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Quality measurement indicators for Iranian Health Centers

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Abstract

Background: Recently, quality is a serious concern in development of organizations. There are various indicators to assess quality and the purpose of this study was to identify the main indicators for quality measurement of Iranian health centers.

Methods: This qualitative study was conducted in three stages: first, review of the literature was performed to identify different indicators for quality measurement in health centers; second, a two-round Delphi process was used with participation of 18 experts in both rounds; third, Analytical Hierarchy Process (AHP) method was applied to give weights to each indicator.

Results: Twenty-seven indicators were identified from the literature review stage. The Delphi method reduced the list to 4 indicators. Developing a quality plan in the health center had the highest weight (38%) and percentage of followed complaints the lowest (12%). The consistency rate was 7.2% indicating appropriateness of the data.

Conclusion: This list of indicators can be used as a template for measuring quality of health centers in Iran and possibly in other developing countries.

Keywords: Quality Measurement, Indicators, Health Centers.

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Introduction

A network of primary health facilities has been constructed from Alma-Ata declaration, to improve the quality of health care system (1). In Iran, the majority of rural and urban population receive primary health services from health centers. Formally each health center offers services to about 12500 people. Providing health services such as visiting students, examining women health, vaccination, dental health and environment health are some of specific activities of health centers in Iran (2, 3).

There are some challenges in measuring health centers' performance. Major outcomes of health services would be researchable almost in the future, thus, it is hard to measure the outcomes instantaneously. Inefficacy of reliable data resources about health is another challenging item (4). Nonetheless, there are some available factors to determine quality of health centers and their services (5-7).

It is widely accepted that the use of organizational quality systems in the health care sector helps the organizations for improving the quality of services provided and the efficiency and effectiveness of the personnel (8, 9).

To our knowledge, there has not been any previous study regarding a model for immediate quality measurement indicators for Iranian health centers. The main objective of this study was to develop a list of indicators to measure quality of Iranian health centers.

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Methods

This qualitative study was conducted in three stages: first, a narrative review of the literature was conducted to identify the list of organizational quality indicators for health centers; second, the Delphi process was used to select the main quality indicators for immediate assessing the organizational quality of Iranian health centers. Then Analytical Hierarchy Process (AHP) was used to give weight to indicators.

The research team searched through Elsevier, Scopus, Web of science, Emerald and Springer databases for quality measurement indicators for health centers.

The Medical Subject Heading (MeSH) terms used for searching were "quality", "quality of health", "health center", "primary health center" and "indicator" in the title/topic of articles. After the first search the duplicate articles were removed by Endnote software (X3 version). Then two reviewers reviewed all the articles for study inclusion criteria.

The inclusion criteria were: 1) articles which were published in peer reviewed English language journals, 2) articles which were cited in eligible databases, 3) articles which were published from 2001 to 2011. Then papers were reviewed in detail. Consequently, we identified 27 indicators for measuring organizational quality for health centers.

To reach consensus a Delphi procedure was used. Indicators collected from literature were used as the basis for the questions, which the experts were then asked to proofread. We designed an ascending assessment scale from 1 to 5; 1: Extremely disagree, 2: Disagree, 3: Neutral, 4: Agree, 5: Extremely agree.

To answer the questions of the questionnaire the experts must have sufficient professional knowledge, and related experience. Therefore, this study selected experts with one of the following qualifications: (1) A current or previous health center manager with at least 5 years of practical experience; (2) A PhD degree of health services management with related experience; (3) A professional and technical staff with 10 or more years of practical experience.

Based on the qualifications, 18 people were selected as experts for Delphi procedure. Each expert was asked to fill out the questionnaire. They could suggest any item related to quality measurement that was not included the questionnaire. The Delphi members' answers were collected and then analyzed by SPSS 19. In this study we conducted a 2 round Delphi to select the indicators. For the first round of Delphi, we distributed 18 questionnaires with a return rate of 100%. We repeated this for the other round. After the two rounds of Delphi, the data were analyzed to develop a list of indicators. The mean (±SD) and t test was used for data analysis.

After designing the primary list adopted from the Delphi results, we sent back the list of developed indicators to the experts to confirm it. If two out of three of the experts agreed to add or omit any indicator we considered it to develop the main list. Thus, reliability and validity of the list were checked.

The Analytical Hierarchy Process (AHP) technique was developed by Saaty (10,11) as a powerful instrument used for multiple criteria decision making purposes (12). AHP basically enables decision-makers to prioritize alternatives. AHP uses pair wise comparisons to identify the priority of alternatives in a multi-criteria decision-making problem (13). At the top of the hierarchy in this study is the organizational quality of health centers.

Therefore, we first defined the indicators, then, made a series of pair wise comparisons, and finally, estimated relative weights for measurement of overall per-

Table 1. The nine-point scale and description of its items.

Definition	Intensity of importance
Equally importance	1
Moderately more importance	3
Strongly more importance	5
Very Strongly more importance	7
Extremely more importance	9

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Table 2. Participant characteristics in Delphi procedure.

Variable	Category	GP N (%)	Health manager N (%)	Public health N (%)
Gender	Male	3(50%)	2 (50%)	5(62.5%)
	Female	3(50%)	2(50%)	3(37.5%)
	Total	6(100%)	4(100%)	8(100%)

Table 3. Details of Delphi rounds data in selecting indicators.

No. of indicators for next round	No. of Not Accepted N (%)	No. Accepted N (%)	No. of indicators N (%)	Delphi Rounds
17 (62.9%)	9 (33.3%)	1 (3.7%)	27 (100%)	First
0	14 (82.3%)	3 (17.6%)	17 (100%)	Second

Table 4. Descriptive statistics of selected indicators in the second round of Delphi

Round of Delphi	Selected Indicators	Mean	SD
Second	Existence of quality development team in health center	4.56	0.70
	Patient satisfaction rate	4.16	0.70
	Percentage of followed complaints	4.88	0.32

formance (14).

After revealing the quality indicators, 5 experts estimated relative weights by using AHP method. Application of AHP to rank/order the 27 indicators required 3 steps. In step one, 18 experts selected 4 main indicators. In step 2, five experts compared indicators and discussed why a given indicator would be more or less important than another and the degree of the difference. In order to help the comparison it was created a nine-point scale of importance. The suggested numbers were to express degree of importance between each two indicators as shown in Table 1. Intermediate values (2, 4, 6 and 8) were used to represent comparisons. In step 3, researchers calculated the weights for each indicator by K. Goepel Version 9.5.2012 software.

Results

The search strategy and application of the inclusion criteria yielded relevant articles published in specified period of time. Based on the literature review we found 27 related indicators of quality.

The number of participants that filled in the questionnaires and attended the Delphi procedure is presented in Table 2.

About 55% (n=3) of participants were female and 50% (n=3) were male. About 22% (n=1) were educated in health services management filled and 33.3% (n=2) were general practitioners.

The selected indicators from analysis of the data in the first round of Delphi were used to develop a quality plan for the health center. In the second round 3 indicators were selected as: having a quality development team in health center, patient satisfaction rate, and percentage of followed complaints. Table 3 shows the results of Delphi rounds for selecting quality indicators.

About 3.7% (n=1) of indicators were statistically significant in first round and 62.9% (n=17) of indicators were asked in the second questionnaire. In the second round the return rate of questionnaires were 100% as the first round. After the analysis of the second round of Delphi, the primary indicators of organizational quality measurement were developed. The descriptive statistics of four selected indicators is shown in Table 4.

After developing the primary list of indicators, it was sent to experts again. They were asked to proof the indicators and make some changes if necessary to develop the main list. The experts confirmed the list by 100% rate.

The AHP hierarchical structure for this study is shown in Figure 1.

The consistency rate was 7.2% and it shows that the data were appropriate.

Discussion

In Iranian health system there is a particu-

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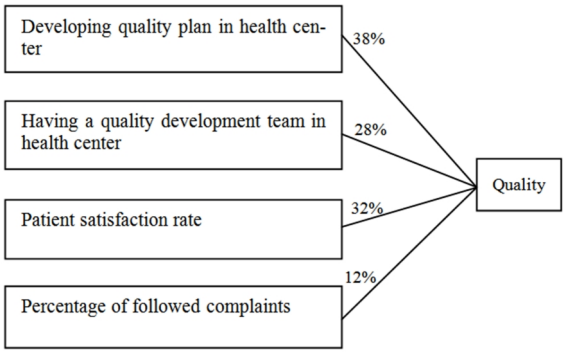


Fig.1. AHP hierarchical structure for indicators of quality.

lar interest in quality assessment, both in healthca re services and in healthcare organizations. But the main interest is focused on quality of hospitals than health centers. Obtaining quality certifications is very popular for hospitals. Besides, Conducting different programs like ISO, organizational excellence, clinical governance and similar programs can be seen in medical and therapeutic centers like hospitals. In this research we tried to extend this trend to health centers in Iran.

As indicators of quality, two indicators of "developing a quality plan" and "having a quality development team" in health centers are in line with other studies (7,9). These two indicators can develop the quality of healthcare services effectively (5). "Patient satisfaction rate" was another indicator of quality of services. As a major component of quality of health care, patient satisfaction is a key determinant of pay-for-performance metrics (6). Dib et al (2010) showed that patient satisfaction rate can predict the degree of the healthcare quality. They declared that increasing the rate of healthcare quality leads to increasing of patients' satisfaction (15). However, further research needs to confirm this finding.

Having a strong primary health system needs an appropriate performance measurement model to cause a positive impact on population health (16). Developing quality measurement model for health centers provides a new insight. Our proposed list of indicators could be used to guide the development of quality in health centers. The list of indicators may not follow a consistent pattern over time.

Different studies have emphasized on quality as an important issue in organizations (15,17,18). However few studies have prioritized the quality indicators in healthcare organizations. Our list provided four indicators based on the experts' opinions. These indicators can help the evaluators to measure the quality of health centers.

There is a pressure to improve the performance worldwide, though it is not achievable without a measurement tool (19). In this research feedbacks from the managers, health workers and academia were used to develop the list of indicators.

Conclusion

In this article we developed a 4 indicator list for rapid measuring of organizational quality for Iranian health centers. This model can be used as a template for rapid quality assessment in other developing countries. This model was developed by calculating weights of each indicator. This study is unique because a new methodology was used to design a list of indicators.

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