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J Health Man & Info 2019, 6(2), 77–84

JHMI
Journal of Health Management and Informatics

Original Article

Identifying and Prioritizing the Effective Factors on Establishing Accreditation System in Tehran Hospitals affiliated with the Social Security Organization in Tehran, 2016

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Abstract

Introduction: There is much less attention to the structural, processing, and functional standards in accreditation of health care organizations. The purpose of this study was to determine and prioritize the factors affecting the implementation of accreditation system in hospitals affiliated with the Social Security Organization in Tehran in 2016.

Methods: This is a cross-sectional quantitative study conducted among hospital staff recruited through census sampling. To collect the data, a researcher-made questionnaire consisting of 24 factors was designed using hierarchical analysis method. After collecting the questionnaires, studying criteria and factors were analyzed and prioritized based on Analytic Hierarchy Process model (AHP) and inconsistency ratio (ICR) using the Super Decisions Software. To determine whether there is a significant difference between the respondents' answers, we performed one-sample t-test using SPSS software.

Results: According to the findings, 49 out of the 170 participants were male and the rest were female. In order to investigate the factors affecting the establishment of the accreditation system, we the ranking of factors showed that the output criterion with the weight of 0.443 had the highest priority, and then the criterion of the structure with a weight of 0.279 and the process criterion with a weight of 0.278 in the next priorities were placed.

Conclusion: The findings of the present study, scientifically through the review of documents and evidence, as well as their integration with the opinions of domestic experts, resulted in achieving an effective model for establishing accreditation based on structural, processing, and output standards and considering the weight of each group of standards. The factors affecting the accreditation system take into account the constraints on the content and implementation process of the current accreditation program and complements the existing gaps by adding the dimensions and components required. Using a simple, comprehensive and efficient approach, it is possible to provide an opportunity to improve the status of accreditation and quality of services in hospitals of Tehran's social security hospitals.

Keywords: Accreditation, Donabedian Model, Hospital, Social Security

Article History:
Received: 28 October 2018
Accepted: 11 March 2019

Please cite this paper as:
Ebrahim Z, Nasiripour AA, Raeissi P. Identifying and Prioritizing the Effective Factors on Establishing Accreditation System in Tehran Hospitals affiliated with the Social Security Organization in Tehran, 2016. J Health Man & Info. 2019; 6(2): 77-84.

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Introduction

Hospitals play an important role in preventing, treating and rehabilitating patients, and spend the bulk of healthcare resources (1-3). Quality control of health services is the first step in providing effective services for better responsiveness (4). The application of standards is one of the strategies to achieve the appropriate levels of quality (5). Standards are expectations that are designed to ensure the quality of services (6). In the health system, strengthening the evaluation system is one of the most effective tools used to achieve a responsive and effective system (7). The accreditation is currently one of the most widely used systems for evaluating the health systems. This approach is exploited in most countries due to its positive impact on health care indicators (8-10). The accreditation of the hospital causes operational effectiveness (8), professional development (11), reinforcement of inter- and intra-organizational relations (12), development of quality and safety-oriented culture (13), increase in the compliance with safety standards (14), improvement

of the outcomes of patients (15) and their satisfaction (16) as well as promotion of the public image of the hospital (17).

Joint Commission on Accreditation of Healthcare Organizations (JCAHO) established the Joint Commission International (JCI) to respond to the global demand growth for standardized assessment in health care organizations (18). The JCI investigated 500 international healthcare organizations in 2013. In this case, there are many studies evaluating the impact of external accreditation systems on hospital performance and patient outcomes (8, 19-21). The concept of accreditation refers to the systematic assessment of hospitals using certain and explicit indicators (22).The task of policymaking, planning and directing accreditation in Iran is the responsibility of the Office for Accreditation of Healthcare Institutions in the Ministry of Health and Medical Education (MOHME) (23). Medical accreditation standards for hospitals were announced in Iran in March 2011 (24).

The Donabodian model was used in quality systems. The findings of this study showed that the model of the relationship between structure, process and outcome was a logical model in the hospital departments. The structure had a significant correlation with process and outcome. By maintaining the structure, there was a significant correlation between the process and outcome. (25) Naranjo and Viswanatha Carmal also conducted a research using the Donabudian theory as a framework for accreditation of the department of obesity surgery. (26)

Over time, the accreditation standards of Iranian hospitals have seen a number of revisions to its comprehensiveness. (27). However, there has always been a challenge for Social Security Hospitals h because of the variety of activities and measures. Hospitals affiliated with the Social Security Organizations are not considered as governmental hospitals and their accreditation is carried out by the Social Security Organizations. On the other hand, the accreditation standards, each of which having a different function based on their use in different hospitals, as well as the fact that all the standards developed in all hospitals are not usable and evaluated, their compliance with the type of hospitals that are being evaluated is necessary. (28) Hospital accreditation standards emphasize the structure and business processes, and the number of consequences and outcome measures are very limited. Thus, identifying and prioritizing the effective factors including structures, processes, and outcomes, for establishing the accreditation system, in order to balance standards and increase the integrity of the measures help to improve the content of the accreditation standards (29.)

Methods

This is a descriptive analytic study conducted on a cross-sectional basis in 2016. The statistical population of this study consisted of 170 hospital staff including managers, matrons, head nurses and employees of quality control and social welfare units. In order to determine the research sample, census method was used and all 170 personnel entered the study.

Two-part researcher-made questionnaire was used to collect the data. In the first part, a fuzzy questionnaire was used for ranking the effective factors and in the second part a five- point Likert scale questionnaire was used to test the study hypotheses:

1. The "structure" factors affect the establishment of accreditation system in hospitals.
2. The "process" factors affect the establishment of accreditation system in hospitals.
3. The "outcome" factors affect the establishment of accreditation system in hospitals.
4. The effectiveness of implementing the accreditation system is confirmed in reducing the medical error.

In this study, t face validity method was used to test the validity. To evaluate the reliability of the questionnaire, we used Cronbach alpha coefficient and showed a high internal consistency reliability in the three dimensions of 'Structure', 'Process', and 'outcome',

After determining the effective factors, another questionnaire was designed using Analytic Hierarchy Process method (AHP). AHP is a method by which problems, issues or variables are prioritized based on relevant criteria and alternatives. The AHP method is based on three principles: 1) structure of the model; 2), comparative judgment of the alternatives and the criteria; and 3) synthesis of the priorities. In addition, the AHP incorporates a useful method for checking the consistency rate of the decision maker's assessments, thus reducing the bias in the decision making process. In this study, the Kolmogorov-Smirnov test was used to test the normality of the data. Descriptive statistics were used to analyze the demographic characteristics of the community. The point of view of the respondents about the situation of each of the factors and dimensions test was investigated using One-sample T-test using SPSS software. To implement AHP and calculate the inconsistency rate of the conducted comparisons between effective factors, we used Super Decisions

software. In AHP method, an inconsistency rate of less than 0.1 indicates that the compatibility matrix of the comparisons is approved and acceptable.

This research is a part of the master's degree dissertation on "Identifying and prioritizing factors affecting the establishment of accreditation system in Tehran's social security hospitals: 2017 "Which was conducted at the Islamic Azad University. (بنظر میرسه این جمله جایش اینجا نیست)

According to the review of the theoretical bases and background of research on factors affecting the performance of hospital accreditation, Donabodian has developed a 3-part model to develop a systematic framework in improving the quality of health care. He believed that measuring the service quality would fail until quantifiable instruments were available, thus making his own model, which had three parts of structure, process, and return to measure the health service quality. In any quality improvement program, these three elements must always be considered together and planned to provide appropriate results for patients and the therapeutic center.

The options in this study are the factors related to structure, process and output criteria. A total of 24 factors including 7 factors in the structure criterion, 6 in the process criterion, and 11 in the output criteria based on the headline of all standards in the Accreditation Standards of Hospital were extracted from the standards specified in the standards???(17). Benchmarks and options are presented in Table 1.

Nine parameters were used for grading and comparing the factors. Also, in this study, the fuzzy approach was used to quantify the subjective judgments of the participants for the value of each alternative. Therefore, the hourly fuzzy spectrum was used. After collecting all the questionnaires, prioritizing and analyzing the information according to the AHP method and using Super Decisions software, the criteria and options were prioritized.

Results

According to the findings of this study, 49 out of 170 respondents were male and 121 were female, 34 of them were aged 30 years or less (20%), 58 were aged 31 to 40 years old (34.1%), 55 were between 41 to 50 years old (32.4%) and 23 were over 50 years old (13.5%). In the first step, the main criteria are compared in terms of the goal as a pair. This matrix is presented in Table 2.

Accordingly, the special vector will be the priority of the main criteria as W1.

W_1=Priority of the main criteria= 0.279
0.278

Based on the special vector obtained:

Table 1: Benchmarking and Prioritization Options

Main criteria		Option	Abbreviation signs
C1	Structure	Proper documentation and information system	S11
		Staff support	S12
		Financial resources, physical space and equipment	S13
		Required technical skills	S14
		Focus on goal and accreditation mission	S15
		Standard process	S16
		Management Stability in Organizations	S17
C2	Process	Reducing the percentage of cancellation of surgical procedures	S21
		Promote diagnostic services	S22
		Quality improvement	S23
		Reduced Unplanned Events	S24
		Relationship between physician's clinical skills and patient values and preferences	S25
		Use of technology in processes	S26
C3	Output	Reducing medical errors	S31
		Improving the physician's clinical skills and values and preferences	S32
		Reduced rate of surgical site infection	S33
		Mortality rate	S34
		Improving hygiene	S35
		Risk of low evaluation and reassessment	S36
		Disease treatment	S37
		Reduce patient problems	S38
		Good feeling	S39
		Health Recovery	S40
		Reducing medical reporting errors	S41

● The output with a normal weight of 0.443 has the highest priority.

● The structure with a normal weight is 0.279 in the second priority.

● The process with a normal weight of 0.278 is in the third priority.

The inconsistency rate of the comparisons is 0.001, which is less than 0.1; therefore, the comparisons can be cited.

The following options are the priorities of the sub-criteria of the structure: Appropriate documentation and information system, staff support, financial resources, physical space and equipment, necessary technical skills, focus on goal and accreditation mission, standard processes, and management stability in organizations. Based on the special vector obtained, the appropriate documentation and information system with a weight of 0.192 has the highest priority, so we can trust the comparisons that have been done in structure.

The following options are the priorities of the sub-criteria of the process: Reducing the percentage of cancellation of surgical operations, promoting diagnostic services, improving quality, reducing unplanned events, linking the physician clinical skills and patient values and preferences, and using technology in processes. Based on the special priority selection vector, it is clear that the index of technology uses in processes with a weight of 0.296 is the most important factor. The inconsistency rate is 0.023, which is less than 0.1. So, we can trust to the comparisons done in the process.

The priorities of the sub-criteria of the output included reducing medical reports, improving physician's clinical skills and values and preferences, reducing the rate of infection site surgery, mortality rate, improving health compliance, assessing and evaluating the risk of fall, treating diseases, reducing patient problems, feeling good, restoring health, and reducing errors in medical reports. Based on

Table 2: Paired comparison matrix of the main research criteria

	C1	C2	C3
C1	(1, 1, 1)	(0.76, 0.99, 1.24)	(0.51, 0.66, 0.86)
C2	(0.81, 1.01, 1.32)	(1, 1, 1)	(0.47, 0.61, 0.77)
C3	(1.17, 1.51, 1.96)	(1.3, 1.63, 2.11)	(1, 1, 1)

Table 3: Final prioritization of the indicators using the FAHP technique

Main criteria		Sub criteria	Symbol	Original Weight	Final weight	Rank
Structure	0.279	Documentation relevant to the right information system	S11	0.192	0.054	3
		Staff support	S12	0.170	0.048	7
		Financial resources , physical space and equipment	S13	0.121	0.034	18
		Financial resources , physical space and equipment	S14	0.130	0.036	15
		Focus on the goal and mission of accreditation	S15	0.120	0.033	19
		Standard processes	S16	0.129	0.036	17
		Managerial stability in organizations	S17	0.138	0.038	13
Process	0.278	decreased percentage of surgical interventions	S21	0.192	0.053	4
		Promoting the provision of diagnostic services	S22	0.130	0.036	16
		Quality improvement	S23	0.074	0.024	24
		reduction in planned events	S24	0.111	0.031	21
		Relationship between the clinical skill of the doctor and the patient 's values and preferences	S25	0.223	0.062	2
		Use of Technology in Processes	S26	0.269	0.075	1
Outcome	0.443	Reduction of medical errors	S31	0.087	0.038	12
		Improving clinical skill of physicians and values and prefrences	S32	0.070	0.031	20
		Reduction rate of Surgical Site Infection	S33	0.0.105	0.046	10
		death rates	S34	0.106	0.047	9
		Improving health compliance	S35	0.099	0.044	11
		Lower risk assessment and re - assessment	S36	0.118	0.052	5
		Treatment of Diseases	S37	0.109	0.048	6
		Decrease in patient ' s problems	S38	0.083	0.037	14
		Good feeling	S39	0.106	0.047	8
		Health recovery	S40	0.060	0.026	22
		Reduction of medical reporting errors	S41	0.058	0.026	23

the special vector obtained, it is clear that the low risk index and revaluation of the weight of 0.088 are the most important factors. The inconsistency rate was also around 0.086 that shows we can trust the comparisons made in output.

To determine the final priority of the factors using the hierarchical analysis technique, weights related to the main criteria and those of the factors based on each criterion should be available. To determine the final priority of the factors with the AHP technique, the weight of the indicators according to each option should be multiplied by the weight of the main criteria. Each of these matrices was calculated in previous steps. Indicators were calculated using the final values of the final priority.

Therefore, according to the calculations, the final weights of each model index were calculated using the Fuzzy AHP technique. Finally, according to the general classification of options, the use of technology in the processes showed to have the highest rank. (Table 3).

In the first, second, and third hypotheses, (the structure, process and outcome factors affect the establishment of the accreditation system.) the observed mean was significant in all three dimensions (structure, process and outcome); the value of the statistic t was larger than the critical value. Also, all the three dimensions were higher than the average of respondents, so all the three hypotheses are confirmed.

The results of Pearson correlation between the research variables showed that there was a significant positive correlation between the structure and outcome, process and outcome and also between each of the three dimensions and establishment of the accreditation system. As to the fourth hypothesis, the effectiveness of implementing the model to validate the pattern of accreditation in the reduction of medical errors, independent variables could explain 89.6 per cent of the dependent variable variation, which was significant, indicating the effectiveness of implementation of accreditation in reducing medical errors.

Discussion

In the present study, the criteria for structure, process and output were evaluated and ranked as the priorities in social security hospitals, respectively. Considering the final weight of each model index with the fuzzy AHP technique, the use of technology in processes had the highest rank. Among the structural criteria, the appropriate documentation and information system were of the highest priority. The final priority of each of the process indicators according to the ranking of process factors was technology use which was the most importance indicator. Also, due to the output ranking, the index of low risk of evaluation and revaluation was of the utmost importance.

In order to investigate the accreditation deployment in hospitals, , Azami and colleagues (2013) showed in their study that the most important obstacles in establishing the model of accreditation were lack of manpower, lack of medical participation, lack of resources, documentation, and information systems. Rahati et al. (2014) also showed that the structure of human resource and human resource development in good condition; customer - centric , leadership , and teamwork???? were effective in implementing the accreditation pattern.

In general, process and outcome evaluation standards have gradually replaced the standards of traditional assessment,based on data and physical structures. Of course, this change in attitude has been accompanied by a systematic program for familiarizing the managers and decision-makers with this subject, and it has taken years to implement comprehensive quality management programs on the agenda of the health system and avoid imposing this program in an orderly manner (30). It seems that a combination of structural, process and outcome standards would be the best choice for controlling the quality of care and healthcare-care facilities (31). One of the attributes of accreditation standards is t identification of a standard type in which the scope and type of standards must be clear in terms of structure, process or output (32).

Another study on the assessment of hospital accreditation standards in the country, using 547 views of hospital managers, showed that the rate of satisfaction of hospital managers about the contents of hospital accreditation standards has been at an average level. Other studies also expressed similar problems in accreditation of Iranian hospitals (29).

The search for different indicators of the study, comparing the average patient's residence based on the degree of assessment of the hospital, which is somehow influenced by the accreditation program of hospitals in the country, showed the changes of this index based on compliance with accreditation standards. This issue is expressed in Ghavami QanbarAbadi's research. However, in the hospital ranking system, structural indicators have a higher weight and there is a need to change the indicators and take performance and output indicators into account (33).

The findings of the study conducted by Mohebibar

et al. showed that the first priority of the recipients of the possibility of establishing an Internet or telephone system for the receipt of information and the rotation of the hospital's acceptance of accreditation has not been taken into account. And this matter has shown that the accreditation system has more focused on systemic quality criteria than on customer (34). Since the findings of the present study showed that output and performance standards were more important than structural standards, it seems that ultimately it is necessary to achieve an effective model for establishing accreditation based on structural, process, and output standards and considering the weight of each standard group. In fact, accreditation is carried out when the hospital announces its full readiness to foreign assessors to comply with pre-determined standards, and accreditation standards are determined based on the ability to provide care by management and clinical staff to evaluate and modify the structure, processes and outcomes of care (35). The findings of the Mosadegh Rad et al.'s study showed that the accreditation measures required leveling, weighing and reducing the number of standards and measures, changing the scale of scoring, comprehending the standards, applying a functional approach to standardization, as well as paying attention to the diversity of hospitals in the formulation of measures; these are considered effective in improving the content of accreditation standards (28). In this research, the importance of output criteria was also mentioned, which is consistent with the findings of this study. Perhaps the reason for this consistency is justified by the use of managers and staff working in hospitals as providers of hospital collections. Therefore, in this study, research samples were selected among the hospital staff and those directly related to the treatment process and the functions.

Among the limitations of this research, the completion of the questionnaire by participants and judges and scores without the presence of the researcher can be mentioned, so, in decision making models, hierarchical analysis is also one of these methods; the presence of an assessor can be helpful in obtaining effective findings.

Conclusion

As to the factors affecting the establishment of the accreditation system, the ranking of factors showed that the output criteria had the highest priority,; the criterion of structure was the second priority and the process was the third one. Since the findings of the present study showed that output and performance standards were more important than structural standards, it seems that ultimately it is necessary to achieve an effective model for establishing accreditation based on structure, process, and output standards and considering the weight of each standard group.

Acknowledgment

This research is a part of the master's degree thesis on "Identifying and prioritizing factors affecting the establishment of accreditation system in Tehran's social security hospitals: 2017" which was conducted at Islamic Azad University of the Electronic Unit.

Conflict of Interest: None declared.

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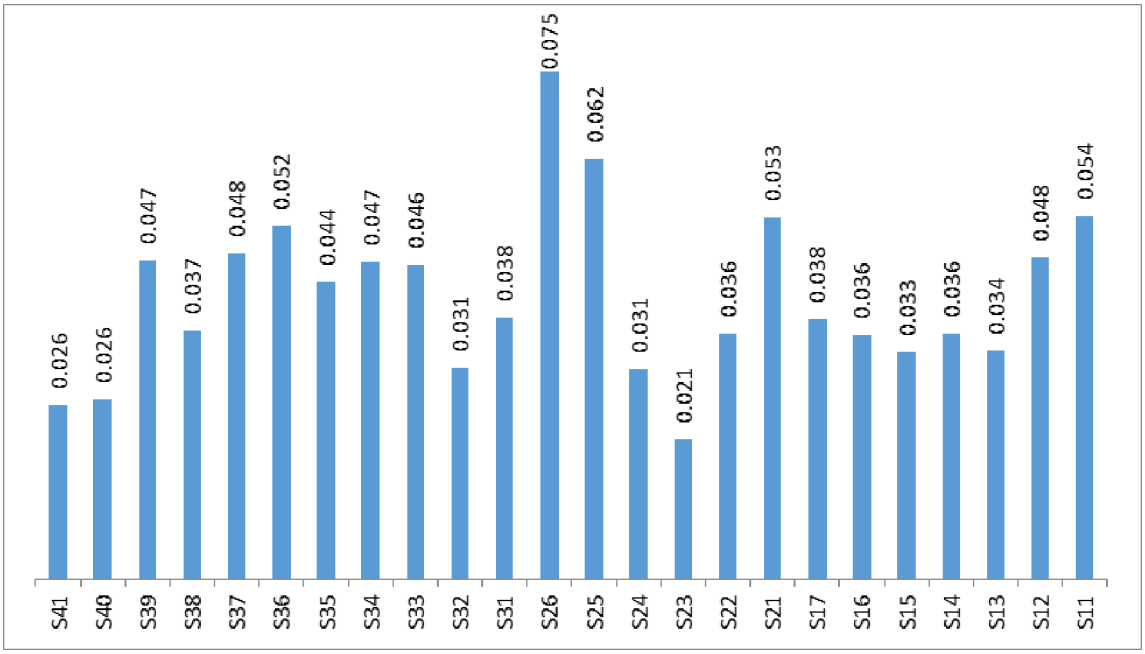

Figure 1: The final priority of the options; the output of the hierarchical analysis technique