

Designing a Development Model for the Healthcare System in Iran

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ARTICLE INFO	ABSTRACT
<p>Article type: Original Article</p> <hr/> <p>Article History: Received: 10 Mar 2023 Accepted: 15 Apr 2023</p> <hr/> <p>Key words: Development Model, Healthcare System, Iran</p>	<p>Introduction: Standards improvement for public health promotion demands healthcare system development (HSD) in all nations. Iran works toward improving its position among the developing countries. Therefore, the present study aimed to design a development model for the healthcare system in Iran.</p> <p>Materials and Methods: This study with a mixed-methods research was in 2020-22 fulfilled cross-sectionally. Utilizing the grounded theory in the qualitative phase, the opinions of the top-level managers and policy makers of the Ministry of Health, and the faculty members at the universities of medical sciences across Iran were elicited (n=21). The data were collected through a researcher-made questionnaire with the sample size of 217 top-level and middle managers affiliated to Khorasan Razavi University of Medical Sciences in Iran. The model was evaluated using the structural equation modeling (SEM) and the LISREL software package.</p> <p>Results: Analyzing the results of the data comprised of 14 categories and 40 concepts within 6 dimensions, including causal factors, governing system's determination to develop the healthcare system, contextual/environmental conditions, intervening factors, strategies, and outcomes. The development model was further validated by the SEM, and confirmed via the goodness of fit index (GFI=0.97).</p> <p>Conclusion: The healthcare system in Iran was introduced among the most complex systems across the world. Therefore, designing and implementing a development model for the healthcare system in Iran requires much attention and willpower among policymakers and top-level managers in the governing system, and more emphasis on intersectoral collaboration at the highest political levels.</p>
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Introduction

Living a healthy, productive, and high-quality life, together with proper lifespan, with no comorbidities and disabilities, are among the rights inherent to all human beings, which must be met by the governing systems, since they are the preconditions for development in all nations (1). The right to health is also a fundamental part of the human life, as a capability adding more value. Accordingly, health implies that the basic public needs, including emotional, health-related, nutritional, and sociocultural ones ought to be realized, from the stage of embryonic development to old age (2).

Today, the healthcare system is one of the main indicators of development and social welfare in each country. In other words, accelerating progress in medical technologies, population growth, major changes in lifestyles toward industrialization, more access to tangible and financial assets, higher levels of public health awareness, and emergence of new diseases, all highlight the weight of the healthcare system in all nations (3). In view of that, the success rate of Iran's National Development Plan depends on achieving the healthcare system goals. The healthcare system is thus so important that good health indicators lead to the human and social development, and ultimately higher progress in each country (4).

The healthcare systems operating across the world are undergoing the pressure of the public opinion to improve their own performance, since they are experiencing numerous problems, such as a sharp rise in expenses, safety considerations, healthcare quality and equity issues, population aging, chronic diseases, and societal expectations, which have all turned into political concerns in most countries over recent years (5).

In this sense, there is a serious gap between such nations (6); in other words, the healthcare services in developed countries seem considerably up to standard, but developing nations devote a smaller share of their facilities and resources to this sector for various reasons, e.g., no effective planning in national healthcare programs as well as inefficient healthcare services delivery. Hence, all nations are seeking to reach the

healthcare system development (HSD) and above all more innovations in this sector to provide more public access to services, justice, quality, and fair payments (7). Generally, explaining the comprehensive views regarding development and healthcare can help integrate the socioeconomic and environmental considerations (8).

Developing a healthcare system model and being responsiveness to the public needs accordingly requires further planning via the establishment of all-inclusive models (9). In this respect, designing a development model for the healthcare system as one of the key sectors in a country calls for basic research and planning (10).

For example, Sepherdoost reflected on the HSD with regard to the healthcare indicators affecting the fair distribution of specialized physicians, urban/rural healthcare facilities, urban drainage and sewage systems, and community healthcare centers in all provinces in Iran (5).

On the word of Motaghi, moderating inequity to develop the healthcare system heavily depended on correct information about the indicators in this sector, mainly divided into three subcategories, i.e., life expectancy, access to healthcare services, and prevention and environmental health (11).

As well, Etebarian et al. demonstrated that the model for sustainable HSD consisted of socioeconomic and environmental dimensions, along with 12 components and 86 indicators (12).

On the subject of the delivery of healthcare services in the developing nations and the inevitability of reforms, Shadpour also argued that the reforms in the healthcare systems of the developing countries were grappling with some inconsistencies, such as no efficiency in providing healthcare services by the public sector, the lack of technical-managerial clarity, strategic measures to reform the healthcare system, and removal of decentralization in the management structure from the top to first-line levels (13). Therefore, evaluating the levels of development is currently among the main goals set by regional and national health system policymakers around the world. As one of the most keywords acknowledged in the literature of socioeconomic progress, development has been so far described many

times, since problems cannot be prioritized and solved by policymakers without having a clear picture of this phenomenon (14).

Sustainable HSD also requires some strategies to pave the ground for this purpose, because underdeveloped healthcare systems have some limitations that undermine the effectiveness of public interventions and international models related to the access to and use of healthcare services for patients and clients (15). The HSD also improves the functions in all countries in a sustainable manner, so a comprehensive development model for the healthcare system and the empowerment of its components, taking account of systematic thinking, helps boost the health system performance (16).

For all that, the healthcare system in each country is drawn against various challenges and priorities, but there is no comprehensive development model. As a developing nation, Iran needs greater attention in order to enhance its position in the world, because the HSD is a precondition for development in other sectors (17). According to Imam Gholipour et al. Iran ranked 10th among 24 nations in terms of meeting the healthcare development indicators. In this line, United Arab Emirates (UAE), Jordan, and Qatar had the best position; but Kazakhstan, Azerbaijan, and Afghanistan were the worst (18). Against this background, the present study aimed to design a development model for the healthcare system in Iran with a strategic view. There were also attempts to achieve the strategic elements and dimensions of this development model in Iran, elucidate the conditions for the HSD, outline the development strategies and outcomes, design the final model, and ultimately validate it by the healthcare system experts in Iran.

Materials and Methods

The applied study with a mixed-methods research design, integrating the qualitative and quantitative data, was fulfilled in a cross-sectional manner in 2020-22. Accordingly, a qualitative approach, namely, the grounded theory (GT), was implemented in designing the conceptual model, and a quantitative one, viz., the structural equation modeling (SEM) was employed to explain it.

In the qualitative phase, the statistical population included the top-level managers of the Ministry of Health and Medical Education (MOHME), the faculty members at the universities of medical sciences, and the eminent consultants working in the fields of healthcare management and policymaking (n=21), selected purposively to attend the semi-structured interviews, and then undergoing snowball sampling, to meet maximum variation until saturation was reached.

During the quantitative phase of the study, a researcher-made questionnaire was distributed among 220 top-level and middle managers affiliated to the Khorasan Razavi university of medical sciences and their schools in Iran, who were selected by simple random sampling. Finally, a total number of 217 questionnaires were collected after revisits and follow-ups. Of note, the questionnaire consisted of 42 items, designed based on the initial conceptual model. The answers were further developed based on a five-point Likert-type scale from completely agree=5 to completely disagree=1.

Prior to the study, the participants were assured about its objectives and the confidentiality of their data as well as anonymity. The participants' consent to be included in the study was further obtained.

To validate the interviews in the qualitative phase, the technique presented by Lincoln et al. was utilized in which credibility was the same as internal validity, transferability was comparable with external validity, reliability was equivalent to consistency, and confirmability was like objectivity in quantitative research (19). Therefore, member checking was employed to evaluate the credibility. For this purpose, the interview findings were given to the participants and they finally confirmed the interpretations. To measure transferability, the research process from sampling to the interpretation of the findings was described by the researchers and a sample of the interview transcripts was provided, so that the readers could evaluate the external validity of the data. To check the reliability or consistency of the interviews, the test-retest reliability and intra-subject agreement were exploited. To calculate the

test-retest reliability, two weeks after the initial coding by the researchers, the coding was repeated (20) and its value was equal to 0.84. To shed light on the credibility of the interviews, using the inter-subject agreement, a faculty member of healthcare management and policymaking was invited to recode three interviews that had been already coded by the researchers. The reliability value of the interviews, evaluated using the intra-subject agreement in the present study, was equal to 0.81. In terms of the confirmability of the interviews, there was much attempt to extract the semantic units from the data. In this case, the research findings were submitted to faculty members and experts in the fields of healthcare management and policymaking, and confirmed.

In the quantitative phase of the study, face validity, construct validity, the confirmatory factor analysis [CFA], and content validity were used to check the validity of the research questionnaire. To examine the face validity of the questionnaire, it was first given to the healthcare system policymakers and experts, and then settled. For the content validity, the content validity ratio (CVR) was also obtained through the following formula:

$$CVR = \frac{n_E - \frac{N}{Y}}{\frac{N}{Y}}$$

For this purpose, three options were placed in the company of each questionnaire item, including "necessary", "unnecessary", and "useful but not necessary". In this equation, n_E refers to the number of experts answering the "necessary" option, and N represents the total number of experts in this phase (21). According to the number of experts, the items whose CVR was higher than 0.62 were accepted.

To calculate the reliability of the researcher-made questionnaire in the present study, Cronbach's alpha coefficient and composite reliability were used. In this respect, the questionnaire items had a high internal consistency and assumed suitable for measuring the desired index if Cronbach's alpha coefficient was higher than 0.70. Of note, Cronbach's alpha coefficient here was 0.78.

Since Cronbach's alpha coefficient was a conventional statistic for measuring reliability, composite reliability was additionally exploited. If the composite reliability value for each construct was above 0.70, it suggested the appropriate internal consistency of the questionnaire, which was 0.70 in the present study.

Moreover, semi-structured interviews were conducted in the qualitative phase to collect the data. To this end, the researchers visited the experts of the MOHME as well as a number of universities of medical universities across Iran, and interviewed them. The interview, lasting 40-50 minutes on average, was performed at their workplace in a calm atmosphere with no disturbances. At last, 11 interviews were completed with top-level managers and experts, and recorded. To prepare the interview questions, the theoretical background of the study subject was first researched, and then the final questions were established. Some questions were also raised after the initial ones based on the information provided by the participants during the interviews, to clarify the main research question, i.e., the HSD.

In general, two different methods were used for data analysis, based on two main phases. In the qualitative phase, the GT was operated to design the development model for the healthcare system in Iran. The coding stages accordingly were open coding, axial coding, and selective coding. In the first stage of analyzing the qualitative findings, the open coding, the researchers extracted the concepts in the interview transcripts, and manually coded them after conducting each interview. In the second stage, axial coding was performed, with an attempt to form categories by reflecting on the identified concepts and distinguishing their similarities and differences from each other, and placing the same concepts into general categories. In the third stage, namely, the selective coding, one of the categories was researched as the core category, and other categories were theoretically linked to it. To fit the model, the SEM and the LISREL software package were utilized, and the data were analyzed at two descriptive and inferential levels, using the SPSS Statistics V19.0 and the LISREL

software packages. The SEM was also exploited to test the research model. Of note, the SEM is a specific causal structure between a set of latent and observable variables, which can be investigated with much focus on the relationships of the latent variables with each other and the measurement items of each latent variable with the corresponding one (22). To provide evidence that the elicited concepts were well measured, the measurement model or the CFA were operated. As the combination of both models was implemented here, the CFA was used both to confirm construct validity and one of the stages of the SEM.

The participants' inclusion criteria in the qualitative phase were identifying the structure, main processes, goals, and plans of the MOHME, being competent in the field of the HSD, having knowledge of the theoretical and practical foundations of the HSD, conducting research or teaching in this field, and having at least ten years of work experience in the healthcare system in Iran. Such criteria in the quantitative phase were being employed at the level of the university headquarters, hospitals, and healthcare networks of Khorasan Razavi University of Medical Sciences, Mashhad, Iran, showing interest in the study subject, and having at least two years of work experience and holding executive management positions in the healthcare system. Quantitative phase were being employed at the level of the university headquarters, hospitals, and healthcare networks of Khorasan Razavi University of Medical Sciences, Mashhad, Iran, showing interest in the study subject,

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Results

As per the research methods, the results were presented in two parts. In the first part, the data were analyzed in the qualitative phase based on the GT. In the second part, the data in the quantitative phase were measured to find the fit of the conceptual model in detail.

Most participants in the qualitative phase were male, placed in the age group of over 50, with the management experiences in the healthcare system for 10-20 years, having specialty in medicine and the fields of healthcare service management, health policymaking, and health economics as well as basic health and medical sciences.

Upon conducting each interview, the researchers also extracted and coded the concepts in their transcripts by reviewing them several times.

In total, 130 initial concepts were extracted from 11 interviews, and 38 final concepts were identified after examining and putting them together as well as removing the duplicate ones.

All through the axial coding, some categories were accordingly created, and the same concepts were placed under them, in accordance with their similarities and differences. This process then resulted in the identification of 14 main categories, illustrated in Table 1, along with their associated concepts.

Table 1: Identified categories and their associated concepts

No.	Category (Axial coding)	Concept (Open coding)
1	Public concerns about health	People's attention to health
		A culture of public exercise
		A culture of self-care
2	Higher quality of life in a community	Improved quality of healthcare services
		Better standards of living
		Higher quality of life
		Positive effects in life
3	GDP per capita growth	Strengthened infrastructure for GDP per capita
		Positive relationship between the HSD and GDP
4	Synergy in the executive, legislative, and judicial branches for the HSD	Synergy in the executive, legislative, and judicial branches in HSD
		Coordination and attention to public health by the executive, legislative, and judicial branches
5	Ethics in decision-making in the healthcare system	Ethical decision-making
		Preference for national interests over personal ones
		Evidence-based policymaking
		Foreign investor attraction

6	Strategies developed for attracting domestic and foreign investments in the healthcare system	Exploitation of the private sector capacity Health tourism Attractions for domestic and foreign investors
7	Adoption of models from modern healthcare systems	Documentation and use of others' experiences Benchmarking modeling of the best in the health industry and businesses Benchmarking models from modern healthcare systems
8	An endowment culture in the healthcare system	Capacity-building and attention to social resources Use of donors' capacity Expansion of a culture of endowment in the healthcare system Opportunities for the healthcare system for a culture of nationwide endowment
9	Top-level managers' commitment to the HSD	Practical commitment Verbal commitment Belief in systematic thinking
10	Governing system's determination to develop the health system	The HSD as a national and comprehensive attempt Coherence and coordination of the whole governing system
11	Annual budget for the health system	Allocation of appropriate financial resources Increase in budget and credits from the MOHME Utilization of fund tax allocation for the health system
12	Upstream laws for the healthcare system	Amendment of burdensome rules and regulations Evaluation of laws and corrective suggestions Identification of challenges facing the HSD
13	Increasing levels of public satisfaction	Improved public health Responsiveness to public needs
14	Harmonization and coordination of different ministries with the MOHME in the HSD	Coordination between the objectives and strategic plans of the MOHME departments Coordination between different ministries

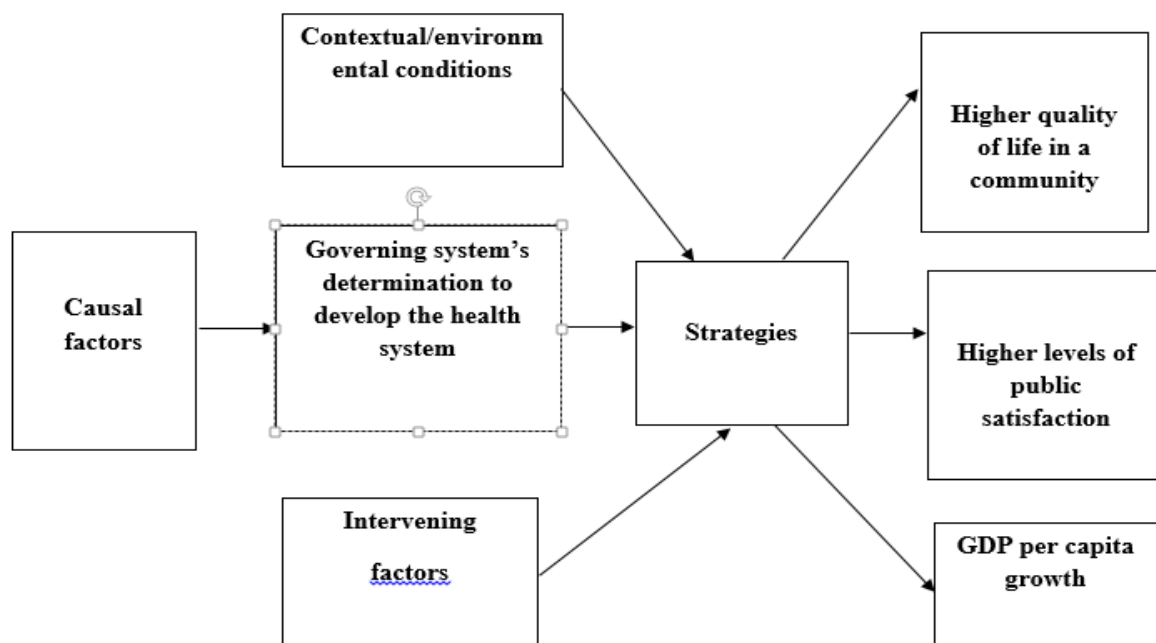


Fig 1: Conceptual model of the study

In the quantitative phase of the study, the largest part (80.6%; 175) of the participants out of 217 top-level and middle managers affiliated to Khorasan Razavi University of Medical Sciences, Mashhad, Iran were male, in the age group of 35-50 (47%; 102), with the management experience in the healthcare system for 5-15 years (48.8%; 106).

According to the questionnaire items during the quantitative phase, the factors affecting the HSD from the participants' views and the key measure of central tendency (mean), the measures of dispersion (variance and standard deviation [SD]), and those of distribution indicators (skewness and kurtosis coefficients) were calculated (Table 2).

Table 2: Descriptive results from the quantitative phase of the study

Items and variables	Number	Mean	SD	Skewedness		Kurtosis	
				SD error	Statistic	SD error	Statistic
Causal factors	217	3.05	1.28	0.11	-0.11	0.22	-1.16
Governing system's determination to develop the health system	217	3.96	1.07	0.11	-0.74	0.22	-0.12
Contextual/environmental conditions	217	3.50	1.11	0.11	-0.38	0.22	-0.74
Intervening factors	217	3.50	1.17	0.11	-0.54	0.22	-0.62
Strategies	217	3.61	1.04	0.11	0.51	0.22	-0.37
Outcomes	217	3.42	1.10	0.11	-0.49	0.22	-0.46

As presented in Table 2, all the factors shaping the HSD from the perspectives of the top-level and middle managers of Khorasan Razavi University of Medical Sciences, Mashhad, Iran were medium to high.

To determine the normality or non-normality of the descriptive data, and whether the parametric or non-parametric statistics should be utilized for their analysis, the Kolmogorov-Smirnov (K-S) test was employed. Considering $p < 0.05$, all descriptive data were found normal, and the parametric tests were operated for their analysis.

During the inferential data analysis, construct validity was further tested using the CFA. Based on the GFI in the CFA and the path analysis, the root-mean-square error of approximation (RMSEA) index was below 8%, the Chi-square/degree of freedom (χ^2/df) index was less than 3, and the non-normed fit index (NNFI), the incremental fit index (IFI), the comparative fit index (CFI), and the GFI were above 90%. The t-value or the significance coefficient of each variable was also larger than +1.96 or smaller than -1.96, demonstrating that the model had a good fit. In addition, the model for casual factors (chi-square= 8035, df= 35, Pvalue= 0.00000, and RMSEA= 0.041), for governing system's determination (chi-square= 0.00, df= 0, Pvalue= 1.00000, RMSEA= 0.000), and also for contextual/ environmental conditions, intervening factors (chi-square= 36.93, df=14, Pvalue= 0.00000, RMSEA= 0.056), strategies (chi-square= 65.65, df= 27, Pvalue= 0.00000, RMSEA= 0.043), and finally outcome (chi-square= 65.65, df= 27, Pvalue= 0.00000, RMSEA= 0.043) in significant model in which all the constituent factors have been confirmed.

Examining the fit of the development model for the healthcare system in Iran included three

parts, namely, measurement model fit, structural model fit, and general model fit. In the measurement model fit, the way the latent variables could be explained by the relevant observable ones (namely, the items) in the questionnaire was investigated. In fact, the measurement model was a part of the general model that contained a variable along with the related items. To check the measurement model fit, three indices of Cronbach's alpha coefficient, composite reliability, and convergent validity were utilized. Cronbach's alpha coefficient as a classical measure was thus used for evaluating the internal consistency of the measurement model fit and the reliability in the SEM. Moreover, internal consistency indicated the correlation between the construct and its associated indicators. The high value of the variance between the construct and its indicators compared to the measurement error of each indicator accordingly showed high internal consistency. Cronbach's alpha coefficient higher than 0.7 was consequently assumed as an acceptable reliability indicator.

Cronbach's alpha coefficient was regarded as a conventional measure for determining the reliability of the constructs and composite reliability was a new tool to do so, but not in an absolute way, according to the correlation between the constructs. If the composite reliability value for each construct was above 0.7, it indicated the appropriate internal consistency for the measurement model, as presented for each variables of development model.

The second criterion tapped for the measurement model fit was the average variance extracted (AVE), representing the correlation between a construct and its indicators, so the

higher this correlation, the better the fit. The AVE value above 0.5 is evidence for acceptable convergent validity.

To measure the structural model fit and the relationship between the constructs in this study, t-values were used, which should be over -1.96 or below +1.96, so that the relationship between the constructs and the research hypotheses could be confirmed at the 95% confidence interval (CI). The relationship between the constructs is displayed in Diagrams 1 and 2.

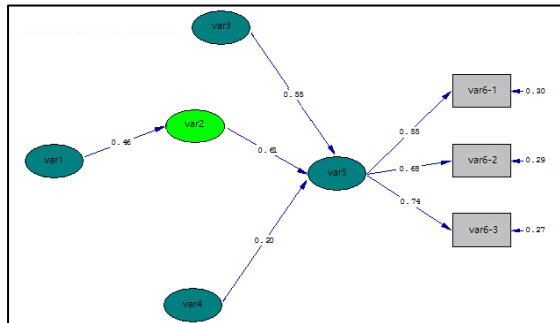


Fig 1: Fitted model in the standard mode

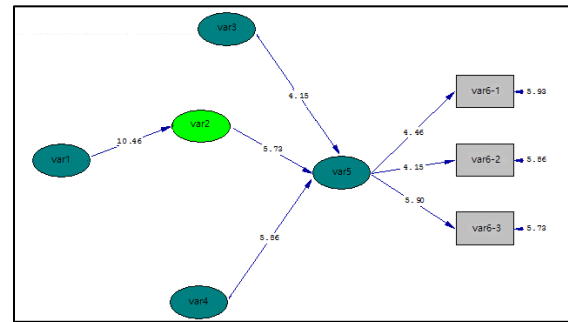


Fig 2: Fitted model in the significant mode

According to the values in Table 3, the RMSEA was equal to 0.069, the GFI was 0.976, the adjusted goodness of fit index (AGFI) was equal to 0.92, the CFI was 0.928, the NNFI was equal to 0.95, and the IFI was 0.93, all with a desirable value in the model fit. In this line, the general results of testing the research hypotheses are given in (Table 4).

Table 3: Fit indices of the conceptual model

Fit indices	Desirable value	Value obtained for the research model
Optimized χ^2/df	<3.00	1.77
GFI	>0.90	0.97
AGFI	>0.90	0.92
Root mean square residual (RMR)	<0.05	0.034
Normed fit index (NFI)	>0.90	0.97
NNFI	>0.90	0.95
IFI	>0.90	0.93
CFI	>0.90	0.92
RMSEA	<0.09	0.069

Table 4: Results of testing the research hypotheses

Hypotheses	Standardized coefficient (Extracted from Diagram 7)	T-value (extracted from Diagram 8)	Results
Causal factors have a significant effect on the governing system’s determination to develop the healthcare system in Iran.	0.46	10.46	Confirmed
The governing system’s determination to develop the healthcare system in Iran has a significant effect on strategies.	0.61	5.73	Confirmed
Contextual/environmental conditions have a significant effect on strategies.	0.55	4.15	Confirmed
Intervening factors have a significant effect on strategies.	0.20	5.86	Confirmed
Strategies have a significant effect on higher quality of life in a community.	0.55	4.46	Confirmed
Strategies have a significant effect on higher levels of public satisfaction.	0.68	4.15	Confirmed
Strategies have a significant effect on the GDP per capita growth.	0.74	5.90	Confirmed

Discussion

According to the study results, the axial phenomenon of the HSD in Iran was formed by the governing system's determination as the core of the research model, and the components of goal-setting, strategic planning, and executive planning were presented for the HSD.

In this line, Rezaei and Shobairi had demonstrated that the governing system could be the stimulus for success in the healthcare systems in many countries, and such nations had thus achieved major developments in this domain (23). Yuan et al. in their survey in China had also found that good governance, including the prioritization of programs by the governing system, the HSD and the establishment of specific healthcare policies in national development plans, the strong commitment by the governing system along with the formation of a hierarchical administrative system, and clear goals accompanied by the ability of local governments to adopt policies and measures with respect to local conditions could support the progress of the healthcare system programs in this country (24).

Damari and Heidari, recruiting qualitative data in the form of interviews and focus group discussions through content analysis, as well as quantitative data collected through a questionnaire and analyzed using the SPSS V21.0 software package, had correspondingly highlighted the challenges of the healthcare system planning in five main categories of goal-setting and planning, structure, resources, processes, monitoring and supervision and also, 20 subcategories, including the requirements of the healthcare system planning, under five main themes (planning, coordination, organizing, financing, and supervision and control) and 19 subthemes (25).

Besides, Saifuddin Asl et al. had shown that 30 indicators out of 74 extracted from the expert opinions had been the key factors in the HSD in Iran, which needed to be continuously monitored (26).

In their study, Harris and Todaro had further stated that paying attention to the principles, meeting the basic needs, and reforming the educational and health-related infrastructure in an efficient

socioeconomic system were the main duties of the government and the executive officials. In this regard, it was necessary to propose programs for eradicating socioeconomic poverty and removing regional disagreements in each country. Therefore, supervision and control assumed by the governing system in order to fulfill the proper distribution of healthcare services was more important than the direct provision of services arising from the government involvement (27). In a survey in Mozambique, Cleary et al. had similarly found that the HSD could help in planning, allocating human and financial resources, and identifying and solving problems related to service delivery, which could lead to better integration, more responsiveness, and high-quality services, affecting public health indicators (28).

In this regard, Guenzi and Pelloni had reported that successful organizations had competent and committed employees, putting much emphasis on customer orientation and organizational productivity, and improving work systems and processes (29). Reflecting on the implementation of the electronic health record (HER) in Switzerland, De Pietro and Francetic had also shown that inadequate organizational and institutional coherence in the healthcare system and no full agreement between the managers in some issues had decelerated the implementation process of this law, which was in line with the findings of the present study in terms of the top-level managers' commitment to develop the healthcare system (30). Gibson et al. had further revealed that the healthcare system decision-makers had been successful in using clinical evidence and economic analysis in setting the priorities, but they were wondering if their decisions were ethically correct. Therefore, the demand for practical approaches to set ethical priorities in the healthcare systems had significantly multiplied in recent years. In this way, Canadian Health System Consulting Center Accreditation assumes that the inclusion of ethical considerations in the decisions related to resource allocation is compulsory (31). In their study, Mahdavi and Mousavi had found no significant relationship between compliance with ethical

considerations along with ethical conditions governing an organization and the decision-making process, implying that the financial managers of governmental executive bodies had the least familiarity with the concepts of science and ethics, and might not even use them in their decision-making, which was in conflict with the findings of current study, viz., the ethics in decision-making in the healthcare system (32). In Kiani et al. there was a general look at the five periods of the past development plans, in which the healthcare system policymakers had shifted their attention from service delivery to governance and leadership. No respect for other functions, especially the health information system from 1979 to 2016 was also evident, which seems still unknown for the healthcare system policymakers in Iran (33).

In this sense, Matsuda had reported that a mechanism had been established to increase cooperation between the Ministry of Health and other key sectors in developed countries. This relationship was mainly obvious between the Ministry of Health and the Ministry of Economy for financing the health system and social and private health insurance organizations. For example, there was an effective cooperation in Japan between the Ministry of Health, the Ministry of Labor and Welfare, and the Ministry of Economy, in providing sufficient financial resources for the health sector (34). In their study, Mossadegh Rad et al. had additionally suggested more communication with the related organizations outside the MOHME, in such a way that the governing system needed to promote public health, simultaneously with the HSD and the development of other sectors, such as education, security, housing, and the environment. In other words, spending in the healthcare sector could be a missed opportunity in other public sectors. These findings were in agreement with the results in the present study, including the harmonization and coordination of different ministries with the MOHME on the same path of the HSD (35).

The findings in domestic and global studies have also confirmed the necessity of much attention to the causal factors affecting the HSD, as emphasized in the present study.

Considering the importance of contextual/environmental conditions in the HSD, policymakers and top-level managers of the MOHME should make the most of participatory governance on the path of development while respecting such conditions.

Based on the findings of the present study, the contextual/environmental conditions of the HSD in Iran included the indicators of public attention to health, public concerns about health, a culture of public exercise, a culture of self-care, capacity-building and attention to social resources, expansion of a culture of endowment in the healthcare system, and the use of donors' capacity. Arabzadeh et al. had also shown that right activities, such as participation in the formulation of organizational goals, the performance feedback system, and the strengthening of creative activities, could make it possible to attract more donors, as highlighted in the findings of the present study, namely, building a culture of endowment in the healthcare system (36).

Regarding the importance of public participation in health promotion, Fredriksson and Tritter had found that if people were involved in health-related issues, the level of public health could be promoted (37). Hajiheydari and Javadian had also stipulated that there was the opportunity to distribute health knowledge in a community and develop mastery in health issues during public participation in the healthcare system. Therefore, social participation should be considered as one of the variables affecting public health and development plans (38), which was in line with the findings in the present study, viz. public concerns about health. Moreover, Pirouzi et al. had shown that the dimensions of communication, independence, and quality of environmental conditions were necessary as the priorities for developing corrective measures to improve accountability in the healthcare system (39).

Mousavi et al. analyzing the relationship between demographic indicators and development in the Iranian provinces had also demonstrated that Tehran and Alborz Provinces were the most developed ones and Sistan and Baluchestan was the most disadvantaged province with respect to the

development rates. In addition, the multiple correlation coefficients had confirmed the relationship between the demographic indicators and the level of development in these provinces. Most changes and developments had been caused by the demographic indicators (population density, urbanization, activity rate, literacy, dependency ratio, number of immigrants, and gender ratio). As well, the path analysis model in this study had established that literacy rate had the highest impact and dependency ratio had the lowest effect; in other words, it had a negative impact on development in the Iranian provinces (40). Bahrami et al. had additionally found that the outcome- and index-oriented model was a tool for evaluating the healthcare system in Iran, which could provide a good opportunity for policymakers to improve performance over time (41). Farmanova et al. in their research on triple goals in Canada, reflecting on the development capacity to achieve better healthcare and costs, which had been qualitatively reported through documents and semi-structured phone interviews with 15 managers of healthcare organizations, had concluded that social factors and behavioral risk factors in health service providers could help in health promotion (42).

Hoffman had further identified the common challenges of healthcare systems in resource allocation, including insufficient financial resources to equally support the ever-increasing demands in a community, no strong theories or abundance of conflicting theories among those with influential political roles, time constraints, making the objective and comprehensive analysis of multiple variables difficult, conflict of interest, uncertainty about potential and unwanted outcomes, difference between personal and professional values, and the negative effects of decisions on the job security of the decision-makers(43), which was in line with the findings in the present study.

Vernooij et al. had also declared that political responsibility could play a leading role in the effectiveness of healthcare rules and regulations of different countries. The authority of the government and the coordination and support of the parliament

could thus contribute to advancing health-related laws (44).

Furthermore, Ashtarian and Etemadi had reported the necessity of formulating binding laws to facilitate the implementation of the EHR and then design a discourse at both managerial and public levels, taking into account a certain period to realize the goals of compliance with the requirements of the fourth industrial revolution (45). Yun in a survey in American hospitals had also shown that financial and political support in the form of laws could be effective in the EHR progress. Full support at the national level was further needed for its implementation, which was consistent with the findings in the present study, namely the upstream laws for the healthcare system (46).

The findings in domestic and global studies have suggested that intervening factors, especially annual budget and upstream laws in the healthcare system, as essential requirements, play an important role in development, which was in line with the results of the current study, supporting the development model for the healthcare system in Iran. Therefore, there is a need to improve the functions of the healthcare system, mainly financing and generating resources, in order to strengthen the healthcare system, which can make it more flexible during the current economic challenges, and thus move more easily to achieve goals.

Based on the current study findings, the development strategies were among the important components affecting the healthcare system in Iran, including the adoption of benchmarking models from modern healthcare systems and the formulation of strategies for attracting domestic and foreign investments in the healthcare system, which could have their own positive outcomes in terms of improving the healthcare development indicators. This means that the causal factors in the proposed model can help bolster such strategies. Mosadegh Rad et al. had also found that the healthcare system in Iran was facing some challenges. Therefore, localizing the experiences of successful countries could be helpful and pave the ground for accomplishing the sustainable goals of the healthcare system, and ultimately raise the

effectiveness, efficiency, and productivity of healthcare organizations (35). However, Katuu had reported that the healthcare system benchmarking models from other countries might not be very effective without considering the environmental conditions and local realities (47). Abdulmaleki and Mahdavi have further mentioned the indicators of production in the private sector, human capital in the private sector, and social capital as the factors influencing the HSD in Iran. In other words, they believed that the healthcare budget allocated by the government had a trivial effect on the HSD, which was in line with the findings in the present study based on the axial code of the strategies developed for attracting domestic and foreign investments in the healthcare system (48).

The findings in previous research at the domestic and global levels had also shown that benchmarking modeling from modern healthcare systems and developing strategies for attracting domestic and foreign investments in the healthcare system could have a leading role in the HSD, which was consistent with the results of the present study. Although using the policies and programs to provide healthcare services, implemented in successful countries, and following them as examples is a step forward on the path of strengthening and developing the healthcare system in Iran, socioeconomic, political, and cultural conditions and considerations, and the capacity of the healthcare system must be taken into account, because benchmarking modeling projects fail if they do not consider the aforementioned requirements, and ultimately lead to the waste of healthcare resources.

Identifying the HSD outcomes, including higher quality of life, increased levels of public satisfaction, and GDP per capita growth, was also of utmost importance. In this respect, Dronina et al. had reported that the HSD could increase life expectancy and decrease mortality rate of infants and children under 5 years of age (49). Damari had further proposed three major strategic goals of the healthcare system in Iran, viz., improving health literacy and empowering people, developing intersectoral collaboration in the implementation of

health-related policies, and establishing the primary healthcare network, which supported the findings of the present study, namely, the higher quality of life in a community (50). Sibamo and Berheto, determining the levels of public satisfaction in the field of expansion and development of healthcare services in urban areas in southern Ethiopia, had similarly found that the development of healthcare services and the related programs could boost public satisfaction (51), which was close to the findings in the current study. As well, Doshmangir and Azimzadeh had concluded that the funding frameworks were changing and developing according to the requirements raised in the healthcare sector. In other words, one of the HSD indicators was the up-to-date funding frameworks and their correct use, which could lead to better responsiveness of the healthcare system (52) supporting the findings of the present study. Regarding the GDP per capita growth, it was on the same direction. The findings in domestic and global research had already revealed that the HSD could improve the healthcare outcomes in a community, which was in accordance with the conceptual model proposed in the present study. Therefore, the healthcare system policymakers should consider all the factors affecting evidence-based development, so that the healthcare system outcomes can be realized. To conclude, developing and strengthening the healthcare system, especially the quantitative and qualitative functions of healthcare services, could pave the ground to the fulfillment of its ultimate goal, that is, public health promotion. The main reason to shed light on the efficiency and effectiveness of the HSD activities was thus the identification and evaluation of the capacities of Iran, which should be considered in each strategic plan.

The results of the data analysis in the present study led to the emergence of the development model for the healthcare system in Iran, consisting of 14 categories and 40 concepts in the form of 6 dimensions, including causal factors, governing system's determination to develop the healthcare system, contextual/ environmental conditions, intervening factors, strategies, and outcomes. The findings in Etebarian et al. had also revealed that the sustainable

HSD model could be established in a combined manner within socioeconomic and environmental dimensions (12). Katuu had also pointed out that the development model for the healthcare system could help outline the path of changes in this system, which was harmonious with the results in the present study (47). Selverage et al. had further stated that the healthcare system in India needed a comprehensive review, the participation of all government departments, and appropriate environmental conditions and contexts for its development, considering the different levels of healthcare in the states in this country (53). Khankeh et al. also believed that the healthcare system in Iran required a comprehensive health coverage program to achieve its goals. In this respect, the reforms in the healthcare system in Iran were not possible without a comprehensive perspective. As well, the contextual/environmental conditions were among the success factors of reforms in the healthcare system in Iran (54). Almaspoor Khangah et al. had further proved that the healthcare systems in most countries, unlike Iran, were benefiting the support of the private sector and the governments only had a supervisory role. Therefore, the successful implementation of healthcare system programs could depend on decentralization in many sectors and different levels of the healthcare system (55). Here, the SEM and the LISREL software package were also employed to fit the model. In previous research, the SEM was used to evaluate the causal model with the aim of accepting technology in the health system (56, 60).

Conclusion

The study findings revealed that the key factors in the development model for the healthcare system in Iran were the governing system's determination, and the commitment of policymakers and top-level managers, and other organizations and departments to develop the healthcare system, the synergy in the executive, legislative, and judicial branches on the path of HSD, intersectoral collaboration with the MOHME, contextual/environmental conditions, intervening factors, including annual budget and upstream laws, strategies such as benchmarking models from modern

healthcare systems and domestic and foreign investment attraction, improved quality of life in a community, higher levels of public satisfaction, and GDP per capita growth. It was thus concluded that achieving the strategic goals of the health system and implementing development models, including the current one, could not be successful as long as the governing system in Iran does not have a comprehensive and coordinated view with willpower for the HSD, and all strategies and processes are passive. Concerning its structure, leadership and guidance, processes, resources, and a host of other variables and uncertainties, the health system in Iran is among the most complex systems across the world. As a whole, the management of the healthcare system in Iran calls for trained and professional managers to identify its realities and complexities, and then act efficiently with regard to an assortment of variables and uncertainties. In this respect, intersectoral collaboration at the highest political levels should be deeply taken into consideration, since it lead to great achievements. Therefore, it is recommended to identify the new requirements, behaviors, and perspectives, utilize the new methods of leadership and management, and have commitment and adherence to the implementation of plans, to open a window called health practice management and use its tools, including data mining and EHR, in the healthcare system.

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