

Article

Examining Factors Influencing COVID-19 Vaccine Tourism for International Tourists

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Abstract: Since early 2020, the COVID-19 pandemic has had a devastating impact on global tourism. Vaccine tourism is a novel health tourism concept, which provides an opportunity for countries with a vaccine surplus to offer medical tourism packages to entice international tourists from countries with vaccine shortages to visit for sightseeing and receive vaccine inoculations. Understanding the factors that influence people to adopt vaccine tourism is one of the strategies that could boost a country's tourism sector and help to revive the local economy. This study aims to examine the factors influencing the intention to adopt and recommend COVID-19 vaccine tourism among young travelers. A total of 179 questionnaire surveys were collected from traveling-related social media outlets. Partial least squares structural equation modeling (PLS-SEM) was performed to analyze the data. The results indicate that young tourists in Thailand are inclined to promote vaccine tourism to others. Price value appears to be the most significant influencing factor on intentions to both adopt and recommend vaccine tourism. Additionally, trust in the foreign healthcare system was positively associated with young travelers' intention to recommend vaccine tourism to others. Theoretically, this research adds to the medical tourism literature, suggesting that, while trust is an important factor influencing the medical tourism decision, it appears to be insignificant in the context of vaccine tourism.

Keywords: medical tourism; vaccine tourism; COVID-19 pandemic; behavioral intention; price value



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1. Introduction

“Never before in history has international travel been restricted in such an extreme manner” [1].

In early 2020, the World Health Organization (WHO) declared the COVID-19 (sars-CoV-2) outbreak a pandemic. Since then, COVID-19 has rapidly spread through 188 countries and had catastrophic consequences for most of the world. COVID-19 has particularly dramatically affected tourism. Countries around the globe have placed strict restrictions on national and international travel [2–5]. These unprecedented restrictions have caused stakeholders to reduce or halt their operations within the tourism supply chain. This has resulted in significant losses for countries that rely heavily on tourism as an integral part of their economy [6,7].

As the number of COVID-19 cases fluctuated throughout 2020, countries were forced to close their borders and place strong restrictions for inbound and outbound tourists. According to the United Nations World Tourism Organization (UNWTO), between January and October 2020, there were 900,000,000 fewer international tourists, a reduction of 72% from the pre-pandemic period in 2019 [8]. Tourism industries from all continents were affected with an 82% reduction in international tourists in Asia, 73% in the Middle East, 69% in Africa (69%), Europe (68%) and America (68%). The estimated reduction in international tourism in 2020 is equivalent to a loss of about 1 billion arrivals and \$1.1 billion

in international tourism receipts. Ultimately, the decline in international tourism from the COVID-19 pandemic could potentially result in a more than 2% decrease in global GDP for the year 2020 [8].

Before the COVID-19 pandemic, the tourism industry represented one of the most robust and complex industries in the world [9,10]. Tourism represented the third-largest export economic sector and accounted for 7% of all global trade [8]. Tourism has also helped to transform the world into a global village, as first envisioned by McLuhan [11]. Global mobility, ease of travel, and increased awareness of new destinations are some of the factors that formed an integral part of the rise in global tourism activities in recent decades [12–15]. The tourism industry often includes different stakeholders from the tourism supply chain, such as transportation, lodging, food, and entertainment [16]. Worldwide, these sectors provide more than 320 million jobs and account for 10% of the GDP [17]. Hence, the effects of the COVID-19 pandemic have negatively impacted a broad economic spectrum. For example, several airlines, such as Thai Airways, Air Asia, Flybe, and South African Airways, have declared bankruptcy or downsized their workforce to stay afloat. Throughout Europe and United States, bars and restaurants were closed as part of the COVID-19 lockdown measures [18]. Hotel bankruptcy in Japan increased by 57% in 2020, and 47% of hotels in Thailand were expected to close by the end of 2021.

International tourism is expected to be back to pre-COVID-19 levels by 2024 [8]. For this to happen, tourists must feel safe to travel. At present, a significant portion of tourism demand is delayed due to health-related safety concerns [19,20]. As the COVID-19 pandemic persists, international tourists will be skeptical of health-related issues when traveling or enjoying hospitality-related activities [21]. At present, most airlines require different COVID-19 preventive measures before passengers can board. For example, the Center for Disease Control and Prevention (CDC) requires inbound passengers to the United States to be tested for COVID-19 before they leave their country, wear a facemask on the plane, and be tested 3–5 days after their arrival to the United States [22]. In addition, some countries, such as France, Israel, Thailand, and the Maldives, have started to explore the idea of requiring COVID-19 documents such as vaccine passports. These documents would ensure that tourists have received the COVID-19 vaccination before leaving their country [23]. Regardless of whether vaccine passports will become universally accepted, it is becoming clear that the COVID-19 vaccination will play an integral role in reviving the tourism industry in future.

As of September 2021, the World Health Organization (WHO) has approved 22 COVID-19 vaccines. A total of 43.3% of the world population has received at least one dose of vaccine, 6 billion doses have been administered globally, and 29 million doses are being administered today. The number of vaccinated people has also steadily increased in many developed countries. However, only 2% of people in low-income countries have received at least one dose of the COVID-19 vaccine. The WHO Africa has reported that they will face a COVID-19 vaccine shortfall of almost 500 million in 2021 and fall short of their year-end target of fully vaccinating 40% of Africa [24].

There is a large discrepancy in the number of available COVID-19 vaccines between developed and developing countries. This discrepancy is called “vaccine privilege,” and refers to the fact that wealthy countries have access to an ample supply of COVID-19 vaccines compared to the number of vaccines available to less developed countries [25]. For example, as of September 2021, more than 56% of the American population are vaccinated (386 million doses), 67% of British citizens are vaccinated (93 million doses), and 64% of French citizens are vaccinated (92 million doses). With the growing supply of COVID-19 vaccines in developed countries, many are facing a growing surplus of vaccines. For example, 10 American states reported that about 1 million doses have gone to waste since the United States began administering COVID-19 vaccines in early 2021. The United States has since wasted over 15 million COVID-19 vaccines due to expiration dates. Logistic bottlenecks, legal troubles, and expiration dates are some of the obstacles that have prevented the redistribution of the vaccine to less developed countries [26–28].

The COVID-19 vaccine surplus, in some countries, may turn into an opportunity for the tourism industry. Countries that have surpluses of COVID-19 vaccines can employ vaccine tourism to promote local tourism where tourists can get vaccines while they are on vacation. Since popular COVID-19 vaccines such as Pfizer, Sputnik V, and Johnson & Johnson are not available in all countries, organized vaccine tourism travel to the United States, United Arab Emirates, India, and Cuba is becoming popular [25].

Although many studies have examined medical tourism, vaccine tourism is still a novel concept and remains underexplored. To the best of our knowledge, limited research has been conducted on vaccine tourism since the beginning of the COVID-19 pandemic. As of September 2021, a search for published academic papers indexed in Scopus yielded only 28 studies. However, after restricting the search criteria to identify papers with vaccine tourism as the keyword, only two papers, by Gulati [29] and Higgins-Desbiolles et al. [30], showed up. Hence, we aim to address this research gap by examining the critical factors encouraging young tourists to sign up for vaccine tourism. Young tourists are a price-conscious group but active participants in the tourism sector.

Encouraging young people to start traveling to vaccine tourism destinations could quickly boost a country's tourism sector and help to revive their local economy. Furthermore, this group's successful execution of vaccine tourism could spread to other adjacent age groups because they are active social media users. Young tourists are often independent travelers aged 15 to 29 and account for about 25% of the tourist market. According to the UNWTO, there are more than 300 million young tourists every year, accounting for 320 billion dollars in 2020 [31]. Young tourists usually spend more time than vacation tourists and are motivated to stay longer to experience new cultures and explore learning opportunities. Therefore, young tourists are more likely to help revive the local economy if involved in vaccine tourism. However, vaccine tourism packages seem like an expensive option for young tourists with a limited travel budget. It is imperative to understand the perspectives of young tourists if vaccine tourism destinations want to recruit them to revive their tourism industry and help their local economy.

This study, therefore, posts the following research question:

“What are factors that could potentially increase the intention of young tourists to adopt and recommend a vaccine tourism package?”

It aims to examine the three factors, including (1) price value, (2) trust in the local healthcare system, and (3) social influence. The remainder of this paper is organized as follows. Section 2 reviews previous studies on medical tourism and vaccine tourism. Section 3 outlines the hypothesis development. Section 4 discusses the research design and presents a research model for the study. Section 5 focuses on data analysis and the results. Section 6 discusses the findings. Section 7 concludes the paper and discusses the managerial and theoretical implications.

2. Literature Review

2.1. Medical Tourism

Medical tourism has been defined as a vacation that involves traveling across international borders to obtain non-emergency medical services, such as cosmetic surgery, dental care, tissue or organ transplantation, or fertility treatments [32,33]. Medical tourism usually includes relaxation activities and healthcare-related services where medical tourists can receive medical treatments and enjoy traveling in exotic destinations [34].

Allied Market Research [35] reported that the medical tourism industry has been rapidly growing in the past decade. In 2019, the global medical tourism market reached \$104.68 billion and was projected to expand to \$273.72 billion by 2027. Driven by high healthcare costs and a long waiting list in their countries, medical tourists can seek out destinations with emergent and affordable medical services, and competent medical teams with new technologies that can cater to their medical needs [36]. The growth in international travel, advances in telemedicine technologies, and internet marketing have contributed to the popularity of medical tourism [37]. Awadzi et al. [38] posit that medical tourism

represents one example of how the world has become more globalized. The interdependence of the world's economies, cultures, and populations has come to existence with the international trades of goods and services.

In recent years, many countries have marketed themselves as medical tourism destinations. Singapore, Brazil, Thailand, Panama, South Korea, India, and Japan are some of the top medical tourism destinations for medical tourists from the United States and Europe [39]. Medical tourists from these affluent countries usually seek medical care in Asia or Latin America. The privatization of the medical industry in those destinations has led to international medical standards and affordable prices compared with the medical services in their own countries. These tourists are usually wealthy and can afford alternative medical services to cater to their medical needs [40]. However, with the emergence of vaccine tourism, medical tourism could potentially be reversed, with tourists from less developed countries travelling to a more developed country to receive a COVID-19 vaccine that is unavailable in their country. Thus, vaccine tourism could be deployed as a post-COVID-19 crisis destination recovery strategy for countries that want to revive their tourism sector [41].

2.2. Vaccine Tourism

Higgins-Desbiolles et al. [30] defined vaccine tourism as “the actions of wealthy individuals to travel to locations where they are able to more readily access the vaccine ahead of others.” Vaccine tourism during the COVID-19 pandemic can be considered a type of medical tourism where tourists gain access to popular COVID-19 vaccines, such as Pfizer, Sputnik V, and Johnson & Johnson [42]. Vaccine tourism packages have developed as one-way tourists participate in vaccine tourism. They are often marketed through social media and include COVID-19 checkups, quarantine in a hotel and sightseeing activities. Tourists from Asia are one of the major target groups for vaccine tourism packages due to COVID-19 vaccine shortages in their countries. Vaccine tourism packages have been offered in India, Taiwan, Thailand, and Vietnam [43].

The COVID-19 pandemic has continued to persist, as well as the vaccine privilege for wealthy countries. Vaccine tourism has attracted tourists from countries with COVID-19 vaccine shortages. According to Bloomberg's vaccine tracker, 27% of wealthy countries (11% of the global population) have received 40% of the existing vaccines. However, 11% of the poorest countries have received only 1.6% of the vaccines [44]. For example, the U.S. has 24% of the world's vaccinations and just 4.3% of the population. In contrast, Pakistan has 2.7% of the global population, but only 0.1% of its population is vaccinated [45]. The unequal distribution of vaccines also appears within wealthy countries. The vaccine surplus in some American states (e.g., Florida) has attracted tourists from other states to travel for vaccine inoculation. With the continuous spread of COVID-19, there is a growing demand for vaccine tourism from regular tourists [46].

Governments with excess vaccines are trying to revive their local tourism industry and see vaccine tourism as an opportunity to bring back tourists. An increasing number of government and travel agencies offer lucrative vaccine tourism packages to people who may lack access to popular COVID-19 vaccines in their countries. As of September 2021, some countries have begun offering the COVID-19 vaccine to foreign visitors to boost the local economy. According to [47], vaccine tourism has yielded positive results for local businesses (e.g., restaurants and grocery stores). In the United States, New York has employed a mobile vaccine truck at popular attractions such as Times Square and Brooklyn Bridge Park, encouraging international tourists to receive the COVID-19 vaccination. In other states, such as Alaska, California, Arizona, and Texas, tourists can receive COVID-19 vaccinations at airports and popular chain stores, including Costco and Walmart. Another example is Guam, a United States territory that offers tropical vacations along with the COVID-19 vaccination for tourists [48]. In Russia, COVID-19 tour packages are also offered to international tourists. Travelers are now being offered COVID-19 vaccine packages with prices ranging from \$1500 to \$2500, in addition to flight and transportation costs.

The tour package can last up to three weeks: international tourists travel to Moscow for sightseeing and receive the Sputnik V COVID-19 vaccination. Even countries without a vaccine surplus, such as the most popular island destinations with an economy that relies on tourism, such as The Maldives and Bali, offer the COVID-19 vaccination for tourists upon arrival. The United Arab Emirates (UAE) has developed a COVID-19 vaccination app to help tourists book free vaccination appointments before arriving to Abu Dhabi [49].

The demand for vaccine tourism will continue to rise for as long as there are discrepancies in the availability of COVID-19 vaccines around the world. However, the implementation of vaccine tourism is relatively new. Uncertainties remain, such as the effectiveness of vaccines against different COVID-19 variants i.e., Alpha, Beta, Gamma, and Delta. Additionally, medical tourists usually travel from more developed countries to less developed ones for cheaper, quicker, and better services [39]. However, vaccine tourism appears to be different. The countries with an excess of vaccines can attract tourists from other countries to their destinations. The availability of the vaccine is thus a key to the reverse traveling pattern that might occur.

2.3. Young Tourists and Medical Tourism

According to the UNWTO [50], young travelers represent more than 23% of the tourists traveling each year internationally, and this segment is growing. This growth has provided ample opportunities to stimulate local tourism businesses, as young travelers tend to stay longer (over 50 days) than the average tourist. Young travel has been defined in a variety of ways. The UNWTO [51] defined young travel as independent trips by people aged 16–29. Later studies used different age ranges to define young travelers. Yousaf et al. [52] defined Generation Y (millennials), aged from 25 to 40, as the strongest sub-segment of young travelers. Lee et al. [53] included only travelers aged 20–39 when studying young Chinese travelers' intention to travel. Our study agrees with the UNWTO report [50,54], suggesting expanding the age range spectrum to encompass people aged 15–39.

Due to the growth in the young traveler segment and their contribution to the economy, recent studies on tourism have focused more on this segment. Veiga et al. [55] found that young tourists usually seek and require peer approval for their travel choices and tend to have higher self-esteem when their travel choices receive more 'likes' on social media. Yousaf et al. [52] added that Millennials are usually concerned about their health and well-being; therefore, they choose destinations that satisfy their health or well-being needs. Other destination-related factors, such as food, culture, reputation, and perceived value, are also known to motivate young travelers [56]. The need to 'relax' and 'escape' from the ordinary was the essential motivation by young travelers in the U.K. and U.S. [57]. Similarly, relaxation is a crucial motivation for young travelers in the Middle East [58].

Few studies have investigated young travelers in the context of medical tourism. While Reddy et al. [59] found that young travelers did not have a positive intention to seek more information about medical tourism, the young travelers in the study by Gan and Frederick [60] found medical tourism appealing. However, they seemed to have economic concerns. Lee et al. [53] surveyed young Chinese travelers aged 20–39 to understand the factors influencing their selection of medical tourism destinations. Safety was the most crucial factor when choosing a medical tourism destination. The small number of previous studies on young travelers in medical tourism and their mixed findings revealed the gap for this research.

3. The Proposed Research Model

3.1. An Intention to Adopt a Vaccine Tourism Package and an Intention to Recommend a Vaccine Tourism Package

Behavioral Intention is a widely accepted predictor of an actual behavior. It reflects how likely someone is or how much effort someone makes when performing a behavior [61]. Behavioral intention was adopted as a preferred dependent factor in several contexts, such as use of technology [61], booking a hotel [62,63], and recommending a tourism product or

service [64,65]. Therefore, this study adopted behavioral intention as a dependent factor or a preferred goal. An understanding of the factors that could influence the intention to adopt a vaccine tourism package and the intention to recommend a vaccine tourism package would be beneficial to tourism service providers. The previous literature [64] stated that an intention to recommend a particular service is closely related to satisfaction and repeated use of the service. Therefore, it is important to understand not only what drives customers (travelers in this case) to adopt a service but also what drives them to recommend the service.

3.2. Trust in the Foreign Healthcare System and Its Impact on Vaccine Tourism Adoption and Recommendation

Trust can be referred to as “a psychological state composing the intention to accept vulnerability based on expectations of the intentions or behavior of another” [66] (p. 395). Trust is essential in tourism-related research because it is at the core of tourism’s distinctive features and contextual diversity [67]. Before signing up for a travel package, a tourist believes that no significant adverse events, such as natural disasters or a pandemic, will seriously impact their trip. During the pandemic, the primary purpose of a vaccine tourism package was to ensure that tourists can receive a safe and legitimate COVID-19 vaccine from a foreign healthcare system and then continue to enjoy visiting the major attractions of the destination after vaccination. However, achieving the primary purpose requires dealing with vaccine safety issues in some vaccine tourism destinations, such as improper vaccine storage and the adverse effect of illegally distributed vaccines [68].

In the context of vaccine tourism, trust refers to a set of beliefs about the healthcare system’s honesty, competency, trustworthiness, and intentions. Dinev and Hart [69] found that a higher level of trust can lead to a higher willingness to provide personal information and engage in a transaction. The perceptions of trust can also influence physicians’ perceived usefulness, and attitudes towards acceptance and use of healthcare systems [70].

Trust in a foreign healthcare system is even more critical in vaccine tourism as side effects from receiving a vaccine could be a matter of life and death. The perceived value of a tourism package plays a determinant role in travelers’ trust in the travel agency [71]. The perceived safety of a vaccine tourism package depends on the ability of the foreign healthcare system to safely inoculate tourists with their preferred vaccine. Many uncontrollable factors (e.g., allergies or side effects) could result in a deteriorated health condition. Healthcare services could include the accessibility and availability of vaccination options, emergency services, and the quality of healthcare service providers. These characteristics reinforce the importance of trust for young tourists’ intentions within the specific context of vaccine tourism. Therefore, helping young tourists form a high degree of trust in the foreign healthcare system could increase their intention to join a vaccine tourism group and even recommend it to others. Thus, we propose:

Hypothesis 1a (H1a). *Trust in the foreign healthcare system has a positive impact on the intention of young tourists to purchase a vaccine tourism package.*

Hypothesis 1b (H1b). *Trust in the foreign healthcare system has a positive impact on the intention of young tourists to recommend a vaccine tourism package.*

3.3. Social Influence and Its Impact on Vaccine Tourism Adoption and Recommendation

Social influence was introduced in the UTAUT by Venkatesh et al. [61,72] as a degree to which an individual perceives that other people who are important to them believe they should do something, for example, adopt a new information system. According to Confente and Vigolo [62], online social influence in the form of user-generated content and electronic word-of-mouth (e.g., online discussion forums, online reviews, social media) was a significant predictor of online hotel booking.

Social media has become one of the main channels people use to search for travel information [73]. As mainstream social media users, young tourists often use social media,

including online discussion forums, to look for information, exchange opinions, and read online reviews. Thus, social networks could shape their perception and understanding of the benefits and drawbacks of participating in vaccine tourism. Sahli and Legoh  rel [63] found that social influences are essential in forming consumer intention to book tourism packages online. We, therefore, hypothesize that social influence could have a positive impact on vaccine tourism adoption and recommendation. We propose the following:

Hypothesis 2a (H2a). *Social influence has a positive impact on the intention of young tourists to purchase a vaccine tourism package.*

Hypothesis 2b (H2b). *Social influence has a positive impact on the intention of young tourists to recommend a vaccine tourism package.*

3.4. Price Value and Its Impact on Vaccine Tourism Adoption and Recommendation

A low price is not a sole determinant for young tourists considering which vaccine tourism package to purchase. With a limited travel budget, young tourists often look for the package with the highest price value. Price value is not a low price or a bundled price. Instead, it is a tradeoff between the benefits a young tourist perceives from a vaccine tourism package and the price he or she pays for it. A sustainable vaccine tourism package targeted at young tourists needs to fully consider the price value, rather than only the price. Value for money is also a significant predictor of behavioral intention in the context of both low-cost and full-service airlines [64].

As destinations compete to adopt their vaccine tourism packages, young tourists often evaluate all packages based on the price/benefit factor. Since the price/benefit positioning has a dynamic effect [74], young tourists will react differently to different vaccine tourism packages in the global marketplace. The higher the price value of a vaccine tourism package, the more positively young tourists will react to that package compared to others. Thus, we propose:

Hypothesis 3a (H3a). *The price value has a positive effect on the increased intention of young tourists to purchase a vaccine tourism package.*

Hypothesis 3b (H3b). *The price value has a positive effect on the increased intention of young tourists to recommend a vaccine tourism package.*

Figure 1 shows the research model and hypothesized relationships based on the above discussion.

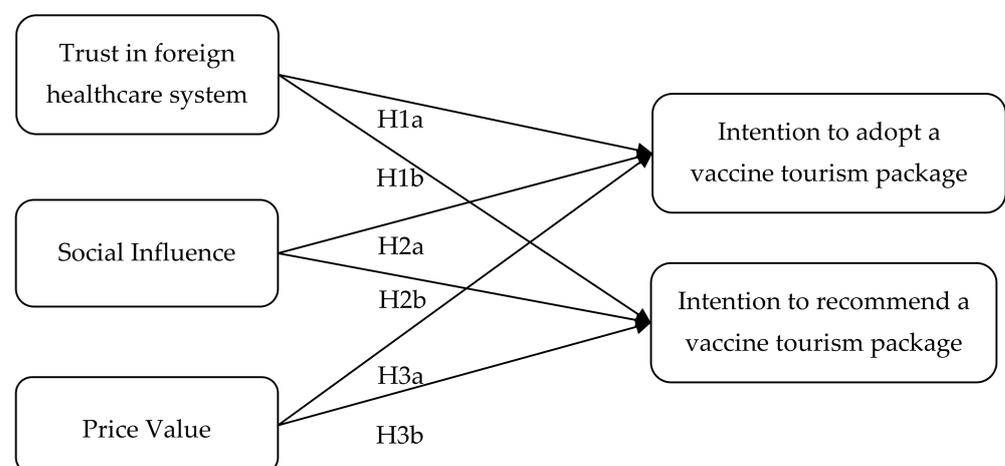


Figure 1. Research Model.

4. Research Method

The researchers distributed the online survey through popular travel social media channels in Thailand to test the proposed hypotheses. In addition, announcements were made through travel discussion forums and travel-related Facebook groups to recruit study participants. The volunteers participated in the research without any compensation. A total of 225 responses were collected. Responses were screened for completion, duplicates, and missing answers in some questions. After screening out the subjects who expressed no interest in vaccine tourism, 179 valid responses were left, with a 79.56% net response rate.

4.1. Survey Instrument

The items were adapted from previous studies on the extended version of the unified theory of acceptance and use of technology (UTAUT2), which includes social influence and price value. We then added trust as another trust in foreign healthcare system as an additional construct.

We measured each construct with multiple items based on previous test instruments to increase its validity and reliability [75]. The original items were modified to reflect the context of vaccine tourism. Five constructs were included: privacy value, social influence, trust in the healthcare information system, intention to adopt vaccine tourism, and intention to recommend vaccine tourism. The study adopted a 7-point Likert scale with 1 = “strongly disagree,” and 7 = “strongly agree.” In addition, IT experts were invited to participate in a pilot test and provided feedback on the clarity of each item. The final survey was developed after addressing the issues in the pilot study.

The constructs in the model are derived from [61,76,77], as shown in Table 1.

Table 1. Measurement Items.

Construct	Measurement Items	Adapted From
Intention to adopt vaccine tourism	<ul style="list-style-type: none"> I intend to buy a COVID-19 vaccine tourism package to fulfill my COVID-19 vaccination and vacation needs when needed in the future. I predict that I will buy a vaccine tourism package to fulfill my COVID-19 vaccination and vacation needs in the future. I plan to adopt a vaccine tourism package to fulfill my COVID-19 vaccination and vacation needs when needed in the future. 	[61]
Intention to recommend vaccine tourism	<ul style="list-style-type: none"> I would recommend my favored vaccine tourism experience to others. I will definitely tell others that my vaccine tourism experience is good. I am willing to tell others about the good aspects of my vaccine tourism experience. I will tell my friends and family about my good vaccine tourism experience. 	[61]
Trust in the foreign healthcare system	<ul style="list-style-type: none"> I feel my favored vaccine tourism destination’s healthcare system is very competent in providing care. My favored vaccine tourism destination’s healthcare system seems to have a great reputation for COVID-19 vaccines. Based on what I learned, my favored vaccine tourism destination’s healthcare system seems very responsive to my COVID-19 vaccination needs. 	[76,77]
Social Influence	<ul style="list-style-type: none"> People who influence my behavior (would think/think) that I should use online discussion forums to understand vaccine tourism in my favored destination. People who are important to me (would think/think) that I should use online discussion forums to understand vaccine tourism in my favored destination. People who are in my social circle (would think/think) that I should use online discussion forums to understand vaccine tourism in my favored destination. 	[61]
Price value	<ul style="list-style-type: none"> My favored vaccine tourism package is reasonably priced. My favored vaccine tourism package is a good value for money. At the current price, my favored vaccine tourism package provides a good value. 	[61]

4.2. Measurement

The questions in our questionnaire were designed to measure five constructs, namely, trust in the foreign healthcare system, social influence, price value, intention to adopt vaccine tourism, and intention to recommend vaccine tourism. Table 1 contains measurement items and references for each construct.

4.3. Path and Model Estimation

PLS-SEM is an accepted technique for examining causal relationships [78]. In addition, the technique is suitable for exploratory studies [79]. PLS is a preferred analysis method to formatively measure the latent variables of a research model [80]. Moreover, the method is built upon relaxed assumptions regarding sample sizes, measurement scales, and residual distribution [81]. Thus, PLS is less likely to lead to estimation problems [82].

5. Data Analysis and Results

Table 2 shows the overall demographic properties of the respondents. More females (74.30%) than males (25.70%) completed the survey. Participants ranged from 18 to 39 years of age, with the majority of respondents being under 20 (51.40%). Regarding the level of vaccine tourism interest, 48.60% of respondents were neutral to vaccine tourism, and 44.13% were somewhat interested in becoming a vaccine tourist. Only 7.26% of respondents were very interested in vaccine tourism. About 33.52% of respondents spent time researching information on social media to learn more about vaccine tourism. The United States (82.12%) was the top vaccine tourism destination, followed by the U.K. (7.26%), South Korea (3.35%), and Singapore (2.75%). Regarding vaccine tourism budget, 72.06% of respondents could not spend more than \$3000. About 73.74% of the participants preferred not to spend more than three weeks as a vaccine tourist, whereas the remaining 26.26% of participants were willing to spend longer than 3 weeks. Pfizer-BNT (64.80%) was the most favorable vaccine, followed by Johnson & Johnson (21.79%) and Moderna (11.73%).

Table 2. Respondent descriptive statistics.

Respondents	Frequency	Percent
Gender		
Female	133	74.30
Male	46	25.70
Age		
Under 20	70	51.40
20–29	92	39.11
30–39	17	9.50
Level of interest in vaccine tourism		
Very interested	13	7.26
Somewhat interested	79	44.13
Neutral	87	48.60
Social media use to learn about vaccine tourism		
0 to 3 months	119	66.48
3 to 6 months	44	24.58
6 to 12 months	16	8.94
Vaccine tourism destination preference		
USA	147	82.12
UK	13	7.26
South Korea	6	3.35
Singapore	5	2.79
Others	8	4.47

Table 2. Cont.

Respondents	Frequency	Percent
Spending budget for the vaccine tourism package (USD\$)		
Less than 1000	39	21.79
1000–2000	86	48.04
2000–3000	43	24.02
3000–4000	10	5.59
More than 4000	4	0.56
The length of vaccine tourism (days)		
2–8	33	18.44
9–15	71	39.66
16–22	28	15.64
23–29	19	10.61
Longer than 29	28	15.64
Vaccine preference		
Pfizer-BNT	116	64.80
Johnson & Johnson	39	21.79
Moderna	21	11.73
Sinovac	1	0.56
Sputnik V	1	0.56
AstraZeneca	1	0.56

5.1. Reliability and Validity Tests

A series of tests were performed to assess the validity and reliability of each variable before evaluating the research model. We performed a validity and reliability test of the first-order reflective constructs, including price value, social influence, trust in the foreign healthcare system, intention to adopt vaccine tourism, and intention to recommend vaccine tourism. The items used to measure the reflective variables have high reliability because Cronbach's α values ranged from 0.8223 to 0.9503 (Table 3), above the recommended minimum value of 0.70 [83]. Convergent validity was further evaluated by examining composite reliability and the average variance extracted [81,84]. Composite reliability values exceeded the threshold value of 0.70, and each of the average variance extracted (AVE) values were 0.649 and above, meeting the recommended minimum threshold of 0.50 [84].

Table 3. Construct and measurement quality indicators.

Constructs	Mean	Standard Deviation	Composite Reliability	Cronbach's Alpha	AVE
Price value (PV)	5.20	1.46	0.9432	0.9095	0.8471
Social influence (SI)	5.52	1.37	0.8943	0.8223	0.7385
Intention to adopt vaccine tourism (INT)	4.65	1.44	0.9617	0.9402	0.8933
Intention to recommend vaccine tourism (REC)	5.76	1.24	0.9641	0.9503	0.8703
Trust in foreign healthcare system (TST)	6.25	1.03	0.9223	0.8736	0.7983

Correlations and discriminant validity test results indicate that each item loads highly within its corresponding latent constructs, showing sufficient discriminant validity. All indicator loadings are above the threshold value of 0.70 [85], indicating that all factors have high reliability. Principal component analysis (PCA) was performed to assess factor loading values. PCA results showed that all items were above the 0.70 threshold value and were kept from the path analysis. To further check discriminant validity, the square root of the AVE for each construct was greater than the correlations between the constructs and all other constructs (Table 4), indicating that the constructs have discriminant validity [84]. For example, the square root values of the AVE for PV (0.9204) and INT (0.9451) are greater

than the inter-correlation between INT and DLP (0.4364). Thus, high discriminant validity is evident in all factors of the proposed research model.

Table 4. Correlations and discriminant validity test results.

	PV	SI	INT	REC	TST
PV	0.9204				
SI	0.3647	0.8594			
INT	0.4364	0.2512	0.9451		
REC	0.4679	0.4506	0.5103	0.9329	
TST	0.3572	0.3089	0.2195	0.4704	0.8935

Note: Square root of AVE appear on the diagonal in bold.

5.2. Structural Model and Hypothesis Testing

The SEM test was adopted to analyze the estimated path coefficients, path significance, and R^2 values (Table 5 and Figure 2). The model was evaluated by 179 participants. This revealed that 20.3% and 38.2% of the variation in intention to adopt vaccine tourism and intention to recommend vaccine tourism to others were explained by the model's constructs. Each of the eight hypotheses were supported at different levels of significance.

Table 5. Structural equation model test results (ages 18–39 and interested).

Hypothesized Paths	Path Coefficients	T-Statistics
H1a. TST → INT	0.053	0.696
H2a. SI → INT	0.095	1.166
H3a. PV → INT ***	0.383	4.908
H1b. TST → REC **	0.294	3.868
H2b. SI → REC **	0.262	3.154
H3b. PV → REC ***	0.267	3.019

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

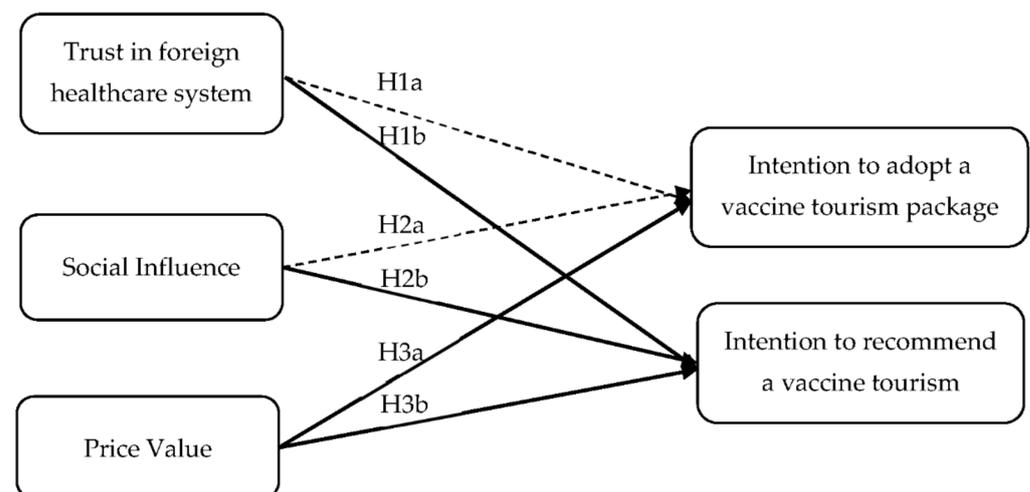


Figure 2. Path analysis results. Note: Solid lines = significant relationships; Dotted lines = insignificant relationships.

Our path analysis shows that trust in foreign healthcare systems ($\beta = 0.053$; $t = 0.696$, $p > 0.10$) and social influence ($\beta = 0.095$; $t = 1.166$, $p > 0.10$) have no significant impact on the intention to adopt vaccine tourism packages. Thus, Hypotheses 1a and 2a are not supported. On the other hand, price value ($\beta = 0.383$; $t = 4.908$, $p < 0.01$) has a significant and positive effect on the intention of young tourists to do a vaccine tourism package. Thus, H3a is supported.

In contrast, these three determinants positively impact the intention of young tourists to recommend a vaccine tourism package to others. Trust in foreign healthcare systems ($\beta = 0.294$; $t = 3.868$, $p < 0.05$), social influence ($\beta = 0.262$; $t = 3.154$, $p < 0.05$), and price value ($\beta = 0.267$; $t = 3.019$, $p < 0.01$) have a significant and positive impact on the intention to recommend a vaccine tourism package to others. Thus, H1b, H2b, and H3b are supported. A closer examination of the causal relationships shows that trust in foreign healthcare system has the strongest influence on young tourists' intention to recommend a vaccine tourism package, followed by price value and social influence.

6. Discussion

Young tourists in Thailand are inclined to encourage others to participate in vaccine tourism. Among the three surveyed factors, price value appears to be the only significant factor influencing the intention of the young tourists to adopt a vaccine tourism package. It was also found to significantly influence the intention of the young tourists to recommend a vaccine tourism package. This is coherent with the lifestyle of young travelers, who are relatively more price-concerned than other travelers. Value for money has been found to be a significant factor influencing the intention to travel by low-cost and full-service airlines [75], intention to travel to a destination [86], and the intention to buy medical tourism products [87]. Our research, therefore, confirms the prior studies that suggest price value is one of the significant factors influencing behavioral intention.

Trust in the foreign healthcare system was positively associated with young travelers' intention to recommend vaccine tourism to others. However, trust in the foreign healthcare system was not significantly related to the intention to adopt vaccine tourism. This can be explained by the tendency for young travelers to be more impulsive than travelers in other age groups. Therefore, they might consider vaccines as a no-risk or low-risk medical activity and not concern themselves with whether the healthcare system of the destination country is trustworthy. On the other hand, when recommending medical tourism to friends or their loved ones, young travelers appeared to be more deliberate. They would study whether their favored destinations have a trustworthy and reliable healthcare system. In a similar context, where health is concerned, trust in the food providers significantly influenced the intention to recommend a destination's food [88]. Agag and El-Masry [65] also found that trust was directly and positively related to the generation of positive WOM (e.g., writing good reviews online, recommending traveling products online).

Social influence was not found to impact the intention of young travelers to participate in vaccine tourism. One possible explanation for this could be the limited budget of young travelers. The survey results reported that almost 70% of respondents had a limited budget or thought they could spend less than \$2000, which is barely enough for a vaccine tourism package. This means that they were unlikely to be able to afford a vaccine tourism package anyway. Thus, the influence of social networks alone might not be enough to lead to an intention to buy a vaccine tourism package. Peng et al. [89] found that a better understanding of COVID-19 leads to an intention to take the vaccine. However, our study reveals that the young travelers who were socially influenced to learn more about vaccine tourism package tended to recommend but not adopt vaccine tourism, perhaps because of their limited budget. In addition, while Gunawan and Sondakh [90] found that social influence has an indirect impact on word-of-mouth (recommending products/services to others in a group or in-person) via performance expectancy, our study showed that social influence also had a direct impact on the intention to recommend (e.g., by word-of-mouth) vaccine tourism packages.

7. Conclusions

While leisure travel might still be limited due to the COVID-19 pandemic, vaccine tourism seems to be a possible tourism product to boost local economies. This paper, therefore, aimed to study the factors that could influence the intention to adopt and recommend vaccine tourism. The young travelers surveyed in this study were interested

in this research because, despite their price-consciousness, they are active participants in the travel sector. In addition, since they are active social media users, their chance of influencing others online is higher.

The UTAUT2 provided the basis for the research model used in this study. We hypothesized that trust, social influence, and price value would influence young travelers' intention to participate in and recommend vaccine tourism. The findings show that young travelers in Thailand appeared to only be concerned with the price of vaccine tourism, and, to a lesser extent, the trustworthiness of the destination country's healthcare system, when considering vaccine tourism. However, they appeared to be more cautious when recommending a vaccine tourism package. Trust in the foreign healthcare system, social influence, and price value were found to influence their intention to recommend a vaccine tourism package. This research provides both theoretical and practical implications, as follows.

7.1. Theoretical Implications

This study adds to the medical tourism literature and provides a clearer picture of the behavioral intention of young tourists considering adopting the vaccine tourism or recommending it to others. First, this study confirms existing studies [91,92] indicating that trust in the healthcare provider (the destination's health care system in this case) is an important factor influencing behavioral intention. This study shows that young tourists intend to recommend their favorite vaccine tourism packages to others if they trust in the foreign health care system. These finding corroborates with and extends the previous study [93], stating that trust in the relationship between medical tourists and the local healthcare system plays a crucial role to the context of vaccine tourism. Young tourists who experience sufficient access to vaccine-related information can gain trust in the local health care system. As a result, they will recommend vaccine tourism to others.

However, our study did not confirm the hypothesis that young tourists have a high intention to adopt medical tourism if they trust the foreign healthcare system. This finding does not confirm with previous studies on the significant positive influence of trust in the medical tourism. This could be due to the higher degree of COVID-19 vaccine hesitancy in young adults. Almost 30% of the unvaccinated are young adults between 18 and 29 years old according to the Kaiser Family Foundation's 2021 vaccine monitor report [94]. Additionally, a previous study has found that young persons are generally not active participants in the medical decision-making processes for issues that affect them [95]. This finding and other relevant evidence affirms the importance of separating young adults from other adult groups when investigating topics related to medical decision-making.

This study also simultaneously compared the intention to adopt vaccine tourism and to recommend it to others. While theories related to behavioral intention tend to generalize intention as an expected outcome, our study shows that an intention to participate in vaccine tourism is different from an intention to recommend vaccine tourism packages. Moreover, the previous study shows that recommending a service (e.g., mobile wallet services) often depends on increased intention to adopt the service or satisfaction with the service [96]. However, this causal relationship does not exist in the vaccine tourism service.

7.2. Managerial Implications

Young adults allocate more budget for food, education, culture, and recreation services than health care and medical services [97]. When given the opportunity to spend their budget on recreation and medical services, price value is a key determinant for young adults to adopt and recommend medical tourism services to others. Vaccine tourism providers need to set a reasonable price that is considered worth the money for young travelers. Otherwise, young tourists will not embrace opportunities that only emphasize either trip hospitality or vaccine-related medical services. In addition, trust is another factor that could increase their intention to recommend or create word-of-mouth. Therefore, when promoting vaccine tourism packages, it is important to highlight the reputation

and competency of the healthcare providers in the destination country. Vaccine tourism providers should develop reliable and trustworthy website or social media outlets to facilitate this, as social media is helpful for opinion- and knowledge-sharing in various contexts [98–101].

Social influence has a strong impact on body image [102], alcohol use [103], mental health [104], and weight gain/loss [105] for young adults. It appears that peer influence also has an impact on young adults' decision to learn more about vaccine tourism packages on social media. When young adults are encouraged to learn more about vaccine tourism, they are more likely to recommend vaccine tourism packages. Thus, the content posted and distributed on social channels are important. Vaccine tourism providers may employ social media as one of the main channels to promote the trustworthiness of the healthcare providers and the value of the vaccine tourism package. This might help boost the likelihood that young travelers share and recommend vaccine tourism packages.

7.3. Limitations and Future Research

This research focused only on young travelers (age 18–39). As this age group has specific concerns (e.g., price) that may differ from other age groups of travelers, the application of this study is limited. Travelers of different age groups might show a higher interest in vaccine tourism. According to the UTAUT2, age is a factor that could mediate behavioral intention, and future research, therefore, might want to examine different traveler age groups.

Future research could also explore other factors that might influence vaccine tourists apart from price, which was the only significant influencing factor found in this study. Since vaccine tourism is a relatively new form of tourism, word-of-mouth or user reviews could influence people's intention to become vaccine tourists. Vaccine conspiracy theories, such as pharmaceutical companies covering up vaccine side effects, or governments using vaccines as political propaganda, could also affect people's intention to adopt vaccine tourism. This factor can be investigated in future studies.

Another aspect that should be studied further is the characteristics of the destination. Previous research (e.g., [53,106]) found that destination-related factors, such as destination's political and social stability, culture, and tourism infrastructure, affect young traveler's decisions to participate in medical tourism. This study did not focus on one specific destination and did not include any destination-related characteristics. Hence, future research could explore whether different destinations would impact the intention of young travelers to adopt vaccine tourism.

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