Dimensions of Structural Complexity in a Healthcare Network based on Design Structure Matrix and Quality Function Deployment Techniques: Designing a model for Firoozabad Healthcare Network, Iran

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Abstract

One of the latest methods for analysis of structural complexity is, Design Structure Matrix which has been used and has been given, lots of attention in academic and scientific centers in recent years. This project was undertaken in order to reveal the structural complexity of Firoozabad (Fars Province) Healthcare network. This analytical research has descriptive and realistic dimensions. At first, by studying the functions of present network and organization, the current structure was extracted. Then the direct and indirect dependencies of each sector and units were analyzed. The results of these dependencies in house of quality proof were used in Quality Function Deployment Techniques to generate the current system which is an amalgamation of the two methods mentioned above. Based on our findings, we can give all the responsibilities of the network campaign (Network Headquarter) to the central healthcare system (Health Center) and remove it from that system. The mixture of the two mentioned techniques can change the organizational structure of central healthcare system which is dependent on productivity and change it in to a division or a branch. And at the same time, hospital mechanical bureaucracy can change into a professional bureaucracy. However, the organizational structure of emergency centers won’t go through any dramatic changes. Finally, the structure of healthcare network will be of a hybrid one. Combination of the mentioned techniques by modifying the organizational structure without any changes to network functions will lead to a flexible structure that can answer the demands of those who benefit from it.

Keywords: Design Structural Matrix, Quality Function Deployment, Healthcare Network

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Introduction

Healthcare services of a country are established based on cultural, political, economical, social, and scientific foundations which form the healthcare infrastructure of a country. Nowadays, issues such as globalization, free trade, excessive use of technology, urbanism, and change in illness pattern with addition to poverty and natural disasters, has created a problem in a sustainable healthcare services, which makes revisions and developments in healthcare system inevitable [1].

Health is the essential right of any human; consequently everyone should have access to basic healthcare services. In spite of this, in the world today health problems such as lack of safe drinking water or prevalence of modern disease like Tuberculosis, Malaria, and HIV [2, 3, 4] are recognized as hazards and insufficiencies in a healthcare system. The root for most of these problems is incompetent administration, unsuitable healthcare staff organization, and finally inadequate organizational structure [1].

In healthcare organizations, due to the usage of complex technology and existence of several kinds of subspecialties for giving services, it requires an extensive coordination between different departments, and that makes it really complicated. This issue in a healthcare network is very evident, due to the fact that it has to provide services in separate levels with separate process that demands an extensive synchronization between all levels [5]. A large number of organizations continuously go through changes in order to adapt themselves with their surrounding environment. Clearly, in process of organizational expansion, a key component for transition is management and its organizational structure. Thus, with the expansion of any organization, restructuring must occur. Selecting a suitable organizational structure not only depends on external variants such as degree of developments of other organizations and economy of a country, but also on internal variants like, the size of an organization, level of managerial development and its complexity [6].

Based on researches, organizational structures in many healthcare and clinical networks are concentrated and centralized which has caused for all small and big decisions and policies to be made externally [7].
In Iran, 71.4% of all healthcare network managers have acknowledged the need to modify the current organizational structure [8]. Since change in structural pattern of an organization requires essential and fundamental changes in all aspects of the network which is costly and lengthy, thus, it’s hardly executed [9]. More international researches have shown that, structure of euro zone healthcare network has mainly changed from hygiene to treatment and this has caused many problems in this field [10].

The existing complexities in healthcare networks and being multidimensional from the perspective of functionality, client, process, working hours, and geographical dispersion has caused lots of uncertainty in choosing an appropriate structure for a network [1]. In the previous years, scientific techniques in determining the structural models have been able to forecast the outcomes and their effects on the structure, and the executive orders [11].

Warfield in the 70s and Steward in the 80s used matrixes, for Designing Structure Systems. In spite of that, after the 90s extensive attention was given to matrix system as a method. One of these matrix models is Design Structure Matrix (DSM) which is used to reveal the relationship between different elements in a system and determine the methods of exchanging data or materials between different elements. This method is a tool for management of complex structures that emphasizes on critical data, dependencies, and sequence of elements and their processes. With demonstration of all effective factors in one square matrix, this method can generate the most appropriate way to correspond as well as dependency between all parts in a way where the least amount of duplication occurs [12]. There are many reports about widespread practice of this technique around the world. The main usage has been to increase the quality of end product [26] or to establish the main frames for developments of production in industrial organizations [13].

However, we have to consider external factors before selecting an organizational structure. They range from demands and tastes of stakeholders and clients, environment and cultural necessities, and sociopolitical aspects.

These kinds of subjects in the quality management field are identified as quality function deployment (QFD). This method is a suitable framework that could translate the demands and tastes of its stakeholders and clients and transform them into technical specifications, in a way that they can be assessed and identified [14].
Conclusions of other researches indicate that, by using (QFD) we can achieve, improvement in services design based on increasing demands and expectation of clients as well as organization functionality [15,16].

Combination of QFD & DSM methods in a system design can lead to a much better structure in a way which the requirements of stakeholders has been taken in to consideration. Many researches, emphasizes on functionality and usefulness of data which is obtained through DSM in QFD techniques [17]. However, in spite of what was said in healthcare area, there has been no official research on this subject based on the authors review and research. And current article tries to review an amalgamation of the mentioned techniques as well as explaining how to determine fundamental structure of health network in city of Firozabad, Fars province.

Method

This research is descriptive, cross sectional and it’s practical. It was conducted in city of Firozabad health network, Fars province. In DSM technique, research population includes all the original and partial aspect of the network and the way they dependent. These parts in the network structure in Iran consist of: Township health network, its hospitals, networks headquarter, emergency center 115, and their substructure. The parts which are mentioned above are standard health network structure in Iran. Since, in DSM technique all parts and dependencies are taken in to consideration, therefore, no samples were taken in this review because, the research population is identical to the samples of the mentioned technique.

Research sample in QFD technique, were all managers, processors, and the city Firozabad health network clients. In addition to the network managers, also mangers from Shiraz University of Medical Sciences were used (authority principals in deputy of hygiene, care and development). The estimated Numbers of people that were used in the research sample was 58.

In QFD technique due to usage of Delphi method sampling is done based on target sampling in this sampling the distinguishing feature is that there won’t be any chance of randomizations [18]^4. Based on other studies, participant in Delphi team were 15 to 20 people [19].

^4 - In Delphi method quality of panelists are more important than their quantities (19 & 20).
Since, by increasing the number of participant up to 20 people it would increase the outcome quality, therefore, 20 people were selected for this study [20]. Since team member selection procedure was based on number of factors such as; years and level of academic education, work experience and managerial experience for selecting managerial team, hence, 7 managers from Shiraz University of Medical Sciences and Firozabad health network were chosen respectively (4&3). Selection procedure for process owners was based on, level of academic education and work experience; hence, 6 employees were chosen from the network. Among clients, 7 people were chosen based on the frequency and repetition of their visits to the network.

For the purpose of collecting the data which is related to DSM technique, for each of the 4 main parts of the structure (hospital, health center, network headquarter and emergency 115) a square Matrix with similar rows and columns are used. In each part, organization units are considered as the main component of the Matrix. In order to complete the Matrix framework the direct dependencies between units were based upon 5 specifications (data, human resources, patients/client, funds and equipments/documents dependencies) were evaluated.

In these Matrixes for each exciting organizational units in the 4 main parts of network, activity index, passivity index, and criticality index were used to calculate the rate of dependencies between each of the units. These calculations are conducted in the main DSM Matrixes. In the next phase the dependencies, in 2 by 2 between parts of network in DMM (Domain Mapping Matrix), were calculated. For instance, the dependency of the 2 main units of the township hospital and the network headquarter were considered in 5 aspects. In the final phase, the data that was collected from DSM and DMM matrixes were placed in a 120 cells and was named MDM matrix (Multiple Domain Matrix) and then it was analyzed and evaluated. In this matrix, all the network units were evaluated with each other, based on 5 point dependency.

To determine the final status of each unit based on the 5 mentioned points, the new matrixes were formed based on criticality index, and then, non-scoring and calculating the internal weight by using the Shanon Antrophy method, and SAW\textsuperscript{5} techniques, then final score for each unit was calculated and finally each organizational units were graded and ranked based on their achievements.

\textsuperscript{5} - Simple Average Additive Weighting
Since, DSM technique uses optimization method by way of minimizing, therefore, the final results of these matrixes lead to recognition of omittable units in the network with the lowest scores. To be sure about the accuracy of the result, the one way or two ways indirect dependencies between the units were calculated by algebraic method and consequently, omitting the units with the lowest score and not having any sort of indirect dependency in the network structure became possible.

The second part of research data is related to the execution of QFD technique, which studies functional indexes in the network structure. The main components of the house of quality are illustrated in picture (1).

<table>
<thead>
<tr>
<th>Organizational units (B)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index (D)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easiness of change degree in parts of structure (E)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units preference based on SAW (F)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Picture 1: a sample of house of quality that is used in this research

In order to complete the roof of the houses of quality (A), the dependencies which resulted from MDM matrix was applied. In a way that in each 5 point step dimensions, if the dependency between 2 units were one way (unilateral) we used 1 and if the dependency was two way (bilateral) we used 2 and if there were no dependency between the units 0 (zero) was used. Then Likert scale was used to show the linkage in the roof of the houses of quality in the domain of (9, 6, 3, 0).

The core domain for houses of quality (B) was extracted from units' documents like, network development center and township healthcare center and by comparing it with DSM original table which was then finalized. In order to reach an overall point of view based on mentioned indexes in practical structure function (D), the functions of the network was extracted and then by considering similar researches, scientific text, and experts’ view the initial list of the indexes were adjusted.
These lists were made separately for each part in the network. By using Delphi technique in two rounds until reaching 80% agreement from team members then, their opinion was collected and the data in the lists were added together. At the end (Borda group decision making) was used in order to integrate the managements’ point of view [21].

In Borda method the main indexes for structural functions are considered as “evaluated cases” and from 3 more comprehensive indexes “efficiency”, “effectiveness”, and “stakeholders’ satisfaction” were used as decision making indexes. Weights of these three indexes are; 0.2, 0.5, and 0.3 and each one of 20 group members, made their grading table, and then used Borda method until the final outcome was reached.

The main frame for each of the houses of quality (C) and modifying unit index from organizational point of view (E), was also completed with the same method that was mentioned for indexes and by using the same decision making group. Final score (F) for each organizational unit in each house of quality, based on QFD method defaults, was calculated by SAW techniques [22]. The final result in determining the networks structure is depended on the agreement between QFD and DSM techniques in omitting organizational units. Due to the fact that network activities are conducted in a noncompetitive environment, and lots of services are free of charge as well as similarity in services from the point of type and quality; in usage of QFD technique, technical and comparative comparison with other networks wasn’t preformed.

The tool which was used in DSM technique was LOOMEO 2.33 software, and in QFD technique was QFD Designer 4 software.

Results

In the current organizational chart of Firozabad healthcare network, which consist of 120 units and are divided in 4 main parts; network headquarter, township healthcare center, emergency center, and the township hospital. Results from DSM technique for each 5 index point in this study, shows the critical units of each 4 main parts in the network structure.
Network headquarter

Based on DSM technique, in the network headquarter, the most critical unit is the logistic manager and the headquarters’ manager became 12\textsuperscript{th} between all the other units. This is due to the critical role logistic manager has in 3 indexes out of 5 in comparison to the other units in headquarter. Other noticeable units in headquarter are; secretariat, typist, assets and transportation service, whereas, cultural affairs, food & drug, care supervision, and other technical units of headquarter did not achieve high ranks. Headquarters’ laboratory, obtained the lowest ranking in all mentioned indexes at (7.8) in comparison to logistics manager with the ranking of (203.1) a huge gap is evident. Result of the outcome from indirect dependencies shows a comparatively strong relationship between headquarters’ manager and logistic manager, cultural affairs manager, food & drugs manager, and accounting supervisor. These dependencies are often one-way and their direction is toward logistic manager. The result from this research shows that headquarter laboratory from both techniques’ point of view has got the lowest score. On the other hand, by maintaining the outcome functions, secretariat and typist can be merged (table 1).

Township healthcare center

Based on DSM technique, in Firozabad healthcare centers the most important and critical organizational units are contagious and noncontiguous disease units. Then other technical units of the center ranked 3\textsuperscript{rd} to 11\textsuperscript{th} respectively. The most noticeable unit in the center is the centers manager who achieved score of zero and ranked last. And at the same time, results from algebraic calculation showed no significant indirect dependency between the center’s manager and the other units in the healthcare center.

Based on results of QFD technique, the lowest scores belongs to; statistics organization unit, City of Maymand radiology and laboratory unit and are omit able from organization point of view. Environmental health unit and professional health unit gained similar scores in QFD technique. Similar result was also achieved in contagious and noncontiguous disease unit and nutrition, family health, and schools health units. Social workers school and health education are in similar situation (table 1).
Township hospital

Based on DSM technique, the most important organizational unit among all the units in the hospital is nursing manager and then it is the internal manager. Next are the therapeutic and care units. The hospital manager ranked 41 out of 49 places and the lowest score belongs to the screening unit. In QFD technique screen unit is ranked 329 out of 466 places. The result of this technique reveals similar scores and functionality of organizational units in the township hospital:

General warehouse and equipment warehouse, maintenance and public services, Thalassemia and Hemodialysis, male and female surgery unit and male and female internal unit, ICU and CCU.

In result of both techniques, the lowest score belongs to medical documents and archive unit and therapeutic and care unit has achieved the highest score (table 1).

Emergency center

By examining the results from DSM technique, it reveals that in the case of emergency center we can’t easily point out which is the most important or the least important unit in the emergency center. Payam central unit, Javakan, Maymand, and Firozabad all had similar ranking, and they all ranked number one plus emergency unit managers and transportation ranked second with similar score. With the existence of network headquarter as well as centralization of budget in township healthcare network none of the emergency centers scored any points from money index prospective.

The outcome from QFD technique shows that the lowest score in the emergency center belongs to its manager and highest score belongs to Firozabad center, Maymand and Javakan. From the 2 techniques point of view, none of the 6 units in the emergency center are omit able nor can they be combined with any other units. Table 1, briefly shows the least important organizational units in each of the four main parts of the network, from the 5 indexes point of view in this research.

Comparing the main frame of the 2 houses of quality, headquarter network and health center shows that health center has achieved better score in performing its technical tasks (table 2)
Table 1: organizational units that received the minimum score in DSM technique in each of the main indexes in Firozabad health network, 2012

<table>
<thead>
<tr>
<th>Part/Client</th>
<th>Emergency Center</th>
<th>Network Headquarters</th>
<th>Township Hospital</th>
<th>Health Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information</td>
<td>Laboratory, Watchman</td>
<td>Security guard, Supply, Screen</td>
<td>Center's manager, Mind health, Getting participation, Laboratory, 4 base, 5 base, Maymand lab, Maymand base, M Pharmacy, 1 base</td>
<td></td>
</tr>
<tr>
<td>Human Resources</td>
<td>Laboratory, Pharmaceutical herbal Center, Archives, Leave unit, treatment, Supervision, Drug and Food management, Social Worker, Human Resource</td>
<td>Pharmacy, Security guard, Supply, Screen, Tailoring, Landry, Human Resource</td>
<td>Maymand Radiology, Centers' manager Jaydasht &amp; Javakan &amp; Ahmadabad &amp; Maymand health houses, Coordination Headquarter, Social Workers School</td>
<td></td>
</tr>
<tr>
<td>Money</td>
<td>Laboratory, Security guard Watchman, computer, Accounting, Cultural Affairs manager, Human Resource</td>
<td>Human Resource, Cashier, Security guard</td>
<td>Statistic, Social Workers School, Non contagious diseases, Health School, Getting Participation, Maymand Laboratory, Centers' Manager, Maymand Radiology, Maymand Pharmacy, Tooth &amp; Mouth, Professional Health</td>
<td></td>
</tr>
<tr>
<td>General Index (Collection Of 5 Index)</td>
<td>Emergency Manager, Transportations</td>
<td>Laboratory, Security guard</td>
<td>Getting Participation, Maymand Laboratory, Maymand Radiology, Maymand Pharmacy, Centers' Manager</td>
<td></td>
</tr>
</tbody>
</table>

In the above table, those organizational units which have been underlined are the units that in 3 indexes out of 5 indexes have achieved the lowest score.
Table 2: comparing similar functional scores in 2 parts of network headquarter and township healthcare center based on QFD technique

<table>
<thead>
<tr>
<th>Index</th>
<th>Health center</th>
<th>Network Headquarters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation Programming</td>
<td>1610</td>
<td>244</td>
</tr>
<tr>
<td>Money Allocation</td>
<td>208</td>
<td>165</td>
</tr>
<tr>
<td>Equipment Allocation</td>
<td>592</td>
<td>117</td>
</tr>
<tr>
<td>Information Allocation</td>
<td>800</td>
<td>198</td>
</tr>
<tr>
<td>Human Resource Allocation</td>
<td>460</td>
<td>60</td>
</tr>
<tr>
<td>Financial Official Recipe Performance</td>
<td>536</td>
<td>190</td>
</tr>
<tr>
<td>Financial Supervision</td>
<td>282</td>
<td>155</td>
</tr>
<tr>
<td>Supervision of Property &amp; Equipment</td>
<td>516</td>
<td>86</td>
</tr>
<tr>
<td>Information Supervision</td>
<td>666</td>
<td>118</td>
</tr>
<tr>
<td>Coordination between network units</td>
<td>654</td>
<td>40</td>
</tr>
<tr>
<td>Supervision of Labor</td>
<td>444</td>
<td>46</td>
</tr>
<tr>
<td>Solving opposition of network units</td>
<td>120</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6888</strong></td>
<td><strong>1435</strong></td>
</tr>
</tbody>
</table>

**Discussion**

By examining the network functions in the houses of quality, it indicates that the 3 main parts; network headquarter, township hospital, and township health center are continuously struggle to safeguard their own autonomy and decision making power in the network. The consequence of this power struggle is that, there is more concentration in the network structure, and as a result the middle management never gets the chance to execute or apply any kinds of strategies in the network and they only become a communication bridge between the operation center and higher ranking principals.

Other researches admitted that “this situation has not only threatens the output of higher-ranking and middle parts of the network but also, cripples the transition of information in the network [23, 24]. Such horizontal separation in middle management which is the result of vertical separation in the upper parts of network management can cause parallel process in many of the staff duties (in comparison with line responsibilities). These duplication processes has formed a similar organizational rows in the network headquarter, township health center and hospital.
Similar research has showed that these kinds of parallel operation in any organization can become an obstacle in achieving the main organizational goals [25]. Such duplication does not appear between emergency middle management and other units in the network [6].

Since, horizontal and vertical separation in the network organization is very obvious and at the same time the nature of network’s operation in township health center and houses of hygiene is in a way that geographical separations becomes inevitable, therefore, there is a noticeable “complexity” in Firozabad healthcare network. This complexity has had a bad and negative effect on obtaining services from the healthcare network. Researches results indicate that, long vertical structures have more tendencies towards centralized strategies in an organization [26]. This tendency can cause slow down in an organizational reactions against variety of demands from clients and society. Arab in his research results has emphasized on the point that all governmental and public health organizations in Iran, are centralized and this means that all small and large decisions and policies are dictated from an external source [7].

Based on theoretical and practical objections to the fundamental structure of Firozabad current healthcare network, as well as the outcomes gained by merging QFD and DSM techniques, (table 2), eliminating the network headquarter from the main network structure is one of the most important changes in the new structure. In a similar research by Alizadeh, he concludes that; simultaneous presence of network headquarter and township health center next to each other practically weakens one of the 2 centers and it’s often this power transition is in favor of township health center rather than the network headquarter [27]. As a result of this removal from the vertical separation of the network a less complex result is achieved.

With the removal of the network headquarter, majority of its responsibilities are handed over to township healthcare center and the rest of its duties are given to network manager, township hospital, and emergency center [7]. By eliminating the network headquarters from the main frame and reduction in network centralization, the main operational structure based on QFD technique would become more responsive and effective to the clients’ and stakeholders’ demands in the network. This kind of results has been obtained and verified in quality output technique in other researches done by Ramantan and Ufing’s [28].
By eliminating the networks headquarter all below transitions will take place in the network structure:

- Security unit under the control of the network manager
- Food & drug management unit under the control of health center manager
- Supervision of treatment unit under the control of hospital manager
- Transportation unit, warehouse & supply, financial affairs, secretariat and typist unit under the control of headquarter unit in the health center
- Human resources unit under the control of hospital human resources
- Manager of logistic unit and cultural unit along with township healthcare logistic unit will supervise all other staff units in healthcare center

In township healthcare center, main attention of the structure is on giving professional services in professional units such as; environmental health, family health and etc. . Findings in QFD technique show that this center has a “production based structure”. By handing over majority of responsibilities of the network headquarter to township healthcare center and applying the mentioned techniques, changing healthcare center from being dependent on production to a "sector or branch" is inevitable [6]. The main criterion in selecting sector structure is diversity in products and services and by increase in size and dimension of the organization, incentive for using sector structure becomes stronger. In order to make the organization technology, compatible with sector structure, it must be effectively divided in all units such as health houses [6, 23]. The mentioned specifications have acceptable harmony with the township healthcare center characteristics and the new organizational chart of the network that can follow sector structure [2 & 3 pictures].

By analysis and revision of hospital output, it indicates that the in current township hospital structure, different hospital units are organized based on duties and expertise. Standardization is the key concept which is emphasized on, throughout the hospital organization. Operational duties are dreadfully repetitive, rules and regulations are extremely formal, organizational duties are divided in to functional sections; decision making obeys hierarchy and a kind of precise organizational structure with a clear distinction between line activities and staff activities. The key components of hospital organization are technical staff (head nurses, supervisors and care advisors). The above points show that the current hospital structure is designed and built upon "mechanical bureaucracy"[6, 23].
With respect to basic hospital output and its role in treatments of patients as well as the need to establish referral system, hospital is in need of a structure that combines standardization without centralization. In this structure there must be a way for technical experts to be employed in operation center and at the same time all hospitals should attain required efficiencies by standardization. These characteristics and specifications is a reminder of a "professional bureaucracy" of organizational structure [23].

These findings won’t make noticeable changes in the hospital structure; it only shifts power from top hierarchy of hospital (hospital manager, executive manager, internal manager, nursing manager) to technical experts and executive body (medical and paramedical staff) (4 and 5 illustrations). Aghlmand, in a separate research on health structure in Iran, has achieved similar results [29]. By shifting the power and decision making from the top hierarchy of health network struggles disappear among hierarchy and hospital structure can respond to demands of clients in a better way. Raharjoo in his research have stated that; paying attention to clients’ needs and demands has caused the organization to become more successful in strategic objectives and has gained a more suitable organizational structure [30]. Results from Harmiling studies in Brazil, show that public participation, clients and other beneficiaries will dramatically enhance healthcare services [31].

However, the outcome from this research won’t lead to a dramatic change in emergency structure; it seems that the location of emergency centers should be revised. Zare in review of Fars province emergency centers has presented similar results [32].
Picture 2: Present organizational chart in township Health Center

Picture 3: Suggested organizational chart in township Health Center
Picture 4: Present organizational chart in township Hospital
Picture 5: Suggested organizational chart in township Hospital
Conclusion

Since, Park and his colleagues have emphasized on the effectiveness of both QFD and DSM [17], amalgamation of the 2 mentioned techniques can lead to a noticeable change in the network structure. By eliminating the network headquarter and handing over all of its activities to other parts and also, by paying attention to sector structure for township healthcare center and professional bureaucracy for township hospital, it can be concluded that overall structure of Firozabad healthcare network is a hybrid structure. Hybrid structures; often consist of two or more, simpler structures and, organizations that use this kind of structures, must act in a way that could organize their activities with full autonomy which is coordinated and versatile. In this way, a flexible structure can lead to a more suitable participation from organizational units and increase client satisfaction [32].

References

Stiffen R. Organization Theory. Translated by Alvani s, Danaee fard H, Saffar publications, 2004. [In Persian]
Arrab, M. Studding the effect of organization structure and leadership style on hospital indicators, Designing a model in Governmental hospitals. [thesis]. (Ph.D). Tehran university, 2000, PP: 320, [In Persian].


Asgharpoor M. Group Decision Making and Theory of Game. University of Tehran publications, 2003, [In Persian].


Shafritz GM, Out S. Organization Theory. Translated by Parsaiean a, Terme publications, Tehran, 2002 [In Persian].


Zare M. Studding organization structure and emergency layouts in Fars province. [dissertation]. (Ms.e). Shiraz university, 2002, PP: 310, [In Persian].