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Reviewing the effect of hospital structures on hospital performance based on the Balanced Scorecard (Case Study: Hospital of Justice)

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Abstract

Selecting different organizations with different organizational structures, organizations will determine the behavior and performance of their employees directly or indirectly affect the organizational performance. In this regard, the present study aimed to investigate the impact of hospital on hospital performance based on the Balanced Scorecard (Case Study: Hospital of Justice). The purpose of this research is applied and research method is cross-sectional. The population is justice hospital staff who were 65. Due to the small population of the entire community was chosen. Collection tools in this study were standard questionnaires, the reliability of the questionnaire using Cronbach alpha coefficient was calculated to 0.861 which was approved. To analyze the data collected Amos structural equation modeling software was used. The results indicate that the structure of the hospital has a significant impact on hospital performance based on the Balanced Scorecard. The effect of hospital structures on the four dimensions of the Balanced Scorecard performance was confirmed.

Keywords: organizational structure, hospital performance, Balanced Scorecard

Introduction

The world, especially the world of organizations is under immense, dramatic and continuous changes and all aspects of the organizations from the internal environment to the external environment, human and non-human factors, etc., all are changing their position with a stunning acceleration. (Jimenez et al., 2008) In such a condition, organizations are struggling to survive and to be able to maintain themselves in the turbulent environment they constantly leave non-dynamic format and move toward the development of the organization (Rodriguez et al. , 2015) In the complex world of changes today, some organizations are successful and effective and some others are unsuccessful and ineffective. What is known is that many factors influence on organizations` success and effectiveness. A series of factors are beyond control of

organizations and some others are under control of organizations. One of these factors is organizational structure. Generally, structure and administrative organizations in every organization are not considered a goal by themselves, rather they are a tool for achieving organization goals for effective and successful enforcement of duties and liabilities. Every organization must have an effective organizational structure so that duties and liabilities can be divided into various units clearly and they are provided with power and authority for liabilities and duties (Ramzani, 2009).

Organizational structure is an expression for system thinking. Mahmoud Salehi et al (2012, 521) defined organizational structure as an allocation of liabilities and administrative functions for control and integration of work activities. In fact, the organizational structure is made of division of work and coordination mechanism between them (Mygard et al., 2005). In fact, the organizational structure is formed of sharing mechanism and coordination between them (Migard et al. 2005). Generally, organization structure is mainly important for decision-making process, because it includes features of power centralization, hierarchy levels and horizontal integration at the organizational level (Hao et al., 2012). Organization composed of elements, relationships between elements and the structure of relationships is a series of units which form the structure and composition of relationships between organizational elements including organizational activities. Researchers believe that structural dimensions suggest metrics within an organization and they represents the characteristics by which organization and structure are evaluated and compared with other organizations (Hunt et al., 2007). The dimensions include complexity, organizational hierarchy, field supervision, recognition, size and focus (Daft et al., 2013).

On one hand assessment of business is one of the most important performance managements, because it is the key to continuous improvement for the ability to evaluate and assess the ongoing performance of the organization. At current age organizations are working hardly to represent a more appropriate executive performance against their components and through this method they will approach their goals and strategies such as product development, processes and services for clients and overtaking components as much as possible. Identifying strengths and weaknesses of activities done, they seek to modify and improve affairs. Hence, organization temped toward improvement (Ho et al, 2008). Many organizations have realized the importance of continuous evaluation and performance appraisal systems used by different functions in the organization. Norton and Kaplan also offer a balanced score card to explain the strategy of the following five criteria:

(1) financial perspective
(2) customer perspective
(3) terms of internal processes
(4) innovation
(5) staff (Wu et al., 2010)

Card of Balanced Scorecard is a model to create a balance between long-term and short-term objectives, between financial and non-financial measures, and to establish the indices delay progression between external and internal performance indicators. (Kaplan and Norton, 2004) BSC is regarded a powerful tool to monitor organizational changes and also an effective performance measuring system for individuals in organizational level (Mahd Shokri et al., 2015).

According to what stated in this research we seek to analyze the relationship level and the way these factors may influence on each other, moreover reviewing literature on organizational structure and staff performance.

Statement of the problem and the necessity

In today's dynamic and diverse environment, managers must continually adapt their organizational structure with environmental conditions and conduct necessary reforms.

Understanding the core processes and organizational structure contributes to greater understanding of work environment and prevents chaos in the organization (Nayagr, 2005).
Organizational structure is one of the key elements for enforcing strategy, so dealing with it is important duties of managers and on the other hand it determines resource allocation. Changes in organizational structure must be designed in a way to facilitate enforcement of strategy. Therefore the relationship between strategy and structure in large organizations is not only followed by large dimensions, but also it will lead to broader consequences. It is evident that the way of monitoring and running organizations is so significant that leads to growth and prosperity or the opposite it may make obstacles in this relationship. Therefore, a coordinated relationship between administration strategies and practical & theoretical structures is significant in order to improve organizational performance. The organizational structure is affected by the external environment (Nahem et al., 2003).
Expanding an organizational structure which effectively supports strategy of a corporation is difficult, in spite of lack of environmental confidence in growing economy of the world (Irland et al., 2013), however, the organizational structure plays an important role in helping the organization achieve better performance. (Mahd Shokari et al., 2015) So, in order to improve organizational performance, most of them follow a successful company by adopting a coherent organizational structure, encouraging innovation and learning from their experiences (Hao et al., 2012).
The framework for assessing performance of balanced scorecard is the most appropriate framework which is able to present significant information related to internal and external organizational factors after which it will contribute organizational success. (Mahd Shokari et al., 2015).WHO is seeking to reduce health costs across the globe, while it is not possible to supply services with high quality and less price for consumers.
Population growth has led to rise of medical services costs for each individual to 4.4 percent from 2014 to 2017.(Dolit, 2014). So, private hospitals and public both must be prepared to handle an unstable environment due to various forces, including rapid technological change, population and changes in lifestyle (Kamperus, 2013). Hence in the current age condition of hospitals is experiencing immense environmental changes and relatively some pressure, especially in the recent decade which is followed by competitive pressures for most organizations. Hospitals as the most important service institutions for maintaining and providing society `s health need to use part of their energy for recognizing their trade environment in order to survive. Therefore performance assessment in hospitals sounds necessary, since with assessing performance, current condition of organization can be determined by level of achieving its goals.
Based on this and given to identification achieved before from strengths and weaknesses inside hospitals we will determine goals and specify hospital policies.

According to what stated and the importance of evaluating performance in this study organizational structures were identified as factor affecting the performance. That's why the main subject of the research is to examine the impact of hospital performance based on the Balanced Scorecard of Justice hospital.

Research objectives

This study sought to evaluate the impact of hospital performance based on the Balanced Scorecard.
The main objective
1. Reviewing the effect of hospital structures on hospital performance based on the Balanced Scorecard.
Secondary objectives
Secondary goals
2. Reviewing the impact of hospital structure on financial perspective of Hospital of Justice
3. Reviewing effect of hospital structure on customer perspective in Hospital of Justice
4. Reviewing hospital structure on hospital's internal processes perspective in Hospital of Justice

5. Reviewing effect of hospital structures in terms of growth and learning in Hospital of Justice

Theory and literature review

Organizational Structure

Structure is way or manner by which the activities of the enterprise are divided, organized and coordinated (Mousavi and Karimi, 2012). The organizational structure is the relationships governing employment, systems and operational processes or people that are trying to achieve a common goal. Appropriate organizational structure establishes the ability to facilitate decision making and fine response to the environment and the challenges (Daft, 1991). Organizational structure designs administrative mechanisms in a way that the ideas are evaluated, selected and put into practice. The structure includes operational standards, rules and written regulations, clarity and description of the duties and performance standards of staff (Horsby et al., 2002).

In planning the organizational structure three pillars need to be taken into consideration:

1. Organizational structure determines official relationships and reporting in an organization and indicating levels that exist in administrative hierarchy and also it specifies monitoring field of managers.
2. Organizational structure determines the position of those who work in groups together in a single unit and deal with grouping or divisions of units which exist in the whole organization
3. Organizational structure includes design systems by which all units are integrated. As a result, effective communication within the organization will be guaranteed (Aarabi, 2011).

Structural factors in the organization from view of Daft include:

Being official: refers to the documentation that exists in the organization.

Being specialized: the extent where organization divided its tasks and activities into specialized and separate duties.

Hierarchy of authority: to whom each person must give their reports, and monitoring areas that need to be specific to each manager.

Complexity: it is the number of tasks or sub-systems within an organization.

Being concentrated: it is said to level of authorities where the power to make a decision exists.

Personnel relation: indicates the involvement of various people who are employed for different tasks. (Daft, 2013).

Organizational performance

Performance can be regarded as a behavior (the method organizations, groups and people do works) (Wou et al., 2010). Performance measuring system is an assessment process for organizational improvement which is influential in achieving goals of its organization.(Kiarou et al., 2013). Performance measurement system can be applied in the financial and non-financial measures (Okou and Marirhi, 2012). Given to their comments, performance measurement not only is effective for identifying current position but also it is effective in performance of business in the future. But it lets the business to be done in the best possible manner in the future.(Mahd Shokri et al., 2015)

Campbell believes "performance is a behavior and should be distinguished from the results, because the system factors can distort the results." (Hava et al., 2005), whereas performance is defined in a sense that includes both performance and behavior where results and more comprehensive views are obtained (Nili et al., 2002).

Balanced Scorecard

The need to establish and apply criteria of monitoring and performance measurement with the properties indicated, made two prominent professors named Norton and Kaplan in Harvard to invent a new model which is called Balanced Assessment. The main characteristic of BSC is financial and non-financial perspectives (Cocacolah and Ostil, 2007; Mac Wright, 2013) as well as strategic financial objectives

combined with the daily operations of the organization that make it more important (Baqvat and Sharma, 2007; Kaplan and Norton, 2001). Financial and non-financial measures in BSC's were combined and finally regarding all prospects it was shown that general performance of organization is involved in company`s strategies (Kairo et al., 2013)

Balanced assessment model seeks to assess goal achievement from four following prospects:

1. Financial prospective
2. Expectations of customers
3. Internal processes
4. The training and development of internal processes (Mahd Shokri et al., 2015)

Financial measures: it shows the extent of the impact on strategy, execution and implementation of the measures in final development of business unit. (Kaplan and Norton, 2001).

Internal process measures: it seeks to absorb and retain customers and to supply shareholders` satisfaction in financial achievements. (Kaplan and Norton, 2001)

Client measures: it is client and decisions of market where companies start their competitions (Kaplan and Norton, 2001).

Measures of growth and learning: the driving achieve excellent results. (Kaplan and Norton, 2001).

Field of study

Subject Territory:

This research is in the field of strategic management that explores the impact of hospital performance based on BSC's Hospital.

Place territory: prepared a questionnaire which was distributed among the Justice hospital staff

The time domain:

This study was conducted in December 2016.

Conceptual Model Research

After documentation review regarding international and domestic articles and treatises two models were used on the background of this study:

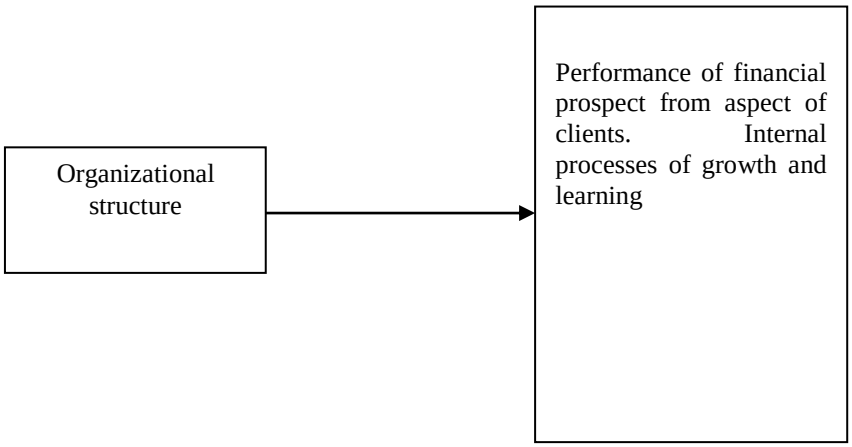


Figure 1. Conceptual Model Research (Mah Shokri et al., 2015)

Research Hypothesis
The main hypothesis

1. Hospital structure has a significant effect on justice hospital performance based on the Balanced Scorecard.
Secondary objectives
2. Hospital structure has a significant effect on the financial perspective of justice Hospital.
3. Hospital structure has a significant effect on the client perspective of justice Hospital
4. Hospital structure has a significant effect on the internal perspective of justice Hospital.
5. Hospital structure has a significant effect on the growth and learning perspective of justice Hospital.

Research questions
The main question

1. Does the hospital structure have a significant effect on justice hospital performance based on the Balanced Scorecard?
The secondary question
2. Does hospital structure have a significant effect on the financial perspective of justice Hospital?
3. Does hospital structure have a significant effect on the client perspective of justice Hospital?
4. Does hospital structure have a significant effect on the internal perspective of justice Hospital?
5. Does hospital structure have a significant effect on the growth and learning perspective of justice Hospital?

Theoretical basis and research background
Internal records

• Hatami et al., 2015 examined the effect of organizational structure on the empowerment of Lorestan province's Department of Youth and Sports. The method was survey of correlation. The sample consisted of employees of the Department of Sport and Youth in Lorestan province (5 people) where statistical population was equal to statistical population. According to the returned questionnaires, 52 questionnaires were analyzed. Measurement tools include questionnaire organizational structure of Robbins (1987) and empowerment questionnaire of Abdullah (2016 (validity was confirmed by seven sport management professors and reliability was approved through Cronbach's of 95/0 and 87/0, respectively. For data analysis, descriptive and inferential statistics (Kolmogorov-Smirnov test, Pearson correlation coefficient and regression analysis) were used. Results showed a significantly inverse relationship between organizational structure and employee empowerment. Also the organizational structure and its dimensions leave a negative impact on empowerment. Given to findings it can be stated that with its complexity and less formality, organization can hardly establish the condition for capability of personnel. And Department of Sport and Youth in Lorestan province needs to notice this.

• Fazli et al., 2012 examined the impact of organizational factors formed by organizational culture, organizational structure and strategy of the organization's performance with regard to the role of knowledge management. The population of this research is part of the banking community which was selected. The questionnaire included 210 questions including on multiple questions in Likert scale. After test, validity and reliability were distributed among the participants and in person electronically. Data were analyzed using SPSS and LISREL software. The results suggested a positive effect of organizational culture, organizational strategy and knowledge management on organizational performance, while the effect of organizational structure on performance was not significant. On the other hand the role of

knowledge management as a mediator variable was approved for organizational culture and organizational strategy variables. As a result, it can be stated that improving management of processes related to organizational knowledge influenced by factors such as organizational culture and strategy lead to rise of organizational performance. Due to the factors involved in processing and infrastructure of knowledge, some suggestions were presented.

• Majidi et al. (2011) reviewed the impact of organizational structure, performance improvement and determination of type of appropriate structures from organic and mechanical aspects. The population of the research is staff in education department of military science university.

The research has applied objective with cross-sectional method. Library studies were used and documents and papers were reviewed in order to review background and literature and questionnaire was used in order to collect information. Descriptive statistics were used to describe the variables and means were used to analyze the assumptions. The results indicated organizational structure influenced on performance improvement. Four secondary hypotheses were mentioned in order to review type of appropriate structure and all the hypotheses were approved after extracting their means and placing them on continuum mentioned by Browns and Stucker. Since the average of organic structure was higher, it can be concluded that organic structure is more effective in improving performance.

Foreign background

- Mahd Shokri et al., (2015) examined the relationship between structure and organizational performance through scorecards in a hospital located in Malaysia. A questionnaire was used in this field and 97 private hospitals with the Association of Private Hospitals of Malaysia were registered and studied. Total 39 responses were received. The results showed the relationship between organizational structure with four dimensions of performance in Balanced Scorecard.
- Lin, Yu, and Zhang (2014) reviewed BSC`s current program at a public hospital in China using survey method. They recognized that BSC had a positive impact on the management of the hospital. In addition, they showed that different factors such as quality of technology and medical equipment affect performance of BSC.
- Mac Wright (2013) studied BSC`s framework in the hospital of Calvert by applying the method. He found that BSC is able to successfully manage long-term and short-term missions and vision of the hospital.

Research methodology

Study is applied with cross-sectional method. The population was all Justice Hospital staff who were 65. Due to the small population, total community was chosen. To collect the required data library research and field studies were used. Collection tools in this study are standard questionnaires. The first part of the questionnaire included demographic variables (gender, age, marital status, education level, work experience), and the second part contained questions related to the variable of the study, which were based on the Likert scale.

Meantime, in order to increase reliability, validity tool was measured by means of Cronbach Alpha coefficient. Distribution of questionnaire questions and Cronbach Alpha coefficient were presented in the following table. Amos structural equation modeling technique was used to analyze data.

Table 1. the relationship between independent variables and the questions

Cronbach alpha	Reference		Variable	Order
0.714	Mahd Shokri et al., 2015	10-1 Questions	Organizational structure	1
0.868		26-11	Performance	2

Statistical Analysis

Descriptive Statistics

According to the data analysis, the following information regarding the sample was extracted: 24.5% of staff were men and 75.5% were women. 63.3% were married and 36.7% were single. 18.4% were 20-30, 44.9% were 30-40. 26.5% were 40-50. 10.2% were above 50. 9.2% had Diploma, 11.2% had associate's degree, 75% had bachelor's degree and 4.6% had Master of Arts degree. 18.4% were below the age of five, 15.3% were 5 to 10. 27.6% were 10-15, 14.3% were 15. 20, 2.6% were 15 to 20 years old and 21.9% were 20 to 25 who had over 25 years of experiences.

Inferential statistics test (KMO)

One measure of reviewing sampling adequacy is Kaiser-Meyer-Olkin Measure of Sampling Adequacy and it suggests ratio of join variance in variance of variables which may be established by key factors. The indicator is located in range zero to one. Higher values for this statistics (close to one) suggest that factorial analysis can be done by means of the data. If this value is less than 6/0, factor analysis will not be of much use. The following equation represents the standard sampling adequacy (KMO) (Momeni and faal, 2012: 193).

$$KMO = \frac{\sum_i \sum_j r_{ij}^2}{\sum_i \sum_j r_{ij}^2 + \sum_i \sum_j a_{ij}^2}$$

where

The simple correlation coefficient between i and j = r_ij

Partial correlation coefficient between i and j = a_ij

Bartlett's Test of Sphericity examines the hypothesis to see if correlation matrix is the identity matrix or not. If the correlation matrix is a matrix of the same, in this case there would be unrelated variables and possibility of identifying new factors based on the correlation. The relevant test examines the variables to explore the structure. Small amounts (less than 0/05) indicate that a correlation matrix that is not the same and factor analysis would be useful for data.

Table 2. results of KMO test

Results	KMO	Indicator
Statistical power and sample efficiency are approved	0.852	Organizational structure
Statistical power and sample efficiency are approved	0.874	Performance

Result of test KMO in table above shows that value of KMO for all ratios is more than 0/6, therefore this sample size has appropriate efficiency for factorial analysis.

Structural equation modeling (SEM)

Structural equation model contributes researchers to review a theoretical model formed by various components generally and in a way that can be tested and investigated.

The SEM is a combination of models of track (relationships) and confirmatory factor models (PR measurement). In SEM which is general researchers on one hand seek to measure a group of hidden variables with a group of references and on the other hand to analyze structural relationships between hidden variables. Although some current variables exist in structural models which are observed variables. So it can be stated that a structural equation model is typically a combination of measurement and structural models. Largely measurement models originate from theoretical basis on phenomena that can be studied and structural models are thought to have been originated from theoretical framework (Ghasemi, 2010).

The model of measuring main variables and aspects related to it

In order to understand the underlying factors of a phenomenon or summarize a set of data, factorial analysis is used. Preliminary data for factor analysis are correlation matrix between the variables. Factorial analysis has no pre-determined variables. The use of factor analysis can be divided into two general categories:

a) exploration purposes

b) approving purposes (Tinsley and Tinsley, 1987; quoted from Baazargan et al., 2008: 268).

Since the research is based on theoretical literature and has a pre model concept where researcher seeks for final approval so he uses factorial analysis. So in this section approved factorial analysis is used on variables of the research in order to arrange measurement model for independent and dependent variables. They were also explained as best as possible. Finally in order to explain structural equation model, impact of organizational structure on performance was used.

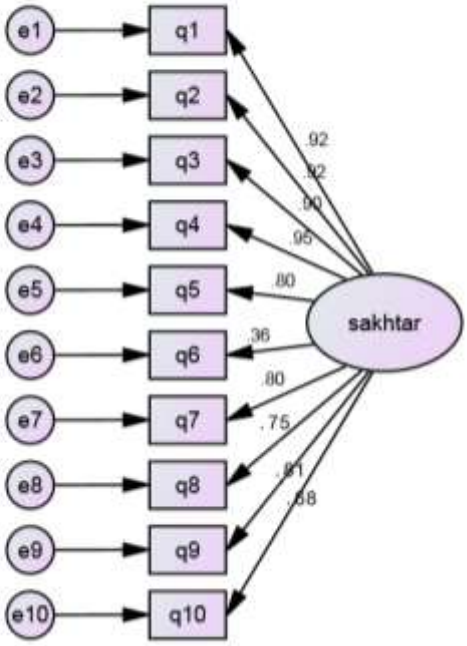


Figure 2. Model of measuring organizational structure variable in the standard estimate

Results of fit organizational structure variable show that there is a significant relationship among all of its dimensions with questions related and current questions explain the dimensions well.

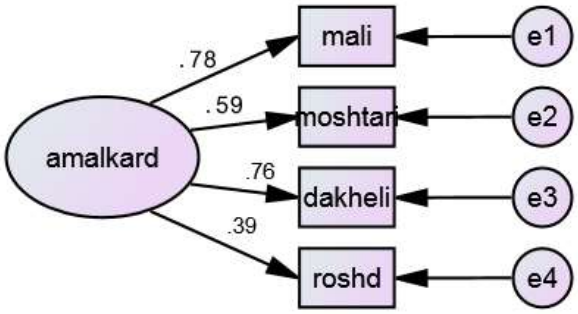


Figure 3. Measuring the performance variable in standard estimation mode

Results of fit organizational structure variable show that there is a significant relationship among all of its dimensions with questions related and current questions explain the dimensions well.

Path analysis

With the implementation of structural equation modeling in software testing, fit indexes are presented that show conceptual model alleged by experimental data to some extent. Unlike conventional statistical analysis that is approved or rejected by one statistic, a series of measures have been introduced in the structural equation modeling. The fit indices for the conceptual model are presented in the table below. The fit model according to the data obtained from the results of the present study through Amos software is as follows:

Table 3. indices model

Acceptable fit	Primary model	Indicator name	Indices grouping
P>5%	0.042	Chi-square covered level	Absolute fit indices
GFI>90%	0.941	Fit goodness index	
AGFI>90%	0.904	Modified fit goodness index	
NFI>90%	0.911	Normalized fit index	Combined fit indices
CFI>90%	0.965	Combined fit index	
RMSEA<10%	0.027	Root mean square error of estimation	
Values between 1 to 3	2.734	Normalized Chi-square in degree of freedom	

As specified in the table all the indices are in a good condition. In order to test the research hypotheses, structural equation modeling (SEM) using maximum likelihood method in Amos software was used during all stages of analysis, covariance matrix. Following model illustrates structural model of relationships.

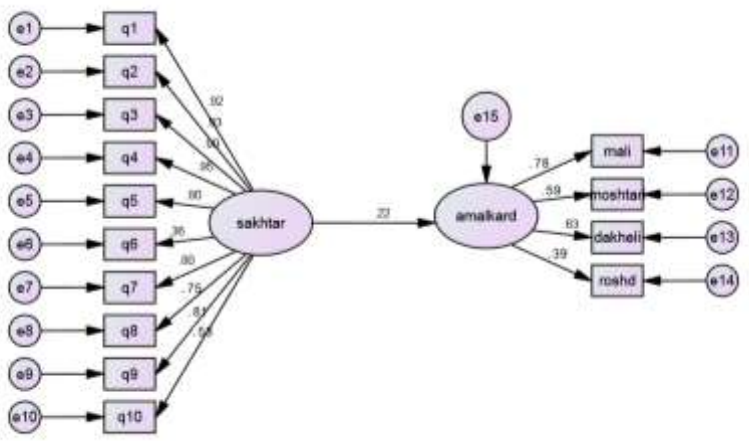


Figure 4. conceptual model along with factorial loads

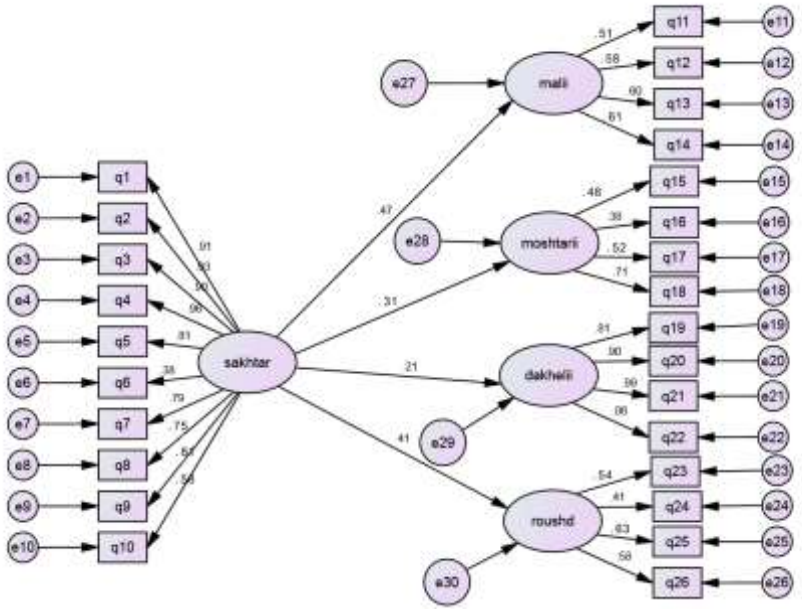


Figure 5. conceptual model along with factorial loads

Table 4. path coefficient of hypotheses

Critical ratio	Path coefficient	Hypothesis
2.751	0.22	Organizational structure-performance
3.223	0.47	Organizational structure-financial aspect of performance
3.003	0.31	Organizational structure-client aspect of performance
2.621	0.21	Organizational structure-internal process aspect of performance
3.105	0.41	Organizational structure-aspect of growth and learning performance

Based on results and structural relationships between variables of research model in terms of value of critical ratio which is above 1.96, it can be stated that hospital structure has a significant and poor impact on performance of justice hospital based on balanced score card with path coefficient (0.22). Since critical ration value is above 1.96, it can be argued hospital structure has a significant and moderate impact on financial aspect of performance of justice hospital based on balanced score card with path coefficient (0.47).

Hospital structure has a significant and moderate impact on client aspect of performance of justice hospital based on balanced score card with path coefficient (0.31).

Hospital structure has a significant and poor impact on internal process aspect of performance of justice hospital based on balanced score card with path coefficient (0.21).

Hospital structure has a significant and moderate impact on growth and learning aspect of performance of justice hospital based on balanced score card with path coefficient (0.41).

Conclusion:

Perfect and quick changes in recent decades and complex issues in modern era on organization and management specified the truth that traditional plans are not responsible for current needs and some fundamental changes are required in organizational structure (Marcos, 2008).In this regard, present study aimed to investigate the impact of hospital on hospital performance based on the Balanced Scorecard (Case Study: Hospital of Justice). In this section the results of the research include:

Result of the main hypothesis: The results indicate that the structure of the hospital has a significant and poor impact on hospital performance based on the Balanced Scorecard.
Result of the first sub-hypothesis: the results indicate that the structure of the hospital has a significant and moderate impact on hospital performance based on financial aspect.
Result of the second sub-hypothesis: the results indicate that the structure of the hospital has a significant and moderate impact on hospital performance based on client aspect.
Result of the third sub-hypothesis: the results indicate that the structure of the hospital has a significant and poor impact on hospital performance based on internal process aspect.
Result of the forth sub-hypothesis: the results indicate that the structure of the hospital has a significant and moderate impact on hospital performance based on growth and learning.
In order to compare results with internal and external research background, it can be stated that results of this study confirm the effects of the hospital structure on hospital performance which agree with the results of research Fazli et al. (2012), Hatami et al.(2015), Majidi et al. (2011) and Mahd Shokari et al., (2015).

Suggestions

- Increasing capacity and improving staff skills through in-service training
- Increasing aptitude of staff
- Implementation of appropriate systems of rewarding
- Creating effective communication to enhance transparency in corporate affairs
- The necessary support for staff
- Creating a feedback system in the organization
- Creating systems for periodic evaluation of employees` performance
- Existing structure needs to be reviewed and parallel and additional jobs need to be deleted and to be replaced with needed jobs;
- Increasing freedom of action among employees and staff must have the ability to do things based on their own expertise and experience;
- Increasing delegation of authority among executives and managers. Also, in making decisions and solving problems, ideas of employees must be exploited.

Limitations in the study for the investigator and research work are as follows:

• Impatience of respondents when completing the questionnaire
• Lack of proper recognition mentality of some examinees and communicating properly
• Unwillingness of respondents to complete the questionnaire

Based on the presented documentation and analysis, the followings are discussed as suggestions for future research in relation to the subject:

1. The effect of organizational structure on staff

2. Examining the role of moderator fit - the relationship between organizational structure and performance
3. The effect of demographic factors on the organizational structure
4. Studying the subject of current research in other statistical societies

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