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Short Communication

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Restructuring Non-teaching Hospitals into Teaching Hospitals in Iran: Component Change in General Hospitals

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Abstract

Background: The present study investigated how a general hospital is restructured in Iran when transforming from a non-teaching into a teaching hospital.

Methods: This applied study was conducted based on a mixed-method design from 2020 to 2021 using a systematic search and review, document analysis, comparative and cross-sectional design, multiple voting technique, and qualitative phenomenological method.

Results: The conceptual framework of the components of a hospital as a system includes inputs (governance and policy-making, goals and mission, clinical and support departments, physical space, clients, and human resources), processes (internal and external relations, key processes, type and level of services, and teaching mission systematization), and outputs (performance evaluation, internal and external customer satisfaction, human capital empowerment, organizational behavior, income-cost management, cost-effectiveness and efficiency, service quality, and legal and social responsibility).

Conclusion: The findings from the present study depicted how the components of teaching and non-teaching hospitals are restructured when changing their functions. Restructuring an established organization, such as a hospital, is very challenging and requires multiple changes. This study had some implications including highlighting the need to formulate protocols for restructuring non-teaching hospitals into teaching hospitals or constructing new teaching hospitals, classifying teaching hospitals and clarifying their differences, focusing on the teaching mission in hospitals, and reviewing and updating the integration of medical education in providing health services.

Keywords: Systems integration, Teaching and non-teaching hospitals, Healthcare system, Iran

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Introduction

Hospitals, like other organizations, are complex social systems that are affected by a complex set of variables such as staff, resources, structures, and other factors contributing to achieving certain goals. Accordingly, the differences in the goals pursued by hospitals will cause a difference in their functions and performance (1). Teaching hospitals are different from non-teaching hospitals in terms of cost, service quality, customer satisfaction, etc., and often have low efficiency (2,3). On the other hand, teaching hospitals are responsible for the training of future workforce and have to deal with a variety of clients and complex diseases (3,4). Restructuring medical centers in terms of usage, activity, and organization is not a new issue and an example is changing non-teaching hospitals into teaching hospitals (5). According to the released data, since 2017, Iranian parliamentarians and other Iranian officials have promised to repurpose 25 non-teaching hospitals into teaching hospitals (6,7). However, the main problem is that non-teaching hospitals in Iran are not restructured into teaching hospitals based on scientific evidence, and this causes execution problems as well as substantial financial losses (8). Since the two types of hospitals are different, the restructuring process should be transparent for health policymakers and managers. This being so, the present study identifies the changes made in the components of non-teaching general hospitals when repurposed into teaching hospitals in Iran.

Methods

This applied study was conducted using a mixed-method design from 2019 to 2021 in five separate but complementary steps. Finally, a conceptual framework was developed using the outputs from the previous steps. The proposed framework was assessed by the research team consisting of four healthcare management experts.

Step 1: Comparing the differences between non-teaching and teaching hospitals in Iran and the world

Population and sample size: (a) Primary/empirical studies published in English and Persian (Persian databases including SID, Magiran, Ensani.ir, and Irandoc and English databases including Web of Science, Scopus, ProQuest, Emerald, EBSCO, Embase, Google Scholar, PubMed, and related journals). (b) No time constraint for eligible studies (up to late September 2020). (c) A total of 713 studies were selected in the initial search.

Exclusion criteria: Articles whose full text was not available.

Data analysis: (a) Using Endnote X8 as a reference manager to remove duplicate articles. (b) Using the Crowe Critical Appraisal Skill Tool (CAT) checklist (9) to evaluate the selected articles. (c) Using conventional content analysis and data analysis process proposed by Lundman and Graneheim. After removing duplicate, irrelevant, and poor-quality articles, 48 articles were selected for final analysis.

Instrument: The data were collected using a data collection checklist through systematic search and review.

Step 2: Structural analysis of the organization and physical space of non-teaching and teaching hospitals

Population and sample size: (a) First, all upstream documents approved until late 2019 were identified. Next, 26 records about the physical space of the hospitals and 5 records about human resources in hospitals were selected through purposive sampling with maximum variation. (b) The compared units were homogenous teaching and non-teaching hospitals with 200 to 300 active beds and also the bed occupancy rate, and first-grade accreditation score in the last three years. According to the census, 38 hospitals (13 non-teaching hospitals and 25 teaching hospitals) were selected from 10 major teaching districts in Iran.

Data analysis: (a) Using conventional content analysis and data analysis process proposed by Lundman and Graneheim. (b) Refining and sorting the data, converting them into information, and comparing the information using comparative tables.

Instruments: (a) Using Scott's criterion and data extraction form (10). (b) Data extraction tables and linked Excel files.

Procedure: (a) Qualitative using document analysis. (b) Qualitative using a comparative study.

Step 3: Comparing the composition and type of non-teaching and teaching hospital patients

Population and sample size: (a) Units of analysis were specified based on Step 2 of the previous stage from December 2018 to December 2019 (before the COVID-19 outbreak). (b) The research population was similar to that of the previous step and the sample size consisted of 10611647 records. The data were collected in Step 1 using the National Hospital Statistics and Information System (AVAB) and in Step 2 through the hospital information system (HIS).

Data analysis: (a) This step was similar to the second stage in the previous step. (b) Data processing and analysis were performed using Python (v 3.5). To compare different variables, several statistical tests (Kruskal-Wallis, chi-square, and logistic regression model) are required. Before running the logistic regression model, the recursive feature elimination (RFE) technique was performed for feature selection.

Instruments: (a) Data extraction tables and linked Excel files. (b) A researcher-made form and statistical tests using Python (v 3.5).

Procedure: (a) Qualitative using a comparative study. (b) Quantitative using an analytical cross-sectional study

Step 4: Analyzing the key processes in non-teaching and teaching hospitals

Population and sample size: (a) The core processes were selected using purposive sampling. The selected processes were ranked by 20 hospital officials and the staff in the hospital quality improvement offices. The sample documents were reviewed as detailed in Step 1 (structural and physical space analysis). Third, according to the existing processes, the official websites of the hospitals were checked. The processes were clarified by three quality improvement experts. (b) The units of analysis were specified based on the output from the previous step.

Data analysis: (a) The extracted documents were analyzed using conventional content analysis proposed by Lundman and Graneheim, multiple voting technique, statistical sums, and individual votes for group judgment or final consensus. Moreover, scenario modeling was used to map the processes. (b) The structural and physical space analysis was performed as detailed in Step 2.

Instruments: (a) A researcher-made questionnaire, data extraction forms, Scott's criterion, workstation tables, and Microsoft Vision-2019 software. (b) Data extraction tables.

Procedure: (a) Qualitative document analysis, multiple voting technique, scenario formulation, and process drawing. (a) A qualitative comparative study.

Step 5: Exploring the experiences of medical teaching in the process of restructuring a non-teaching hospital into a teaching hospital

Population and sample size: (a) A total of 40 hospital

managers working in both teaching and non-teaching hospitals were selected through purposive sampling. (b) Face-to-face interviews were conducted with the selected managers for 50 minutes on average.

Data analysis: Clarke and Braun's six-step thematic analysis.

Instruments: An interview guide and MAXQDA-10 software.

Procedure: A qualitative phenomenological approach and semi-structured interviews.

Results

The components of a hospital as a system include inputs (governance and policy-making, goals and mission, clinical and support departments, physical space, clients, and human resources), processes (internal and external relations, key processes, type and level of services, and teaching mission systematization), and outputs (performance evaluation, internal and external customer satisfaction, human capital empowerment, organizational behavior, income-cost management, cost-effectiveness and efficiency, service quality, and legal and social responsibility) (Supplementary file 1, Table S1).

Discussion

The findings of the present study showed the outcomes of teaching and non-teaching hospitals are different in Iran and the world. Likewise, previous studies have shown different output indicators between teaching and non-teaching hospitals (3,11,12). The data in this study also indicated that hospitals in Iran are facing increased costs (6,7). However, in some countries, additional resources are allocated to teaching hospitals through specific funds allocated for education, research, or services for complex cases (13).

Coordination is more challenging in general teaching hospitals. Similarly, a study suggested that the high workload in teaching hospitals reduces the quality of education (14). It should be noted that the organization is not a simple structure or diagram. In addition, as reported in the present study and other studies, the matrix structure is a contributing factor in teaching hospitals due to their multiple missions (15). Moreover, internal communication in teaching hospitals in some countries is not very coherent or there is no specific communication channel (14).

The present study and other studies have highlighted that patients with more complex conditions are referred to teaching hospitals. Concerning distributive justice, although the future interest of the community is best served by training experienced doctors, this issue has not yet been addressed (16). The present study also showed that when the mission of a teaching hospital is extended, its complexity will increase. Thus, all dimensions of the hospital's mission should be taken into account. Furthermore, managers should try harder to more efficiently handle hospital services (16).

organizational behavior has been changed during the change of hospital. in the world, Matrix structure is the helper factor in university medical centers considering their multiple missions (15).

Another issue in this organizational change will be the issue of facility management and in particular the issue of physical space requirements and prerequisites. Facility management in a hospital is the process of reassuring supervisors that a hospital's facilities, equipment and facilities, access, and engineering and architecture support its missions as an important medical institution.)6,7) In the design of a building, it is necessary to study the basic needs related to the list of spaces in relation to the types of functions and its capacity as a physical program.

Limitations of the study

This study was conducted with some limitations. Most importantly, there were not enough published studies on this issue in Iran. To compensate for this shortcoming, the data were collected from different sources using different techniques.

Conclusion

Academic medical centers play a vital role in the healthcare system. In addition to providing a wide range of basic and specialized services to patients, these centers are the main sites for advanced medical education and research. In most countries, academic medical centers are affiliated with medical schools and are less involved in healthcare activities (3,4,11). Restructuring a hospital as a system leads to some changes in its functions including inputs, processes, and outputs (5,12).

In general, regardless of the advantages and disadvantages of teaching hospitals, their efficiency is an important issue due to the high expenses and the extensive activities of these hospitals (2). One of the reasons for the inefficiency of an organization can be organizational changes. Besides, all recent hospitals that have been repurposed into teaching hospitals have less than 300 beds and do not have optimal efficiency. Thus, policymakers and officials should closely monitor the restructuring process.

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Authors' Contribution

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Competing Interests

The authors reported no conflict of interest.

Ethical Approval

As part of a PhD dissertation, this study was conducted with ethical considerations, and the research protocol was approved by the Iran University of Medical Sciences, International Campus (IUMS/SHMIs_2019_1_37_14429) with the ethical code (IR.IUMS.REC.1398.259).

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Supplementary Files

Supplementary file 1 contains Table S1.

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