; NFI = 0.96	
^a $\Delta\chi^2$ (1) = 0.00, $p > 0.05$ (H4a – not supported)						
^b $\Delta\chi^2$ (1) = 0.63, $p > 0.05$ (H4b – not supported)						
Hypothesized moderating impact of convenience						
Paths	High (n = 122)		Low (n = 265)		Baseline model (freely estimated)	Nested model (constrained to be equal)
	β	t Value	β	t Value		
Attitudes \rightarrow IS	0.31	4.27**	0.20	2.71**	χ^2 (67) = 114.80	χ^2 (68) = 119.44 ^c
Desires \rightarrow IS	0.70	9.06**	0.52	7.18**		
Chi-square difference test:					Other goodness of fit indices of the baseline model: RMSEA = 0.04; CFI = 0.98; NFI = 0.96	
^c $\Delta\chi^2$ (1) = 4.65, $p < 0.05$ (H5a – supported)						
^d $\Delta\chi^2$ (1) = 6.92, $p < 0.01$ (H5b – supported)						
Hypothesized moderating impact of medical service						
Paths	High (n = 255)		Low (n = 132)		Baseline model (freely estimated)	Nested model (constrained to be equal)
	β	t Value	β	t Value		
Attitudes \rightarrow IS	0.27	4.74**	0.18	1.94	χ^2 (67) = 120.240	χ^2 (68) = 124.65 ^e
Desires \rightarrow IS	0.63	10.23**	0.54	6.50**		
Chi-square difference test:					Other goodness of fit indices of the baseline model: RMSEA = 0.05; CFI = 0.98; NFI = 0.96	
^e $\Delta\chi^2$ (1) = 4.41, $p < 0.05$ (H6a – supported)						
^f $\Delta\chi^2$ (1) = 4.00, $p < 0.05$ (H6b – supported)						
Hypothesized moderating impact of hospitality product						
Paths	High (n = 225)		Low (n = 162)		Baseline model (freely estimated)	Nested model (constrained to be equal)
	β	t Value	β	t Value		
Attitudes \rightarrow IS	0.35	5.40**	0.03	0.40	χ^2 (67) = 128.15	χ^2 (68) = 137.88 ^g
Desires \rightarrow IS	0.76	8.84**	0.560	8.50**		
Chi-square difference test:					Other goodness of fit indices of the baseline model: RMSEA = 0.050; CFI = 0.98; NFI = 0.960	
^g $\Delta\chi^2$ (1) = 9.730, $p < 0.01$ (H7a – supported)						
^h $\Delta\chi^2$ (1) = 7.60, $p < 0.01$ (H7b – supported)						

Note. IS = Intention to Stay.

* $p < 0.05$.
** $p < 0.01$.

reliability and validity. Along with their components, they offer a foundation for additional research in the medical hotel/tourism industry.

Perceived outcome's significance only represents the likely benefits/advantages that international medical tourists receive if they choose a medical hotel over possible alternatives. Study findings verify the vital impact of convenience, medical service, and hospitality products on patient-customers' decision formation. These outcomes moderate the linkages from attitudes and desires to intention. Specifically, attitudes and desires that build customers' intention to utilize a medical-hotel firm appear greater in the high groups for convenience, medical service, and hospitality products. At similar attitude and desire levels, individuals who believe in the greater potential outcomes of staying in a medical hotel build stronger intentions to choose a medical hotel over alternatives.

In sum, the study results provide evidence that the identified perceived outcomes offer an effective means to bring customers to medical

hotels and to increase market share. Accordingly, medical-hotel operators should promote existing strengths and invent products/services (e.g., higher comfort levels) not readily available in other rival alternatives.

Desires mediate the relationship between attitudes and intention. This finding confirms previous studies which demonstrate that attitudes toward a specific behavior affect behavioral intentions through desires (Bagozzi & Dholakia, 2006; Han & Ryu, 2012a; Perugini & Bagozzi, 2001). The present study identifies desire's partial mediating impact for medical hotels. Effectively dealing with international medical tourists' desires is necessary to fully stimulate their willingness to visit a medical hotel. Previous decision-making process studies and socio-psychological theories conclude that cognitive and affective variables (e.g., image, expected emotions) efficiently induce one's desires toward a specific behavior (e.g., Bagozzi & Dholakia, 2006; Han & Ryu, 2012a; Perugini & Bagozzi, 2001; Taylor et al., 2009). To influence international

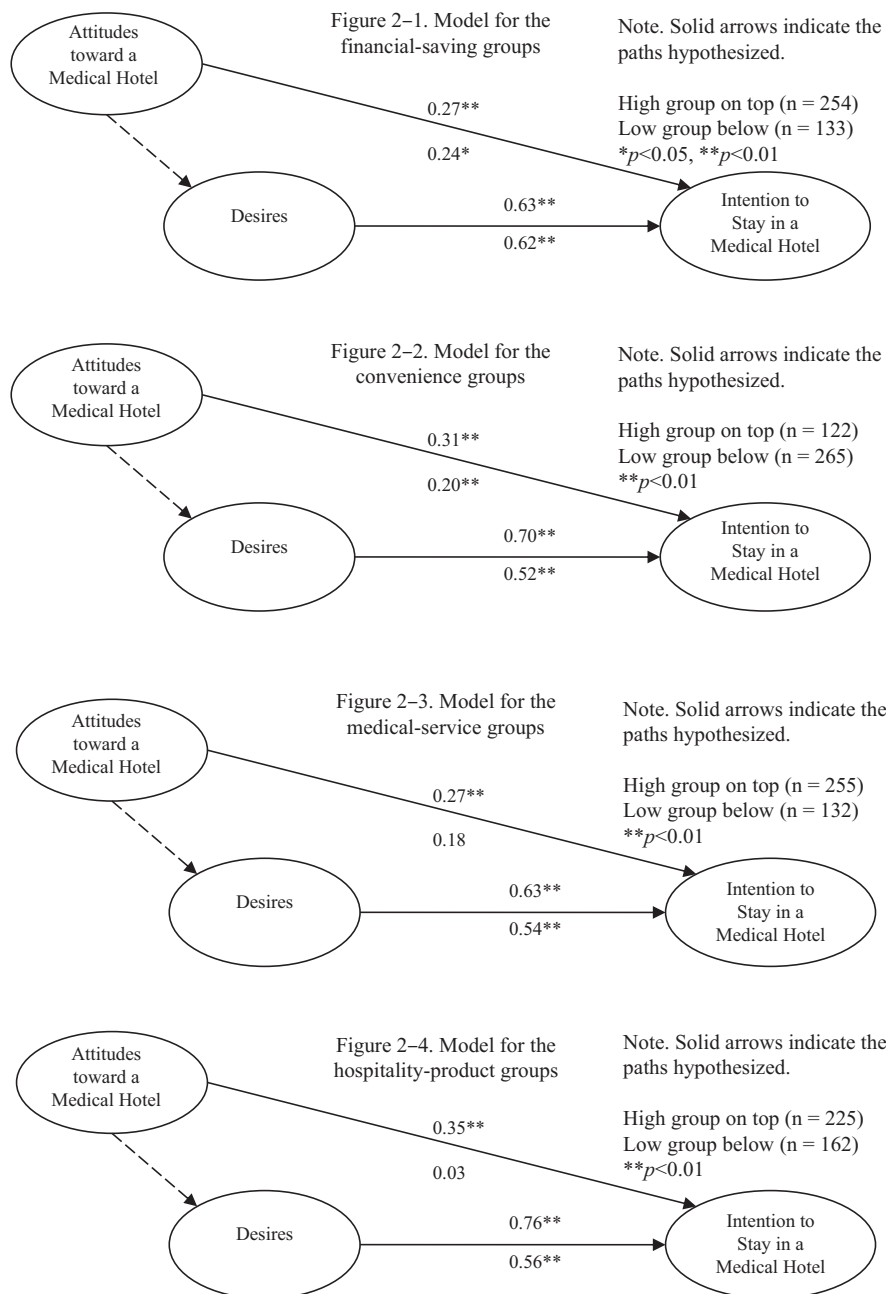


Fig. 2. Models for the high and low groups of perceived outcomes.

medical tourists' decision to stay in medical hotels, improving cognitive and affective components are essential. For instance, well-designed advertising helps create a favorable image and delivers emotional appeal likely to boost international travelers' desires to stay in a medical hotel.

Medical tourism reflects a new trend of tourism industry. Because medical tourism comprises both medicine and tourism, this offering requires excellent coordination of the health-care and tourism industries in a global nexus. Realizing this sector's full potential requires strategic planning and coordination among such key players as hospitals, medical travel agencies, hotels, and the medical tourists themselves (Heung, Kucukusta, & Song, 2010). Medical tourism offers both medical surgery or treatment and an opportunity to visit a popular tourist destination (Heung, Kucukusta, & Song, 2011; Yu et al., 2011).

6. Limitations and venues for future research

This study's limitations provide opportunities for future research. First, this study examines international tourists' decision formation with regard to general medical hotels. Medical hotels vary by service/amenity levels. While some hotels within this category offer modern luxury amenities and services, such lavish amenities/services may not be available in other locations. Future studies should further explore medical travelers' decision-making process and perceived outcomes by considering these service levels. Second, many recent hospitality and tourism studies verify that the overall image is a critical factor in international/domestic tourists' decision/behaviors (Han & Hyun, 2012; Lee et al., 2010; Lin et al., 2007). These studies show that image formation is not a simple process. Integrating the complicated process of overall image formation into the theoretical framework offers a meaningful extension of this research. Third, this study examines international patient customers' general decision formation. A study extension examining repeat-purchase behavior offers an opportunity to better understand medical tourism. Can medical hotels develop loyal customers and brand identity? Future research should address this limitation by including more experienced customers and collecting the data at medical hotels. Fourth, study participants come from diverse countries/regions across several continents. Do cultural differences exist? Investigating culture's impact on the proposed theoretical framework or the strengths of the proposed associations offers an interesting study extension. Lastly, the present study's design fits a medical hotel context. Findings should be cautiously generalized to other hospitality, tourism, or service contexts.

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