



A MODEL DEVELOPMENT FOR HOSPITAL HOLDING GOVERNANCE IN THE IRANIAN SOCIAL SECURITY ORGANIZATION

Farideh Mohammadi ^a, Iravan Masoudi Asl ^{b*}, Soad Mahfoozpour ^a, Somayeh Hessam ^a

^a Department of Health Service Administration, South Tehran Branch, Islamic Azad University, Tehran, Iran

^b Department of Health Services Management, School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran

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ABSTRACT

Hospitals are facing a wide range of challenges regarding healthcare quality, efficiency, and costs of services. Considering the importance of hospital holding in effective and efficient hospital governance, we aimed to identify the key factors affecting in the hospital holding governance of the Iranian Social Security Organization (ISSO) and designing a suitable model. This descriptive study was performed in two qualitative and quantitative stages. First, factors influencing hospital holding governance were extracted through literature review and interview with 15 experts in the field of hospital governance, and a proposed model was designed. Then, a questionnaire was developed and data was collected from 405 experts in the staff-and-line sector of the ISSO across the country. The research model was analyzed using exploratory and confirmatory factor analyses in SPSS® and AMOS® software. Five factors influencing hospital holding governance were identified, including strategic planning, decision rights, financing, monitoring and evaluation, and accountability. Decision rights, with factor loadings of 0.83 and 0.44, had the most and least significant effects on hospital holding governance, respectively. This finding revealed that, for optimal hospital holding governance, while considering all five factors, financing and monitoring and evaluation should be emphasized.

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1. INTRODUCTION

Hospitals, as the most important providers of healthcare services around the world, are facing a wide range of challenges regarding healthcare quality, efficiency, and costs of services. Efforts to address these challenges mostly require efficient management to maximize customer satisfaction and profit, with minimum economic burden [1]. The excessive use of resources, inefficiency and poor

service quality, technological advances, increased patient expectations of healthcare quality, safety, and accountability, and increased political pressure on state officials for changing the structure of governance, are among factors which cause changes in the structure of governmental hospitals [2, 3].

The organizational reform plan for hospitals in Norway was launched in 1987 with the aim of enhancing the efficiency and quality of specialized services. These reforms included granting more authority to hospitals and showing flexibility in areas of budgeting, goal setting, human resources, and management. The emphasis of these reforms was on the need for changes in hospital organization and management. In fact, hospital governance should be optimized within the organizational structure for improving hospital autonomy [4, 5]. Hospitals reforms include very complicated processes, which depend on the coordination of hospitals policies, their operation, and supervision on their administrators, compliance with the country's laws and regulations, and executive capacity of governmental organizations [6].

In 2017, evaluation of organizational reforms and use of autonomy strategies in the general hospitals of 11 developing countries showed that the health ministry of each country is involved in the selection of faculty members, either directly or indirectly, and consequently, contributes to the selection of medical personnel and providing hospital equipment. The revenues and expenditures spent by hospitals are controlled by the ministry of economic affairs and finance, while hospitals cannot be completely independent without autonomy over their personnel, income, and expenses [7].

Following the introduction of reforms and autonomy strategies, Punjab teaching hospitals have also lost their autonomy over financial decisions, and the hospital board of directors can only submit their proposals to health and finance departments for approval. In other words, hospitals are not independent in terms of management and only have autonomy within a predefined framework. In fact, by integrating autonomy strategies, only the level of hospital liability has increased, rather than its autonomy [8]. Erwin et al. believed that use of the corporate structure (including a board of directors) in hospital governance can lead to increased hospital efficiency and performance, considering the unique structure of corporate organizations, besides the complex and changing environment in which they operate [9]. On the other hand, stronger managerial skills are required in corporate hospitals. Also, managerial systems which are needed in these hospitals are far more complex than those used in hospitals which typically work as a funding unit. In addition, personal skills and abilities, which are important in institutions with conventional budgeting systems, are completely different from those required in corporate organizations [10].

In general, the need of hospitals to use governance models is only determined through a comprehensive review of internal and external factors, which shape the hospital behaviors, including marketing strategies, regulations, autonomy definitions, and scope and distribution of beneficiary groups. Theoretically, governance includes monitoring of administrative and financial practices, planning and policymaking, and accountability to individuals, society, and government. Therefore, the most important functions of hospital governance include financial monitoring, strategy development, manager appraisal, clinical efficiency and quality assessment, and representativeness of the beneficiary groups [11].

Hospital governance, especially in governmental hospitals, is a topic, which has been less

examined by researchers [12]. Previous studies have also shown that the type of hospital governance affects different dimensions of hospital performance. In fact, an inadequate managerial structure and improper hospital governance can be destructive and lead to poor performance, low motivation, and inefficiency [1]. In order to make sustainable positive changes in hospitals, it is necessary to make changes in the policies and strategies of the health sector (e.g., integration of efficient and inefficient hospitals or establishment of holding companies) [13].

“Holding” is the most efficient strategy to manage and control two or more units simultaneously [14]. Overall, it is necessary to use holding for achieving the goals of hospital organization, effective use of resources, creating a balance between resources and expenditures, organizing the hospital facilities, and preventing uncoordinated activities. Also, by redesigning the management structure and organizing the facilities, we can pave the way for achieving the goals of hospital organization [15]. In several countries, as in Austria, With the creation of hospital holding, improved decision-making processes, clear accountability, and transparent financial management has been achieved [16].

ISSO has been regarded as one of the administrators in health services in the country, having almost 350 health care centers. Currently, SSO's hospitals have faced the challenges in a bureaucratic system, inappropriate organizational structure, lack of authority to decide, shortage of liquidity and increase of costs, and this reveals the significance of Improvement of hospitals governance [1]. Considering the importance of hospital holding in effective and efficient hospital governance, we aimed to identify the key factors affecting the hospital holding governance of the ISSO and designing a suitable model.

2. MATERIAL AND METHOD

This descriptive study was carried out in two qualitative and quantitative stages in 2018.

2.1 FIRST STAGE (THE QUALITATIVE STAGE)

In this stage, factors influencing hospital holding governance were identified and extracted through literature research and an interview with 15 experts in the field of the hospital holding governance. The inclusion criterion for experts was a minimum experience of 10 years in healthcare or hospital management positions. The interviews continued until reaching data saturation, and analysis of the collected data from the interviews was carried out by content analysis. Afterward, the data obtained from this stage (i.e., literature review and interview) were classified using an information form, and duplicate data were removed. The most important variables affecting hospital holding governance were classified into five groups and the proposed model was designed.

2.2 SECOND STAGE (THE QUANTITATIVE STAGE)

In this stage, to confirm the validity of the proposed model by a large number of experts, a researcher-made questionnaire with 40 items, rated on a five-point Likert scale (from very low = 1 to very high = 5), was used. The content validity of the developed questionnaire was evaluated by 15 experts. The coefficients of variation ratio (CVRs) were higher than the critical level (0.49), and therefore, the content validity of the questionnaire was confirmed. Also, to assess reliability, the questionnaire was distributed among 30 experts, and Cronbach's alpha coefficient was calculated

(0.872) using SPSS software, which indicated the high reliability of the questionnaire. The questionnaire was distributed among 448 samples, including experts of hospital governance in the staff-and-line sector of the ISSO across the country. Finally, a total of 405 questionnaires were collected. The sample size was determined using the Cochran formula, and sampling was carried out using purposeful sampling method. The adequacy of the sample size was estimated at 0.867, based on the Kaiser-Meyer-Olkin (KMO) index. The collected data were analyzed in SPSS software. An exploratory factor analysis was used to explore and evaluate the dimensions of the model through a mathematical approach. The internal consistency of dimensions was estimated through Cronbach's alpha. Finally, confirmatory factor analysis was utilized to verify the model, using AMOS software.

3. RESULT

According to our literature review, nine models were extracted, and their key dimensions were identified. Table 1 presents the findings of this section.

Table 1: Dimensions of the Reviewed Models on Hospitals governance

Model	Year	Dimension
Begdeli et al. [1]	2015	Mission, financing, decision-making process, stakeholders and accountability
Moradian et al. [12]	2014	Council decision-making, constructive social communication, autonomy in marketing, strategic budget, and Comprehensive accountability
Duran & Saltman [17]	2013	Institutional arrangements, financial arrangements, accountability arrangements and decision-making capacity versus responsibility
Jafari Sirizi [18]	2009	Decision right in strategic management, decision right in human resources management, decision right in financial management, decision right in physical resources management, product market exposure, procurement market exposure, financial residual claim, governance arrangements, accountability mechanisms and social functions of the hospitals
Ardan [19]	2007	Decision rights, residual claimant status, market exposure, accountability, and social responsibilities
Farhadi [20]	2007	Decision-making process, management structure, control and monitoring mechanisms, external relations with other institutions
World Bank (Preker & Harding) [10]	2003	Decision rights, market exposure, accountability of managers and staff, residual claimant status and social functions
Sedghiani [21]	2003	Decision-making, monitoring mechanisms, and stakeholder participation
Akbarian [22]	2002	Planning system, organizational structure, financing, and service evaluation method

The results of exploratory factor analysis, based on the Varimax rotation, indicated five factors with Eigenvalues greater than one, which remained in the analysis and a model with five factors was selected as an acceptable model. The eigenvalues of the first and fifth factors were 9.59 and 1.04, respectively. Also, these five factors could explain approximately 71.64% of the variance in the variables. Table 2 presents the eigenvalues of factors and the total variance explained by each factor.

Table 2: Eigen Values and total Variance Explained by each factor

Component	Initial Eigenvalues		
	Total	Variance, %	Cumulative, %
Strategic Planning	9.59	33.98	33.98
Decision rights	3.82	15.56	49.54
Financing	2.43	11.06	60.61
Monitoring and Evaluation	1.68	6.19	66.8
Accountability	1.04	4.84	71.64

Confirmatory factor analysis in AMOS24 software was used to confirm the final model. The findings related to fitting indices (Chi-square/df (χ^2/df), Goodness of fit index (GFI), Adjusted

Goodness of Fit Index (AGFI), Normed fit index (NFI), Incremental Fit Index (IFI), comparative fit index (CFI), Parsimony Ratio (PRATIO), Parsimony comparative fit index (PCFI) and Root mean square error of approximation (RMSEA)), were all optimal and approved the model with five dimensions for the hospital holding governance. Table 3 demonstrates the fitting indices of the model.

Table 3: Fitting indices of the model on hospital holding governance

Statistics	Estimated Values	Optimal Value	Status of Index
χ^2/df	2.66	≥ 3	√
GFI	0.906	≤ 0.9	√
AGFI	0.915	≤ 0.9	√
NFI	0.954	≤ 0.9	√
IFI	0.920	≤ 0.9	√
CFI	0.906	≤ 0.9	√
PRATIO	0.781	≤ 0.5	√
PCFI	0.519	≤ 0.5	√
RMSEA	0.065	< 0.08	√

Figure 1 and Table 4, represent the hospital holding governance model with five dimensions. The dimensions of strategic planning, decision rights, financing, monitoring and evaluation, and accountability consisted of four, six, six, five and seven sub-dimensions, respectively.

In this model, there was a significant direct relationship between all factors and hospital holding governance. Also, the highest and lowest standard coefficients were attributed to financing and decision rights, with factor loadings of 0.83 and 0.44, respectively.

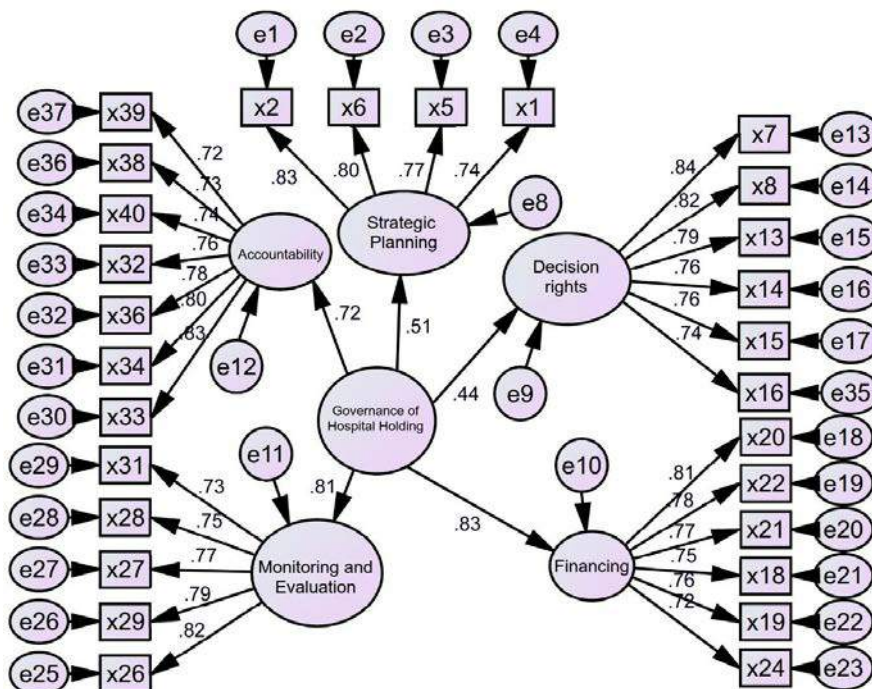


Figure 1: A Model of Hospital Holding governance for ISSO.

Symbols e1, e2, e3, e4, ..., e39 shows measurement errors. The measurement error means that each factor, in addition to its own underlying variable, can be influenced by other factors that are not present in the model and therefore are introduced in the model as measurement error.

Table 4: Dimensions and sub-dimensions of the hospital holding governance in The ISSO

Dimensions	Standard coefficient	Items	Item phrase (Sub-Dimensions)	Standard coefficient
Strategic Planning	0.51	x2	The alignment of the hospital holding mission with the major policies of the ISSO	0.83
		x6	Developing a system for monitoring and evaluating the strategic plan	0.80
		x5	Emphasizing customer satisfaction in formulating a strategic plan	0.77
		x1	Formulation of the mission	0.74
Decision rights	0.44	x7	Designing and revising the organization chart	0.84
		x8	Hiring and firing of employees	0.82
		x13	Financial residual claim	0.79
		x14	Property management	0.76
		x15	Construction and repair of buildings	0.76
		x16	Purchase of equipment	0.74
Financing	0.83	x20	Participation of the Social Security organization in financing	0.81
		x22	Being responsible for the budget deficit	0.78
		x21	Participation of donors in the financing	0.77
		x19	Participation with the private sector	0.76
		x18	Operational budgeting method	0.75
		x24	Designing and changing the payment system	0.72
Monitoring and Evaluation	0.81	x26	Monitoring and evaluating staff performance	0.82
		x29	Formation of quality-of-care committees to monitor the work of physicians	0.79
		x27	External monitoring and evaluation	0.77
		x28	Internal assessment	0.75
		x31	Monitoring the achievement of goals	0.73
Accountability	0.72	x33	Composition of the board of directors	0.83
		x34	Formation of hospital committees	0.80
		x36	Indirect accountability	0.78
		x32	Accountability of the board of directors to the supervisory board	0.76
		x40	Publishing the evaluation results transparently	0.74
		x38	Accountability to stakeholders	0.73
		x39	Presentation of functional and financial reports	0.72

4. DISCUSSION

This study provides a framework for identifying the factors affecting the governance of hospitals and the effectiveness of each dimension. The results showed that the model of the hospital holding governance of ISSO had five dimensions, including strategic planning, decision rights, financing, monitoring and evaluation, and accountability. The dimension of financing, with a factor loading of 0.83, was the most important factor affecting hospital holding governance, followed by monitoring and evaluation with a factor loading of 0.81. The dimensions of accountability, strategic planning, and decision rights, with factor loadings of 0.72, 0.51 and 0.44, were in the third, fourth and fifth places, respectively.

In a study by Preker & Harding on organizational reforms for the World Bank, factors of decision rights, market exposure, accountability of managers and staff, residual claimant status and social functions were described as the key dimensions of corporate hospital governance [10]. In addition, Moradian et al. in 2014 designed a model by identifying a wide range of sub-dimensions and theoretical/operational concepts related to hospital governance. The main extracted dimensions, which were integrated into the design of the final model, included council decision-making, constructive social communication, autonomy in marketing, strategic budget, and Comprehensive

accountability [12]. Moreover, Duran & Salman referred to institutional arrangements, financing, accountability and decision-making capacity versus responsibility as the main factors of hospital governance [17, 23], which is consistent with the findings of the present study.

A study by Hooshmand et al. [24], allocation of resources, strategic planning, accountability, reporting, and compliance with standards are among other factors, which need to be resolved for overcoming the existing healthcare system challenges in Iran. Based on the results of the present study, these factors also influence the hospital holding governance of ISSO and warrant our attention. According to researches by Lewis & Pettersson, and Siddiqi et al., one of the key components in the healthcare governance is accountability [25, 26], which is consistent with the findings of this study.

The results of this study showed that financing and monitoring and evaluation are the most important factors affecting the management of hospital holding. Furthermore, Sadeghi & Zare [27], studied the effects of financing systems on the improvement of hospital performance, concluded that use of an appropriate financing system is one of the priorities of hospitals, lead to improved hospital performance, if used with comprehensive control and monitoring systems in a structured framework.

Based on the present findings, hospital holding budgeting, based on operational methods, is one of the components of the financing dimension, which is of great importance in the hospital holding governance. Midttun et al. reported that institutional reforms in hospitals focus on budgeting reforms for allocating performance-based funding to hospitals. Accordingly, payment systems based on diagnosis-related groups have been implemented in hospitals [4]. Yusefzadeh et al. in a study presented a method for performance-based budgeting of the health sector and hospitals. They argued that using data envelopment analysis could be used as an appropriate measure for evaluating resource allocation, budget-performance relationship, and performance management [28].

According to a study by De Geyndt, autonomy over human resources and finances can lead to an increase in the performance of governmental hospitals. In fact, a hospital cannot be completely independent without having a decision right in areas such as income, or expenses [7]. The results indicated that decision rights in various areas, such as hiring and firing personnel and management of budget surplus, is of particular importance in the governance of hospital holding. In this regard, the results of a study by Ahmad & Saeed showed that Punjab teaching hospitals have lost their autonomy over financial decisions, and the hospital board of directors can only submit their proposals to health and finance departments for approval [8]; this finding is inconsistent with the present study.

This study had some limitations. Inclusion criteria for interviewees were used so some experts may have been missed. Our findings might have been different if the participants were changed. But the strong point of this research was its nationwide design and including hospitals of the ISSO across the country.

5. CONCLUSION

The results of this study showed that factors, including strategic planning, decision rights, financing, monitoring and evaluation, and accountability, had the greatest influence on the governance of hospital holding. Considering the health strategies of the Social Security Organization and the necessity of reforms in the governance structure of hospitals, more attention should be paid

to the management of human resources, financing, payment systems, asset management, monitoring and evaluation systems, and accountability through strategic planning. The results of the present study can be used in the management of hospitals affiliated to the Ministry of Health and Medical Education and other health organizations.

6. DATA AVAILABILITY STATEMENT

The used or generated data and the result of this study are available upon request to the corresponding author.

7. ACKNOWLEDGEMENTS

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Farideh Mohammadi is a student at Department of Health Service Administration, South Tehran Branch, Islamic Azad University, Tehran, Iran. Her researches are related to Hospital Holding Governance



Dr. Iravan Masoudi Asl is an Associate Professor at Department of Health Services Management, School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran. His research involves Innovative Health Service Management



Dr. Soad Mahfoozpour is an Associate Professor at Department of Health Service Administration, South Tehran Branch, Islamic Azad University, Tehran, Iran. She is interested in Public Health, Epidemiology, Safety Promotion, and Injury Prevention



Dr. Somayeh Hessam is an Assistant Professor at Department of Health Service Administration, South Tehran Branch, Islamic Azad University, Tehran, Iran. She is interested in Modern Health Management

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