Expectation, Service Quality, Satisfaction, and Behavioral Intention – Evidence from Taiwan's Medical Tourism Industry

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Abstract

Medical tourism in recent years has been increasingly promoted in many Asian nations. This study uses Hong Kong, Macao, and mainland China people who have ever visited Taiwan as research subjects to investigate the relationships and effects of expectation, service quality, satisfaction, and behavioral intention of Taiwan's medical tourism industry through a questionnaire. The research findings show that expectation has a direct effect on both service quality and satisfaction. Service quality also has a direct effect on both satisfaction and behavioral intention. Moreover, satisfaction has a significantly direct effect on behavioral intention. Results of this study can be a reference for the medical and tourism industries in cross-industry cooperation as well as in the development of medical tourism programs and related facilities. Limitations and suggestions for future research are also provided.

JEL classification numbers: L5, L8, M31

Keywords: Medical tourism, Expectation, Service quality, Satisfaction, Behavioral intention

1 Introduction

Medical tourism in recent years has been increasingly promoted in many Asian nations. The Executive Yuan of Taiwan incorporated international medical services into the Action Plan on Internationalization of Taiwan's Medical Services in 2010. The nation's Department of Health (DOH) was designated to set up a

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special team for the internationalization of medical services, serving as a central communication platform for developing medical tourism in Taiwan. The team's primary tasks are to integrate medical services, management, and marketing and to facilitate visa applications for foreign medical tourists to achieve the ultimate goal of "medical services going out and patients coming in". Though Taiwan is now in the early stages of developing medical care services for the international market, it still has enormous potential because of the country's highly qualified medical team, advanced medical technology, and much cheaper medical expenses.

According to Taiwan's Tourism Bureau, medical tourists from Hong Kong (including Macau) and mainland China to Taiwan in 2012 reached 610,000 and 20.75 million people, a rise of 24% and 44%, respectively compared to the previous year. Taiwan shares a similar culture and language with mainland China. Many policies that the government has implemented in recent years, from cross-strait tourism, to granting visa permits to independent visitors from mainland China, and simplifying visa applications for medical tourists, have made mainland Chinese an important target group to market Taiwan's medical and tourism services.

Most research studies in Asia focusing on medical tourism destinations target India (Crooks, et al., 2011; Vijaya, 2010), Thailand (NaRanong & NaRanong, 2011), Hong Kong (Heung, Kucukusta, & Song, 2011; Ye, Qiu & Yuen, 2011), and South Korea (Lee, Han, & Lockyer, 2012; Yu, & Ko, 2012). There is little research focus on Taiwan's medical tourism industry or medical tourists from Mainland China, therefore, this study collected the opinions of 438 medical tourists from Hong Kong, Macao, and Mainland China. This study also explores the effects and relationships between expectations, service quality, satisfaction and tourists' behavioral intentions. Results of this study can be a reference for the medical and tourism industries in cross-industry cooperation.

The rest of this paper is organized as follows. Section 2 reviews previous research on medical tourism, expectation, service quality, satisfaction, and behavioral intention. Section 3 describes the data and method we employ. Section 4 reports the empirical results, and section 5 concludes the paper.

2 Literature Review

2.1 Medical tourism

Medical tourism has grown rapidly in the past decade. Medical tourism refers to "travel with the express purpose of obtaining health services abroad" (Ramirez, 2007). WTO defined medical tourism as "the tourism services based on healthcare and nursing, sickness and health, and recovery and rehabilitation", which consists of health tourism and medical tourism. Carrera and Bridges (2006) defined health tourism as "the organized travel outside one's local environment for the maintenance, enhancement or restoration of an individual's

wellbeing in mind and body", and defined medical tourism as "the organized travel outside one's natural healthcare jurisdiction for the enhancement or restoration of the individual's health through medical intervention". Accordingly, medical tourism focuses more on surgical procedures, while health tourism is a much broader concept centered mainly on maintain or improve the body and relax the mind. We focus on medical tourism in this study.

Factors that lead to the increasing popularity of medical tourism include Internet marketing (Connell, 2006), new technology and skills in destination countries alongside reduced transport costs (Carrera and Bridges, 2006; Connell, 2006), and high costs and long waiting times at home country (Grennan, 2003; Forgione and Smith, 2007). The most popular medical tourist destinations include Argentina, Cuba, Colombia, Costa Rica, Hungary, India, Jordan, Malaysia, The Philippines, Singapore, South Africa, Thailand, South Korea, Tunisia, Ukraine, New Zealand and so on (Gahlinger, 2008). Asian countries such as Thailand and India are famous because the medical expenses there are much cheaper than they are in Western countries (Cetron et al., 2006; Turmer, 2007).

2.2 Expectation

Consumer expectation refers to one's pre-purchase or pre-usage belief in the performance of a product. It is influenced by the individual's personal experience with the product or word-of-mouth spread by his/her friends or relatives. Expectations also come from the individual's evaluation of the product based on information offered or endorsement made by the marketer or competitors before buying the product (Zeithaml, Berry, and Parasuraman, 1993). Value is also a determinant of one's decision to buy a certain product or service in addition to personal factors.

There are two kinds of expectations: expectations of what "will" happen and expectations of what "should" happen. The former refers to predictions based on past experiences or frequent events, while the latter refers to what consumers hope will happen based on their ideal or potential needs and the information they have received from numerous sources, including word-of-mouth (Greenwell, 2007). Consumers usually set a range in mind of how much a product can demonstrate its ideal characteristics before buying it. Their expectations of a product can be seen as an indicator of their preference for and potential satisfaction with the product. Buyers usually evaluate a product or service they have never bought before according to information coming from external sources, such as salespersons' introduction, statistics shown in public media, or recommendations by friends. For a product or service that they have bought many times, their evaluation will be based not only on such information, but also on their usage experiences. The more information they have gathered, the higher their expectations of the product or service are likely to be (Fornell, Johnson, Anderson, Cha, and Bryant, 1996).

2.3 Service quality

Service is defined as "an activity or series of activities of more or less intangible nature that normally, but not necessarily, take place in interactions between the customer and service employees and/or systems of the service provider, which are provided as solutions to customer problems" (Grönroos, 1990). The quality of medical services is actually observable but hardly measurable (Donabedian, 1998).

Service quality can be measured in different ways. SERVQUAL is one of the most extensively used models which proposed by Parasuraman, Zeithaml, and Berry (1985). It suggests that service quality is determined by the gap between expected service and perceived service. Customers have a negative perception about a service's quality when their expectation of the service is greater than what they have actually experienced. In contrast, they have a positive quality perception when the quality of the service exceeds its expected level. After an empirical investigation, Parasuraman et al. (1988) proposed the SERVQUAL scale to include five dimensions: tangible, reliability, responsiveness, assurance, and empathy. SERVQUAL has also been extensively used to measure service quality in the medical care industry (Rad, Som, and Zainuddin, 2010; Guiry and Vequist, 2010)

Guiry and Vequist (2010) investigated the role of personal values in determining U.S. medical tourists' expectations and perceptions of a healthcare facility's service quality. Their results indicated that personal values (especially self-fulfillment, interpersonal relationship, sense of achievement, safety, dignity, and interest) are key factors affecting tourists' perceptions of a healthcare facility's service quality.

2.4 Satisfaction

Cardozo (1965) was the first to propose the concept of customer satisfaction. He defined satisfaction as an emotional response results from the disconfirmation between the pre-purchase expectations concerning the product and perceived actual performance. Customer satisfaction was also defined as "a person's feeling of pleasure or disappointment resulting from comparing a product is perceived performance (or outcome) in relation to his or her expectations" (Kotler, 1997). Hampel (1977) pointed out that customer satisfaction was a subjective evaluation and it was the result of consistency of expected performance with actual performance. Oliver (1980) expressed consumer satisfaction as a function of expectation and expectancy disconfirmation. Baker and Crompton (2000) referred satisfaction as a tourist's emotional state after exposure to the destination. Customer satisfaction is influenced by customer's expectations concerning the product and the effort expended to acquire the product. Customer satisfaction is higher when customers expend more effort to obtain the product or when the product meets expectations. On the other hand, satisfaction is lower when consumers use only modest effort to obtain the product or the product does not come up to expectations (Cardozo, 1965). Satisfaction is believed to influence

attitude change and purchase intention (Oliver, 1980).

2.5 Behavioral intention

Armitage and Conner (2001) defined behavioral intention as a person's perceived likelihood or subjective probability that he or she will engage in a given behavior. Intention is almost a synonym for "I plan to do…" It can be viewed as a decision to carry out a planned future behavior and is usually associated with extrinsic behaviors (Fishbein and Ajzen, 1975). Compared to beliefs, feelings, and attitude, it is more directly related to one's ultimate behavioral pattern. Zeithaml, Berry, and Parasuraman (1996) investigated the behavioral results of service quality and found that the customer's future behavioral intentions, such as recommendation, word-of-mouth, repeat-purchase intentions, and customer complaints, can be used to evaluate the possibility of a customer being retained or leaving.

3 Data and Methods

3.1 Hypotheses

Many scholars have used SERVQUAL to analyze customers' expectations and perceptions of certain services. Zeithaml et al. (1993) suggest that the perceived quality of a service depends largely on consumers' expectations of the service. Ling and Chong (2005) and Akbaba (2006) also confirmed that expectations have a significant effect on service quality. Rodriguez et al. (2006) noted that expectations and satisfaction are positively correlated. Customers with high expectations of a service tend to purchase the service once and are more sensitive to the service content (Bolton and Lemon, 1999; Mitra and Fay, 2010). Accordingly, we build up the following two hypotheses.

- H1: Expectation has a significantly positive impact on service quality.
- H2: Expectation has a significantly positive impact on satisfaction.

In a medical context, the quality of a doctor-patient relationship depends on the quality of medical services delivered. Medical service quality must be ensured before patients and their family can feel satisfied with and have trust in the medical service provider (Crosby et al., 1990; Hennig-Thurau and Klee, 1997). Choi et al. (2004) showed that service quality positively impact patient satisfaction, and both service quality and patient satisfaction positively impact behavioral intentions too. Additionally, Rad, Som, and Zainuddin (2010) examined the relationship between service quality and patients' satisfaction in Malaysia's medical tourism. From patients' beliefs and expectations of the medical environment, they found that patients' satisfaction is positively related to service quality.

Many researchers found a positive correlation between service quality and

customer satisfaction (Baker and Crompton, 2000; Storbacka, Strandvik and Grönroos, 1994). González and Brea (2005) also found service quality has a positive impact on customer satisfaction and behavioral intention. Saha and Theingi (2009) examined the relationships among service quality, satisfaction, and behavioral intentions in passengers of three low-cost airline carriers in Thailand. They found that service quality significantly impacts both passenger satisfaction and behavioral intentions. Kim and Lee (2011) studied customer satisfaction using low-cost carriers in South Korea and confirmed that service quality positively impact customer satisfaction, which in turn impact behavioral intentions. Based on the previous literature, we propose the following hypotheses.

- H3: Service quality has a significantly positive impact on satisfaction.
- H4: Service quality has a significantly positive impact on behavioral intention.
- H5: Satisfaction has a significantly positive impact on behavioral intention.

3.2 Questionnaire design and data collection

According to the research framework, we design the items of the questionnaire for the four dimensions: expectations, service quality, satisfaction, and behavioral intention. These items are measured on Likert's five-point scale, ranging from 1 point to 5 points, denoting "very disagree", "disagree", "neutral", "agree", and "very agree", respectively. The gauging scales are selected from the literature. Expectation is measured by 8 items taken from Bowling, Rowe, Lambert et al. (2012). Service quality is gauged by 22 items taken from Parasuraman et al. (1988) and Scardina (1994). Satisfaction is gauged by 4 items taken from Cardozo (1965) and Kotler (1997). Behavioral intention is gauged by 4 items taken from Boulding, Kalr, Staelin et al. (1993).

We administered the questionnaires to Hong Kong, Macao, and mainland China people who have ever visited Taiwan from November 1, 2012 to March 1, 2013. The questionnaires were given out at some of Taiwan's most famous scenic attractions where mainland Chinese tourists were likely to visit. A total of 500 responses were distributed, and 438 usable responses were collected. An acceptable response rate was 87.60%.

4 Analyses and Results

We perform data analyses on SPSS 20.0 and AMOS 21.0. The methods adopted include descriptive statistics analysis, reliability and validity analysis, and structural equation modeling (SEM) analysis.

4.1 Descriptive statistics analysis

Through descriptive statistics analysis in Table 1, we found that the basic attributes of major group are female (73.1%), married (52.5%), 21-30 years old

(38.8%), university education level (52.1%), live in Hong Kong or Macao, monthly income RMB\$5,001-8,000 (40.0%), and work in service industry (37.0%).

Ite	ems	No. of respondents	Percent (%)
Candan	male	118	26.9
Gender	female	320	73.1
	unmarried	208	47.5
Marital status	married	respondents 118 320 208 230 16 170 133 57 62 43 133 228 34 43 43 43 43 55 75 106 65 25 21 162 84 55 64 73 60 118	52.5
	younger than 20 years old	16	3.7
	21-30 years old	170	38.8
Age group	31-40 years old	133	30.4
	41-50 years old	57	13.0
	older than 50 years old	62	14.1
	junior high school	43	9.8
D 1 / 1 1	senior high school	133	30.4
Education level	university	228	52.1
	graduate school	34	7.8
	northern China	43	9.8
	central China	48	11.0
	eastern China	55	12.6
D 1 (1	southern China	75	17.1
Residential area	Hong Kong and Macao	106	24.2
	northeastern China	65	14.8
	southwestern China	25	5.7
	northwestern China	21	4.8
	service industry	162	37.0
	manufacturing industry	84	19.2
Occupation	public servants &	55	12.6
	teachers		
	students	64	14.6
	others	73	16.7
	below 2000	60	13.7
	2,001-5,000	118	26.9
Monthly income (RMB)	5,001-8,000	175	40.0
	8,001-11,000	51	11.6
	11,001-14,000	18	4.1
	more than 14,000	16	3.7

4.2 Reliability and validity analysis

Composite reliability (CR) is used as a measure of the reliability. As presented in Table 2, all the dimensions have a CR value greater than 0.7, which indicates good internal consistency reliability (Fornell and Larcker, 1981). Besides, this research conducts confirmatory factor analysis (CFA) to measure convergent validity. According to the results in Table 2, all CR estimates are greater than 0.7, all factor loadings are greater than 0.5, and all Average Variance Extracted (AVE) estimates are also greater than 0.5 or near 0.5 in these four dimensions. It indicates good convergent validity (Fornell and Larcker, 1981; Hair et al., 2009). Table 3 presents the results of discriminant analyses, with the values on the diagonal being AVE of our five dimensions (constructs): expectation (EX), service quality (SQ), satisfaction (SA), and behavioral intention (BI). Values on the non-diagonal are the square of the correlation between two constructs. The questionnaire has discriminant validity because the AVE of each construct is greater than the square of the correlation between any two constructs (Fornell and Larcker, 1981). Additionally, our scale and item contents are constructed according to the literature review and do pass the questionnaire pre-test, so it also has content validity because.

Dimension		Factor loading	t-value	CR	AVE
		0.667			
Expectation		0.763	13.388***	- - 0.846	0.480
		0.765	13.416***		
		0.685	12.280***		
		0.590	10.796***	_	
		0.669	12.038***		
Service quality	Tangible	0.700		0.893	0.631
	Reliability	0.797	10.333***		
	Responsiveness	0.930	9.868***		
	Assurance	0.899	10.544***		
	Empathy	0.597	8.343***		
		0.794		- 0.002	0.698
Catiafa atian		0.835	19.244***		
Satisfaction		0.871	20.279***	- 0.902	
		0.840	19.401***		
		0.858			0.720
Behavioral		0.881	23.677***	_ _ 0.912	
intentions		0.824	21.305***	- 0.712	
		0.831	21.584***		

***, ** and * indicate significance at the 0.1, 1 and 5 percent levels, respectively.

Table 3: Discriminant Analysis				
	EX	SQ	SA	BI
EX	0.479			
SQ SA	0.202	0.631		
SA	0.169	0.232	0.698	
BI	0.217	0.132	0.295	0.720

4.3. Structural equation modeling analysis

This section conducts structural equation modeling (SEM) analysis to test the fit of the factors (dimensions) of expectation, service quality, satisfaction, and behavioral intention. For a model with good fit, GFI (goodness of fit) should greater than 0.8 (Browne and Cudeck, 1993). AGFI (adjusted goodness of fit) should be greater than 0.8, and CFI (comparative fit index) should be greater than 0.9 (Doll, Xia, Torkzadeh, 1994; MacCallum and Hong, 1997; Hair et al., 2009; Hu and Bentler, 1999; Gefen et al., 2000). The ratio of the chi-square value to

degrees of freedom $\frac{x^2}{(df)}$ should be no greater than 3 (Carmines and Maclver,

1981; Hair et al., 2009), and RMSEA (root mean square error of approximation) should be under 0.08 (Browne and Cudeck, 1993). The goodness-of-fit indices

of the model are as follows: GFI is 0.862, AGFI is 0.839, CFI is 0.916, $\frac{x^2}{(df)}$ is

2.640, and RMSEA is 0.061. All these indices are within the acceptable range, meaning that the overall model fitness is good.

4.4. Results from the hypotheses verified

Figure 1 presents the path analyses from SEM. According to the estimated values of the standardized parameters of the relationship model in Figure 1, we find that expectation has a significantly positive influence on service quality (H1 is supported). The result is consistent with Zeithaml, Berry, and Parasuraman (1993), Ling and Chong (2005), and Akbaba (2006). Expectation also has a significantly positive impact on satisfaction (H2 is supported). This is consistent with the findings of Rodriguez et al. (2006).

The results of service quality, satisfaction, and behavioral intention show that service quality has a significantly positive influence on both satisfaction (H3 is supported) and behavioral intentions (H4 is supported). Satisfaction also has a significantly positive impact on behavioral intention (H5 is supported). These results are consistent with González and Brea (2005), Saha and Theingi (2009), and Kim and Lee (2011).



Figure 1: SEM from path analysis

The results from H1, H2, and H3 indicate that expectation has both direct and indirect effects on satisfaction. Furthermore, the results from H3, H4, and H5 show that service quality not only has a direct effect on behavioral intention, but also has an indirect effect on behavioral intention via satisfaction.

Table 4: AMOS model in test results				
Hypotheses and Paths		Standardized	Results	
		Factor Loadings		
H1:	Expectation \rightarrow service quality	0.535***	Supported	
H2:	Expectation \rightarrow satisfactory	0.271***	Supported	
H3:	Service quality \rightarrow satisfactory	0.400**	Supported	
H4:	Service quality \rightarrow behavioral intention	0.133*	Supported	
H5:	satisfactory \rightarrow behavioral intention	0.531***	Supported	

Table 4: AMOS model fit test results

5 Conclusion and Implications

Medical tourism in recent years has been increasingly promoted in many Asian nations. The Executive Yuan of Taiwan incorporated international medical services into the Action Plan on Internationalization of Taiwan's Medical Services in 2010. Many policies that the government has implemented in recent years, from cross-strait tourism, to granting visa permits to independent visitors from mainland China, and simplifying visa applications for medical tourists, have made mainland Chinese an important target group to market Taiwan's medical and tourism services. Thus, this study uses Hong Kong, Macao, and mainland China people as research subjects to investigate the relationships and effects of expectation, service quality, satisfaction, and behavioral intention of Taiwan's medical tourism industry through a questionnaire.

Using random sampling, we administered the questionnaires to Hong Kong, Macao, and mainland China people who have ever visited Taiwan. The questionnaires were given out at some of Taiwan's most famous scenic attractions where mainland Chinese tourists were likely to visit, such as National Palace Museum, Alishan National Scenic Area, Sun Moon Lake, Taipei 101, etc. Α total of 500 responses were distributed, and 438 usable responses were collected. An acceptable response rate was 87.60%. The research findings show that expectation has a direct effect on both service quality and satisfaction. Service quality also has a direct effect on both satisfaction and behavioral intention. Moreover, satisfaction has a significantly direct effect on behavioral intention too. The results from SEM show that service quality has both a direct and an indirect effect (via satisfaction) on behavioral intention. This research also discovered that expectation has both a direct effect and an indirect effect (via service quality) Therefore, we suggest that medical tourism providers have to on satisfaction. pay more attention to understand customer expectations. Through a comprehensive analysis of customer expectations, they can design appropriate product or service details to improve the perceived quality of their product or service, which in turn increase customers' satisfaction and their behavioral intention.

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