

Perceived Risk, Quality and Value Affecting International Medical Tourist Loyalty in the  
Post Covid-19 Era

**Perceived Risk, Quality and Value Affecting International Medical Tourist Loyalty in  
the Post Covid-19 Era**

**Sarinya La-ong-in Thayarnsin<sup>1</sup>**

<sup>1</sup>School of Tourism and Services, University of the Thai Chamber of Commerce, 126/1  
Vibavadi Rangsit Road, Bangkok 10400, Thailand

sarinya\_lao@utcc.ac.th

\*corresponding author:

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### **ABSTRACT**

The purpose of the study is to propose a conceptual model of international medical tourist loyalty by considering the concepts of perceived risk, quality and value in the post Covid-19 era. It involves the examination of the interrelationships among perceived risk, value, quality and customer loyalty. Gathering data from 405 international tourists who have experiences in receiving health or medical treatment(s) as well as travelling in Thailand. The findings from the structural analysis indicate a good fit for the proposed model. Generally, the findings support for the hypotheses in the proposed theoretical model. Specifically, perceived medical treatment and service quality has significant associations affecting their perceived risk towards Thailand as a medical tourism destination which in turn affects their loyalty. Moreover, both medical tourists' loyalty and perceived value are positively influenced by their perceived quality of core products and services. International medical tourists' perceived value has significant association affecting their loyalty. This study also confirmed that there is a significant association between international medical tourists' perceived risk and their perceived value. Finally, both theoretical and practical implications in terms of destination management and marketing are discussed from the findings.

**Keywords** – Medical tourism, perceived risk, perceived quality, perceived value, the post Covid-19 era

## INTRODUCTION

Travelling abroad for health or medical treatment has become more popular in the twenty first century as people are significantly more health-conscious (Campbell, Li & Sham, 2018; Lunt, Hardey & Mannion, 2010; Stanley, 2010; Texas A&M University, 2016). Moreover, medical tourism is now the main cause of an economic growth in increasing importance as a global industry, with producers and consumers spread around the world. The Covid-19 pandemic has a huge impact in shifting the role of medical tourism throughout the world. According to the World Health Organization (WHO), the COVID-19 was declared a pandemic since March 11, 2020 because of its rapid and extensive spread among many countries through its very contagious nature and its high mortality among the populations, particularly in group of the elderly and infirm (Olaimat et al., 2020). Mehta et al. (2020) asserted that the whole world is confronting an unprecedented extraordinary crisis or the Covid-19 pandemic. This pandemic causes the environment and the activities in the market crash (Smales, 2020). Nowadays, every country is confronting the economic and financial challenges of this pandemic. Taking into account the fact that the number of travelers affected by the Covid-19 pandemic is high. According to the World Bank (2021), this pandemic has caused nearly every business in the world in different ways. Specifically, the tourism industry including medical tourism became one of the most affected sectors in the global Covid-19 pandemic since 2020 (Mohamed Aref, 2020).

According to report titled “A Prescription for a Healthier Economy” presented that international spending in medical tourism products and services grew by 358% in nominal terms between 2000 to 2017, increasing from US\$ 2.4 billion (72.5 billion baht) to \$11 billion (Bangkok Post, 2019). Thailand, Costa Rica and Mexico are considered some of the leading emerging economies for medical inbound spending indicating US\$ 589 million, \$451 and \$315 million, respectively (TTR Weekly, 2019). Therefore, over 50 countries including Thailand have considered medical tourism as a national industry (Gahlinger, 2008) due to the increasingly number of medical tourists as well as the average growth rate. Noree, Hanefield and Smith (2016) confirmed that Thailand is regarded as a regional leader in medical tourism. Thailand's healthcare and medical service providers offer an extensive range of medical treatments from

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dentistry to cardiac surgery and transplant operations (Connell, 2011) and also well trained doctors with very high standards as well as excellent medical care. In Thailand, Prime Minister Prayut Chan-o-cha announced on Wednesday 16 June 2021 that the country will be fully reopened within 120 days, with all businesses able to resume normal operations and visitors free to travel across the country (Bangkok Post, 2021). The tourism industry, especially medical tourism will gradually revive after Thailand has been hit hard by the third wave of Covid-19 pandemic since April 2021. The key factor to driving the success of medical tourism in Thailand after the Covid-19 pandemic is customer loyalty, in particular international medical tourists' intention to revisit Thailand.

Consumer loyalty has been found to be a critical tool for many tourism destinations in the literature. The growth and survival of medical tourism destinations depend on how loyal their customers are because the medical tourism industry is facing with today's highly globalized and competitive markets. There is therefore a need to pay attention the reasons Thailand gravitates international medical tourists and what determines their loyalty. According to Aaker (1996), loyalty is the key consideration because a highly loyal customer base generates larger sales and profits. Reichheld and Sasser (1990) asserted that a business might increase its profits by between 25% and 85% by retaining 5% of its customers. Other associated benefits are to fostering a lasting relationship with customers, including the fact that loyal customers are more likely to recommend destinations or businesses to others with a free advertising (Reichheld and Sasser, 1990). Therefore, medical tourism destinations can create a sustainable growth path for their marketplace by keeping existing consumers rather than attracting new customers.

Moreover, perceived risk is also the other important factor in the post Covid-19 era because people nowadays are more concerned about personal hygiene, sanitation and cleanliness in order to protect themselves from coronavirus disease. As mention by Sheth (2020), the Covid-19 pandemic has changed customer behavior, in other words, travelers will have experience of doing with a small group and they are more concerned about tourist attractions providing clear protection particularly health protection (Parady, Taniguchi & Takami, 2020). Thailand has also been known to be one of the world's most efficient in mitigating the pandemic situation that has boosted traveler's confidence. This is an opportunity

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to highlight medical as well as wellness tourism during post COVID-19 to international patients under safe guidelines (Bumrungrad hospital, 2021). However, the research focusing on medical tourism loyalty in the post Covid-19 era is limited. Therefore, the purpose of this study is to propose a conceptual model of international medical tourist loyalty by considering the concepts of perceived risk, perceived quality and perceived value. Specifically, the objectives are to 1) evaluate the roles of perceived risk, perceived value and perceived quality by examining their influences on the processes creating international medical tourist loyalty toward Thailand as a medical tourism destination in the post Covid-19 era. It involves the examination of the interrelationships between perceived risk, perceived value, perceived quality and customer loyalty and 2) test the mediating impact of perceived risk and perceived value components.

This study is structured in a logical order introducing the progression of the research as well as its findings. This study attempts to provide all the relevant information and description of the steps for the fulfillment of the objectives of this study. The next section focuses on the literature relating to four main constructs used in this study as well as Theoretical framework and hypotheses. After that, the methodology section explains how to design the study survey, survey administration and provides data analysis. Subsequently, the results of the study and the test of research hypotheses will be discussed in this section. Consequently, this section will discuss the research findings and implications for this study.

### **LITERATURE REVIEW**

This section presents previous studies focusing on the construction of variables as well as proposed hypotheses in the context of medical tourism. These evidences accumulated to support the development of the theoretical model explaining international medical tourists' loyalty.

Tourist loyalty is regarded as one of the most important factors in the literature of marketing as well as tourism industry and has become a key success factor for the organization (Boakye et al., 2017) as well as destination. Due to the increasing competition in medical tourism, loyalty has become a critical part of destination marketing because it can sustain the business as well as the medical tourism destination in the long term by saving marketing costs caused by retaining existing customers and spreading positive recommendations to others. This is supported by the study of Gursoy, Chen and Chi (2014) pointing that loyalty is

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not only a source of competitive advantage and a success in the market but also the best predictor of future behaviour. Tourist loyalty has been defined in different ways over the years. As mentioned by Laškarin, Dlačić and Suštar (2020), Oliver has been considered one of the most cited authors in the literature of loyalty. Oliver (1999) has defined loyalty as “a deeply held commitment to rebuy or re-patronize a preferred product or service consistently in the future, causing same repetitive brand or same brand-set purchasing, despite situational influences or marketing efforts” (p.31).

In the context of medical tourism, Huei et al. (2015) confirmed that customer loyalty is the key element in medical tourism success and competitive advantage because medical tourist loyalty can save more cost in finding new customers as well as word-of-mouth promotion. This study focuses on the theories of loyalty in the area of tourism, recreation and medical tourism. The theories of loyalty in the area of medical tourism focused on intention to revisit and willingness to recommend to others. For example, the study of Han and Hyun (2015) attempted to examine the relationships among perceived medical and service quality, satisfaction, trust and loyalty. The researchers of this study defined loyalty in terms of customer retention including intention to revisit the clinic and the destination country for medical care. The finding revealed that proposed factors, namely perceived medical and service quality, satisfaction and trust in staff and clinic have a strong explanatory power for outcome variables, effectively predicting intention to revisit the clinic and to revisit the destination for medical care. Similarly, Kim et al. (2017) investigate the roles of servicescapes, emotions, and satisfaction in developing consumer loyalty that focused on post behavior including loyalty toward medical clinic and loyalty toward Korea. The results found that the interrelationship of servicescapes, positive emotion and satisfaction is essential in influencing international medical tourists' loyalty to a medical clinic. Additionally, Abubakar and Mustafa (2016) also investigate the impact of online word-of-mouth on destination trust and intention to travel in the medical tourism sector. The finding presented that online word-of-mouth had a positive impact on destination trust and intention to travel.

The researcher has decided to integrate two main dimensions of loyalty, namely behavioral and attitudinal loyalty based on a number of times in the setting of medical tourism (e.g. Han & Hyun, 2015, Kim et al., 2017; Huei et al., 2015). While behavioral loyalty is

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regarded as a behavior that is shown by a consumer to a destination within the form of repeated purchases (Back & Parks, 2003, attitudinal loyalty is defined as an attitude shown by tourists towards a destination in the form of recommending the destination to others (Dimitriadis, 2006). In attempting to understand tourist loyalty in terms of intention to revisit the medical tourism destination can lead to maintain the position of the destination as well as to increase profitability. The other perspective of tourist loyalty is intention to recommend the medical tourism destination to others including friends, family, and relatives. Medical tourist with positive word-of-mouth to others is considered to be an important factor enhancing the destination image of the destination and therefore the growing number of tourists is accounted to that location (Marrocu & Paci, 2013). Therefore, loyalty can help the medical tourism in Thailand in the post Covid-19 era to present the business or destination performance (Reichheld, 2003), to measure the success of marketing strategies (Flavian, Martinez & Polo, 2001) and to a long-term sustainable profitability (Salegna & Goodwin, 2005).

### **Perceived quality**

Perceived quality has long been considered a critical factor and competitive requirements to a destination's success and survival in the tourism industry literature. To confront insecure in tourism destinations, it is necessary to employ numerous ways of increasing profit and Rocco (1993) has suggested that product quality is an essential element of a product's competitive advantage at the market. Given the many challenges facing by many medical tourism destinations, they have attempted to enhance consumer satisfaction as well as to induce their consumers to revisit the medical tourism destinations more often and perceived quality becomes an important factor in a customer's revisit behavioral intentions. Rad, Som and Zainuddin (2010) indicated that level of service quality and cost consideration are the main factors of medical tourists looking for quality medical treatments at medical tourism destinations in other countries. Not only quality plays a vital role in building a hospital's competitive arsenal but also it has been considered a driving force behind profitability by identifying the right things and then do them right (Ahuja, 2010).

The literature relating healthcare and medical tourism industry pointed out various ways of quality perceived by patients or consumers. For example, the study of Johnson (1988) found that meeting human or patient needs, is a main key to remain successful as well as to stay ahead

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of the competitors in an eye care market. In the medical tourism literature, the study of Huei et al. (2015) used perceived service quality as one of predictors explaining patient satisfaction as well as behavioral intention. Perceived service quality of their study involves five dimensions, namely assurance, responsiveness, tangible, empathy, and reliability. Similarly, Lertwannawit and Gulid (2011) have used these five dimensions of service quality to test the relationship on value, satisfaction and brand trust in medical tourism industry. Based on the study of Han and Hyun (2015), perceived core-medical product quality relates to medical product performance including excellence of medical care, wider availability of medical/ health care, surgical/ medical skills, continuity of care and modernity of medical facilities. Perceived service quality states the assessment in the service performance of both medical professionals and staff including service delivery skills and competencies, efficient/ comfortable communication and kindness.

More empirical evidences have supported the concept of perceived quality that involves superiority or excellence of a product and service as perceived by consumers, in other words, the performance of a product and service (Lee et al., 2009; Rigatti-Luchini & Mason, 2010; Song et al., 2014; Wu et al. 2014; Yoon et al., 2010). Core-product quality refers to the performance of the basic product relative to its value (Clemmer, 1990). Aaker (1991) has stated seven dimensions of perceived product-quality including performance, features, durability, reliability, conformance with specifications, service ability and, fit and finish. The other factor is service-product quality that refers to the performances derived from interactions with service personnel (Price et al., 1995). The present study therefore defined perceived quality as the medical tourists' perception of overall components of both core-product and service-product performance (Han & Hyun, 2015), in other words, both medical products and service. It is essential for the healthcare service providers to consider all aspects of medical tourism including physicians' professionalism level, certification services and ethical issues, thereby helping to assure maximum patient satisfaction. Therefore, this study attempted to study the role of perceived quality associated with other constructs, namely perceived risk towards Thailand as the medical tourism destination, perceived value and customer loyalty from medical tourists' perspective. Therefore, the better product and service quality that medical tourists perceive will create greater opportunity for healthcare service providers and policy



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makers to establish the country as a popular medical tourism destination as well as can attract other international medical tourists.

### **Perceived Risk**

“Every willingly takes risks” (Adams, 1995, p.16) has been regarded as the starting point of any theory of risk. Generally, people are engaged in some kind of dangerous events every day. Especially, tourists confront with unpredictable incidents all the time during their traveling to the tourist destination. A number of previous studies have discussed risk in the tourism industry, in particular since the 1990s (e.g. Sönmez & Graefe, 1998). “Risk and tourism are interwoven as the purchase of leisure trip is inherently attached to risk” (Baker, 2015, p. 4). Williams and Baláz (2013) noted that features of tourism products and service consisted of the intangibility, heterogeneity, perishability, and inseparability. Consumers in the tourism industry might perceive greater risk than consumers in other industries. Many scholars indicated that there are an increasing number of studies on risk in tourism since the attack of 9/11 in 2001 coupled with major tragedies, like the SARS outbreak, the Bali bombings, the Asian tsunami and the Covid-19 pandemic in the present, resulting in tourist flows as well as regional stagnation (McCartney, 2008; Shin, 2005; Kovari and Zimmyi, 2011; Lepp and Gibson, 2003; Pizam et al., 2004; Simpson and Siguaw, 2008; William and Balaz, 2013; Yang and Nair, 2014). In taking up this point of view, researchers have directed substantial effort to understand the conceptualization of risk perceived by medical tourists. The survival of the tourism industry depends on how the destinations or businesses can possess the ability to manage risk as well as the skill to recognize it (Shaw et al., 2012) for the purpose that the tourism destinations with a good risk management can gain and achieve a competitive advantage (Shaw, 2010).

Unsurprisingly, perceived risk becomes one of the main concerns for medical tourism destination around the world. As mentioned in several previous studies, a tourism product is mostly services rather than products. Reisinger et al. (2010) further explained that service has focused on the service process, performance and service encounter, in other words, the interaction between the customer and the firm or service provider. It can be said that service industry characterized by their inherent properties, namely heterogeneity, perishability,

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inseparability and intangibility, as mentioned by several researchers (e.g. Murray & Schlacter, 1990; Mitchell & Greatorex, 1993; Mitchell, 1999). The tourism industry might expect to find closely related to worry, uncertainty, fear and anxiety, however medical tourism is riskier than other types of tourism because of the purpose of medical tourism, combining both travelling and obtaining medical treatments in other countries. Therefore, investigating consumer risk perception within medical tourism environment offers a great deal to potential medical tourism marketing. More specifically, the perceived risk can influence marketing decision making concerning efficient resources location (towards marketing strategies considering the impact of products' perceived risk), segmentation strategies can be designed according to risk reduction strategies employed by customers (Mitchell & McGoldrick, 1996; Mitchell, 1999), perceived risk can be considered to develop the image and positioning of a brand and it also helps to generate ideas for new services or products of a firm or an organization (Mitchell & Boustani, 1993). In the context of medical tourism, few previous studies have used perceived risk as one of antecedents of tourists' behavioral intention to travel for medical care to a foreign destination (Wang & Wang, 2013; Garrouch, 2015). Medical or healthcare treatments or practices will differ among countries and customers or patients seeking offshore treatment are exposed to several risks (Crooks et al., 2010; Turner, 2011). Samir and Kasim (2011) indicated that it is necessary to understand that medical tourism is not a completely regulated industry.

In this study, perceived risk can be defined as the likelihood of perception of an individual about the probability that a particular action will lead them to a situation exposed with an unacceptable danger leading to influence travel-making, as confirmed by Manfield (2006). As mentioned earlier, customers' behavior will be changed because of the Covid-19 pandemic (Shelth, 2020) and they are also more concerned about tourist attractions or place with clear protection in particular in health protection (Parady, Taniguchi & Takami, 2020). Therefore, this study focused on investigating the physical and health dimension of risk perceived by international medical tourists in order to broaden the understanding of their perceived risk in Thailand in the post Covid-19 era.

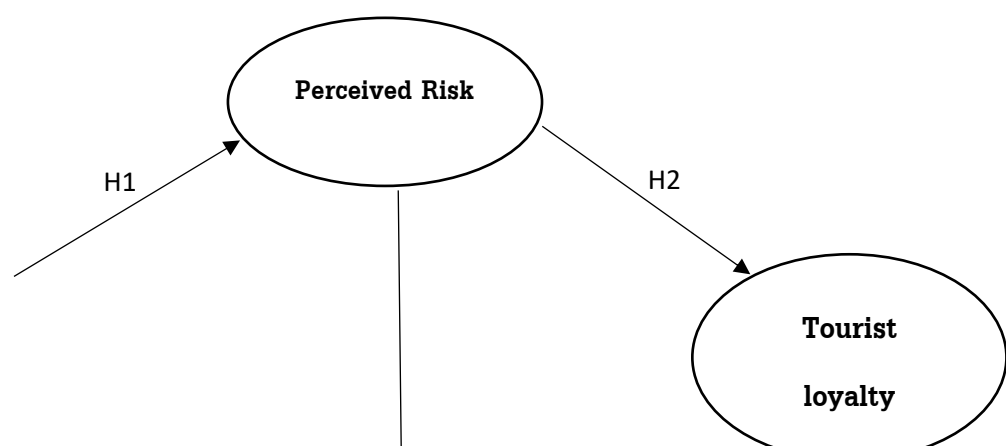
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## Perceived value

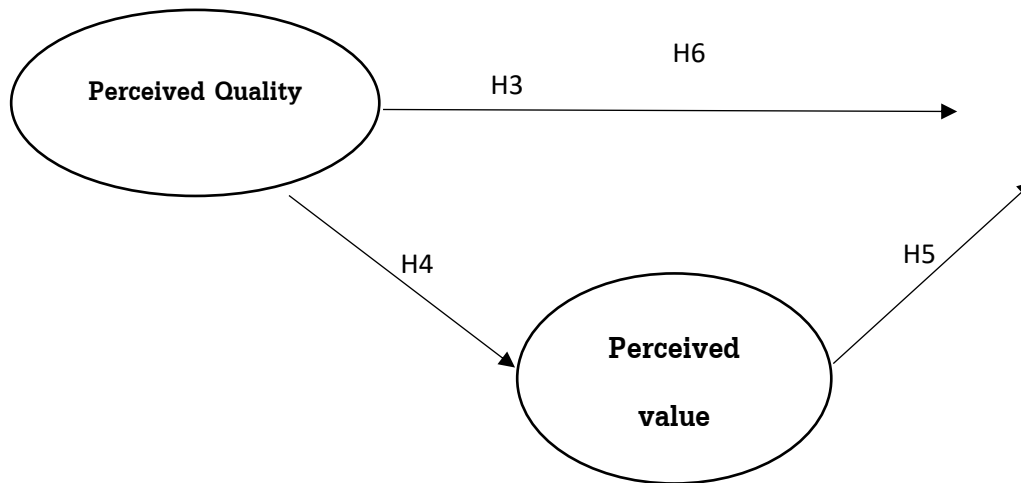
Perceived value is a key factor to business competitiveness and can devise client-oriented business strategies (Bajs, 2015) and refers to an outcome of overall product or service evaluation when compares with what was sacrificed to obtain the product or service (Zeithaml, 1988). Similarly, McDougall & Levesque (2000) define perceived value as the utility person derives from either tangible products or intangible ones (services) and it comprises what benefits person gets compared with the costs he or she pays. Interestingly, when compared perceived value of products and tourism destination, characteristics of each tourism destination that acts as distinguishing elements presents unique and is different from others (Um & Yoon, 2020). That leads to components of perceived values vary between types of tourism as well as destinations. As mentioned by Tussyadiah (2014), the concept of perceived value has attracted much attention from both academia and the industry. Because of the perception of customers is a main reason in developing product and service, thus to study perceived value can help organizations to better understanding about promoting, marketing and classifying market (Williams & Sutar, 2000). Moreover, when customers perceive high value in products or service, they are more likely to repurchase and express positive comments (Chen & Chen, 2010). In this study, the researcher focused on three main dimensions of perceived value including product and service or medical or health treatment, price and environment.

## Proposed Conceptual Model and Hypotheses

The model was used to test the primary conceptual ideas as well as objectives in the present study empirically, as shown in Figure 1. The main interest was in examining the interrelationships among perceived quality, risk and value in generating international medical tourists' loyalty in Thailand. A total of six hypotheses was developed so as to evaluate the proposed model.



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*Figure 1.* The proposed model and hypotheses

It is important to recognize the relationship between international medical tourists' perceived quality and their perceived risk because few studies have investigated this relationship, especially in the context of medical tourism. Product and service quality has been considered as a key factor for international medical tourists in travelling other countries for medical or health treatments. Gill and Singh (2011) asserted that apart from the price, the quality of health care is recognized as an important determinant for medical tourists. This is because some people believe that if something is offered at lower cost, they might not receive better quality. Similarly, the UNWTO states that safety and security as a predictor of quality tourist product and service (UNWTO, 2018). The medical tourism is highly sensitive to the perception of danger and lack of safety as well as its primary goal is to fulfill people's travel desire and expectations regarding both traveling and receiving medical treatment(s). It is needed that successful medical tourism development is subject to not only the increase of international medical tourists' perceived quality but also the reduction of risks associated with a destination. In other words, when international medical tourists perceive good quality medical products and service, it is a way to minimize their perceived risk at the destination to some extent. Previous studies have indicated the relationship between quality and risk is direct but varies regarding to contexts and situations since 1973. Sheau-Fen et al. (2012) as well as Thuy and Chi (2015) confirmed the association between perceived risk as a multidimensional framework and perceived quality. The results found that the feelings of uncertainty in both performance risk and physical risk negatively affect the perception of quality, as confirmed by the study of

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Sheau-Fen et al. (2012) and Thuy and Chi (2015), however the effect of financial risk is not supported, as indicated by Thuy and Chi (2015). Marakanon and Panjakajornsak (2017), in a recent study with environmentally friendly electronics products in Thailand, presented that perceived quality has a direct relationship with customer perceived risk. A better understanding of international medical tourists' perception of quality and risk after the era of Covid-19 is required if the industry is going to be successful in the global market. Thus, the following hypothesis is formulated:

*Hypothesis 1: There is a significant association between international medical tourists' perceived quality and their perceived risk*

In turn, Scridon, Achim, Pintea & Gavriletea (2019) carried out a survey in Romania, finding that risk plays a significant role for consumers in influencing consumer loyalty. Additionally, Lalinthorn and Panjakajornsak (2017), in studying environmentally friendly electronic product market, found strong correlation between perceived risk and customer loyalty. Ghotbabadi, Feiz & Baharun (2016) indicated a significant association between perceived risk and customer satisfaction as well as loyalty in the airline industry. The study of Khuraym and Al-Ma'aytah (2016) as well as Lee et al. (2016) confirmed the relationship between perceived risk and intention to buy digital products and online transactions. However, no studies focus on the relationship between perceived risk and customer loyalty in the context of medical tourism in spite of the fact that it directly relates to different types of risk in particular in the post era of Covid-19 pandemic. Chang and Chen (2008) mentioned that to reduce perceived risk can lead to increase in purchase probability that in turn a decrease in perceived risk is useful for increasing customer trust. Thus, the following hypothesis is posited.

*Hypothesis 2: There is a significant association between international medical tourists' perceived risk and their loyalty*

The relationship between perceived quality and customer satisfaction as well as loyalty has been considered one of the most frequently used constructs in performing an evaluation of products or services over the past twenty years (Zeithaml, 1988; Babin and Griffin 1998; Oliver, 1997). There was evidence to support a relationship between quality and customer loyalty (Lai, 2014; Le Chi Cong, 2021; Lin, 2016; Lemy, D., Goh, E., & Ferry, J., 2019;

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Nguyen-Phuoc, Su, Tran, Le & Johnson, 2020) as well as value (Al-Ansi, A & Han, H., 2019; Oriade, A.; Schofield, P., 2019; Suhartanto, D.; Brien, A.; Primiana, I.; Wibisono, N.; Triyuni, N.N., 2019). In the recent study, Le Chi Cong (2021) confirmed perceived quality positively influenced post-behavior intentions in terms of intention to return Vietnam and intention to recommend by WOM. Numerous studies attempted to examine the direct and indirect relationships among service quality and satisfaction and repurchase intention. It is well documented that several researchers (e.g., Mao and Zhang, 2012; Zeithaml, Berry and Parasuraman, 1996; Zeithaml, Bitner, and Gremler, 2003; Bisschoff and Lotriet, 2009; Bodet and Meurgey, 2002; Kyle, et al., 2010; Murray and Howat, 2002; Shonk and Chelladurai, 2009) have suggested that the provision of high-quality services is critical to the profitability of an organization, because it enhances customer satisfaction, which in turn influences the future intentions of current customers (Kim and Trail, 2010; Kyle, et al., 2010; Murray and Howat, 2002; Shonk and Chelladurai, 2008; Westerbeek and Shilbury, 2003). Therefore, the preceding discussion leads to the following hypotheses:

*Hypothesis 3: There is a significant association between international medical tourists' perceived quality and their loyalty*

*Hypothesis 4: There is a significant association between international medical tourists' perceived quality and their perceived value*

There was also evidence to support a relationship between perceived value and loyalty (Channoi et al., 2018; Hapsari, 2018; Jin et al., 2015; Tran, 2020). Similarly, it can be assumed that international medical tourists exerted a direct influence on their loyalty in the post Covid-19 era. Hence, the preceding discussion leads to the following hypothesis:

*Hypothesis 5: There is a significant association between international medical tourists' perceived value and their loyalty*

Finally, international medical tourists' perceived risk may lead to their perceived value. Previous studies indicated that there is a relationship between risk and value (Sharifpour et al., 2014; Uslu & Karabulut, 2018). Therefore, this study proposes the following hypothesis:

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*Hypothesis 6: There is a significant association between international medical tourists' perceived risk and their perceived value*

## **MATERIALS AND METHODS**

### **Instrument development**

This quantitative research employed an empirical study using a questionnaire survey method in order to verify the hypotheses developed based on the literature review. These variables in the study were measured using the questionnaire elaborated with statements in order to reflect their meaning in the studied context, as suggested by Nunnally and Bernstein (1994). The survey questionnaire comprises of six sections including description of the research, four sections (perceived quality, perceived risk, perceived value and tourist loyalty) relating to study variables and questions to collect demographic information. The study chose to develop and adapt statements for study constructs regarding to the existing literature with well-validated measurement items. These could reflect the constructs of perceived quality, perceived risk, perceived value and tourist loyalty. Thus, the questionnaire had at least three measurement items for each construct so as to ensure the minimum number of items required for construct validity, as recommended by Hair et al. (2011). The questionnaire using 7-point Likert-type scales with anchor of (1) "strongly disagree" to (7) "strongly agree" was utilized to measure the variables in the present study. More specifically, tourist loyalty, this study uses five items to measure intention to revisit Thailand for further treatment(s) as well as for leisure vacations and also intention to recommend Thailand to others for medical treatment(s) as well as for leisure vacations. These items were adapted from previous studies (Chen & Chen, 2010, Han & Hyun, 2015, Thayarnsin, 2019). Perceived quality was assessed on five items using the same 7-point Likert-type scale and these items have used in previous studies (Han & Hyun, 2015, Booksbeger & Craig-Smith, 2006). The construct of perceived value was measured by five items with three dimensions including medical or health treatment product and service, price and environment. These items were adapted from the study of Biyan Wen & Mengshi Tong (2014). In this study, perceived risk was evaluated by six statements adapting from previous studies (Thayarnsin, 2017, Crooks et al., 2010, Tsaur et al., 1997).

### **Data collection and participants of the study**

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This research used a convenience sampling approach. The target population was international tourists who received medical or health treatment as well as travelled in two main cities in Thailand including Bangkok and Phuket. Data collection was carried out through a printed questionnaire and interviewers specifically trained for this purpose were applied in this study from June 2020 to March 2021. Respondents were approached at several places near the clinics and hospitals in two mentioned provinces. Only international medical tourists who were willing to respond to the interviewers were asked to fill out the questionnaire. According to the Ministry of Tourism and Sports website, Thailand had received 1.2 million medical tourists from other countries in 2017. The determination of sample sizes came up 400 by using Taro Yamane's formula with an error 5% and with a confidence coefficient of 95% (Yamane, 1967). Also, there are various rules-of-thumb in determining sample size requirements for Structural Equation Modeling (SEM). A common rule of thumb is that SEM studies should include a minimum sample size of 100, suggested by Boomsma (1985). Similarly, Hair et al. (2006) suggested that sample size of SEM should be ranged from 100 to 200. The same authors further noted that sample size should be large enough or at least 5 times of the number of parameters. Another rule-of-thumb proposed by Bentler and Chou (1987) indicated that 5 or 10 observations per estimated parameter might be acceptable. The other rule-of-thumb noted that SEM studies should strive from 10 cases per variable (Nunnally, 1967). A total of 495 responses were obtained from two provinces (Bangkok = 323 and Phuket = 172) and 405 usable responses related to respondents who never had experience in receiving medical or health treatment and also excluding outliers. Therefore, the sample size of this study was 405 international medical tourists that met the mentioned criteria.

## RESULTS AND DISCUSSIONS

### Descriptive statistics

Of the 405 participants, a majority was females (61.5%). Respondents ranged in age from 28 to 69, with 45.65 being the average age. In terms of education, the highest proportion of participants reported four-year college graduates (55.5%). Additionally, about 17.5% were high-school graduates and about 6.5% indicated being graduate-degree holders. In terms of their frequency of travelling to Thailand for medical tourism within the last five years, 83% reported



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one time, 11%, two times, and 6%, three times. Most respondents were from China (43.1%), Australia (23.13%) and America (22.54%). The other participants were from countries such as Singapore (4.1%) and others.

### Confirmatory Factor Analysis

In terms of the confirmatory factor analysis, the estimation of the measurement model involving the variables namely risk, perceived value and tourist loyalty was done by the maximum likelihood methodology, as suggested by Byrne (2010). The values of skewness and kurtosis were examined before to data analysis. The findings of the univariate normality tests indicated that none of the variables presented (Skewness) > 2 and (Kurtosis) > 7, therefore there is no extreme violation of normality, as recommended by Maroco (2014), univariate kurtosis and skewness measures (from each indicator) approach zero and are not higher to 2 and 7, respectively. These values were appropriate for data analysis. Table 1 was used to test the reliability test and there are 5 items used to measure perceived quality and the alpha coefficient is 0.814. By using 6 items in perceived risk, the value is 0.794. Additionally, there are 5 items in both perceived value and tourist loyalty and the values are 0.851 and 0.842, respectively. As suggested by Malhotra (2004), alpha coefficients below 0.6 are weak in reliability, 0.6-0.8 are moderate strong and 0.8-1.0 are very strong in reliability. Also, Nunnally et al. (1967) and Hair et al. (1984) suggested that the value should be above 0.70. The internal reliability test showed that all of the measures adopted have internal consistency reliability. Specifically, the internal reliability coefficients for constructs are moderate strong (0.6-0.8) to very strong (more than 0.80). Therefore, all items to measure the 4 constructs are concluded in this study and the relationships among the items are reliable for further study. Results from Table 2 display the correlations between the constructs in the theoretical model. All correlations are significant ( $p < 0.01$ ) and the highest value among those independent variables is 0.612 that not exceed 0.90, as indicated by Hair et al. (2006). Thus, there is no multicollinearity problem in this study.

Table 1

*Results of reliability test for research variables*

Number	Construct	Cronbach's alpha value	Number of items
1	Perceived quality	0.814	5

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2	Perceived risk	0.794	6
3	Perceived value	0.851	5
4	Tourist loyalty	0.842	5

Table 2

*Results of the construct means, standard deviation and Person's correlation analysis*

Variables	PQ	PR	PV	TL
PQ	1.000			
PR	0.612**	1.000		
PV	0.541**	0.511**	1.000	
TL	0.438**	0.501**	0.637**	1.000
Mean	4.105	4.246	4.053	4.051
SD	1.012	1.122	1.003	0.959

Before the evaluation of the structural model, the measurement model was conducted. The results of measurement model are shown in Table 2. Findings from the confirmatory factor analysis presented that the measurement model satisfactorily fit the data ( $\chi^2=394.103$ ,  $df=180$ ,  $p<.001$ ,  $IFI=.900$ ,  $NFI=.929$ ,  $GFI=.917$ ,  $CFI=.940$ ,  $RMSEA=.074$ ), as presented in Table 3. As shown in Table..., factor loadings for the indicators for each variable were all significant ( $p<.01$ ) and sufficient high, with values ranging from 0.695 to 0.870. These values show the convergent validity of the constructs. Composite reliability was computed and the values ranged from 0.770 to 0.920 and thus were all acceptable, exceeding the suggested cut-off of 0.600 (Anderson and Gerbing, 1988). AVE values were calculated and the variances extracted surpass the recommended threshold of 0.50 and therefore convergent validity was evident (Hair et al., 1998). Finally, these AVE values were greater than the square of correlation between pairs of constructs and thus discriminant validity was evident (Fornell & Larcker, 1981).

Table 3

*Goodness of fit indices of the model*

	Criteria*	indicators
$\chi^2$	$p < .05$	394.103
$\chi^2/df$	$<5$	2.189 (394.103/180)
Fit indices		
GFI	$>.90$	0.917
IFI	$>.90$	0.900

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NFI	>.90	0.929
TLI	>.90	0.941
Alternative indices		
CFI	>.90	0.940
RMSEA	<.08	0.074

Table 4

*Confirmatory factor analysis*

Variable	Item	Statement	Factor loading	AVE	CR
Quality	Q1	Overall quality of medical treatment and service at clinic/hospital is great.	0.801	0.691	0.870
	Q2	Overall medical professionals at the clinic/hospital is great	0.820		
	Q3	Overall staffs at the clinic/hospital is great.	0.870		
	Q4	Overall quality of medical equipment used in the clinic/hospital is great.	0.815		
	Q5	Waiting times in the clinic/hospital is shorter than in my home country.	0.845		
Risk	R1	Visiting Thailand for medical tourism in the post Covid-19 era is stressful.	0.861	0.680	0.860
	R2	There is a possibility of contracting infectious disease in the post Covid-19 era.	0.811		
	R3	There is a possibility of physical danger, injury or sickness while travelling Thailand for medical tourism.	0.803		
	R4	There is a possibility that I will not able to obtain appropriate advice from regular doctors in the post Covid-19 era.	0.820		
	R5	There is a possibility that the desired medical treatment will not turn out as expected in the post Covid-a9 era.	0.840		
	R6	Worried about the disease at the destination	0.835		
Perceived value	PV1	Lots of medical treatment varieties in Thailand.	0.764	0.580	0.920
	PV2	Medical treatment in Thailand is attractive.	0.799		
	PV3	Price of medical treatment in Thailand is attractive.	0.811		
	PV4	Price of medical treatment in Thailand is clearly stated.	0.706		
	PV5	Medical treatment enables customers to easily find in Thailand.	0.713		
Tourist loyalty	TL1	I am willing to revisit Thailand for further treatment (s).	0.749	0.530	0.770
	TL2	I am willing to revisit Thailand for leisure vacations.	0.695		

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TL3	I will recommend Thailand to others for medical treatment(s).	0.830
TL4	I will recommend Thailand to others for leisure vacations.	0.759
TL5	I will tell others positive things about my experience in Thailand as a medical tourist.	0.747

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### Structural model and hypotheses testing

The estimated results indicate a good fit with the data ( $\chi^2=380.120$ ,  $df=145$ ,  $p< .001$ ,  $IFI=.917$ ,  $NFI=.943$ ,  $GFI=.921$ ,  $CFI=.943$ ,  $RMSEA=.073$ ) after a structural equation modeling (SEM) with maximum likelihood estimation was run. The hypothesized relationships were tested and Table 5 shows the empirical findings from the SEM, all hypotheses involving direct effects are supported by the data.

The study expected that international medical tourists' perceived quality would increase their perceived risk towards Thailand as a medical tourism destination (H1). The hypothesis 1 is confirmed by the data indicating that international medical tourists' perceived quality has a significant positive effect on their perceived risk ( $\beta=0.254$ ,  $t=4.468$ ,  $p< 0.01$ ). Hypothesis 2 proposed that international medical tourists' perceived risk has a positive direct effect on their loyalty. The hypothesis is supported by the direct effect of perceived risk on tourist loyalty ( $\beta=0.451$ ,  $t=6.754$ ,  $p< 0.01$ ). Moreover, this study also expected that international medical tourists' perceived quality would increase both their perceived value (H4) and loyalty (H3). Both hypotheses are supported, presenting that international medical tourists' perceived quality has a significantly impact on their perceived value ( $\beta=0.571$ ,  $t=5.631$ ,  $p< 0.01$ ) as well as their loyalty ( $\beta=0.483$ ,  $t=6.901$ ,  $p< 0.01$ ). Hypothesis 5 was that the greater international medical tourists' perceived value, the more loyalty there will be at Thailand as a medical tourism destination. This hypothesis is supported showing that perceived value has a significant positive impact on tourist loyalty ( $\beta=0.255$ ,  $t=4.475$ ,  $p< 0.05$ ). Finally, hypothesis 6 suggested that international medical tourists' perceived risk would decrease their perceived value. This hypothesis is supported by the significant impact of perceived risk on perceived value ( $\beta=0.134$ ,  $t=2.478$ ,  $p< 0.05$ ).

In order to answer the objective 2, the indirect impact of study variable was examined. The findings presented that international medical tourists' perceived quality significantly and

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indirectly affected their loyalty through their perceived risk (PQ → PR → LT=0.258,  $p < 0.01$ ) and their perceived value (PQ → PV → LT= 0.228,  $p < 0.01$ ). Therefore, perceived risk and perceived value played a significant mediating role in the proposed theoretical model.

Table 5

### *Results of the structural model*

<b>Hypotheses</b>	<b>Structural paths</b>	<b>Std. Estimate</b>	<b>T-value</b>	<b>Hypothesis result</b>
Hypothesis 1	PQ → PR	0.254	4.468**	Supported
Hypothesis 2	PR → LT	0.451	6.754**	Supported
Hypothesis 3	PQ → LT	0.483	6.901**	Supported
Hypothesis 4	PQ → PV	0.571	5.631**	Supported
Hypothesis 5	PV → LT	0.255	4.475*	Supported
Hypothesis 6	PR → PV	0.134	2.458*	Supported

Note: \*\* $p < 0.01$ ; \* $p < 0.05$

## CONCLUSIONS

The rapid growth of the medical tourism in Thailand is due to quality of medical and service care, good doctors, cheaper price compared to medical tourists' country, faster treatment appointments and easy access before the era of the Covid-19 epidemic. However, limited studies focus about new challenges in the post era of Covid-19 in terms of risk, quality and perceived value in explaining international medical tourists' post-purchase behavior. Thus, the purpose of this study was to propose a theoretical model describing international tourists' post purchase intentions by integrating the concept of perceived quality, perceived risk and perceived value. Moreover, this research aimed to test the mediating role of perceived risk and perceived value in the perceived quality- international tourist loyalty. The proposed research was tested using empirical data collected from 405 international tourists who have experience in receiving medical treatment as well as traveling in Thailand. And the results supported the 6 hypotheses within structural equation modelling. More specifically, the factor of perceived quality directly influenced both perceived risk and perceived value in the context of medical tourism. In turn, the perceived risk and perceived value directly influenced international medical tourists' intention to revisit Thailand as a medical tourism destination. Additionally, the perceived risk of international medical tourists directly affected the perceived value. Finally, this study found the mediating role of perceived risk and value in the proposed model.

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The results of this study contribute to the very limited literature on international medical tourist loyalty formation, especially in considering the concept of perceived risk. Stakeholders in the context of medical tourism must recognize the role of perceived risk in building and maintaining medical tourist loyalty. Data analysis found that international medical tourists' perceived risk directly affected their loyalty, which is consistent with studies in several fields (Scridon, Achim, Pinteá & Gavriletea, 2019; Lalinthorn & Panjakajornsak, 2017; Ghotbabadi, Feiz & Baharun, 2016; Khuraym & Al-Ma'aytah, 2016; Lee et al., 2016; Le Chi Cong, 2021). With the Covid-19 pandemic in the present, international medical tourists' perceived risk will strongly influence their loyalty in terms of intention to revisit and intention to recommend Thailand to others as a medical tourism destination. Most of the people are nowadays more concerned about their health and safety as well as they are at a higher risk of getting severe Covid-19 disease during their travelling to other countries for medical treatment. Therefore, the finding of this study has practical significance for the stakeholders of the medical tourism who are able to improve medical treatments and service in order to minimize international medical tourists' perceived risk in boosting their loyalty.

Interestingly, the finding of this study confirmed that to reduce international medical tourists' perceived risk, the destination should provide the good quality of medical treatment and service at clinics/hospitals in Thailand. This is supported by previous studies in several contexts (Marakanon & Panjakajornsak, 2017; Sheau-Fen et al., 2012; Thuy & Chi, 2015). Thus, the result of this study can add to the existing literature of several contexts and also contribute a new knowledge in the literature of medical tourism. Also, the finding of this study provides information for stakeholders in order to a better understanding of international medical tourists' perception of perceived quality and risk after the era of Covid-19.

In turn, the findings indicated that international medical tourists' perceived quality directly associated perceived value as well as their loyalty in the post Covid-19 era. In other words, the perception quality directly influences both the perception of value and tourist loyalty, supporting to what has been found in the literature (Lai, 2014; Le Chi Cong, 2021; Lin, 2016; Lemy, D., Goh, E., & Ferry, J., 2019; Nguyen-Phuoc, Su, Tran, Le & Johnson, 2020; Al-Ansi, A & Han, H., 2019; Oriade, A.; Schofield, P., 2019; Suhartanto, D.; Brien, A.; Primiana, I; Wibisono, N.; Triyuni, N.N., 2019).

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These results can provide stakeholders with value information in order to develop strategies of international medical tourist retention. Moreover, researchers will gain a deeper understanding of international medical tourist loyalty formation. The study confirms the correlation between perceived quality and perceived risk, as documented in previous studies (Sharifpour et al., 2014; Uslu & Karabulut, 2018).

Finally, for practical implications of the research, practitioners can create strategies that differentiate as well as enhance perceived quality, perceived risk and perceived value in forming international medical tourist loyalty.

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