



Identifying and Prioritizing Components of the Medical and Healthcare Tourism Entrepreneurship Ecosystem

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Abstract

Introduction: One of the important factors that may affect the destination of development is medical and healthcare tourism. The presence of experts in medical tourism and the geographical location of Iran is one of the most important factors in the sustainable development of Iran. This study aimed to identify and prioritize the components of the medical and healthcare tourism entrepreneurship ecosystem (EE) in Iran with a structural-interpretive modeling approach.

Methods: This research is methodologically a mixed (qualitative-quantitative) exploratory type, and its participants were health tourism experts and entrepreneurs. The method for selecting the participants was Purposeful sampling. 15 participants were interviewed based on theoretical saturation. The data collection tools were interviews and questionnaires. Also, to analyze the data in this research, we used two overlapping processes of open and axial coding and structural-interpretive modeling.

Results: The results of data analysis showed that the components of the health tourism EE were included in the seven main dimensions of law, regulations and governance factors, financing and investment, the role of culture, influential institutions (universities and Educational centers), influential regional market factors, the role of human capital, and effective infrastructure.

Conclusion: Researchers examining entrepreneurial ecosystems have not studied the role of a regional level of analysis. The results of qualitative analysis and Interpretive Structural Modeling (ISM) showed that to create the entrepreneurial ecosystem of the medical and healthcare tourism, the central factors resulting from qualitative research interacted with each other at three different levels, and the set of factors at these levels caused the medical sciences university to move towards creating an Entrepreneurial ecosystem drive in the university.

Keywords: Ecosystem components, Medical and healthcare tourism, Interpretive structural modeling, Entrepreneurship.

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Introduction

Mechanisms of creation and development of new businesses have led to the growth of economy in many societies. The importance of entrepreneurship due to the economic downturn in different societies has increased day by day (1). Martinez et al. (2019) have stated that EE's main mission is to create the right conditions to facilitate economic activities and businesses in a specific geographical area (2). Supporting and encouraging innovation is one of the most important ideas of an EE, in which sustainable employment is formed (3). A very complex and multi-layered EE includes political decision-makers, different economic sectors, stakeholders, universities, and corporations.

However, the EE is traditionally considered a static combination of social, political, economic, and

cultural elements (4). The EE is considered as both output and input of the system (5). However, today, the entrepreneurial ecosystem's nature has undergone extensive changes due to social trends, technological advances, and crises. A better understanding of how each of these factors affects the EE and their interaction is essential for predicting a better change and using it for better use, especially in the tourism sector (6). Elements of the EE (individuals, groups, occupations, and their interactions) need to understand the convergences and their contradictions with other sections of society to produce and innovate (7). For these reasons, adequate knowledge of the factors of the EE is both necessary and important. Entrepreneurship thrives in the ecosystems where key stakeholders play a synergistic role (8). Previous research has shown that the EE depends on the

social, economic, political, cultural, and geographical conditions in different regions that have evolved organically over the years (1, 9). Tourism is one of the subsets of entrepreneurship in which many countries pursue their economic prosperity and development (10). According to the World Tourism Council, about 9% of the world's GDP is generated directly and indirectly from the tourism industry annually, and about 255 million people work in this industry. Although, today, the tourism industry is not as good as other industries due to the crisis, there is still a clear horizon in this sector (11). The tourism industry is divided into different sectors. One of the areas that are expanding every day is health tourism. According to the World Bank, the third area of investment globally is health tourism (12). Regarding the importance of people's health (physically and mentally), this industry has had a very high speed in countries' growth and prosperity (13). International travel is increasing for using health care based on ease of access and price (14). Based on the World Health Organization (WHO), Health tourism is defined as international travel to receive medical services (15). In the last years, except the last few months of the COVID 19 crisis globally, the number of health tourists was increasing, and most of them were looking for improvement and health abroad from developed countries, especially developing countries. Today, world health tourism and Iran tourism face various challenges such as reduced government support, increased competition in global tourism markets, privatization policies and downsizing the government structure, changes in the customer tastes, tourism products, and health tourism customer demand (16). Therefore, policymakers, planners and experts in the tourism services sector believe that due to the above developments, a structural change in the current style of tourism services is necessary and market-based tourism in the framework of sustainable development is a key strategy for tourism development. In recent years, despite the efforts made to develop entrepreneurship and privatization in the health tourism sector, in practice, there is no proper growth and sustainability in the development of entrepreneurship and tourism business (17). Thus, Iran entrepreneurship development system suffers from a lack of a holistic approach. Encouraging entrepreneurship and supporting growth centers alone is not enough to promote entrepreneurship. Many entrepreneurs in Iran face obstacles such as changing government policies, inappropriate and unsupportive laws, instability of managers and employers, and lack of environmental confidence, which has created

an unfavorable business environment for them. Therefore, the development of entrepreneurship in the health tourism sector requires a systematic approach of officials to entrepreneurship in this field. Based on the above points, the development of health tourism entrepreneurship requires a network of different elements that was named EE by Eisenberg (2011). Eisenberg also believes that the existence of an ecosystem plays an essential role in economic development (18, 19). Unfortunately, the government often addresses only one or two elements of the EE; as a result, many government's efforts go awry. Some essential connections are forgotten, and some key factors are still neglected. While a single element in the ecosystem is rarely sufficient to create and develop entrepreneurship in the tourism sector, many elements of the ecosystem must be considered simultaneously. However, accepting such a view requires a basic assessment of the current state of the tourism EE, especially about the initial conditions for starting an entrepreneurial business. Thus, this research aimed to investigate the key elements of Iran's medical and healthcare tourism EE.

Methods

This study was conducted in 2019 using the mixed method. This is an exploratory and qualitative-quantitative study. After making the necessary arrangements with the participants, appointments were held in universities, libraries, parks, and hospitals. Participants consisted of 15 people. Purposeful sampling was used to select the subjects who were willing to participate. The inclusion criteria were willingness to participate in the study and ability to communicate appropriately. Semi-structured individual interviews were used to collect the required data until a saturation point was reached. A total of 15 individual interviews (due to complementary interviews of two participants) were conducted. The interviews began with the research topic and some general questions about "health care tourism"; then, we guided them after they answered the questions

The interview questions revolved around the components of the entrepreneurial ecosystem of healthcare tourism. The first question asked invariably was, "What are the components of the entrepreneurial ecosystem of healthcare tourism?" Subsequent questions were asked based on the participants' answers; questions such as "can you, please explain more?" or "Can you elaborate on it?" The interviews were ended up asking questions, which had been elicited from the participants' responses

but had not been asked during the interview. When a participant diverted from the research topic, he/she was redirected into the discussion with guiding sentences such as “The issue you were explaining is very important. It is great to talk about it more.” It was tried to steer him into the main topic. Each interview lasted approximately 45-100 minutes.

Most interviews were recorded, or if the participants were sensitive, their notes were taken. The recorded sentences were also analyzed by qualitative content analysis method. This method is used to determine certain words and concepts in a text or a series of texts. By exploring the existence, repetition, and relationship of the contents of the interview, the researcher invents the messages conveyed in texts or by authors, listeners, and so on. Qualitative Content analysis is, in fact, the process of structuring the unstructured data, through which the researcher seeks to locate similar data into specific categories and then extract their themes (20). The data analysis began simultaneously with their collection; each interview was read several times, and then the texts related to every individual’s experiences and perceptions were put into one text to form the unit of analysis. Then, the meaning units of the texts were outlined, and the condensed meaning units were extracted. Finally, the analytical codes were extracted.

The extracted codes were carefully analyzed, and subdivisions and general categories were formed based on the similarities and differences of these codes. Themes are extracted based on the theoretical analysis of conceptual similarities of general categories. Therefore, the overall texts of the interviews were categorized from themes to meaningful units. To ensure the robustness of the study results, we evaluated the four recommended criteria by Goba and Lincoln. They have considered four criteria of Credibility, Confirmability, Dependability, and Transferability for qualitative research (21). As to credibility, the findings alongside each category’s explanations and theme were given to two participants and were confirmed by them. Two expert qualitative analysts separately analyzed the data and codes, and the results of this analysis showed that confirmability and dependability of the results were over 87%. For ethical considerations, the researchers obtained the participants’ informed consent and scheduled the interviews with them. Before interviewing, the participants were briefed on the research objectives, the criteria for sample selection, their right to withdraw from the research, data collection procedures, and the confidentiality of their identities and information. In the qualitative

stage, the methods used to collect the data were the qualitative analysis method and the ISM; also, in the quantitative stage, the Dematel method was used to measure the research model’s fit.

In the first stage, the research design model was comprehensively defined. At this stage, the research problem was defined, and the general framework and scope of the research were selected. Then, the research questions and objectives were determined. At the end of the first phase, a review of the research literature in health tourism EE was conducted. The samples in this study at the qualitative phase consisted of all studies and research done domestically and internationally from 2005 to 2019 in the field of EE in general and healthcare ecosystem specifically. The method of data collection in the present study was the library and internet search. The data collection tool in this study was Internet search in databases (Databases in this research included: Science Direct, Emerald, Springer, Taylor & Francis, Wiley, JSTOR, EBSCO, PROQUEST, and ELSEVIER). For this search, keywords such as EE, Medical and Healthcare Tourism, Interpretive Structural Modeling, and entrepreneurship were used. This research was conducted in two phases: qualitative and quantitative. At the first part of this study, a qualitative approach was used to identify THE health tourism EE components. Also, to select the participants, the snowball method was used due to the field’s specialization. Table 1 shows the demographic status of the participants. The themes and subthemes were then identified based on three stages: open, axial, and selective coding. The process of coding was manual. Information on axial coding and categorization is provided in Table 2.

Open coding findings: in this stage, as mentioned above, the initial coding of interview data was done manually. Proportional concepts were found considering the data that were similar to each other. (For example, by examining the following quote, the concept of “lack of clear organization” was extracted. Also, the lack of coordination between the organizations involved in health tourism services indicates no specific organization as a trustee. In the above quote, the interviewee alludes to the lack of coordination between the organizations, “creating an organization as a trustee.” The rest of the concepts are derived in the same way. The aim was to understand the range of possible meanings in the words of the participants. With this method, the process of categorizing concepts began. Each category was classified under more abstract term categories. For example, by comparing different concepts, the researcher found that the concepts of “creating a

Table 1: Demographic characteristics of the participants

Composition of Participants		Number	Relative frequency percentage
Sex	Male	11	73
	Female	4	27
Status	Academics	11	73
	Practitioners	4	27
Field of Study	Entrepreneurship	5	23
	Management	4	27
	Health field (medicine)	6	40
Work experience	Less than 10 years	2	13
	10 to 20 years	9	60
	More than 20 years	4	27
Level of Education	Master degree	10	67
	Ph.D.	5	23
Total Number	15		

Table 2: The main themes, sub-themes and frequency

Themes	Subthemes
Regional laws, regulations and governing factors (policies)	Determining macro health tourism policies
	The need for special attention to reform laws and remove barriers to health tourism entrepreneurship
	Formulating formal process guidelines to attract health tourists
	Facilitating the entry and exit of foreign health tourists legally
Regional Financing (Regional Financial Resource Management)	Encouraging investment in health tourism
	Establishment of a financial fund in health tourism
	Creating tax exemptions for investment in this area
	Providing training and access to information along with facilitating the entrepreneurs' access to financial capital
Regional -cultural	Creating a positive attitude in society towards health tourism entrepreneurship (through national media)
	Cultural reforms to value health tourism entrepreneurship
	Supporting, encouraging, and celebrating successful entrepreneurs in the field of health tourism
	Cultural support for risk-taking, creativity and innovation in the field of health tourism
Effective institutions (universities and educational centers)	Redesigning and re-engineering the structure and role of medical centers, especially medical universities to encourage entrepreneurship in the field of health tourism
	Efforts of educational centers and universities in training human resources to deal appropriately with health tourists
	Activities of educational centers and universities to teach English, Arabic and Kurdish to doctors to contact appropriately with health tourists
	Transformation in the role of medical universities and leading these centers towards entrepreneurship
The status of Regional market	The need to pay attention to the continuous presence in the virtual world and specialized exhibitions to introduce the potentials and capacities of the province in the national and international arena
	Supervising and controlling advertising marketing companies in other areas
	Designing websites and updating them to access distribution channels
Human resources (human capital) initiatives	Entrepreneurship education in universities and training centers, especially medical universities
	The need to pay attention to the development of entrepreneurial skills in the field of health tourism
	Creating a professional spirit among health professionals
Infrastructure mechanisms	Increasing access to domestic and foreign markets
	Establishing mechanisms to facilitate the entry and exit of foreign tourists
	Increasing access to domestic and foreign markets

market information system”, “organizing brokers and intermediaries”, and “establishing a classification index of services of hospitals and medical centers” refer to one thing. One of the components of the entrepreneurial ecosystem is the “market” dimension. Other categories and concepts were extracted in the same way. After reviewing the codes and their

classification, 81 final codes were identified and divided into 25 concepts. These concepts were also organized into seven categories.

Axial coding findings: In total, the frequency of the total final codes extracted from 15 research interviews in the qualitative stage was equal to 81 codes. In the initial part of this research (qualitative

analysis), according to the interviews conducted and based on the coding process, the seven main factors of laws, regulations and governance factors affecting the creation of EE of health tourism (C1), Financing and investment in creating a health tourism EE (C2), the role of culture in creating a health tourism EE (C3), influential institutions (universities and training centers) in shaping a health tourism EE (C4), regional market factors effective in creating EE of health tourism (C5), the role of human capital in creating the EE of health tourism (C6), and the efficient infrastructure in creating the EE of health tourism (C7) were identified as the key components of the EE in this field.

For the validity of the interviews, confidence was created in the interviews. The results of the interviews were reviewed to minimize the interview biases. Also, interview questions were designed for increasing the reliability, detailed note-taking which were coded by multiple coding. It was used to collect information about the structural-interpretive method for health tourism experts and entrepreneurs. To collect data for the ISM method and Dematel, we designed seven factors found in the pairwise comparison in a questionnaire containing 42 questions.

In ISM, a questionnaire was designed. Then, the experts were asked to determine the type of relationship between the desired factor in terms of effectiveness and impact. Using symbols such as O, X, V, A, we asked them to determine the two-way relationship between these factors. Finally, a Cartesian coordinate system was drawn, and a graphical diagram was obtained with the help of the obtained relations. Besides, an expert in the development of questionnaires was

to quantify the effect of factors on each other quantitatively by a spectrum of 5. The questionnaire of the ISM and Dematel was distributed among 15 experts and specialists in this field.

Moreover, the second stage of the research included conducting a qualitative field study and presenting a health tourism model. At the beginning of this phase, a protocol for conducting research interviews with participants was set up. After the protocol was developed, research interviews were performed with the participants. These interviews continued until they reached theoretical saturation. After terminating data collection, the process theory, which was developed by continuous comparison during the interviews, was revised and modified. The model was also returned to the participants to consider their corrective views on the model. After finalizing the theory, the comparison of this model

with the literature and writings of previous research was made. The second phase of the research was completed by writing the research report and concluding. Thus, in the second part of this study, we sought to prioritize and level the components of health tourism EE; the ISM has an acceptable ability in this field. To obtain the relationships and levelling of the factors, first, using seven pivotal factors, the effectiveness of the health tourism EE components, we formed an interpretive structural self-interaction matrix to study the problem variables in pairs.

The sampling method was qualitative and quantitative in a targeted manner using the snowball method to select the participants (due to the specialization of the field). The qualitative section was done with 15 semi-structured interview experts, and finally with the interview of the last person, theoretical saturation was achieved. Then, the main and secondary factors were identified using open and axial coding method. The Dematel method was used to determine the intensity of quantitative relationships (obtained from ISM) between the components. The reason for the simultaneous use of the two ISM and Dematel methods is that the combination of these two methods is somewhat complementary to each other and a better understanding of the relationships between the factors is obtained. At first, to check the interview's validity, seven experienced professors approved the subject of the research. At the stage of compiling the interview questions, three professors approved them in the field of entrepreneurship and health tourism. Moreover, after a few repetitions with 12 final approved questions (average), more than 80% of the final protocol questions were approved by these experts, in which it is above 70%, so the interview protocol had a high validity. Two professors also approved the other steps, such as analysis and reporting of entrepreneurship and health tourism. Besides, the experts interviewed also confirmed the model and acknowledged the validity of the research questions.

Results

The first part (qualitative phase) according to the interviews was conducted and based on the coding process, seven main factors were identified as key components of the EE: 1-Laws, regulations and governance factors affecting the creation of EE health tourism (C1); 2-Financing and investment in creating the EE of health tourism (C2); 3-The role of culture in creating the EE of health tourism (C3); 4-Influential institutions (universities and educational centers) in shaping the EE of health tourism (C4); 5-Influential

regional market factors in creating the EE of health tourism(C5); 6-The role of human capital in creating the EE of health tourism(C6); and 7-Infrastructures effective in creating the EE of health tourism in Iran (C7). The themes and sub-themes are shown in Table 2.

Furthermore, in the second part, this research aimed to prioritize and level the components of Iranian health tourism EE; ISM has an acceptable ability in this field. To obtain the relationships and levelling of factors and the effectiveness of the components of the health tourism EE, we formed a structural-interpretive self-interaction matrix using seven pivotal factors to examine the problem variables in pairs. Accordingly, a questionnaire was designed according to Table 3 and sent to academic staff and experts in the field of study. Then, the completed questionnaires were given to a group of four experts in the field of health tourism. Thus, houses that were common in the questionnaire were transferred to the new questionnaire by this group. The relationship was also determined for the differences that existed, and finally new relationships were obtained, which can be seen in Table 4.

To match the access matrix, after the initial access matrix was obtained, we obtained the final access matrix by entering transferability and compatibility in the variables relationships. Accordingly, the following formula shows the method of determining the access matrix using the proximity matrix. First stage $A+I$ Second Stage $M=(A+I)^n$

where **A** is the initial achievement matrix, **I** is the identity matrix, and **M** is the final achievement matrix. Matrix power operation must be according to

Boolean rule, according to which:

$$1+1=1 \text{ and } 1 \times 1=1$$

At this stage, the internal consistency of the factors must be established. Factor compatibility refers to examining the relationship of elements in the initial access matrix, and if the relationship between the factors can be, for example, according to the initial achievement matrix, there is no communication between the effective institutions (universities and educational centers) and the effective infrastructure, and there is zero in the corresponding house. Generally, according to the rules, that relationship is added to the matrix.

However, there is a relationship among the laws, regulations and governing factors and influential institutions on the one hand, and among the laws, regulations and governing factors and infrastructures on the other hand. Therefore, you can conclude that there is a relationship between influential institutions and infrastructure. For this reason, we put number 1 in the relevant box with the * sign to specify this relationship. In the same way, the relationship between other elements was examined. The result can be seen in Table 5). As shown in this Table, the numbers marked *indicate that they have been zero in the achievement matrix and have taken the number one after matching.

To determine the level and priority of variables, we need to separate the components of the structure into different levels in order to identify the relationships between them in a hierarchy; the levels obtained are shown in Table 6.

The quantitative analysis method was used to

Table 3: Relationships obtained from the ISM questionnaire

No	Components of the Health Tourism Entrepreneurship Ecosystem	1	2	3	4	5	6	7
1	C1		V	X	X	V	X	V
2	C2			O	O	V	V	V
3	C3				A	O	O	V
4	C4					O	V	O
5	C5						A	A
6	C6							A
7	C7							

Table 4: The access matrix

Ecosystem components	1	2	3	4	5	6	7
C1	1	1	1	1	1	1	1
C2	0	1	0	0	1	1	1
C3	1	0	1	0	0	0	1
C4	0	0	1	1	0	1	0
C5	0	0	0	0	1	0	0
C6	1	0	0	0	1	1	0
C7	0	0	0	0	1	1	1

Table 5: Access matrix after compatibility

Ecosystem components	C1	C2	C3	C4	C5	C6	C7	Influence
C1	1	1	1	1	1	1	1	7
C2	0	1	1*	1*	1	1	1	6
C3	1	0	1	1*	1*	1*	1	6
C4	0	0	1	1	1*	1	1*	5
C5	0	0	0	0	1	1*	1*	3
C6	1	0	0	0	1	1	1*	4
C7	0	0	0	0	1	1	1	3
Dependence	3	2	4	4	7	7	7	

Table 6: Determination of the levels of components

Ecosystem components	Set of input	Set of output	Set of intersection	Level
C1	1-2-3-4-5-6-7	1-3-6	1-3-6	3
C2	2-3-4-5-6-7	1-2	2	3
C3	1-3-4-5-6-7	1-2-3-4	1-3-4	2
C4	3-4-5-6-7	1-2-3-4	3-4	2
C5	5-6-7	1-2-3-4-5-6-7	5-6-7	1
C6	1-5-6-7	1-2-3-4-5-6-7	1-5-6-7	1
C7	5-6-7	1-2-3-4-5-6-7	5-6-7	1

Table 7: Intensity and effectiveness of the components of health tourism entrepreneurship ecosystem

Ecosystem components	r+d (Impact)	r-d (influens)
C1	6.702	0.496
C2	5.916	0.022
C3	5.786	-0.008
C4	5.355	0.151
C5	5.112	-0.49
C6	5.161	-0.029
C7	4.328	-0.142

quantify the interactions between the factors. In this method, a matrix is used to show all direct and indirect relationships and influence the factors. Assuming that n factors affect the desired system, a measurement system must be created that measures the causal relationships between the factors. Measurement levels can be represented by five levels from 0 to 4, with zero showing lack of effectiveness.

Moreover, effectiveness number 1 shallow level of impact, number 2 low level of impact, number 3 high level of impact, and number 4 very high level of effectiveness show the relationship and level of impact between the factors using the opinions of experts in a square matrix of direct relationships. It is obtained between the factors. In this matrix, each element x_{ij} represents the level of influence of element I on element j, and in the next step, according to the normalization coefficient, the matrix of normalized direct relations is obtained. The normalization coefficient is equal to the maximum of the maximum row sum and the maximum column sum of the mean matrix obtained from the following equation.

$$(N=\max) \max \sum_{j=1}^k x_{ij} \cdot \max \sum_{i=1}^k x_{ij} \quad 1 \leq i \leq k \quad 1 \leq j \leq k$$

In the next step, according to the following formula, the matrix of direct and indirect relations (T) is obtained.

$$T = \lim_{k \rightarrow \infty} (Z^1 + Z^2 + \dots + Z^k) = z(1 - z)^{-1}$$

Finally, according to the variables, the final achievement matrix was extracted from ISM, and the intensity and impact matrix of Table 7 from Dematel, modelling and analysis of the interactions of the factors affecting Iranian health tourism entrepreneurship, based on Dematel methods and interpretive structural extraction, as shown in Figure 1.

Discussion

This study aimed to identify and prioritize the medical and healthcare tourism EE components in Iran with an ISM approach. In this regard, in a qualitative stage, we examined the experiences of those who are present in the academic and executive fields related to EE and

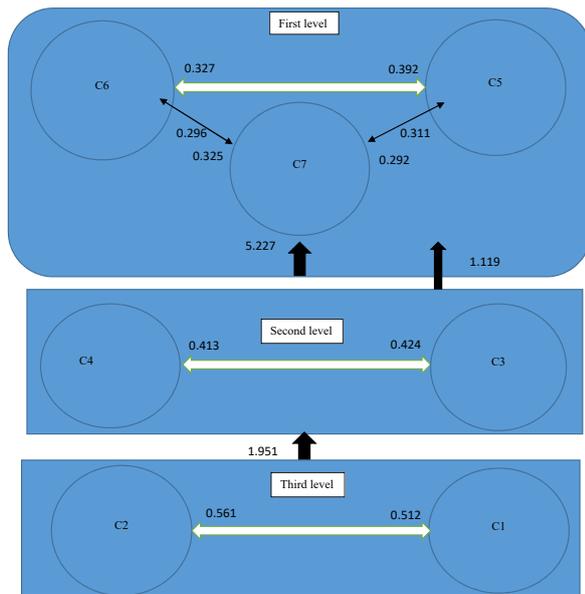


Figure 1: Components of the health tourism entrepreneurship ecosystem model

health tourism and have experienced events related to this field. Based on the results of this study, the health tourism EE was designed in seven main dimensions including laws, regulations and governance factors, financing and investment, the role of culture, influential institutions (universities and educational centers), influential regional market factors, the role of human capital and effective infrastructures.

According to Figure 1, the components of laws, regulations, and financing at the third level had the most significant impact on health tourism's entrepreneurial ecosystem, followed by cultural factors and influential institutions at the second level in the lower category and finally market components, human capital. Furthermore, the infrastructure was level one. According to Table 5, the components are divided into three categories in terms of influence and dependence: 1-The main element includes laws-regulations-governance factors and financing in the health EE. These components have a strong influence on the entrepreneurial ecosystem but with weak dependence. Key elements act as the foundation stone of the model and must be emphasized in the first place to start the system.

2-Linking element: cultural factors, influential institutions (have a relatively high level of influence and low dependence). Link elements are non-static because any change in them can affect the system, and ultimately system feedback can change these variables again.

3- Related elements: human capital, market factors, and infrastructure (have low influence but they are highly dependent).

Accordingly, to influence health tourism's entrepreneurship, the essential measure is to focus on the model's key elements. Factors of laws, regulations, and financing can determine the general direction of health tourism entrepreneurship; also, these factors can cause the success or failure of health tourism policies. Given the importance of governance factors and financing, any change in these factors will cause fundamental changes in other sectors and how other factors will affect health tourism entrepreneurship formation. At the next level, we have the factors of culture and influential institutions as a linking element that is both influenced by independent elements and is dependent on it; the other hand, it has a high affect structure. The next level elements are also highly dependent on the previous levels and are affected by them. To influence the entrepreneurial ecosystem, governance, and financing factors should be guided and used through cultural factors, influential institutions, and human capital to influence market characteristics and infrastructure frameworks. It is better to act on elements that have a strong influence and low dependency. Laws, regulations, and governing factors have high influence (number 7) and low dependence (number 3), so to make a change, it is better to focus on this factor. The next level is financing and investing, which has a great influence (number 6) and very low dependence (number 2), which, like other variables of rules and regulations, has a high share in influencing other categories, and with intensity and extent. Less affected than other variables, the next levels' elements are also highly dependent on the previous levels and are affected by them. To influence the entrepreneurial ecosystem, while considering all the factors as a whole system, we must consider the intensity and severity of penetration and dependence of the components. Furthermore, the basis for the formation of entrepreneurship should be provided in Iran's health tourism sector.

In many studies, the entrepreneurial ecosystem has been studied, but there is not any research on health tourism EE in Iran.

Conclusion

Entrepreneurial ecosystems are receiving growing scholarly attention. Despite the increased interest in these phenomena, prior work has examined the topics in isolation. Based on the results, the entrepreneurial ecosystem has a significant role in the success of medical and healthcare tourism

can play a critical role in the success of the ecosystem. It is also argued that medical and healthcare tourism can influence the ecosystems in which they

Table 8: Comparison of research results with previous research (source: research findings)

Themes	Researchers' studies
Regional laws, regulations and governing factors (policies)	Previous research has not addressed this component.
Regional Financing (Regional Financial Resource Management)	Miller & Acs (2017); Rideout and Gray (2013)
Regional –cultural dimension	Durst & Poutanen (2013); Isenberg (2010, 2011); Arruda et al., (2015); Fuerlinger et al., (2015); Spigel, (2017); Fetters et al., (2010)
Effective institutions (universities and educational centers)	Miller & Acs (2017); Fetters et al (2010); Moriss et al, 2017; Gabe (2013); Etzkowitz (2004)
The status of Regional market	Previous research has not addressed this component.
Human resources (human capital) initiatives	Rideout and Gray (2013)); Fuerlinger et al., (2015)
Infrastructure mechanisms	Previous research has not addressed this component.

are founded in several ways. Table 8 lists some of these studies and characterizes the innovation of this research in the light of three components (regional laws, regulations and governing factors (policies), the status of regional market, and infrastructure mechanisms). Previous research has not addressed these factors. As Table 8 shows, these components are at the international analysis level and previous studies have not addressed. Thus, this research was conducted at the regional level, but other studies were done at a national, international, and global level. Also, this research is a microanalysis. The development of healthcare tourism EE needs preparation of all dimensions and parts of the EE. Therefore, all institutions, organizations, and those involved are coherently based on the systematic approach with all available training potentials to promote and develop it in all health and medical centers. Since entrepreneurship of health centers depends on forming an efficient EE, it should be followed as the main aim and topic in the Ministry of Health and Medical Education macro-policies. According to the results of this study and based on a qualitative and exploratory study, health tourism EE has seven components. The results showed that the promotion of EE culture at the University of Medical Sciences is an internal factor. However, it will play an important role in creating an entrepreneurial ecosystem in medical and healthcare tourism (as an example of society) and developing an individual entrepreneurial culture. Entrepreneurial culture in the university environment will play a key role in improving the readiness for the university EE development. Also, improving university policies and laws, creating and expanding the infrastructure needed to create a university EE, improving the level of policy and management of university financial resources, and increasing the intensity and level of research and development in the university ecosystem have a significant impact on creating an entrepreneurial

ecosystem on healthcare tourism. The new approach presented in the healthcare tourism system based on the new model of EE of the university of medical sciences presented in this article will be useful for all managers of the Ministry of Health and Medical Education, the heads and boards of universities and researchers interested in developing healthcare tourism in Iran and other developing countries. Therefore, it can be said that the development of healthcare tourism EE in universities of medical sciences depends on improving the dimensions and components of the Eisenberg EE model and paying particular attention to economic components, government participation and empowering in terms of awareness and education.

In the study area, it can pave the way for educational and cultural development. Accordingly, the most significant axial factors are level three factors, level two factors, and level one factors. Eventually, according to the results of this study (dimensions of health EE) and previous studies, the following suggestions to increase the entrepreneurship of health centers are recommended:

1- Since laws, regulations, sovereignty factors, and financing are fundamental elements to guide the entrepreneurial ecosystem towards adaptation to new environments, it has a significant effect on entrepreneurship development in this field, so Ministry of Health and Medical Education of Iran, as the guardian of health tourism, can benefit from these factors in order to get their achievable goals.

2- Based on the results obtained from the Dematel method (Table 7), managers, and experts can focus on essential elements and prioritize them, providing a platform to solve the problems in a better way; in other words, considering the classification of components into two categories of effective and influential factors, we need to pay special attention and focus on the effective factors to provide the base and conditions to realize influential factors.

3-Generally, according to the results of ISM method, Table 6 shows that most of the elements are integrated with great connections and effects. There are no wastes or less essential elements. Any deficiency or fault in an element causes the final result, the entrepreneurial ecosystem performance improvement can be disordered. This subject should be observed systemically, and all aspects should be taken into account.

4-The most apparent opportunity for future scholars examining EE and healthcare tourism intersection is to empirically verify the components proposed in this paper.

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