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Developing a Marketing Model for Health Tourism with an Emphasis on Medical Equipment

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ABSTRACT

This study aims to develop a marketing model for health tourism with a specific focus on medical equipment, employing a mixed-methods (qualitative and quantitative) research design. In the qualitative phase, a meta-synthesis approach combined with the Delphi method identified six core themes: economic and policy factors, infrastructural conditions, quality of medical and support services, marketing and destination image, patient experience and satisfaction, and health tourism marketing development. In the quantitative phase, structural equation modeling specifically partial least squares structural equation modeling (PLS-SEM) and interpretive structural modeling (ISM) were utilized to analyze the interrelationships among the identified variables. The findings indicate that economic and policy factors indirectly influence marketing development through infrastructural conditions and service quality. Infrastructural conditions exert a positive and significant impact on service quality, patient experience, and marketing development; however, their direct effect on destination image was not statistically significant. Service quality indirectly affects marketing development through patient experience, while marketing efforts and destination image directly enhance health tourism development. Based on these results, the study recommends policy-marketing integration, technology-driven branding, the design of technology-enriched therapeutic packages, and the development of multilingual mobile applications to strengthen patient experience. Implementing this model has the potential to position Iran as a competitive destination in the global health tourism landscape.

KEYWORDS: Health tourism, Marketing, Medical Equipment, Mixed-methods

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1. Introduction

In the contemporary era, the rapid advancement of technology, accelerated industrialization, and the swift expansion of urbanization—coupled with increasingly mechanized lifestyles have introduced a host of challenges, especially in developing and Third World countries. Fatigued by modern society, individuals are often reduced to peripheral figures serving industrial systems, compelled to function like machines to secure livelihoods and comfort, all while concealing their exhaustion. Although they may outwardly appear content and cheerful, many are suffering from unprecedented levels of boredom, anxiety, and depression. It is self-evident that a society achieves vitality and well-being only when its citizens enjoy optimal physical and mental health. Yet the current century—rooted in technology and industry and frequently labeled the "age of anxiety, stress, and nervous disorders" has consistently exerted adverse effects on human health, giving rise to novel social, hygienic, and medical challenges (Omidy et al., 2022).

Since the mid-20th century, multiple factors including globalization, technological progress, and innovations in transportation and communication have catalyzed the growth of the tourism industry, which is now widely recognized as the world's third-largest economic sector (Sa'idbakhsh et al., 2021). Tourism, as a rapidly expanding global industry, significantly contributes to national gross domestic product through value-added activities and sustainable livelihoods (Godovykh et al., 2020). Its importance particularly in the realm of nature-based and health tourism has become increasingly evident across economic, social, and environmental dimensions. In several countries, strategic planning has not only reduced the high costs of medical treatment but also facilitated patient recovery and rehabilitation (Soliman et al., 2023).

The World Tourism Organization defines health tourism as "the use of services aimed at improving or enhancing physical health and psychological well-being through mineral waters, climate, or medical interventions undertaken in a location outside one's usual place of residence for a minimum of 24 hours" (Osman et al., 2021). Health tourism encompasses individuals and groups who travel to benefit from climate therapy, mineral waters, convalescence, medical treatments, or related services (Starri et al., 2021). Based on existing literature, health tourism can be categorized into three main types:

1. **Wellness tourism**: Travel to health villages or mineral/thermal spring areas to relieve daily stress and rejuvenate without medical supervision;
2. **Therapeutic tourism**: Travel to utilize natural therapeutic resources such as saline waters or medicinal mud for treating specific conditions or convalescing under medical supervision; and
3. **Medical tourism**: Travel to undergo surgical or clinical treatments for physical ailments in hospitals or specialized medical centers under professional medical oversight (Connell, 2021).

A health tourism marketing model encompasses diverse operations including positioning, pricing, distribution, and global strategic development and its success hinges on sustainable competitive advantage, which in turn requires a nuanced understanding of target market needs (Arfaei et al., 2021). The core function of such marketing models is the strategic allocation and coordination of resources to achieve operational objectives related to health tourism products and markets. Today,

health camps and medical centers that effectively leverage customer perceptions and perceived value can gain competitive advantage, formulate effective marketing strategies, and successfully introduce innovative health tourism offerings (Lett et al., 2022).

Despite the multiple factors influencing tourist attraction and repeat visitation, the distinctive nature of health tourism destinations has received insufficient scholarly attention (Zakavati et al., 2023) a critical gap, especially given that each health tourism destination, including wellness camps, possesses a unique image that differentiates it from competitors (Kovalchuk et al., 2021). To strengthen the competitive positioning of health tourism destinations, it is essential to cultivate a compelling destination image through contemporary, context-sensitive marketing strategies, as these positively influence tourist motivation and satisfaction (Pashaeifar et al., 2021). Indeed, health tourism has evolved beyond traditional formats, with wellness camps and integrated health complexes now playing a pivotal role in marketing strategies (Zarei et al., 2019). Wellness camps are tranquil environments distinct from urban chaos where visitors seek physical and psychological healing. These camps integrate natural and human-made attractions centered on holistic services, including wellness, rehabilitation, and medical care (Marić Stanković et al., 2022).

However, much of the existing tourism literature has focused predominantly on the physical-functional attributes of destinations, tourist motivations, and factors influencing revisit intention, while largely overlooking wellness camps and their strategic marketing potential. Although tourists' selection of health destinations stems from a complex interplay of personal, social, and psychological motivations, high-quality health tourism services significantly enhance satisfaction, encourage repeat visits, and stimulate positive word-of-mouth (Hassanzadeh et al., 2021). Without systematic marketing strategies for wellness camps, these facilities and their unique functions remain underutilized. Consequently, health tourists continue to concentrate in urban hospitals and clinics, exacerbating urban strain, while the untapped capacities of wellness camps remain unrecognized (Letunovska et al., 2020).

Research on designing a marketing model for health tourism with an explicit emphasis on medical equipment is of paramount importance. In the health sector, tourism-related enterprises revolve around medical services, medical devices, and hygiene infrastructure elements that critically influence tourist attraction. Such research empowers health and tourism stakeholders to enhance customer acquisition and sales performance through evidence-based marketing models. Moreover, developing tailored marketing frameworks can elevate the quality of health services, drive innovation in medical equipment, and improve hygiene standards. These models enable organizations to better understand customer needs and preferences, refine service delivery, identify new market opportunities, and strategically promote medical equipment and health services. For scholars and practitioners, this line of inquiry advances theoretical and practical knowledge in health tourism marketing, fostering innovative models that can catalyze sectoral growth particularly vital in an era defined by technological advancement and innovation.

An assessment of Iran's health tourism landscape reveals that, over the past three years, currency fluctuations and the depreciation of the national currency have made low cost the primary attraction for inbound health tourists. A second critical issue is the absence of strategic marketing plans in most treatment centers, particularly wellness camps. Many of these facilities remain virtually unknown even to domestic tourists, and their visibility among international tourists is even more

limited. Effective promotional campaigns and information dissemination are notably lacking. National media outlets prohibit the advertising of hospitals and treatment centers, viewing healthcare as a non-commercial domain, and most Iranian health tourism providers lack professional marketing efforts (Zakavati et al., 2023). Furthermore, marketing investment in wellness camps is often perceived as an expense rather than a strategic asset. Iranian embassies abroad distribute travel brochures that overwhelmingly feature repetitive, clichéd images of historical and archaeological sites, with virtually no mention of the country's wellness camps or their therapeutic capacities.

Medical equipment plays a pivotal role in marketing and advancing the health tourism industry. First and foremost, advanced and diverse medical devices enable the delivery of high-quality diagnostic and therapeutic services to health tourists. Their presence enhances tourists' trust in a destination, as visitors seeking reliable care pay close attention to the quality and modernity of available medical infrastructure. Up-to-date equipment not only attracts more tourists but also facilitates more effective promotional messaging. Additionally, the availability of appropriate medical technology provides psychological assurance: when tourists are confident that necessary medical resources are accessible in case of emergencies, they experience greater peace of mind a powerful implicit endorsement of the destination's safety and reliability. Overall, modern medical equipment significantly contributes to building a positive destination image and fostering sustainable growth in health tourism.

Against this backdrop, the present study seeks to answer the following central question: How can an effective marketing model be designed to advance health tourism with a specific emphasis on medical equipment? To address this, the research investigates: (1) which factors related to medical equipment most influence the attraction of health tourists, and (2) how marketing strategies can be leveraged to enhance competitiveness in health tourism through a focus on medical technology. Accordingly, the primary objective of this study is to design a marketing model for health tourism development with an explicit emphasis on medical equipment.

2. Theoretical Framework of the Research

Marketing is defined as a social management process through which individuals and groups satisfy their needs and wants by producing and exchanging goods. This fundamental definition has today acquired a fresh color and spirit, and researchers' studies have made it richer and broader than before (Zakavati et al., 2023).

Marketing is the process by which, through various tools, techniques, and strategies, products and services are introduced and sold to customers in a manner suited to their needs. This process helps organizations achieve their objectives, such as increasing sales, enhancing brand awareness, and building positive customer relationships. Marketing essentially consists of five stages: analysis, planning, implementation, evaluation, and control (Lett et al., 2020). In the analysis stage, the company must carefully examine its market and customers and identify their needs and preferences. Then, in the planning stage, marketing strategies are defined and objectives are set (Sa'idbakhsh et al., 2021). In the implementation stage, marketing activities are carried out and products or services are offered to customers. Next, in the evaluation stage, the performance of marketing strategies and success in achieving objectives are reviewed and assessed. Finally, in the

control stage, necessary adjustments are made to strategies and marketing methods to improve and optimize performance (Kovalchuk et al., 2021). Marketing not only facilitates the sale of products and services but also establishes direct and effective communication with customers (Arfaei et al., 2021) and gathers valuable information from the market and customer needs. Overall, marketing helps companies become competitive and successful and be recognized as strong and prominent brands in diverse and competitive markets (Connell, 2021).

Marketing in the tourism industry is an administrative and managerial process that includes anticipating the needs and satisfaction of current and future tourists so that travel companies and suppliers can compete with one another. This approach depends on mutual satisfaction between supplier and consumer; in other words, fulfilling the tourist's environmental and social requirements is no less important than satisfying the tourist and others. They cannot remain indifferent to each other's characteristics (Zakavati et al., 2023).

The tourism industry is one of the sectors that plays a significant role in the economic development of countries and in job creation. Marketing in this industry is highly important, and implementing effective marketing strategies can contribute to its growth and development. The first challenge in tourism marketing is understanding the market and segmenting audiences. This industry faces a vast and diverse range of customers and visitors from around the world. Therefore, to succeed in marketing, understanding and recognizing the needs and preferences of these audiences is extremely essential. Secondly, in a dynamic and competitive environment like the tourism industry, marketing strategies must be carefully designed and executed (Soliman et al., 2023). Effective strategies in this industry include advertising and marketing communications, improving customer experience, and utilizing modern technologies. The third challenge in tourism marketing is customer relationship management (Godovykh et al., 2020). Given that direct customer interaction is highly critical in this industry, proper management of customer relationships especially through social media and digital technologies is of great importance.

Within this context, health tourism is associated with tourists whose primary motivation for travel is to maintain or improve their health and well-being, and who spend at least one night in facilities specifically designed to enhance physical, spiritual, or social health (Osman et al., 2021).

Health tourism is a growing trend within the tourism industry that focuses on improving and maintaining individuals' physical and mental health. This type of tourism includes travel undertaken to enhance one's health and well-being and typically involves staying in places with beautiful natural scenery, recreational amenities, and diverse health and medical centers. One characteristic of health tourism is its attention to psychological and spiritual well-being alongside physical health (Osman et al., 2021). Natural settings, yoga and meditation centers, and health and wellness facilities are among the amenities offered in these trips to create physical and mental balance. Moreover, health tourism is considered an important source of income for local communities and tourist areas. By leveraging their natural attractions and health and medical centers, these areas can attract health tourists and generate revenue. Ultimately, health tourism positively impacts quality of life and social well-being. These trips allow individuals to connect with nature beyond urban environments, reduce daily stress, and share new and exciting experiences with others (Starri et al., 2021).

Health tourism, as a subset of tourism, represents a dynamic intersection of social, economic, and environmental factors that facilitate individuals' movement beyond their usual environment for health-related purposes. Tourism refers to a set of activities involving travel to a location outside one's usual place of residence, with a stay of at least one night and up to one year (Dehbondi & Salehi, 2023). This phenomenon strengthens interactions among different populations and creates mutual effects between hosts and guests, including cultural exchanges and economic impacts (Kabak & Sevim, 2025). Tourism is classified based on duration, location, purpose, and mode of travel, and emerging forms such as scientific tourism have broadened its scope (Faraji Rad & Aghajani, 2009). These classifications enable precise planning for tourism development, particularly in specialized segments such as health tourism (Dehbondi & Salehi, 2023).

The impacts of tourism on host communities are multifaceted—ranging from economic benefits such as income and employment to potential drawbacks like seasonal fluctuations (Babakhani-Zadeh, 2013). Socio-cultural effects emerge through interactions that may create opportunities or cause discomfort and overcrowding (Cheraghi et al., 2013). Environmental consequences vary from resource conservation to degradation, often overlooked due to economic priorities (Monroy-Rodriguez & Caro-Carretero, 2025). Security and safety are foundational to tourism growth, as neglecting them can increase risks for tourists and destinations alike (Rahmati, 2017). From a political perspective, tourism promotes international understanding and reduces conflicts by strengthening intercultural dialogue (Cheraghi et al., 2013). From a systems viewpoint, tourism functions as a dynamic system affecting origin, destination, and routes, and health tourism is defined as a specialized market focused on maintaining or restoring physical and mental health for up to one year outside one's usual environment (Rahman et al., 2022).

The historical roots of health tourism trace back to ancient Greece and Rome and evolved through mineral springs and the development of spas in Europe and America, with early advertisements dating to the late nineteenth century (Cha et al., 2025; Saberi et al., 2023). In Iran, ancient classifications by Ibn Sina emphasize the scientific importance of therapeutic waters (Khodaei et al., 2024). Drivers of health tourism growth include guaranteed demand, high multiplier effects, non-seasonality, predictability, substantial income generation, job creation, and longer stays (Najafi Nasab, 2016). Conceptual frameworks categorize health tourism into medical (treatment-focused), therapeutic (nature-based rehabilitation), and preventive (wellness-oriented) types (Shalbafian, 2015). Medical tourism focuses on chronic illnesses or surgeries, whereas wellness tourism emphasizes active health maintenance, with overlapping spa services determined by the traveler's intent (Kumar et al., 2022).

Demand factors for health tourism include lower costs, insufficient insurance coverage, high-quality treatment, easy access to information, advances in information and communication technologies, alternative medicines, innovative therapies, and improved transportation. The distinction between health and medical tourism underscores holistic versus clinical approaches, with implications for policy, marketing, and infrastructure (Singh et al., 2025). Accreditation bodies such as JCI and HCAC play a critical role in ensuring quality and safety (Healthcare Accreditation Council, 2015).

Medical equipment in health tourism includes tools, technologies, and devices provided to tourists for therapeutic, diagnostic, and preventive health services. Such equipment may include medical

devices like diagnostic tools (e.g., echocardiography machines), surgical instruments (e.g., lasers), emergency equipment (e.g., defibrillators and first-aid kits), and rehabilitation devices (e.g., physiotherapy equipment). These are highly important as they assure tourists that modern and efficient equipment will be available if medical services are needed (Godovykh et al., 2020).

Medical equipment plays a very important role in health tourism. These devices encompass medical tools and technologies, treatment centers, and preventive measures such as medical examinations, laboratory tests, and various treatments (Soliman et al., 2023).

Medical equipment acts as a key factor in health tourism, integrating advanced technologies to support prevention, diagnosis, treatment, monitoring, and rehabilitation (World Health Organization, 2017). These devices enhance equitable access, patient safety, clinical efficiency, and quality of life through innovations such as the Internet of Things, artificial intelligence, and machine learning (Hernández-Galán et al., 2022). In health tourism marketing models, medical equipment strengthens differentiation and branding, builds trust, and creates competitive advantage (Zhang et al., 2023). Marketing leverages the technological advantage of equipment to promote the economic and social benefits of health tourism, while equipment ensures service quality and patient satisfaction, thereby reinforcing demand and sustainability (Zhao et al., 2024).

Leading countries such as Thailand, Singapore, Turkey, the UAE, Malaysia, and India have demonstrated success based on medical equipment, while Iran's potential rooted in cost-effectiveness, expertise, and cultural proximity—remains latent, requiring strategic infrastructural improvements (Kumar et al., 2022). Future trends, including the convergence of digital health and personalized care, highlight the central role of equipment in resilient health tourism marketing models (Sun et al., 2023).

Monroy-Rodriguez and Caro-Carretero (2025), through a bibliometric analysis of 376 articles published between 2014 and 2024, showed that health tourism plays a significant role in alignment with the Sustainable Development Goals, and integrating sustainability principles into its strategies can lead to inclusive growth, environmental protection, and enhanced health for both communities and tourists. Shabankareh et al. (2025), in a study of 151 experts from two hospitals in Iran receiving international tourists, demonstrated that government support has the greatest impact on improving service quality, reducing treatment costs, adopting advanced medical technologies, and enhancing economic, infrastructural, and cultural factors related to health tourism. Kabak and Sevim (2024), in a comprehensive literature review on medical tourism, showed that marketing mix elements particularly product, price, and people play a key role in formulating marketing strategies, and applying the 7P approach can provide valuable insights for healthcare providers and national health systems. Cha et al. (2024), in a study using a multilingual questionnaire to examine motivations in medical tourism, identified three market segments quality seekers, necessity-driven seekers, and others and showed that this segmentation has important strategic implications for targeting specific markets in the medical tourism industry. Chowdhary and Majumdar (2025), using a mixed qualitative and quantitative approach, demonstrated that health tourism acts as an economic growth catalyst in developing countries and contributes to economic development through foreign exchange earnings, job creation, and strengthening of health care infrastructures, while effective policymaking, public-private partnerships, and targeted marketing play a key role in harnessing this potential.

3. Research Methodology

This study employed a mixed-methods (qualitative-quantitative) research design with an exploratory and fundamental nature, aiming to develop a marketing model for health tourism with an explicit emphasis on medical equipment. Data were collected and analyzed through both qualitative and quantitative strands. In the qualitative phase, the research began with a meta-synthesis of findings from prior studies to integrate existing knowledge and extract key constructs. Subsequently, the Delphi method was applied to gather and achieve consensus among 10 experts specializing in marketing, tourism, and medical equipment. This iterative process ensured content validity and theoretical saturation of the initial model components. In the quantitative phase, data were collected via a structured questionnaire. The statistical population comprised healthcare service managers, physicians, senior nurses, and hospital planners with direct experience in health tourism or medical infrastructure. A non-random, purposive (judgmental) sampling strategy was used to select participants possessing relevant expertise and practical insight. To analyze the interrelationships among identified factors and structure the final model, Interpretive Structural Modeling (ISM) was employed. The collected quantitative data were processed using SPSS and SmartPLS software. A Partial Least Squares Structural Equation Modeling (PLS-SEM) approach was adopted to test the hypothesized relationships and evaluate the model's adequacy. PLS-SEM was selected due to its suitability for smaller sample sizes, non-normal data distributions, and complex, formative constructs conditions common in exploratory and applied management research. Additionally, the model's reliability, validity, and overall fit were rigorously assessed using standard PLS-SEM metrics (e.g., Cronbach's alpha, composite reliability, average variance extracted, and bootstrap-based significance tests).

4. Findings

The demographic profile of the study participants is divided into two groups: (1) qualitative-phase experts and (2) quantitative-phase respondents.

Table 1. Demographic characteristics of qualitative-phase experts (N = 13)

Demographic Characteristic	Category	Frequency	Percentage
Gender	Male	8	62%
	Female	5	38%
Age	< 35 years	2	15%
	35–45 years	6	45%
	≥ 45 years	5	40%
Education	Master's degree	5	38%
	PhD	8	62%
Work Experience	10–20 years	7	54%
	> 20 years	6	46%
Organizational Position	Manager	8	62%
	Faculty member	7	54%
Total		**13**	**100%**

Note: Percentages exceed 100% in organizational position due to dual roles (e.g., manager and faculty member).

Table 2. Demographic characteristics of quantitative-phase respondents (N = 384)

Demographic Characteristic	Category	Frequency	Percentage
Gender	Male	195	50.2%
	Female	189	49.2%
Age	< 30 years	33	8.6%
	30–40 years	89	23.2%
	40–50 years	127	33.1%
	≥ 50 years	135	35.2%
Education	Bachelor's degree	32	8.3%
	Master's degree	98	25.5%
	PhD	254	66.1%
Work Experience	≤ 5 years	36	9.4%
	5–15 years	170	44.3%
	> 15 years	178	46.4%
Total		**384**	**100%**

Note: The original text erroneously listed "Total = 13" in Table 2; this has been corrected to N = 384 based on the frequency counts provided.

The meta-synthesis phase followed a systematic procedure consisting of: (1) formulating the research question, (2) conducting a systematic literature review, (3) selecting relevant studies, (4) extracting findings, and (5) analyzing and integrating categories. Through this process, six primary themes were identified, each comprising several sub-themes, as detailed in Table 3.

Table 3. Main and sub-themes identified through meta-synthesis

Primary Theme	Sub-theme	Frequency
Economic and Policy Factors	Medical visa facilitation	19
	Medical equipment import/export regulations	28
	Tax exemptions and financial incentives	33
	Competitive pricing of services and equipment	26
Quality of Medical and Support Services	Post-treatment follow-up / online monitoring	22
	International language and communication	15
	Modern, standardized, and safe medical equipment	36
Infrastructural Conditions	Transport systems and easy accessibility	22
	Access to advanced technologies	43
	Quality and diversity of medical equipment	32
Patient Experience and Satisfaction	Intention to recommend to others	30

Primary Theme	Sub-theme	Frequency
	Overall patient satisfaction	39
	Positive experience with equipment and services	22
Marketing and Destination Image	Participation in medical exhibitions and professional networks	35
	Targeted international advertising	38
	National health tourism branding	44
Health Tourism Marketing Development	Treatment safety and security	15
	Enhancement of the country's international reputation	29
	Job creation in medical and service sectors	26
	Growth of the medical equipment industry	30
	Foreign exchange earnings	24

Following the meta-synthesis, two rounds of the Delphi method were conducted with expert participants. Full consensus (100%) was achieved among experts regarding the dimensions and components of the identified themes, thereby confirming the validity and reliability of the thematic extraction. In the Interpretive Structural Modeling (ISM) phase, the six core variables derived from the qualitative analysis were operationalized as follows:

- C1: Marketing and Destination Image
- C2: Infrastructural Conditions
- C3: Economic and Policy Factors
- C4: Quality of Medical and Support Services
- C5: Patient Experience and Satisfaction
- C6: Health Tourism Marketing Development

A series of matrices—including the self-interaction matrix, reachability matrix, and antecedent matrix—were constructed to determine directional relationships and hierarchical levels among the variables.

The hierarchical leveling of the variables was established as follows:

- Level I: Health Tourism Marketing Development (C6)
- Level II: Marketing and Destination Image (C1), Patient Experience and Satisfaction (C5)
- Level III: Quality of Medical and Support Services (C4)
- Level IV: Infrastructural Conditions (C2)
- Level V: Economic and Policy Factors (C3)

Further, MICMAC (Matrice d'Impacts Croisés Multiplication Appliquée à un Classement) analysis was performed to classify variables based on their driving and dependence powers. The results revealed:

- Independent variables (high driving power, low dependence): C2 (Infrastructural Conditions) and C3 (Economic and Policy Factors)
- Dependent variables (low driving power, high dependence): C5 (Patient Experience and Satisfaction) and C6 (Health Tourism Marketing Development)
- Autonomous (linkage) variables (low driving and dependence power): C1 (Marketing and Destination Image) and C4 (Quality of Medical and Support Services)
- No linkage variables (high driving and dependence power) were identified.

This structural configuration indicates that policy and infrastructure serve as foundational enablers, while marketing development and patient satisfaction represent ultimate outcomes. The autonomous status of marketing/image and service quality suggests they function as intermediate, self-contained strategic levers within the health tourism ecosystem.

Model Validation Using Partial Least Squares (PLS)

External (Measurement) Model Assessment

Table 4. Results of the external (measurement) model

Main Construct	Indicator	Factor Loading	t-statistic
Economic and Policy Factors	C31	0.794	31.893
	C32	0.828	43.311
	C33	0.810	36.446
	C34	0.777	27.515
Quality of Medical and Support Services	C41	0.815	35.029
	C42	0.830	40.839
	C43	0.817	37.092
Infrastructural Conditions	C21	0.807	36.681
	C22	0.808	37.341
	C23	0.837	45.528
Marketing and Destination Image	C11	0.822	41.060
	C12	0.787	32.856
	C13	0.805	33.984
Patient Experience and Satisfaction	C51	0.852	52.195
	C52	0.835	39.155
	C53	0.801	35.120
Health Tourism Marketing Development	C61	0.737	25.182
	C62	0.786	31.884
	C63	0.830	42.681
	C64	0.780	31.681
	C65	0.777	30.663

All indicator loadings exceed the recommended threshold of 0.50, and all t-statistics are greater than 1.96 ($p < 0.05$), confirming that the external (measurement) model is valid.

Three key criteria were used to evaluate the external model:

- Convergent validity
- Composite reliability (CR)
- Cronbach's alpha

Table 5. External validity indicators of the research constructs

Construct	AVE	Composite Reliability (CR)	Cronbach's Alpha
Marketing and Destination Image	0.647	0.846	0.728
Patient Experience and Satisfaction	0.688	0.869	0.773
Health Tourism Marketing Development	0.613	0.888	0.842
Infrastructural Conditions	0.669	0.858	0.752
Economic and Policy Factors	0.644	0.879	0.816
Quality of Medical and Support Services	0.674	0.861	0.759

All Average Variance Extracted (AVE) values exceed 0.50, confirming convergent validity. All Cronbach's alpha and composite reliability (CR) values are above 0.70, indicating acceptable internal consistency. Additionally, CR values are higher than AVE values in all cases, satisfying the third validity criterion. Thus, the measurement model demonstrates robust reliability and validity.

Table 6. Summary of structural model paths

Predictor	Outcome (Dependent/Mediator)	Path Coefficient	t-statistic	Result
Economic and Policy Factors	Quality of Medical and Support Services	0.173	2.118	**Supported**
Economic and Policy Factors	Infrastructural Conditions	0.906	105.492	**Supported**
Economic and Policy Factors	Marketing and Destination Image	0.850	18.632	**Supported**
Economic and Policy Factors	Health Tourism Marketing Development	0.041	1.020	**Not supported**
Infrastructural Conditions	Marketing and Destination Image	0.066	1.351	**Not supported**
Infrastructural Conditions	Health Tourism Marketing Development	0.629	21.570	**Supported**
Infrastructural Conditions	Patient Experience and Satisfaction	0.398	6.744	**Supported**
Infrastructural Conditions	Quality of Medical and Support Services	0.667	8.684	**Supported**
Marketing and Destination Image	Health Tourism Marketing Development	0.104	2.991	**Supported**

Predictor	Outcome (Dependent/Mediator)	Path Coefficient	t-statistic	Result
Quality of Medical and Support Services	Patient Experience and Satisfaction	0.441	7.378	**Supported**
Patient Experience and Satisfaction	Health Tourism Marketing Development	0.262	10.628	**Supported**

Table 7. Structural model fit indices

Construct	R^2	Q^2	GOF
Marketing and Destination Image	0.829	0.510	0.617
Patient Experience and Satisfaction	0.641	0.419	—
Health Tourism Marketing Development	0.953	0.545	—
Infrastructural Conditions	0.820	0.522	—
Quality of Medical and Support Services	0.682	0.433	—

- R^2 values for endogenous constructs are high, especially for Health Tourism Marketing Development ($R^2 = 0.953$), indicating excellent explanatory power.
- All Q^2 values are positive, confirming the model's adequate predictive relevance.
- The Goodness-of-Fit (GOF) index is 0.617, which exceeds the threshold for a large effect size (≥ 0.36), indicating strong overall model fit.

The study identified 21 sub-themes, classified into six main constructs. The analysis confirmed that economic and policy factors, infrastructural conditions, service quality, marketing and destination image, patient experience and satisfaction, and health tourism marketing development all play significant roles in health tourism marketing. The ISM leveling and MICMAC analysis further revealed the driving and dependent roles of key variables within the system. Statistical validation through PLS-SEM confirms that the proposed model possesses sufficient reliability, validity, and structural soundness, and is thus empirically supported.

5. Discussion and Conclusion

The findings of the research indicated that the development of health tourism marketing depends on infrastructural factors, the quality of medical and support services, patient experience and satisfaction, and marketing and destination image. Interpretive Structural Modeling (ISM) analysis revealed that economic and policy factors (Level 5) and infrastructural conditions (Level 4) function as the foundational layers of the model, whereas service quality (Level 3), marketing and destination image along with patient experience (Level 2), and health tourism marketing development (Level 1) occupy the higher levels. Structural equation modeling (PLS) confirmed that infrastructural conditions have a positive and significant impact on service quality, patient experience, and marketing development. Service quality indirectly influences marketing development through patient experience, and marketing and destination image directly reinforce health tourism development. However, the direct effects of economic and policy factors and infrastructural conditions on destination image were not statistically significant, indicating the mediating role of variables such as marketing and patient experience. These results align with the

studies of Connell (2021), Jabbari et al. (2022), Fernando and Long (2023), and Alsharif et al. (2023), which emphasize the importance of advanced infrastructure, service quality, and branding in attracting international patients. For the sustainable development of health tourism, Iran should focus on technology-driven branding, experience-oriented marketing, and the integration of infrastructure and policies with digital campaigns to solidify its position as a leading global destination. The present study proposed and examined eleven hypotheses within the health tourism marketing development model:

Economic and policy factors have a positive and significant impact on the quality of medical and support services. Supportive policies (such as customs facilitation and tax exemptions) and economic stability provide the necessary resources for enhancing service quality and acquiring advanced medical equipment, thereby creating a competitive marketing advantage (Lee & Sohn, 2023; Rahman et al., 2022). Economic and policy factors have a positive and significant impact on infrastructural conditions. Macroeconomic policies and economic resources strengthen infrastructure such as equipped hospitals and transportation networks, which form the basis of marketing storytelling (Fernando & Long, 2023; Kumar et al., 2022).

Economic and policy factors have a positive and significant impact on marketing and destination image. Economic stability and supportive policies provide the necessary resources and credibility for international marketing campaigns, thereby enhancing destination image (Alsharif et al., 2023; Chandra & Maitra, 2022). Economic and policy factors do not have a significant direct impact on health tourism marketing development. The effect of these factors is indirect and transmitted through mediating variables such as infrastructure and service quality (Connell, 2021; Fernando & Long, 2023). Infrastructural conditions do not have a significant direct impact on marketing and brand image. Infrastructure, without marketing narrative, does not directly affect brand image and needs to be transformed into a communicative asset (Alsharif et al., 2023). Infrastructural conditions have a positive and significant impact on health tourism development. Medical, transportation, and support infrastructures constitute the foundation for attracting international patients and enabling marketing storytelling (Fernando & Long, 2023; Jabbari et al., 2022). Infrastructural conditions have a positive and significant impact on patient experience and satisfaction. Standardized infrastructure and advanced equipment improve patient experience and lead to word-of-mouth promotion (Connell, 2021; Jabbari et al., 2022). Infrastructural conditions have a positive and significant impact on the quality of medical and support services. Strong infrastructure enhances service quality and provides a foundation for technology-driven branding (Fernando & Long, 2023; Kumar et al., 2022). Marketing and destination image have a positive and significant impact on health tourism development. National branding and targeted campaigns build patient trust and increase international demand (Alsharif et al., 2023; Chandra & Maitra, 2022). The quality of medical and support services has a positive and significant impact on patient experience and satisfaction. High-quality services and advanced equipment increase patient satisfaction and generate marketing capital (Connell, 2021; Heung et al., 2021). Patient experience and satisfaction have a positive and significant impact on health tourism development. Positive patient experience acts as social proof, strengthens the destination brand, and ensures sustainable growth (Connell, 2021; Jabbari et al., 2022).

Based on the above findings, the following recommendations are proposed: integration of health policy, economics, and marketing; national health branding centered on technology; design of therapeutic packages incorporating advanced technologies; creation of a narrative ecosystem for

recording and disseminating patient experiences with an emphasis on medical technologies; utilization of medical equipment in health diplomacy to enhance destination image; transformation of modern equipment (e.g., MRI, smart operating rooms) into marketing content; establishment of collaborative networks with countries in the Persian Gulf, Central Asia, and the Caucasus; and development of multilingual applications to provide information on equipment, treatment procedures, and follow-up care. These recommendations, by combining technology and intelligent marketing, will position Iran as a competitive destination in health tourism. Given the obtained findings, new research trajectories can be designed to refine and enhance existing models in health tourism, including testing multilevel mediation models linking economic policymaking, service quality, and health tourism marketing development, and analyzing the impact of the medical equipment value chain on the competitive advantage of health tourism destinations. Like other scientific studies, this research faced certain limitations, including geographical and spatial scope constraints, time limitations in data collection, lack of direct examination of emerging digital variables, and limited quantitative data on medical equipment, which may influence the interpretation and generalizability of the results.

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Authenticity of the texts, honesty and fidelity has been observed.

CONFLICT OF INTEREST

Author/s confirmed no conflict of interest.