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Identifying Factors Influencing the Establishment of a Health System Reform Plan in Iran's Public Hospitals

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ABSTRACT

In today's world, health views have found a wider perspective in which non-medical expectations are particularly catered to. The health system reform plan seeks to improve society's health, decrease treatment costs, and increase patient satisfaction. This study investigated factors affecting the successful establishment of a health system reform plan. A mixed qualitative – quantitative approach was applied to conduct to explore influential factors associated with the establishment of a health system reform plan in Iran's public hospitals. The health systems and approaches to improving them in other countries have been studied. A Likert-based five-point questionnaire was the measurement instrument, and its content validity based on content validity ratio (CVR) was 0.87. The construct validity, calculated using the factorial analysis and Kaiser Mayer Olkin (KMO) techniques, was 0.964, which is a high level and suggests a correlation between the scale items. To complete the questionnaire, 185 experts, specialists, and executives of Iran's health reform plan were selected using the Purposive Stratified Non Random Sampling and snowball methods. The data was then analyzed using exploratory factorial analysis and SPSS and LISREL software applications. The results of this research imply the existence of a pattern with a significant and direct relationship between the identified independent variables and the dependent variable of the establishment of a health system reform plan. The most important indices of establishing a health system reform plan, in the order of priority, were political support; suitable proportion and coverage of services presented in the society; management of resources; existence of necessary infrastructures; commitment of senior managers; constant planning, monitoring, and evaluation; and presentation of feedback to the plan's executives, intrasector/extrasector cooperation, and the plan's guiding committee. Considering the indices, it can be argued that the presented models enjoyed good model fit and the desired correspondence existed between the depicted or constructed model and the experimental data. In other words, the above-named variables possess the necessary qualifications to be used in the form of a final research model.

Keywords: Health System, Health Reform, Hospitals

INTRODUCTION

With the evolution of human societies and the promotion of people's health levels, the definition of health has transformed and become more complete, such that today, the World Health Organization considers health as a person not only being disease-free, but also enjoying complete physical, psychological, social, and spiritual health [1].

Governments play an important role in providing health services to their societies. According to the 29th principle of the Constitution of the Islamic Republic of Iran, access to health care services such as insurance is a universal right, and the government is compelled to provide such services and support to individual citizens of the country according to the rules and paid for from public income and people's charitable contributions [2].

In order to realize health reform policies, national plans have been designed. Each national reform plan refers to a set of services and activities related to each other and designed and implemented to combat one or more health problems or to promote health [3]. The aims of implementing a health system reform plan are to enhance satisfaction and the relative quality of offered services, decrease patient costs, and highlight the significance of responsiveness and tracking problems and questions about the plan across universities and clients referring to healthcare centers [4]. The successful implementation of a health system process and the modification of the current system rely on a comprehensive managerial and practical plan which is responsive to the new, ever-changing needs and requests of the Iranian society and which lead to organizational change and modification [3].

In countries such as the United States, Egypt, and Brazil, modifications involved a very limited area from the very beginning, and no opportunity for change existed across various areas. In this modification plan, the entire health system of the country was involved in the different planning stages to enhance the chance of its successful implementation. Today, to modify planning across social areas such as education and training, welfare, accommodation, and general health, the public policy approach is used. Therefore, considering the extensiveness of this project, the public policymaking method was chosen over a managerial approach [5].

Limited modifications are inexpensive and easy, but extensive modifications are expensive and difficult. In developing countries in which the health system is coping with various inadequacies, planning for minor changes which, in the best of conditions, have a trivial effect on the entire system is not acceptable [6] unless the implementation of a vast hierarchy of minor changes, one after another, is committed to throughout a multi-ten year plan. Again, however, in the social environments of such countries, it seems impossible [7].

In 1938, New Zealand became the first country to offer a national system of health services. Costa Rica founded a comprehensive health insurance in 1941. In Mexico, the Social Welfare Provision Institute and Health Ministry were established in 1943. The English National Organization of Health Services was founded in 1948. Japan and the Soviet Union also developed their limited national systems after war in order to cover the majority or entirety of their populations. This also happened in Norway, Sweden, Hungary, and other communist countries of Europe as well as Chile [8].

In his research called "Modification of the American health system, essential principles in successful modifications," Graboys (2013) mentioned six essential principles in the implementation of modifications in the health sector as follows:

1. Importance of patients. The health system should protect them against harms and damages. Federal and governmental rules should enable competitors to resist challenges [9].

2. Independence of healthcare providers. Physicians, hospitals, and other service providers usually face obstacles while the governmental rules are incredibly strict in these cases. Innovation cannot flourish in a centralized system. Providers should have enough independence regarding their wants and the needs of the service consumers.

3. Innovators need reward. The current healthcare rules and regulations are frustrating and reduce the quality and innovation. The health market should encourage innovators who develop a value for service consumers and who should not be reprimanded for a reasonable risk [9, 10].

4. The service consumers have a right to choose. Since the second world war, the rules associated with health and healthcare have been highly diverse including ERISA medical insurance, VA, CHIP, Medicare, Medicaid, large and small groups, personal and high-risk groups. A unique market would compel competitors to compete more strongly for the informed performance of the service consumers.

5. The financial sector should be stable and fair. Currently, Medicare needs transference of wealth and needs to be floated across generations. These rules must shift the presentation of services from younger and healthier individuals to elderly patients.

6. Health insurance is not equal to healthcare. It is important to note that health insurance for healthcare is not totally reliable, and healthcare is one of the determining factors of health. The health of individuals and why many methods in the care sector are not effective should be evaluated [9, 10].

Another study which was conducted by Shupin Sang et al. (2014) entitled "Evaluation of the health system reform in Hobi province in China" was performed based on a set of indices for evaluation from 2009 until 2011. This study was done in order to develop suitable instructions for policymakers on health system transform. The obtained indices (chain results) based on a logical model included the five following domains: inputs, processes, outputs, results, and effects. Eventually, the study was based on a set of indices including 4 degrees for the first indices, 16 degrees for type 2 indices, and 76 degrees for type 3 indices. The effects of the system transformations increased each year from 2009 to 2011 in Hobi province. The health status of the urban and rural population, the salary of stakeholders, and the quality of healthcare services were enhanced. This sub-national plan can be applied to other provinces and even at a national level as an effective sample of health system modifications [11].

In his research called "The effects of health policies and modification of health system for preparation of the health system to respond to women's health needs," Neema (2015) stated, "It is not the case that modification of the health system would spontaneously lead to amelioration of the health status or improvement of the quality of services. Not paying due attention to the sensitive aspects of policymaking or implementation has caused the modifications to aggravate the status of people especially women in terms of fairness and access to services in some cases." [12].

In his study called "Human workforce, successful implementation of health transformation in establishment of a health reform plan," Anthony Knettle (2009) stated that it is the a) insistence of policymakers for developing and implementing a human workforce plan of national health operating in an integrated, coordinated, and strategic fashion. b) insistence of stakeholders to work with each other in order to coordinate disagreements at national and regional levels, based on supervisory and auto-supervisory standards (for example certificate issuance, performance range, and validation) that create major hindrances against optimization of the health care sector workforce [13, 14]. Based on the literature, the major difference between countries on a large scale and across different cities of the country in a microscale is related to implementation and establishment of a health reform plan. In particular, the issue of provision of justice and distribution of services was observed across the majority of texts. Therefore, considering the lack of similar studies in this regard and the need to establish an efficient health system based on the needs of people, patients, and stakeholders of the health sector, this study investigated factors affecting the successful establishment of a health system reform plan.

MATERIALS AND METHODS

This study is a mixed research (qualitative - quantitative) and, to some extent, applied research, which has benefited from the following methods:

a) Document and library method, used to achieve the theoretical framework, clarification of influential factors, and knowledge of the background and research literature.

b) Qualitative method along with semi-structured interviews, used to determine the factors affecting the successful establishment of health reform plans, comments provided by experts, specialists, and executives of the health reform plan in the country employed in relevant organizations such as medical sciences universities, various faculties, health insurance organizations, etc. Next, the preliminary conceptual model was developed, designed, and validated.
c) Quantitative method, used for the completion of questionnaires and presentation of a mathematical model of the factors affecting the successful establishment of health reform plans, which were analyzed using exploratory factor analysis in SPSS and confirmatory factor analysis by LISREL software.

Accordingly, the statistical population included all studied individuals from among whom the researcher chose the units of its sample. Therefore, the statistical population of this research at stage (b) included all experts, specialists, and executives of the health reform plan in the country employed in relevant organizations including medical

sciences universities, various faculties, health insurance organizations, etc. The studied sample was selected using the purposive nonrandom sampling and snowball sampling methods, and the time of conducting interviews continued until data saturation was achieved. At this stage, Scott's method was used to analyze the documents. Scott's is a method for analyzing content, whereas the document method refers to all methods in which the objective of the research is realized through studying, analyzing, and investigating documents and texts. First the authenticity, credibility, representativeness, and meaningfulness of the data was determined. Content analysis was performed on the texts and data was extracted through analysis such that the first specific issues were confirmed in the text and then considered as content area. Thereafter, the preliminary conceptual model after design was offered to 10 experts of the health reform plan. After consensus conditions were reached, i.e. at least 80%, the preliminary conceptual model was introduced.

Inclusion criteria for the study were being employed in the health sector, having a specialized and relevant education, being familiar with the health system reform plan and its establishment, having experience with health reform plans in the country, and being interested in participating in the interview. At stage (c), the research statistical population consisted of 190 specialists and scholars in the field of health management (academic and nonacademic) who were familiar with modification plans for the country's health system, headquarters and executive managers (headquarters' managers of medical sciences universities, managers of hospitals), and headquarters and executive experts involved in the implementation of the reform plan across the country. The number of the studied sample was determined as five times the number of questions in the questionnaire.

Structural equation modeling is a data analyzing technique designed to evaluate the relationship between two types of variables: a) visible variables: those that are measured directly and have been observed, and b) latent or hidden variables: those that are considered as theoretical constructs. Compared with other data analysis techniques, structural equation modeling provides the researcher the possibility of testing complex theoretical models in one analysis. Its highly valuable characteristic is the concurrent analysis and processing of relationships between the measurement model variables. Structural equation modeling allows the researcher to simultaneously conduct causative analysis of quantitative and observed variables. When structural equation modeling is used, an important element is the analysis of how the hypothesis model can be fitted to the observed data. In order to evaluate this fit, researchers usually employ indices of goodness of fit.

The measurement instrument in this research was a Likert-based five-point scale questionnaire, where through the assistance of the theoretical area, the research model, and the results of the measurement instruments, experts approved 37 items. The obtained CVR was 0.87, which is an acceptable value. In order to measure validity, the factorial analysis technique was employed and the KMO statistic, obtained as 0.964, indicated that the correlation between the scale items is suitable for developing a factorial analysis. Eventually, it was found that the factors influencing establishment of a health system reform plan were, in order: planning (questions 1-5), commitment of senior managers (questions 6-9), management of resources (questions 10-14), existence of necessary infrastructures (questions 15-21), the committee guiding the plan (questions 22-25), extra/intrasectoral cooperation (questions 26-28), constant monitoring and evaluation and presentation of feedback to the executives of the plan (questions 20-31), political support (questions 30-34), and suitable proportion and coverage of the services presented in the society (questions 35-37).

The reliability of the questionnaire was acceptable as shown by the results of the analysis of the selected items. Therefore, the statistical techniques performed on the measurement instrument were: factorial analysis for the measurement of the validity and fit of the research theoretical model the indices of the root mean square error of approximation, goodness of fit index was used.

RESULTS

Table 1 shows the factors identified as influencing the establishment of a health system reform plan according to the view of other researchers.

Table 1. Some of the patterns presented in the health system reform plan

Factor	Articlee & Writers	Year	Country
commitment of senior managers	Management commitment and primary care (15) Health Sector Evolution Plan in Iran (16)	2014 2013	American Iran
constant planning	Health Sector Evolution Plan in Iran (17)	2015	American
management of resources	Human resources development and success of the health sector (18)	2000	WHO
political support	Health sector reform requires political capacity (19) Health Sector Evolution Plan in Iran (16) characteristics and practice patterns (20)	2015 2013 2012	American Iran American
existence of necessary infrastructures	Implementing primary care reform: Barriers and facilities, Canadian primary care reform (21)	2003	Canada
the plan's guiding committee	Health Sector Evolution Plan in Iran (16) Health Sector Evolution Plan (22)	2013 2010	Iran American
intrasector/extrasector cooperation	Health Sector Evolution Plan in America (9,10) luralist structure prior to an innovative model for health system reform in Latin America(23) Methodology, implementation of healthcare reform (5)	2013 1997 2015	American American Iran
monitoring, and evaluation; and presentation of feedback to the plan's executives	Indices to determine the national health system transformation Map (24) Map reform the Islamic Republic of Iran (3)	2013 2010	Iran Iran
suitable proportion and coverage of services presented in society	Health Sector Evolution Plan in Iran (16) Methodology, implementation of healthcare reform (5) Map reform the Islamic Republic of Iran (3)	2013 2015 2010	Iran Iran Iran

Table 2 provides the distribution and frequency percentage of subjects in terms of age, gender, education, field of study, and their current position.

Table 2. Demographic data

age	N (%)	gender	N (%)	education	N (%)	field of study	N (%)	current position	N (%)
20-30	49 (27)	Male	77 (40)	Less than Bachelor	17 (9)	med	18 (9)	Faculty	13 (7)
31-41	96 (47)	Female	113 (60)	Bsc	95 (49)	Health Care Management	28 (15)	Managerial positions	24 (13)
42-52	46 (25)			Msc	56 (29)	Other medical specialties	92 (49)	Posts expert	65 (34)
›52	3 (1)			PhD	24 (13)	Non-medical fields of management	17 (9)	Other	55 (29)
						Other	34 (18)		35 (18)

In the studied sample, the majority of subjects were female within the age range of 31 and 41 years.

Table 3 presents the central distribution indices of the factors influencing the establishment of a health system reform plan.

Table 3. Central distribution indices of the factors

Factor	Average	Standard deviation	T-Value	Skewness	Kurtosis
constant planning	3.80	0.82382	52.70	-0.60	0.46
commitment of senior managers	3.86	0.82361	48.06	-0.78	0.17
management of resources	3.90	0.87141	49	-0.84	0.38
existence of necessary infrastructures	3.88	0.89858	49.59	-0.46	-0.30
the plan's guiding committee	3.77	0.84641	52.11	-0.54	-0.05
intrasector/extrasector cooperation	3.82	0.87842	47.95	-0.71	0.06
monitoring, and evaluation; and presentation of feedback to the plan's executives	3.80	0.76453	45.52	-0.77	-0.02
political support	3.97	0.93047	48.68	0.96	0.46
suitable proportion and coverage of services presented in society	3.94	0.88736	51.27	-0.79	0.02

Table 4. Fitting indicators

fitted model	Estimated values	optimal value	fit index
Chi-square indicators	The less is better	988.26	……
p-value	>0.05	0.000	×
relative chi-square	≤0.05	3.296	✓
RMSEA[1]	<0.1	0.062	✓
GFI[2]	≥0.9	0.97	✓
CFI[3]	≥0.9	0.93	✓
AGFI[4]	≥0.8	0.92	✓
NFI[5]	>0.9	0.90	✓
PNFI (Parsimony Normed Fit Index)	>0.6	0.77	✓
IFI (Incremental Fit Index)	>0.9	0.93	✓

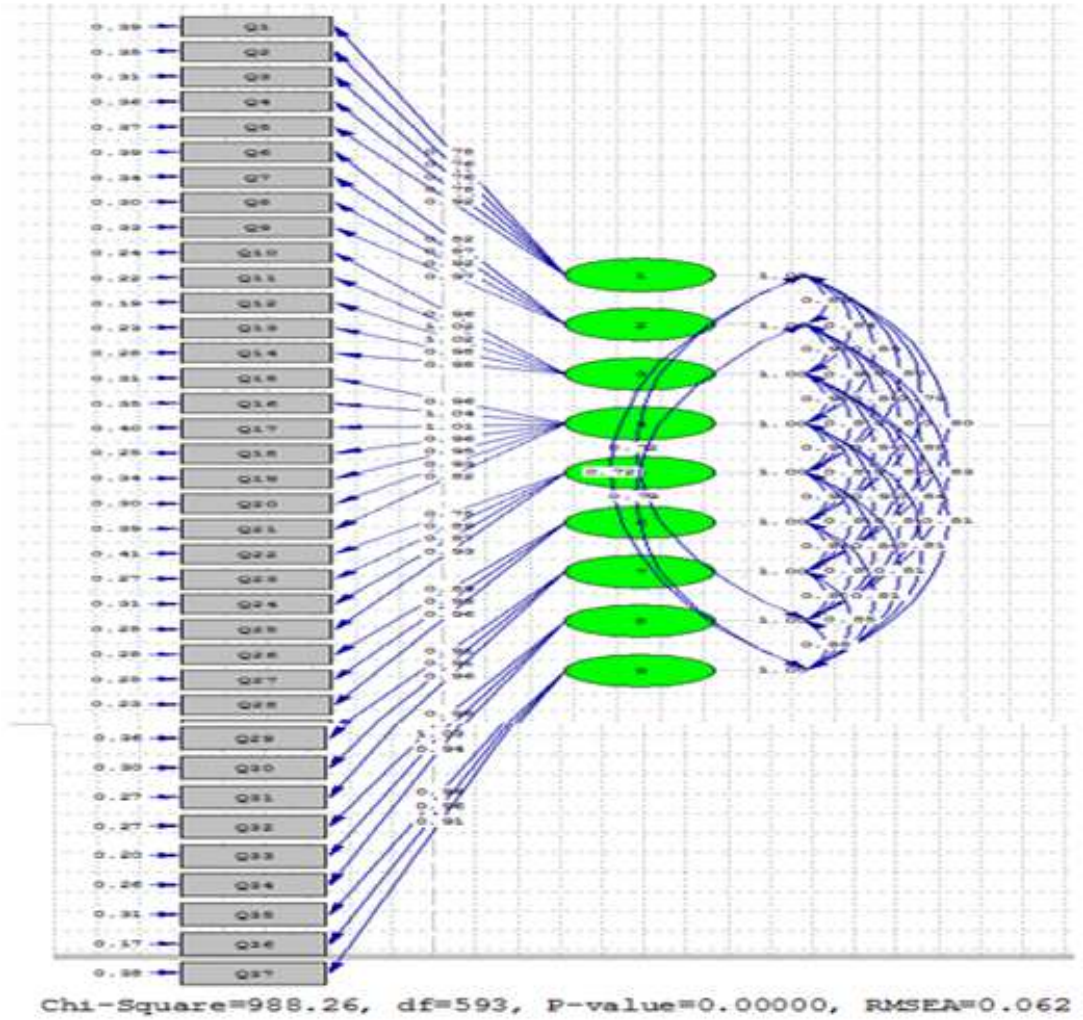

Diagram 1 indicates the output of structural equations from LISREL Software

The findings of Table 3 indicate that all paths of the model based on the scale items are significant. These values range from 3.77 to 3.97. Furthermore, in studies where structural equation modeling is done, the normality of

[1] *Root Mean Square Error of Approximation;*
[2] *Goodness of Fit Index*
[3] *Comparative Fit Index*
[4] *Adjusted Goodness of Fit Index*
[5] *Normed Fit Index*

distribution of variables is investigated through analysis of kurtosis and skewness indices. The ranges of -7 to +7 for skewness and -2 to +2 for kurtosis of normal distribution have been suggested as acceptable. The kurtosis of all items ranges from -1.00 to +96, and skewness lies within the range of -0.62 and +0.78. Accordingly, all variables are normal.

Table 4 presents the fit indices of the confirmatory model of the health system reform plan establishment pattern.

The results of Table 4 imply that the index of significance level in this model was 0.00, which is lower than 0.05, suggesting that the model does not have a suitable fit.

The comparative indices of CFI and NFI have been developed for the investigation of the model based on its comparison with the independence model, where values larger than 0.9 are interpreted as acceptable values. In this model, the above index reveals that the model enjoys a good fit.

The parsimony normed fit index (PNFI) indicates whether the model has been followed or not, and values larger than 0.5 have been interpreted as acceptable. In this model, the above index indicates that the model fit is good.

The Root Mean Square Error of Approximation (RMSEA) shows whether the developed model can be considered as acceptable or not. The value of this index varies between 0 and 1 and the lower its value is, the more acceptable the developed model is considered to be. In this model, based on the above table, the RMSEA value was 0.062, which shows a good fit.

Overall, the presented indices indicate that the confirmatory model of the establishment of the health system reform plan of the Health and Medical Education Ministry in Iran is confirmed, and the above scales well represent it.

DISCUSSION

To test the fit of the research theoretical model with an emphasis on the goodness-of-fit index, one can highlight both the fit of the developed model and the experimental data. Therefore, a good correspondence is observed between the depicted model (the structuralized model) and the experimental data. With emphasis on the structural equations, a good model has been designed regarding the relationship between the dependent and independent variables and the desirable fit represents structural equation modeling. In the final conclusion of this research, it is stated that the researcher's proposed model enjoys a complete fit, since the CFI and NFI comparative indices as well as the PNFI lie within acceptable ranges. Also, the value of RMSEA (0.062) represents the research model fit. The results of this research are congruent with those of Moradi-Lakeh [15], Ridic [9], Forest [16], and Esmaeilzadeh [5]. Moradi-Lakeh [15] stated that the continuation of modification of the health system is tantamount to responsiveness of this system to the needs of the society and requires internal and even foreign financial aid. Esmaeilzadeh [5] considered the 9 principles of policy making, determination of objectives, roles of institutions, opportunity for criticizing and investigating challenges, analyzing the status quo, identifying strategic problems, evaluating external environments, revealing the values, and forming teams to be effective in the correct implementation and establishment of a health system reform plan in Iran. Forest [16] said that political capacities are required in the modification of the health system.

In this study, the most important indices of establishing a health reform plan in the order of priority were: political support, suitable proportion and coverage of the services offered in the society, management of resources, existence of necessary infrastructures, commitment of senior managers, constant planning, monitoring and evaluation, and presentation of feedback to the plan executives, extra/intrasectoral cooperation, and the plan's guidance committee. Based on what was mentioned, political support was one of the most important factors affecting the health reform plan; thus, the attempts of statesmen in legislating and implementing plans and programs such as outsourcing, entrance of the private and nongovernmental sectors, charity, and non-governmental organizations can solve the problems facing the health system reform plan. In addition, budgeting policies, economic modification, financial provision, and the extent of allocation of gross domestic product to the health sector are other significant factors.

CONCLUSION

The compatibility of the content of the health system reform plan with cultural values of the society, proportion of services with the needs of the society under coverage, and complete coverage of services to prevent a shortage of human resources, a shortage of equipment and consumer and capital goods, a deficit of civil resources, job dissatisfaction for personnel, and high occupational exhaustion are all among the factors that make the need for resource management crucial. The evaluation and management of the performance of human resources, application of information systems and their correct and precise registration, and ever-increasing attention of charity and nongovernmental organizations in helping the governmental sector can be all effective in this issue.

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