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Health tourism and government supports

Abstract

Purpose- Health tourism is a relatively new branch of international tourism that has developed more rapidly than other tourism sectors in recent years. This study aims to investigate the effect of government supports on health tourism development by considering the mediating role of internal and external infrastructures.

Methodology- The study population consisted of all experts of two hospitals in Iran, which are frequently visited by foreign tourists (N= 151). A questionnaire, developed by combining standard and researcher-made questionnaires, was used to collect the data. The confirmatory factor analysis (CFA) model was developed in SmartPLS 3 to test the hypotheses.

Findings- The main hypothesis test results indicated that government supports positively affect the development of health tourism. Internal and external infrastructures were also found to mediate the relationship between government supports and health tourism development. In addition, the sub-hypothesis test results showed that internal and external infrastructure are positively affected by government supports, which puts forth the development of health tourism. As the results explained, the most important aspects of internal infrastructure affected by government support were health service quality, cost of health services and applying advanced medical technologies, respectively. Also, different aspects of external infrastructure affected by government supports are as follows: economic, infrastructure, and cultural factors.

Originality- This study is the first of its kind to examine the impact of both medical and non-medical factors on health tourism and signifies the crucial role of governments in the development of health tourism.

Keywords: Government Supports, Health Tourism, Internal Infrastructure, External Infrastructure, Medical Tourism

1. Introduction

The increasing growth of the tourism industry in the past few years and its promising outlook have encouraged many countries to focus on their competitive advantages and develop new forms of tourism to earn substantial revenues and break into the huge international tourism market (Holloway and Humphreys, 2022; Kim and Hyun, 2022). Some of the most important branches of this industry include cultural, smart, religious, sports, health, and eco-tourism (Aguirre *et al.*, 2022; Iliev, 2020; Matteucci *et al.*, 2022; Shabankareh *et al.*, 2021). One of the most important and growing types of tourism is health tourism, which has attracted a lot of attention in the last decade due to its impact on the economy and tourism cycle of a country (Beladi *et al.*, 2019). Meanwhile, governments are trying to improve their health tourism industry by providing infrastructure to attract health tourists (Sun *et al.*, 2022).

In 2019, the industry generated about \$ 1.340 trillion, and a health tourist is estimated to spend 3 to 4 times more than an ordinary tourist in the destination country (Kamassi *et al.*, 2020). Globalization, development of air transport and reduction of travel costs, development of telecommunication and information technologies, an increase in the aging population in developed countries, high treatment costs, lack of insurance coverage for many health services, and legal restrictions placed on some health services have contributed to the growth and development of health tourism in recent years (Adams *et al.*, 2015; Sag and Zengul, 2018). Although health tourism has been growing at 30% in recent years, about 50 percent of related surveys have been carried out in Europe and only one-third in Asia, mainly in Thailand, India and Singapore by 2015 (Lee and Fernando, 2015). Regardless of the great profit and prospective of health tourism, lack of required infrastructure has not let Iran play a leading role in this industry (Amouzagar *et al.*, 2016). Iran, with its huge potential and advantages for health tourism that include low cost, high health services quality and distinguished physicians alongside its unique natural attractions is well worthy of surpassing health tourism (Goodarzi *et al.*, 2014; Taheri *et al.*, 2021).

Governments, especially in developing countries, could play a key role in developing this industry (Kamassi *et al.*, 2020; Sun *et al.*, 2022). In these countries, in addition to policy-making and monitoring activities, the government also possesses a substantial part of the infrastructure, facilities and financial resources directly or indirectly (Kubickova and Campbell, 2020).

Therefore, government supports seem to strongly affect the growth and development of health tourism in various ways (Kamassi *et al.*, 2020; Sun *et al.*, 2022). But the role of government supports in developing health tourism has not been fully investigated. Previous studies have mainly attempted to identify factors hindering the development and prosperity of health tourism (Jiang *et al.*, 2022; Taheri *et al.*, 2021) and no in-depth analysis has been performed on each factor. Therefore, further studies are required to precisely assess the dimensions of each factor and the effects of these factors on health tourism. Given its prominent role in health tourism policy-making, especially in developing countries, a careful study of the impact of government on the development of health tourism is necessary (Sag and Zengul, 2018). Therefore, this study fills the research and literature gap regarding the role of the government in supporting and developing health tourism by simultaneously considering medical and non-medical factors.

This study aims to investigate the effect of government supports on health tourism development by considering the mediating role of internal and external infrastructures. So, we propose our research question of whether governmental supports affect health tourism by considering the mediating role of internal and external infrastructures? In other words, this study assumes that government supports result in the development of internal and external infrastructure, leading to the development of health tourism. To this end, the authors identify effective variables and components, develop a conceptual research model and hypotheses, and analyze the data using statistical tests. This study contributes to the existing literature and knowledge on the effect of government on medical and non-medical factors on health tourism. It especially explores the effect of government on health tourism development in Iran.

Following the introduction section, the research literature is reviewed in the second part of the study, and relevant hypotheses are presented. The research method and results are presented in the third and fourth sections. Finally, the findings are summarized in the fifth section, and suggestions are offered for future studies.

2. Literature review and research hypotheses

2.1 Theoretical background

Tourism industry and health tourism: Tourism requires movement and relocation of people to a specific destination in a limited time with the aim of leisure and sometimes awareness. Tourism

also provides the service providers (the host country) with great economic benefits (Holloway and Humphreys, 2022). Despite the significant effect of COVID-19 pandemic on the industry, tourism has shown to have great potential. Cheng *et al.* (2022) revealed that in the post-pandemic period, risk information would become more important, and people would have a stronger desire for health tourism issue to enrich their physical and mental health. The tourism industry has several branches, of which health tourism is very important. The term health tourism commonly describes the way people travel to places outside their usual healthcare scope to access health services (Taheri *et al.*, 2021). Personal conditions, socio-structural regulations and economic-political laws are the main reasons for seeking health services in another country (Majeed and Kim, 2022; Sag and Zengul, 2018; Taheri *et al.*, 2021). Both leisure and health services result from health tourism. Coordination of health care resources and services with the tourism sector is a challenging task and forms a strategic point of view; this task is often performed at the governmental level. Once a person undergoes a special treatment in another country, he/she will need both tourism and healthcare services (Adams *et al.*, 2015; Büyüközkan *et al.*, 2021).

Health tourism is a growing global phenomenon, and several studies and government reports have emphasized the importance of elasticity of demand and supply in developed countries such as the United States, Canada, Australia and the United Kingdom, as well as developing countries (Maleki *et al.*, 2020; Zarei and Maleki, 2019). Examples of demand factors include high surgery costs, poor coverage of health insurance, long waiting lists, poor access to health facilities, ethical issues and regulations, lack of insurance, ease of travel, high per capita income and aging population in advanced economies (Androutsou and Metaxas, 2019; Kamassi *et al.*, 2020; Law *et al.*, 2019; Turner, 2013; Wong and Hazley, 2020). These factors encourage patients to make informed choices and travel to developing countries for well-being and treatment. But examples of supply factors include the high experience of physicians, high quality of both pre- and post-operative nursing care, zero waiting period, advanced medical technology and attractiveness of tourism sites (Adams *et al.*, 2015; Mathijssen, 2019; Medhekar *et al.*, 2014).

Several research efforts have mentioned the economy, political conditions, regulations, quality of healthcare centers, costs, credibility, educational standards and quality of health services as factors influencing the main determinants of healthcare providers (Aydin and Karamehmet, 2017; Collins *et al.*, 2019; Connell, 2015; Momeni *et al.*, 2018; Nilashi *et al.*, 2019; Sag and

Zengul, 2018; Sun *et al.*, 2022; Taheri *et al.*, 2021). Different theories, conceptual models and frameworks have been proposed on health tourism from various perspectives in recent years (Nilashi *et al.*, 2019; Sun *et al.*, 2022; Taheri *et al.*, 2021; Wong and Hazley, 2020). For example, scholars have carried out studies in areas such as commerce in health care services, incentives for developing health tourism, quality of health care services, surgery ethics, laws, and regulations and the impact of medical errors on the reputation of countries (Aydin and Karamehmet, 2017; Kamassi *et al.*, 2020; Mathijssen, 2019; Momeni *et al.*, 2018; Nilashi *et al.*, 2019; Sag and Zengul, 2018).

In addition, some studies have examined the obstacles and challenges facing the health tourism industry. For example, Singh (2014) mentioned poor motivation of the government for developing the industry, inadequate efforts, and lack of unique pricing and standardization systems in hospitals as the main obstacles hindering tourism development in India. Heung *et al.* (2011) observed that factors such as costs, infrastructure, policies and government supports are the key barriers to developing health tourism in Hong Kong. Previous studies identified the lack of a comprehensive tourism management policy, the rarity of organizations supporting health tourism, cumbersome bureaucracy and administrative procedure, poor political-security stability of neighboring countries and lack of standards for building toilets were noted as the main obstacles hindering the development of health tourism in Turkey (Omay and Cengiz, 2013; Sag and Zengul, 2018). Momeni *et al.* (2018) recently examined the obstacles preventing the development of health tourism in East Azerbaijan Province, Iran. Based on their findings, marketing, international challenges, culture, transportation problems, policies and bureaucratic guidelines are major obstacles to the prosperity of health tourism in this province.

The review of earlier studies shows that health tourist motivation factors have paved the way for both developed and developing countries as health tourism destinations to make profits from their different indicators and features (Singh, 2019).

2.2 Internal and external infrastructures

Economic factors: globalization of the international economy has drastically changed both domestic and international business environments. Most developing countries are intensely competing to provide high-quality, affordable healthcare services; however, travel, accommodation and other non-medical expenses are determining factors because they are added

to the direct medical and health expenses (Haji Ahmadi *et al.*, 2017; Majeed and Kim, 2022). Therefore, economic stability and continuous growth of economic indicators on the one hand and decrease the relative cost of living, final prices, exchange rate, and inflation rate, on the other hand, increase investments in medical and non-medical infrastructure. These factors have a great impact on health tourists' destination choice (Sultana *et al.*, 2014; Taheri *et al.*, 2021; Zarei and Maleki, 2019). There has been an upward growth in tourism incomes for treatment objectives in recent years (Buse and Unluonen, 2020). So, in this study, economic factors are considered as one of the key components of external (non-medical) infrastructure affecting health tourism. These factors were measured with items including relative prices of goods and services, exchange rate and inflation rate (Yang, 2013; Zarei *et al.*, 2020; Zarei and Maleki, 2019).

Cultural factors : culture defines similarities and differences between tourists and local people in terms of religion, language, customs, food habits and other factors (Esiyok *et al.*, 2017; Matteucci *et al.*, 2022). While choosing a health tourism destination, the cultural similarity is perceived as a key motivator (Singh, 2019). Provision of services to tourists with different cultural backgrounds, religions, languages, habits and interests (i.e. service personalization) by the host country requires the creation of a suitable cultural environment and the development of human resources in various service sectors (Zarei *et al.*, 2020). Considering their importance, cultural factors were considered one of the most important components of external (non-medical) infrastructure affecting health tourism (Liu and Chen, 2013; Sun *et al.*, 2022). These factors were measured using items including the position of tourism in the popular culture, the flexibility of religious laws, religious similarities with the neighboring countries, training of human resources in residential and welfare sectors, and the richness of historical monuments (Connell, 2013; Esiyok *et al.*, 2017; Liu and Chen, 2013; Yu and Ko, 2012).

Infrastructural factors: the improvement of suitable transportation and accommodation infrastructure and facilities (e.g. airports, ports, highways, public transport systems, hotels and accommodation, tourism agencies, telecommunication and information technologies, public health services, and safe drinking water) is a prerequisite for tourism development (Maleki *et al.*, 2020). Not only do these factors make the accommodation more comfortable, but also form easier and cheaper travel. They also help tourists make the best use of the facilities of the host country and increase their satisfaction (Dunets *et al.*, 2019; Maleki *et al.*, 2020). Given the

importance of infrastructural elements, these factors were the most influential components of internal infrastructure affecting tourism development. Items including transportation safety, suitable hotels and accommodation facilities, and IT infrastructure assess internal infrastructure (Dunets *et al.*, 2019; Maleki *et al.*, 2020; Sun *et al.*, 2022). As for the growing importance of health tourism and its significant position among other branches of tourism, researchers and scholars have recently paid special attention to this arena (Kamassi *et al.*, 2020). In general, external infrastructures that affect health tourism are factors such as economic, cultural, political climate, regulatory policies, touristic attractions, governmental and infrastructure factors.

In addition to the external infrastructures, the internal infrastructures, which are directly dependent on the health system and affecting health tourism, in this study include health system treatment, appropriate quality of the treatment, hygiene, quality of care, physician training, the existence of alternative medicine, new methods of treatment and confidentiality of patient information (Sag and Zengul, 2018; Taheri *et al.*, 2021).

2.3 Hypotheses development

2.3.1 Effects of government supports on health tourism development

As Kubickova and Campbell (2020) discussed, this study refers to government supports as the factors either directly or indirectly the result of government performance in various areas. The tourism industry is one of the leading industries in the world, and governments play a significant role in its growth and development. For more economic growth in recent years, governments use various strategies and methods such as monitoring and enacting regulations and laws related to tourism, attracting foreign investors, cultural planning in tourism organizations, trying to eliminate obstacles to developing the tourism industry (such as terrorism and fear), privatization in the tourism industry, improvement of related infrastructures including transportation, information and communication and other strategies to promote this industry to attract more tourists (Akama, 2002; Anika *et al.*, 2020; Jenkins, 2020).

In health tourism, governments have the ability and authority to facilitate and coordinate multiple stakeholders in health tourism to minimize the negative effects of poor coordination and conflict of interests in decision-making processes (Kamassi *et al.*, 2020; Zhao and Timothy, 2015).

Patients travel overseas for medical treatment for various reasons, and several factors which

result from government performance can substantially affect these tourists' destination choices (Sag and Zengul, 2018). Factors such as the political-security stability of the host country, visa laws and regulations, accommodation conditions, medical rules and regulations, and transparency of financial, banking and insurance laws can prepare the ground for developing health tourism (Jabbari *et al.*, 2013; Johnson and Garman, 2015; Kaewkitipong, 2018; Sag and Zengul, 2018). Other factors that governments can improve to attract health tourists to develop this industry include international advertising, training of medical personnel, service quality, and physical environment, using advanced equipment (Alexis-Thomas, 2020; Sag and Zengul, 2018).

The first main hypothesis is:

Main Hypothesis 1 (MH1): There is a significant association between government supports and health tourism development.

2.3.2 Effects of internal and external infrastructure on the relationship between government supports and health tourism development

Internal and external infrastructures refer to the facilities established to attract health tourists from other countries (Mathijssen, 2019). While internal infrastructures are directly provided by the medical system to improve the quality of health services offered to tourists, external (non-medical) infrastructure are not directly related to developing health services, but they make travel easier and cheaper and the accommodation more comfortable. They also help tourists make the best use of the facilities of the host country and increase their satisfaction (Adams *et al.*, 2015; Momeni *et al.*, 2018).

In a study conducted by Alexis-Thomas (2020) it was determined that the government should significantly improve informing tourists and the economic status to attract health tourists. Also, in this study, he concluded that the lack of proper infrastructure, including transportation, and proper medical equipment, has a direct and negative impact on health tourism. Other studies confirm that the government can improve and influence factors related to health tourism, including direct payment methods, training skilled medical personnel, providing suitable accommodations, the mental image of the country, eliminating obstacles and problems (Alexis-Thomas, 2020; Sag and Zengul, 2018; Sun *et al.*, 2022).

Finally, the authors proposed hypotheses to investigate the effects of these infrastructures, which result from government efforts and support, on health tourism. They assessed the mediating role of internal and external infrastructure in the relationship between government supports and health tourism development.

The second main hypothesis is:

Main Hypothesis 2 (MH2): Internal and external infrastructures mediate the relationship between government supports and health tourism development.

2.3.3 Effects of government supports on internal and external infrastructure

A substantial part of budget-planning, decision-making and policy-making issues is handled by governments, especially in developing countries (Nguyen, 2021). Governments can play a key role in the development of the tourism industry by building necessary infrastructure (Kubickova and Campbell, 2020). Macro management and establishment of general tourism policies are among the major tasks of the public sector. In addition to examining the existing national potentials, governments can formulate a comprehensive plan for developing various tourism branches and prepare the ground for private sector investment (Daykhes *et al.*, 2020; Kamassi *et al.*, 2020; Sun *et al.*, 2022). They can provide tourists with security and peace of mind by performing actions like developing roads, equipping airports and modifying transportation systems (Nguyen, 2021). Many developing countries have concluded that transportation infrastructure (airway, railway, and road) is one of the most important influencing factors for attracting international tourists. The government of these countries (such as Uzbekistan) has significantly improved the country's transportation infrastructure in recent years to attract more tourists, which has ultimately led to the country attracting many times more tourists (Sha and Cekuta, 2019). They can also enact appropriate laws to enhance psychological and social security of tourists and thereby facilitate the development of the tourism industry (Kamassi *et al.*, 2020; Liu *et al.*, 2020; Sag and Zengul, 2018). In previous studies, it has been concluded that the government is one of the most important providers of safety and security for all types of tourists, including health tourists (Kamassi *et al.*, 2020; Sag and Zengul, 2018). Governments can encourage investment in the tourism industry by developing human resources, establishing specialized training centers and enacting supportive laws (Kubickova and Campbell, 2020). Advertisement is another form of supports provided by governments to develop tourism (Liu *et*

al., 2020). For example, an effective strategy for advertisement is that governments can open accounts on social media platforms or invite world-famous tourist programs/personalities to work in their countries and introduce the country to foreign-media consumers (Sha and Cekuta, 2019). In addition, since many hospitals and medical universities in developing countries are state-owned or state-affiliated, governments can play a prominent role in the development of internal infrastructure through policy-making and investment, as well as improvement of education programs in these centers (Alberti *et al.*, 2014; Jabbari *et al.*, 2013; Kim and Hyun, 2022; Sag and Zengul, 2018).

Therefore, governments seem to play a vital role in the development of internal and external infrastructure. The first and second sub-hypotheses are presented below:

Sub-hypothesis 1 (SH1): Government supports have significant positive effects on internal infrastructure.

Sub-hypothesis 2 (SH2): Government supports have significant positive effects on external infrastructure.

2.3.4 Effects of internal infrastructure on health tourism

The main reason for a health tourist is to receive necessary treatment and care in the destination country (Kamassi *et al.*, 2020). Therefore, medical infrastructures are among the key drivers of health tourism development (Nilashi *et al.*, 2019). Although natural and historical tourist attractions, security and infrastructure (e.g. roads) are important parts of drawing tourists to a destination, the development of the health tourism industry is impossible in the absence of suitable medical infrastructure (Connell, 2015; Sag and Zengul, 2018; Sun *et al.*, 2022).

Cost reduction is an important motivation for health tourists to visit a country. Previous studies confirmed that the most preferred developing countries for medical tourism are India, Cuba, Costa Rica, Thailand, Singapore, Colombia and Malaysia; one factor to this is reasonable and low-cost health and medical services (Aksu *et al.*, 2016). Turkey also has the potential to become one of the world's leading medical tourism destinations due to recent medical and investment reforms that increase international tourism production and low-cost services (Sag and Zengul, 2018). Therefore, the difference between the host country's medical expenses and those of the country of origin increases the demand for health services (Sag and Zengul, 2018). These

differences may be due to the low medication, treatment, examination, and laboratory test costs. As a result, the greater these differences are, the more inclined an individual will be to visit the host country (Connell, 2015; Medhekar *et al.*, 2014; Sag and Zengul, 2018; Taheri *et al.*, 2021). The provision of quality healthcare services can also encourage people from different countries to visit a destination (Sag and Zengul, 2018; Taheri *et al.*, 2021). Patients prefer to visit hospitals that employ experienced physicians and surgeons and offer sophisticated technological services in safe settings (Alexis-Thomas, 2020; Collins *et al.*, 2019; Medhekar *et al.*, 2014; Momeni *et al.*, 2018; Sag and Zengul, 2018). According to Reddy *et al.* (2010), skilled and well-trained medical personnel such as doctors and nurses are one of the most important influencing factors for determining health tourism destinations. The use of advanced technology and equipment in the host country's hospitals indicates that doctors are using modern methods and devices to perform safe operations. According to previous research in health tourism, the implementation and usage of modern technologies, such as the use of safe and fast payment methods in health tourism destinations, using high-tech and harmless medical equipment named among the most important competition factors in the health tourism market (Çapar, 2020; Sag and Zengul, 2018). Therefore, using modern equipment and technology is another factor affecting the development of health tourism (Çapar, 2020; Connell, 2015; Nilashi *et al.*, 2019).

The above discussions reveal the prominent role of internal infrastructure in the development of health tourism. Therefore, the following hypothesis is proposed:

Sub-hypothesis 3 (SH3): Internal infrastructures have significant positive effects on health tourism development.

2.3.5 Effects of external infrastructure on health tourism

Absent complementary infrastructure, superior health facilities cannot alone lead to the development of health tourism (Kubickova and Campbell, 2020). In addition to suitable healthcare services, basic non-medical (external) infrastructure and facilities also affect health tourists' destination choice (Connell, 2015). Political conditions and security are among the main examples of these external infrastructure (Heung *et al.*, 2011; Sag and Zengul, 2018). Terrorist threats and insecurity make patients reconsider their destination choice. A previous researcher found that political stability, political climate, regulatory policies, and country image could be considered among the decisive factors for the health tourist (Hudson and Li, 2017; Sag and

Zengul, 2018). Health tourists visit areas with the lowest possibility of insecurity, riot, and assassination. Legal factors also affect health tourism (Liu *et al.*, 2020). Enacting flexible laws, allowing tourists with various nationalities to undergo different surgeries (Momeni *et al.*, 2018), protecting patients against medical errors, and maintaining the confidentiality of patient information can be legal requirements for attracting tourists (Adams *et al.*, 2015). Convenient travel and accommodation infrastructure are other external infrastructures influencing the attraction of health tourists (Kubickova and Campbell, 2020).

Therefore, external infrastructures seem to play a critical role in the development of health tourism. Finally, the following hypothesis can be proposed:

Sub-hypothesis 4 (SH4): External infrastructures have significant positive effects on health tourism development.

3. Research methodology

3.1 Study sample and data collection method

The data were collected using two main approaches. First, the desk study method was used to review the relevant books, articles, dissertations and reports of national and international institutions. Second, the field (questionnaire) method was used to get expert opinions.

This study was carried out in Iran because of its unique features. In a developing country like Iran and dissimilar to industrialized and developed countries, government plays a central role in the development of medical and non-medical facilities (Siamak and Hall, 2018). The Iranian government manages hundreds of hospitals and universities of medical sciences, and given its substantial development budget; this can play an effective role in providing necessary facilities for the tourism industry. Therefore, this is a good example of examining the effects of government on health tourism (O’Gorman *et al.*, 2007). In addition, Iran has one of the most advanced healthcare systems in the Middle East (Momeni *et al.*, 2018). This feature, along with its unique natural and historical attractions, as well as its ethnic and geographical diversity, offers great potential for developing health tourism (Jabbari *et al.*, 2013; Rezaee and Mohammadzadeh, 2016). For example, the metropolises of Mashhad, Tehran, Shiraz, and Ahvaz have been very successful in attracting health tourists in recent years. About four hundred thousand medical tourists visited Iran in 2019 (*Statistical calendar of Iran health ministry, health and medical*

education, health ministry publication, 2019). According to estimates, Iran has the potential to attract about one million medical tourists each year (Gholami *et al.*, 2020). Considering the above features and potentials, the authors selected Iran as the case study.

Certain standards for hospitals formally admit foreign patients. According to the annual report of the Health Tourism Department affiliated with the Iranian Ministry of Health and Medical Education, 94 hospitals have gained these standards in Iran, of which 31 hospitals are in Tehran.

According to (*World Tourism Organization Annual Report, 2019*), 90% of all health tourists visiting Tehran, the capital of Iran, are admitted to 6 public hospitals, including Sedigheh Zahra Hospital, Farabi Hospital, Shariati Hospital, Tehran Heart Center, Yas Hospital, and Arash Women General Hospital. The most reliable and experienced medical staff and physicians perform duties for the patients in the above-mentioned hospitals. Due to the critical conditions of Coronavirus during the conduct of this research, all Iranian hospitals were in an emergency and very crowded condition; so, 4 of these 6 hospitals avoided data gathering, and we had permission to distribute our questionnaires in the two remaining public hospitals: Farabi Hospital and Shariati Hospital. It is necessary to mention that these two hospitals' staff were sufficient for our research conduct, since all their physicians and personnel are under the supervision of the public sector, affiliated to Tehran University of Medical Sciences, known as the greatest and best reputation public university of Medical Sciences in the country. Therefore, the study population consisted of all personnel of these two hospitals frequently visited by foreign tourists. Personnel of these two hospitals in Tehran were the sample because they directly interact with health tourists and are well aware of the causes of their satisfaction or dissatisfaction. In addition, hospital personnel have a good insight of the current situation and the weaknesses and strengths of the Iranian health industry. Having at least a bachelor's degree in companion with a minimum of five years of work experience and the personal tendency and consent were conditions for participating in this study. A total of 151 eligible experts from the two hospitals were willing to participate in the study. As Sekaran and Bougie (2003) discussed, while the experts constitute the statistical society, a number of 30 to 500 suffices. Kline (2015) suggest that a sample of 100 is considered small, a sample of 100 to 200 is medium, and a sample over 200 is considered large structural equation modeling. So, 151 completed questionnaires are acceptable in this study as a medium size sample for SEM analysis. Therefore, eligible individuals (including all staff,

physicians, nurses, managers, etc.) were enrolled by the researchers as health tourism experts to use their experiences and opinions. The researchers distributed 151 questionnaires among the participants from February 10 to 18, 2021 (88 questionnaires in Farabi Hospital and 63 questionnaires in Shariati Hospital), and on March 28, 2021, the questionnaires were collected. Given the diversity of job positions, the researchers used the experiences of various people working in different hospital wards to draw reasonable conclusions with a broad perspective of the research subject. Mitramd Company, which provides different services to health tourists, cooperated with the researchers in obtaining the consent of hospital managers and authorities as well as distributing the questionnaires among the experts.

Table 1 presents the demographic characteristics of the experts.

---Insert table 1 here---

3.2 Questionnaire and measures

This study investigated the effects of government supports on health tourism through the development of internal and external infrastructure. Internal infrastructure is the infrastructure established in the health system, while external infrastructure is not directly associated with the health system. Models of Song *et al.* (2010), Collins *et al.* (2019), and Momeni *et al.* (2018), were combined to specify the internal and external infrastructure. The model of Song *et al.* (2010) includes the two parts of supply and demand. Demand factors affect health tourists' destination and treatment choices, while supply basically deals with the provision of services needed by tourists. Given the purpose of the present study, models of Song *et al.* (2010), Collins *et al.* (2019), and Momeni *et al.* (2018) were partly used to determine the demand factors.

The questionnaire assessed the main components of the research model, including government supports, internal infrastructure, external infrastructure and health tourism. Based on the research literature, 5 items were used to assess government supports and extracted from Kubickova and Campbell (2020), Johnson and Garman (2015) and Kaewkitipong (2018). Internal infrastructures include five components: health care costs, quality of treatment, use of alternative medicine, use of modern therapeutic methods, and confidentiality of patient information and 21 items to measure this construct (Collins *et al.*, 2019; Momeni *et al.*, 2018; Song *et al.*, 2010). But external infrastructures include four components: economic factors, cultural factors, governance factors,

infrastructural factors and 15 items (Collins *et al.*, 2019; Momeni *et al.*, 2018; Song *et al.*, 2010). Finally, health tourism variable comprises four components: hospital selection, medical staff selection, marketing and advertisement, inter-organizational cooperation, the 15 items of which were extracted from Song *et al.* (2010) and Collins *et al.* (2019).

Because the questions were collected from different references with different purposes, some modifications were made in them so that each of their structures and items fit the purpose of our research. Then, the extracted and changed items were checked and confirmed with the consultation of university professors in tourism, which was carried out in these steps. The final items for each variable were scored on a five-point Likert scale, including “Strongly disagree”, “Disagree”, “Neither agree nor disagree”, “Agree and “Strongly agree”. The questionnaire was first written in English, and then it was translated into Persian and provided to the experts. To confirm the validity of the specialized terms, the recommendations of Ageeva *et al.* (2019) were adopted for the translation and transcription of items with a non-mechanical approach. A small group of Persian-speaking English experts discussed the translation of the questionnaire items. Some terms and phrases were changed to better convey the meaning of each item. To measure the level of acceptance, reliability and validity of the questionnaire and its dimensions, a pilot study was conducted on 150 students and graduates in economics and management fluent in both Persian and English languages. In previous research, an item needs to be deleted or modified if its Cronbach's alpha is below 0.7 (Ranjbaran *et al.*, 2022). In this study, after taking the pilot test, none of the items were below 0.7 that indicates the high reliability and validity of the designed questionnaire. For more certainty, before testing the hypotheses, EFA was also performed, which showed that none of the items of the variables were cross-loaded. Then, the finalized questionnaire was provided to the experts.

Table 2 shows the research questionnaire.

---Insert table 2 here---

To improve the content validity of the questionnaire, it was designed regarding the components of the main models as well as the theoretical and practical applications of the research indicators in various studies and tests (Belotto, 2018).

4. Data analysis

The structural equation modeling and confirmatory factor analysis were developed in SmartPLS 3 to analyze the research items and test the hypotheses. For this purpose, the Kolmogorov-Smirnov test was first used to test the normality of the data. Considering the significance level of the variables, some variables were normal ($\alpha > 0.05$), and some were abnormal ($\alpha < 0.05$). A non-parametric test is not sensitive to the normality of variables; therefore, a non-parametric test was used in SmartPLS 3 to test the research hypotheses. The research variables included government supports (independent variable), health tourism (dependent variable) and internal and external infrastructure (mediating variables).

The following section presents the research findings and hypothesis testing results.

4.1 Measurement model

In this section, the research findings are presented using tables and figures; necessary analyses are also performed. One of the key purposes of the study was to identify sequential and multivariate relationships between different variables. To minimize the number of unanswered items, the experts were assured about the confidentiality of their information and that their responses will not be used anywhere but in the present study. In addition, the non-response bias test was performed by removing the first and the last 10 responses for each variable. There was no significant difference between the first and last responses for none of the variables; therefore, no non-response bias was observed in the study.

A two-step approach was adopted based on the recommendations of Hair (2009). In the first step (measurement model), exploratory factor analysis (EFA) was performed to measure the relationships between variables and to determine the manifest and latent variables. According to Tabachnick and Fidell (2007), EFA assesses internal reliability and helps researchers identify relevant structures in a large set of variables previously studied. The EFA results indicated the acceptable reliability of the research components. The Kaiser-Meyer-Olkin (KMO) test was conducted to examine the adequacy of data for conducting factor analysis. The obtained KMO value (0.73) was greater than the minimum acceptable value of 0.6; hence, the data were adequate for conducting EFA. The results of Bartlett's test of Sphericity revealed good relationships between the research variables. The overall reliability of the tool, as well as its discriminant and convergent validity, were also confirmed.

Cronbach's alpha is an indicator of internal consistency of a set of items. This indicator was calculated to assess the reliability of the research tool. A total of 50 (out of 151) questionnaires were randomly selected and pretested, and Cronbach's alpha was calculated in SPSS using the data obtained from the questionnaires. Table 3 shows the reliability and descriptive statistics of the research variables. As shown in the table, Cronbach's alpha for these 20 samples is 0.79, which is greater than 0.7 and is therefore acceptable. Cronbach's alpha of all research variables is also greater than 0.7; therefore, the questionnaire has good reliability.

Table 3 shows the descriptive statistics of the research variables.

---Insert table 3 here---

The Kolmogorov-Smirnov test was used to assess the normality of the data. A significance level < 0.05 indicates that the data are not normal. The goodness of fit of the research model was also tested using GOF index. Tenenhaus *et al.* (2004) presented the following formula to calculate GOF:

$$\text{GOF} = \sqrt{\text{communalities}} \times \bar{R}^2$$

Table 4 shows the results of the Kolmogorov-Smirnov and goodness of fit tests.

---Insert table 4 here---

Considering the significance level of the variables, some variables were normal ($\alpha > 0.05$), and some were abnormal ($\alpha < 0.05$). A non-parametric test is not sensitive to the normality of variables; therefore, a non-parametric test was used in SmartPLS 3 to test the research hypotheses.

In addition, given that GOF values of 0.01, 0.25, 0.36 indicates weak, moderate and strong goodness of fit, respectively; the obtained values reveal that the overall research model fits the data perfectly (strong GOF).

All average variance extracted (AVE) values were greater than 0.5; thus, they were adequate for conducting convergent validity (Hair, 2009). The discriminant validity test results showed that each research construct measures a distinct variable. Based on Table 5, the discriminant validity index shows that the distinction between the research variables is less than 0.92; therefore, both

convergent and discriminant validity of the research constructs is confirmed. Table 5 shows the results of discriminant validity, CR, and AVE.

---Insert table 5 here---

4.2 Structural equation modeling

This section describes the research hypothesis testing process in detail. Table 6 shows the direct path coefficients between the research variables.

---Insert table 6 here---

Table 7 shows the t-statistics and P_values for direct and indirect relationships between the variables.

---Insert table 7---

Table 8 presents the hypothesis testing results.

---Insert table 8---

According to the results, the respective t-value does not fall between -1.96 and +1.96; therefore, the first main hypothesis (MH1) is confirmed at 95% confidence level. For MH2 which addresses an indirect (mediating) relationship, both the relationship between government supports and internal and external infrastructure and the relationship between internal and external infrastructure and health tourism development must be significant. These relationships were both significant; therefore, the indirect (mediating) effect of internal and external infrastructure on health tourism development was calculated. The indirect effect is calculated by multiplying the two direct effects (*i.e.* the direct effect of independent variable on the mediator multiplied by the direct effect of the mediator and dependent variable). Therefore, the MH2 is confirmed.

As shown in Table 8, the respective path coefficient and t-value are 0.516 and 2.382, respectively for sub-hypothesis 1 (SH1). The respective t-value does not fall between -1.96 and +1.96; therefore, the SH1 is confirmed at 95% confidence level, and government supports have significant positive effects on internal infrastructure. According to Table 8, the respective path coefficient and t-value are 0.492 and 2.431, respectively for SH2. The respective t-value does not

fall between -1.96 and +1.96; therefore, the SH2 is confirmed at 95% confidence level, and government supports have significant positive effects on external infrastructure. SH3 on the relationship between internal infrastructure and health tourism (path coefficient = 0.450, t-value = 2.115), SH4 on the relationship between external infrastructure and health tourism (path coefficient = 0.469, t-value = 5.473), SH5a on the mediating role of internal infrastructure in the relationship between government supports and health tourism (path coefficient = 0.328, t-value = 3.128), and SH5b on the mediating role of external infrastructure in the relationship between government supports and health tourism (path coefficient = 0.364, t-value = 2.785) were all confirmed.

Figure 1 shows the final research model with structural path coefficients for each relationship.

Figure 1: Validated research model

4.3 Additional Tests

We took some additional tests for robustness checks and provided more information and insights about the rigor to the readers. Firstly, we calculated Variance Inflation Factor (VIF) for each construct of the research which they all are smaller than 5 and acceptable (Akinwande *et al.*, 2015). The following results were obtained regarding the VIF of each variable: internal (medical) infrastructure: 1.36, external (non-medical) infrastructure: 1.31, health tourism: 1.19, hospital selection: 1.66, medical staff selection: 1.29, marketing and advertisement: 1.34, inter-organization corporation: 1.35. Additionally, we used the HTMT test, as presented by Henseler *et al.* (2015), to indicate discriminant validity. As shown in table 9 HTMT test in our study was acceptable, which means discriminant validity has been established between two reflective constructs. Table 9 indicates HTMT test results.

---Insert table 9 here ---

In addition to the above tests, to measure the effect of control variables in this study, which include age, education, gender, position and work experience, Hierarchical Linear Modeling (HLM) test was implemented on the data. According to the obtained results from HLM, none of the control variables were effective in this research (All BETAs for control variables were ineffective), because all of the analysis results are greater than 0.05 which means control variables were not significant in this study (Raudenbush and Bryk, 2002).

5. Discussion and conclusion

This study investigated the effect of government supports on health tourism through the mediating role of internal and external infrastructure. A review of the research literature indicated that the research constructs may have significant relationships with each other. The components of each research variable were also identified based on the research literature. The internal infrastructure consisted of components of health care costs, quality of treatment, use of alternative medicine, use of modern therapeutic methods, and confidentiality of patient information. The external infrastructure consisted of components of economic, cultural, governance, and infrastructural factors. Finally, health tourism consisted of components of hospital selection, medical staff selection, marketing and advertisement, and inter-organizational cooperation. As results explained, the most important aspects of internal infrastructure affected by government support were health service quality, cost of health services and applying advanced medical technologies, respectively. Also, different aspects of external infrastructure affected by government support are respectively as follows: economic factors, infrastructure factors and cultural factors.

Models of Song *et al.* (2010), Collins *et al.* (2019), and Momeni *et al.* (2018) were combined to specify the internal and external infrastructure. The model of Song *et al.* (2010) includes the two parts of supply and demand. As for the purpose of the present study, models of Song *et al.* (2010), Collins *et al.* (2019), and Momeni *et al.* (2018) were partly used to determine relevant demand factors.

The whole 9 relationships between the research components and variables were accepted. Based on the results, government supports had significant positive effects on health tourism. Government supports were also found to have significant positive effects on developing internal (medical) and external (non-medical) tourism infrastructure. Internal and external infrastructure had significant positive effects on health tourism. Finally, internal and external infrastructure mediated the relationship between government supports and health tourism. The results followed previous studies (Collins *et al.*, 2019; Momeni *et al.*, 2018; Sag and Zengul, 2018; Song *et al.*, 2010; Taheri *et al.*, 2021).

In their study, Alberti *et al.* (2014) investigated the effect of government policies on the tourism competitive advantage and developing internal and external infrastructures in Thailand. They

concluded that government policies significantly affect tourism infrastructures (transportation services, restaurants, accommodation, tours and welfare facilities) and treatment infrastructures (hospitals and clinics, dentistry services, general practitioner and surgery). Our results show alignment and consistency with Alberti *et al.* (2014) and other scholars results in terms of the effects of government support on internal and external infrastructures (Sag and Zengul, 2018). Although, this study has investigated more comprehensive factors both in internal and external infrastructures in health tourism. In other studies, Song *et al.* (2010), Aydin and Karamehmet (2017), Daykhes *et al.* (2020) explored tourist expenses, quality of services, and economic are factors that affect health tourism demand. This paper also confirms those influential factors affecting health tourism demand. Moreover, this study explored the factors influencing health tourism are more extended, and the explored factors by previous authors are just related to the some internal and external infrastructures of health tourism. Similarly, a study by Collins *et al.* (2019) explored factors affecting health tourism demand. They considered both internal and external infrastructures and concluded that four factors, including the nature of the destination, the perceived image of customers, treatment expenses and medical facilities are the most important factors affecting health tourism. In addition to the alignment and consistency with their results, we considered more comprehensive factors both in external and internal infrastructures latent in previous studies.

According to the results obtained from the internal infrastructure, the quality of treatment is the most important and the first-factor affecting health tourism, which is in line with previous studies (Kamassi *et al.*, 2020; Taheri *et al.*, 2021). Also, in previous studies, the factor of treatment costs and the use of new and advanced medical technologies are the most important determining and influencing factors in the decision of health tourists to choose their health destinations. According to the results obtained in this study, these factors are, respectively, treatment costs and the use of new and advanced technologies as important factors influencing medical infrastructure, which are in line with previous studies (Kamassi *et al.*, 2020; Sun *et al.*, 2022). For example, Sag and Zengul (2018) concluded that Turkey can become the leading health tourist destination in the world, and this high potential is due to reasonable treatment cost and the usage of advanced medical technologies and equipment. But according to the results obtained from external infrastructure, economic factors, infrastructure (such as transportation, payment system), and cultural factors are the most important factors influencing the improvement and

development of health tourism. Previous research results confirm these findings. For example, (Çapar, 2020) in a research concluded that the use of safe and low-risk payment technologies for medical expenses, such as the use of cryptocurrencies, can significantly reduce the perceived risk of health tourists in relation to a health destination and cause improve and increase demand. In another study, researchers found that the infrastructure of a country, including transportation system, can significantly affect the demand for health tourism (Alexis-Thomas, 2020).

5.1 Theoretical contributions

The paper has examined one core questions: do governmental supports affect health tourism by considering the mediating role of internal and external infrastructures? To answer this question, our study makes two important contributions to health tourism research. Our model identifies medical and non-medical factors affecting health tourism development and integrates constructs relating to government support, internal infrastructure, external infrastructure, and health tourism development. Therefore, this study contributes to the current knowledge and literature in terms of considering both medical factors (internal infrastructure) and non-medical factors (external infrastructure) affecting health tourism. From the results of our study, we found that both medical and non-medical factors mediate the relationship between government supports and health tourism. In addition, the present study specifically investigated the role of government in the development of health tourism in a developing country like Iran. We found that government supports affects significantly health tourism and has a key role in making or improving internal and external infrastructures affecting it. We offer a valuable insight to developing countries' governments about health tourism.

5.2 Managerial recommendations

Data indicates that most developing countries have made plans and investments to increase their share of the large health tourism market, as several developing Asian countries have been ranked among the top ten countries in the world in terms of the number of health tourists in recent years (*World Tourism Organization Annual Report, 2019*). Given the heavy investment of China, the Philippines, Taiwan and South Korea in this industry and emergence of new competitors such as Turkey, the UAE and Saudi Arabia, the future health tourism market seems extremely challenging and competitive (Kilavuz, 2018). Therefore, health tourism authorities and decision-

makers, especially governments, need to support this eco-friendly and profitable industry through proper planning to increase their market share in this ever-growing industry.

Based on the research findings, these recommendations are provided to relevant managers and decision-makers, especially government managers, to facilitate the development of health tourism. Specialized teams must be formed in various areas associated with health tourism in relevant public organizations to continuously analyze the current situation and provide obtained information to relevant managers. This information can help managers build standard medical centers and hospitals to attract health tourists. In addition, the Iranian government must monitor the price and quality of health tourism services to prevent frauds from overcharging tourists and damaging the reputation of Iran in the international arena. Political stability is another important factor affecting a healthy tourist's destination choice. In this respect, proper advertisements help a host country demonstrate its political stability and security. The Iranian government and relevant authorities must develop plans to introduce tourist attractions as well as medical and health facilities and achievements of Iran in various social networks and the mass media. Governments can also contribute to developing health tourism by establishing suitable accommodation facilities, providing facilities tailored to the nationality and culture of tourists, offering interpretation services, providing accommodation facilities for the recovery period, developing airline and airport services, and using modern transportation equipment.

6. Research limitations and suggestions for future studies

Although this paper has provided some insight into how government support affects the development of health tourism through internal and external infrastructures, it is not without its limitations. Many hospitals refused to cooperate with the researchers to carry out the present study. Like most other countries, Iran has also been affected by COVID-19, and hospitals lead the COVID-19 fight; therefore, although the researchers attempted to increase the sample size, some hospitals could not cooperate with the researchers due to their critical conditions. A sample size of 151 may not represent the total number of health tourist experts in Iran. So, the generalizability of this study is limited due to the small sample and exploratory nature. In future research, researchers can conduct qualitative interviews with high-level managers in the health tourism industry, and by analyzing the interviews, discover new insights in the direction of the development of this industry. Also, researchers can use mixed methods to explore the role of

variables beyond government supports in the development of health tourism and use multiple criteria decision-making techniques to prioritize factors affecting health tourism and relevant solutions. Another limitation is that this research was conducted in Iran, which is a developing country. Future studies can implement the research model in a developed country and compare the results with those obtained in Iran.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Table 1: Demographic characteristics of experts

| Educational qualifications | | | | | | | |
|-----------------------------------|------------------|-------------------|-----------------|--------|-------|---------|------|
| High school diploma | Associate degree | Bachelor's degree | Master's degree | Ph.D. | | | |
| 0 | 0 | 77 | 45 | 29 | | | |
| Gender | | | | | | | |
| Male | | | | Female | | | |
| 78 | | | | 73 | | | |
| Age (year) | | | | | | | |
| 25-30 | 31-35 | 36-40 | 41-45 | 46-50 | 51-55 | 56-60 | > 60 |
| 41 | 39 | 28 | 19 | 7 | 10 | 5 | 2 |
| Work experience (year) | | | | | | | |
| < 5 | | 5-10 | | 10-20 | | > 20 | |
| 25 | | 49 | | 47 | | 30 | |
| Job | | | | | | | |
| Doctor | | Nurse | | Staff | | Manager | |
| 29 | | 63 | | 43 | | 16 | |

Table 2: Research questionnaire

| Latent variable | Manifest variable | Item | Reference |
|------------------------|--------------------------|--|-------------------------------|
| Government supports | Government supports | 1. Government authorities continuously analyze changes associated with health tourism and develop adaptation programs. | Kubickova and Campbell (2020) |
| | | 2. Government authorities build several teams to promote health tourism programs in their respective ministries. | |
| | | 3. Government managers receive necessary training and information to support health tourism. | |
| | | 4. Managers provide resources and facilities required for developing health | |

| | | | |
|--|--|---|---|
| | | tourism. | |
| | | 5. Government managers have plans for developing health tourism and are accountable to their superiors. | |
| Internal infrastructures | Health care costs | 6. People can easily acquire information on medical expenses. | Song <i>et al.</i> (2010), Momeni (2018) |
| | | 7. Cosmetic surgery prices are lower than the neighboring countries. | |
| | | 8. Dental procedure prices are lower than the neighboring countries. | |
| | | 9. Complicated surgery (<i>e.g.</i> cardiac, muscle, and brain) prices are lower than the neighboring countries. | |
| | Quality of treatment | 10. Selected hospitals have high-quality equipment and materials. | Song <i>et al.</i> (2010), Collins <i>et al.</i> (2019) |
| | | 11. Treatment teams consist of experienced professionals. | |
| | | 12. Patients are being well taken care of both before and after surgery. | |
| | | 13. The number of medical errors in selected hospitals is negligible. | |
| | | 14. People are very well treated. | |
| | Use of alternative medicine | 15. Physicians and hospital managers perform regular post-treatment follow-ups. | Song <i>et al.</i> (2010) |
| | | 16. Iranian traditional medicine is used in selected hospitals when deemed necessary. | |
| | | 17. Other types of traditional medicine (<i>e.g.</i> traditional Chinese medicine) are appropriately used in selected hospitals. | |
| | | 18. Alternative medicine offered in selected hospitals is not available in the neighboring countries. | |
| | Use of modern therapeutic methods | 19. Alternative medicine is considerably more affordable than modern medicine. | Song <i>et al.</i> (2010), Collins <i>et al.</i> (2019) |
| | | 20. Stem-cell therapy is used to treat patients in selected hospitals. | |
| | | 21. Nanotechnology is used in the treatment of special diseases. | |
| | | 22. Modern radiotherapy procedures are used to treat incurable patients. | |
| | Confidentiality of patient information | 23. Selected hospitals offer treatments that are not available in many neighboring countries. | Song <i>et al.</i> (2010) |
| | | 24. Patients are ensured about the confidentiality of their identity. | |
| 25. Staff attempt to protect the confidentiality of electronic and written records. | | | |
| 26. A patient's medical record will be sent to the respective embassy only upon his/her request. | | | |

| | | | |
|--|-----------------------------|--|---|
| External infrastructures | Economic factors | 27. Different goods and services are offered at affordable prices. | Song <i>et al.</i> (2010), Collins <i>et al.</i> (2019) |
| | | 28. Travel and accommodation costs have decreased due to increases in exchange rates. | |
| | | 29. The inflation rate is at an acceptable level. | |
| | Cultural factors | 30. Tourists are warmly welcomed in popular culture. | Song <i>et al.</i> (2010), Momeni (2018) |
| | | 31. Followers of different religions and sects are treated equally. | |
| | | 32. Visitors from neighboring countries have similar religious beliefs and therefore feel very welcomed. | |
| | | 33. Personnel are all well-trained and well-behaved. | |
| | | 34. The country has great historical monuments and natural attractions. | |
| | Governance factors | 35. The country is very stable in terms of political conditions. | Song <i>et al.</i> (2010), Momeni (2018) |
| | | 36. The country is completely safe and secure for tourists. | |
| | | 37. Tourists can obtain their visas easily and quickly. | |
| | | 38. National laws and regulations protect tourists. | |
| | Infrastructural factors | 39. The country utilizes safe transportation systems. | Song <i>et al.</i> (2010), Collins <i>et al.</i> (2019) |
| 40. Tourists are provided with suitable hotels and accommodation facilities. | | | |
| 41. Reliable ICT infrastructure has been provided for tourists. | | | |
| Health tourism | Hospital selection | 42. In selected hospitals, tourists pay reasonable prices for the services they receive. | Song <i>et al.</i> (2010) |
| | | 43. Selected hospitals are highly credible. | |
| | | 44. Selected hospitals are very popular. | |
| | | 45. Selected hospitals employ well-educated medical staff. | |
| | Medical staff selection | 46. In selected hospitals, there are physicians with rare specialties. | Song <i>et al.</i> (2010), Collins <i>et al.</i> (2019) |
| | | 47. In selected hospitals, physicians are highly reputable. | |
| | | 48. The number of medical errors in selected hospitals is negligible. | |
| | | 49. Patients are often recommended to visit physicians working in selected hospitals. | |
| | Marketing and advertisement | 50. Selected hospitals are advertised widely in the mass media. | Song <i>et al.</i> (2010) |
| | | 51. Selected hospitals are developing great branding programs. | |
| | | 52. Scientific methods are employed to set fair prices. | |

| | | |
|----------------------------------|---|---------------------------|
| Inter-organizational cooperation | 53. Selected hospitals use several marketing channels to offer their services. | Song <i>et al.</i> (2010) |
| | 54. Unnecessary bureaucracy has been minimized in the health tourism industry. | |
| | 55. A system of inter-organizational cooperation has been established. | |
| | 56. A coherent collaboration system coordinates the activities of different institutions. | |

Table 3: Descriptive statistics of the research variables

| Variable | Cronbach's alpha | Mean | Variance | Min | Max | Covariance |
|---------------------------------------|------------------|-------|----------|-------|-------|------------|
| Government supports | 0.808 | 3.807 | 0.048 | 3.439 | 3.957 | 0.675 |
| Internal (medical) infrastructure | 0.766 | 3.585 | 0.166 | 2.561 | 4.014 | 0.393 |
| External (non-medical) infrastructure | 0.795 | 3.764 | 0.056 | 3.489 | 4.237 | 0.432 |
| Health tourism | 0.784 | 3.802 | 0.088 | 3.493 | 4.406 | 0.467 |

Table 4: Results of Kolmogorov-Smirnov and goodness of fit tests

| Variable | Significance level | Communality | \bar{R}^2 |
|---------------------------------------|--------------------|-------------|-------------|
| Government supports | 0.000 | 0.68219 | 0.77412 |
| Internal (medical) infrastructure | 0.000 | 0.66554 | 0.603 |
| External (non-medical) infrastructure | 0.106 | 0.78301 | 0.493 |
| Health tourism | 0.111 | 0.71006 | 0.801 |

Table 5: Discriminant validity, CR, and AVE

| Construct | Composite Reliability (CR) | AVE | Maximum Shared Variance (MSV) | Maximum Reliability (MaxR(H)) | Government supports | Internal infrastructure | External infrastructure | Health tourism |
|------------|----------------------------|-------|-------------------------------|-------------------------------|---------------------|-------------------------|-------------------------|----------------|
| Government | 0.928 | 0.730 | 0.418 | 0.936 | 0.854 | | | |

| | | | | | | | | |
|-------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| supports | | | | | | | | |
| Internal infrastructure | 0.941 | 0.758 | 0.416 | 0.944 | 0.628 | 0.873 | | |
| External infrastructure | 0.890 | 0.629 | 0.400 | 0.895 | 0.511 | 0.598 | 0.802 | |
| Health tourism | 0.894 | 0.733 | 0.400 | 0.901 | 0.608 | 0.590 | 0.615 | 0.931 |

Table 6: Direct path coefficients between research variables

| | GS | II | EI | HT |
|-----------|-----------|-----------|-----------|-----------|
| GS | --- | 0.516 | 0.492 | |
| II | --- | --- | --- | 0.450 |
| EI | --- | --- | --- | 0.469 |
| HT | --- | --- | --- | --- |

Table 7: T-statistics and P-values for direct and indirect relationships

| | SD | t-value | P_value |
|----------------|-----------|----------------|----------------|
| GS → II | 0.115 | 2.382 | 0.018 |
| GS → EI | 0.164 | 2.431 | 0.015 |
| GS → HT | 0.099 | 3.812 | 0.000 |
| II → HT | 0.133 | 2.115 | 0.035 |
| EI → HT | 0.099 | 5.473 | 0.000 |

Table 8: Hypothesis testing results

| Hypothesis | Independent | Mediator | Dependent | Path coefficient | t-value | Result |
|-------------------------|---------------------|-------------------------|-------------------------|--------------------------|----------------|---------------|
| Main H1 | Government supports | --- | Health tourism | 0.2386 | 2.98 | Accepted |
| Main H2 | Government supports | Internal infrastructure | Health tourism | $0.450 * 0.516 = 0.2322$ | 2.41 | Accepted |
| Main H2 | Government supports | External infrastructure | Health tourism | $0.469 * 0.492 = 0.2307$ | 2.283 | Accepted |
| Sub-hypothesis 1 | Government supports | --- | Internal infrastructure | 0.516 | 2.382 | Accepted |

| | | | | | | |
|---------------------------|-------------------------|-------------------------|-------------------------|-------|-------|----------|
| Sub-hypothesis 2 | Government supports | --- | External infrastructure | 0.492 | 2.431 | Accepted |
| Sub-hypothesis 3 | Internal infrastructure | --- | Health tourism | 0.450 | 2.115 | Accepted |
| Sub-hypothesis 4 | External infrastructure | --- | Health tourism | 0.469 | 5.473 | Accepted |
| Sub-hypothesis 5-a | Government supports | Internal infrastructure | Health tourism | 0.328 | 3.128 | Accepted |
| Sub-hypothesis 5-b | Government supports | External infrastructure | Health tourism | 0.364 | 2.785 | Accepted |

Table 9: HTMT test

| | IOC | GS | IMI | EN-MI | HT | HS | MS |
|-------|------|------|-----|-------|-----|-----|-----|
| GS | .54 | | | | | | |
| IMI | .39 | .35 | | | | | |
| EN-MI | .61 | .423 | .65 | | | | |
| HT | .453 | .58 | .58 | .54 | | | |
| HS | .59 | .71 | .61 | .56 | .45 | | |
| MS | .56 | .63 | .72 | .48 | .38 | .32 | |
| MA | .41 | .42 | .49 | .36 | .49 | .59 | .61 |

Figure 1: Validated research model

