Self-Assessment by Using EFQM Excellence Model:
A Case of Hospital Reorganization Reform in Iran

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Abstract: Iranian health system gradually follows a reorganization reform in public hospitals and EFQM excellence model was initially considered as a requirement for assessment in these hospitals. This study assesses the performance of the Afzalipour Hospital in Kerman, based on the EFQM excellence model and the factors affecting this model in the studied hospital. The cross-sectional study was conducted as a case study in 2011. A Persian validated questionnaire with 155 items approved by Iranian Ministry of Health and Medical Education (MOHME) was applied for this study. We employed all clinical and nonclinical officers at all levels qualified with at least five years practical experience in quality management approaches in the hospital (N=35). SPSS 18.0 was used for analyzing the data and the descriptive statistics, principal component analysis (PCA) and linear regression were used when appropriate. The hospital attained a score of 359.2 out of 1000 in which 197 points (39.4%) of the total marker score (500) is related to the enablers and 162.2 points (32.4%) of the marker score is for the results scope. Principal component analysis extracted two factors for enablers and one factor for results that explained 82.6% and 83.8% of the total variances respectively. Most and less effective factors for results scope were leadership, partnership & resources and people (LPP); and also strategy and processes/products/services (SP) with 54.9% and 9.2%, respectively. This model could apply as a proper assessment framework for reorganization reform in public hospitals. On a basis of results, it is suggested to be paid more attention on financial, human resources and budgeting systems through applying decision right the board of trustees' structure.

Key words: EFQM excellence model · Hospital reorganization reform · Board of trustees · Resources management · Iran

INTRODUCTION

A comprehensive reform was initiated by Iranian Ministry of Health and Medical Education (MOHME) in 2003 to deal with public hospitals organizational reform in six aspects. They included: (a) hospital restructuring; (b) operational budgeting; (c) performance-based management; (d) outsourcing; (e) physical resources maintenance management; and (f) hospital information system. Forty-one public hospitals across the country were selected to pilot the reform and a special governmental budget was allocated to them [1]. For the first aspect, the MOHME proposed the board of trustees' structure in these hospitals. This restructuring aimed to decentralize decision making and give the decision right to the local community level through adjusting the direct control of the government. Furthermore, it is expected improving accountability [2], management and resource allocation in the hospitals [3].

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This reform aimed to reach some goals such as promoting performance of hospitals in Autonomy, market exposure, financial residual claim, accountability and social functions [4, 5]. Ensure the achievement of these goals requires the use of a comprehensive model to hospitals performance assessment. To meet this need, The EFQM excellence model was recommended by the MOHME to performance assessment [6]. These hospitals are in a better condition for implementing this model, so piloting the model has become a part of the instructions of the MOHME.

Performance assessment is defined as the process of valuing, measurement and final judgment about performance which can be done in the form of self-assessment [7]. Self-assessment means a regular, systematic and comprehensive review of organization activities and its results based on an excellence model [8]. Different studies have revealed the importance of the use of EFQM model in self assessment and external evaluation in hospitals. Choosing external evaluation model in a hospital depends on various factors. Legislation also affects the application and development of external evaluation of the hospitals. Some countries like Greece, Portugal and the UK have no legal requirement for hospitals to meet specific organizational standards, whereas in some other countries like Germany, France and Austria governments have legislated some form of internal and/or external evaluation for hospital services. [9-11].

EFQM Excellence Model designed by European Association of Quality Management in 1988 is one of the common models of quality management which can be applied by any organizations regardless of its field of activity, or its size and structure and even its position regarding organizational maturity [12]. It is noteworthy that this model was introduced in 1999 in health system by German Federal Ministry of Health and the UN project in order to extend the viewpoint of quality management, being later applied by other European countries [10, 13, 14].

This model includes 9 main criteria in two distinct scope enablers and results, including 32 sub-scales [11, 15]. In this model, better results were obtained according to customers, employees and society through enablers: *leadership, policy and strategy, partnership & resources and processes.* Unlike most of the accrediting frameworks which only consider the processes, EFQM Excellence Model considers both *processes* (i.e. the enablers) and the *results* on an equal basis [12].

The establishment of an excellence model in health section can lead to a more integrated body of activities in quality field and will put in a defined framework resulting in the creation of a common language to change the current situation. These in all can cause self-assessments, comparisons of activities done by healthcare organizations, feedbacks and finally reaching excellence in health system [16].

The Iranian National Award for Quality, adopted from EFQM model, is also used in health system [17]. In Iran since 2002 some hospitals such as Hasheminezhad, Imam Hossein and Taleghani in Tehran have started the voluntary use of the EFQM [18].

The Afzalipour hospital was one of the selected hospitals to pilot the reform that began using the EFQM model. Hence, this study aimed to assess the performance of the Afzalipour as board of trustees' hospital in Kerman, based on the EFQM excellence model and the factors affecting the model.

The Afzalipour Hospital: Afzalipour teaching hospital is one of the main public medical centers in Kerman province in south east of Iran. It is equipped with 360 beds since 2001. It has 1025 staff and teaching 300 medical students annually. The hospital's annual budget exceed 200$ million, in addition too the hospital achiveid ISO: 9001 certificateion since 2008. This hospital besides the general medical services offers highly specialized healthcare including kidney, liver and bone marrow grafting, children oncology, IVF (In Vitro fertilization), dialysis, advanced imaging services and provides emergency care. It is admited about 31,000 inpationt and 100,000 outpatiant annually. The hospital is governed by a board of trustees since 2009 which was legally supported by the fourth and fifth 5-year development programmes and bylaw of the Article4 in the Budget Act of 2009 for Iran [19, 20, 6]. On a basis of restructuring, hospital has three deputies including development and planning, education and health and support services. The board of trustees has the authority of leadership and governing of the hospital and it determines the goal settings and policies. Members of the board are consists of: chancellor of the respective university of medical sciences (chairman of board of trustees), hospital chairman (secretary of board of trustees), hospital CEO, one representative of clinical departments in hospital, Mayor, one representative of donors society, medical officer of social security organisation (SSO), director of medical services insurance organization (MISO), one expert in administration affairs and one representative of province office.

MATERIALS AND METHODS

This cross-sectional study was conducted as a case study in 2011. We included Thirty-five clinical and nonclinical officers in three deputies including development and programming, education and health and support who had at least five years practical experience in quality management approaches in the hospital. These participants had membership of and extended engagement in managerial sessions and hospital committees. So these potentially could have more comprehensive perspective to the hospital performance. All wards and departments of the hospital had at least one representative. Since this hospital was at the first stages of excellence, neither matured in self-assessment nor in using EFQM excellence model yet, the questionnaire based approach was decided to use for self-assessment. We applied the 2010 version [21] of the EFQM excellence model to self-assessment (Figure 1).

The used instrument was a 155-item questionnaire of which was customized by the MOHME, verified through face and content validity by experts. Its reliability specified by Cronbach's alpha coefficient (0.87). The questionnaire's four rating categories A, B, C and D were converted into data (D = 0, C = 0.33, B = 0.67, A = 1). Due to the unfamiliarity of the sample with the model, two sessions of instruction were held for participants to fill the questionnaire: one was in the form of the whole sample, explaining EFQM excellence model and its importance and necessity, the other session was on how to fill out the questionnaire and to register the evidence. The participants were asked to mark the suitable option based on following categories:

Enablers: D = not started, C= some progress, B = considerable progress, A = fully achieved.

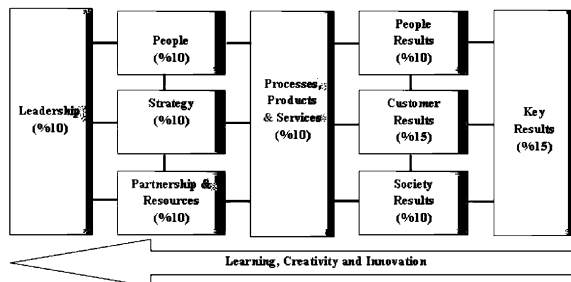**Results:** D = not measured, C = measured, B = positive trends and results, A = targets achieved. We used SPSS 18.0 and analyzed using descriptive statistics, principal component analysis (PCA) and linear regression. KMO test (0.61 and 0.64 for enablers and results criteria, respectively) showed that the sample size was relatively adequate for PCA and Bartlett test indicated that PCA was suitable for our study.

RESULT

The findings delineated that 19 participants (54.3%) in the study were female and 16 participants (45.7%) were male. The average work experience in the hospital was 10 years among females and 15 years among males, so that among all participants, it was 12 years. 25 participants (71.4%) were clinical experts (i.e. physicians, nurses and paramedical staff) and 10 participants (28.6%) were working in administration, support and planning experts.

As shown in Figure 21, Afzalipour hospital attained a score of 359.2 out of 1000, from which 197 points (39.4%) of the total marker score (500) was related to the enablers and 162.2 points (32.4%) of the marker score was for the results.

In enablers, the highest score was related to the leadership criterion and was equal to 47.9%. Furthermore, the second and third criteria of enablers were strategy (43.7%) and people (38.6%) respectively. The lowest score was related to the two criteria of partnership & resources and processes/products/services, were equal to 33.1% and 33.7% respectively. These two criteria had only yielded one third of the total indicator score and this show an alert to top managers and board of trustees' members that the current procedures in hospital should be changed.

In the results, customers' results criterion obtained the highest score (35.5%). This criterion is based on measures that satisfy the needs and expectations of customers. The society results criterion obtained the lowest score (28.5%). Also, the second and third criteria of results were people results (33.2%) and key results (31.2%) respectively.

As shown in Table 1, The findings for sub-criteria delineated that in enablers, highest score of the criteria were similarly 52.1% (10.4 scores) for leader's direct cooperation to ensure the design, stability and improvement of management system and to develop strategic planning and culture for excellence; and 51.9% (12.9 scores) for strategy and policy adaptation to present and future needs and the stakeholders' expectations. The least score was for management and improvement of customer communication (23.5% = 4.7 scores) and for the management of providing and allocating financial resources (27.4% = 5.5 scores).

Fig. 1: EFQM excellence Model: Version 2010

Table 1: Self-assessment of Kerman Afzalipour teaching hospital based on EFQM excellence model: Criterion/sub-criteria, percentages and points

Scope	Criterion/Sub-criterion	Percent	Score	Maximum Point
Enablers	Leadership	47.9	47.9	100
	1a- Leaders develop the mission, vision, values and ethics and are role models of a culture of excellence	51.8	10.4	20
	1b- Leaders are personally involved in ensuring the organization's management system is developed, implemented and continuously improved	51.8	10.4	20
	1c- Leaders interact with customers, partners and representatives of society	40.6	8.1	20
	1d- Leaders reinforce a culture of excellence with the organization's people	50.2	10.0	20
	1e- Leaders identify and champion organizational change	45.0	9.0	20
	Strategy	43.7	43.7	100
	2a- Policy and Strategy are based on the present and future needs and expectations of stakeholders	51.9	12.9	25
	2b- Policy and Strategy are based on information from performance measurement, research, learning and external related activities	40.5	10.1	25
	2c- Policy and Strategy are developed, reviewed and updated	43.1	10.8	25
	2d- Policy and Strategy are communicated and deployed through a framework of key processes	39.5	9.9	25
	People	38.6	38.6	100
	3a- People resources are planned, managed and improved.	37.7	7.5	20
	3b- People's knowledge and competencies are identified, developed and sustained	40.5	8.1	20
	3c- People are involved and empowered.	36.1	7.2	20
	3d- People and the organization have a dialogue.	40.5	8.1	20
	3e- People are rewarded, recognized and cared for.	38.5	7.7	20
	Partnership & Resources	33.1	33.1	100
	4a- External partnerships are managed.	30.5	6.1	20
	4b- Finances are managed	27.4	5.5	20
	4c- Buildings, equipment and materials are managed.	33.8	6.8	20
	4d- Technology is managed.	37.7	7.5	20
	4e- Information and knowledge are managed	36.4	7.2	20
	Processes, Products & Services	33.7	33.7	100
	5a- Processes are systematically designed and managed	45.1	9.0	20
	5b- Processes are improved, as needed, using innovation in order to fully satisfy and generate increasing value for customers and other stakeholders.	36.0	7.2	20
	5c- Products and Services are designed and developed based on customer needs and expectations.	34.2	6.9	20
	5d- Products and Services are produced, delivered and serviced.	29.8	5.9	20
	5e- Customer relationships are managed and enhanced	23.5	4.7	20
Results	Sum	39.4	197	500
	Customer Results	35.5	53.7	150
	6a- Perception Measures	37.1	41.7	112.5
	6b- Performance Indicators	31.9	12.0	37.5
	People Results	33.2	33.2	100
	7a- Perception Measures	34.5	25.8	75
	7b- Performance Indicators	29.5	7.4	25
	Society Results	28.5	28.5	100
	8a-Perception Measures	34.7	17.4	50
	8b- Performance Indicators	22.3	11.1	50
	Key Results	31.2	46.8	150
	9a-Key Performance Outcomes	29.9	22.4	75
	9b- Key Performance Indicators	32.6	24.4	75
	Sum	32.4	162.2	500
Total		35.9	359.2	1000

Table 2: Summary of PCA for EFQM excellence model in Afzalipour teaching hospital

Scope	Component	Initial Eigen values		Extraction Sums of Squared Loadings	
		% of Variance	Cumulative %	% of Variance	Cumulative %
Enablers	1	61.9	61.9	61.9	61.9
	2	20.7	82.6	20.7	82.6
	3	9.0	91.6		
	4	6.3	97.9		
	5	2.1	100.0		
Results	1	83.8	83.8	83.8	83.8
	2	7.9	91.7		
	3	6.9	98.6		
	4	1.4	100.0		
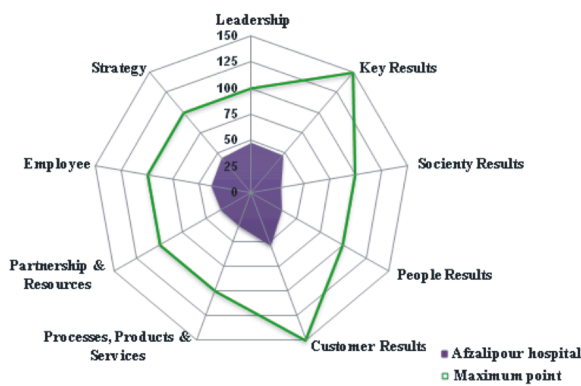
Fig. 2: Attained point of Afzalipour teching hospital based on EFQM excellence model

Fig. 2: Relationship between enabler's components and results using linear regression

In the results, the highest and lowest scores belonged to the customer's perception (37.1% = 41.7 scores) and performance indicators of society results (22.3% = 11.1 scores) sub-criteria, respectively. Notably, scores of perception measures were higher than performance indicators in all customers, people and society results sub-criteria. However, these differences were little.

PCA revealed that two main components totally explain 82.6% of the variance for enablers. First component including leadership, partnership & resources and people (LPP) explained 61.9% of variance, second component included strategy and processes, products& and services explained 20.7% of variances. PCA for the results found one component explaining 83.8% of the variance. This component included all key performance, customer, society and people results (KCSP) (Table 2).

Linear regression was used to determine the effect of identified components in enablers on results scope. The Findings delineated that factor 1 (LPP) and 2 (SP) predicted 54.9% and 9.2% of the variances in results respectively (P-value<0.01) (Figure 3)
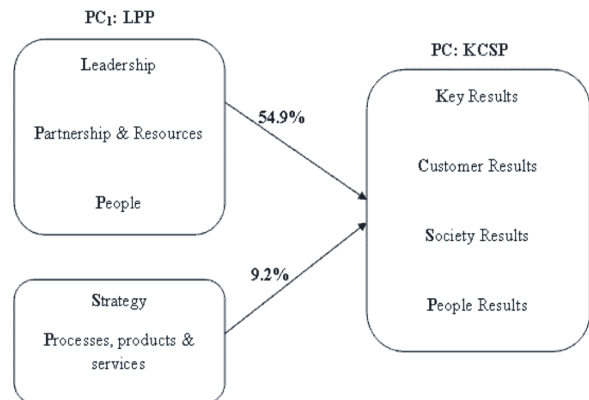
DISCUSSION

This paper reports a self-assessment of a case of public hospitals liable for reorganization reform in Kerman, located in southeastern of Iran, using EFQM excellence model. It also identifies improvable areas which contribute to the low performance ratings and identify solutions to improve these areas. Regarding PCA and linear regression, both strategy and processes, products &services criteria were least predicting for the results. In Bou-Llusar *et al* study also [22] with the exception of policy and strategy criteria, all the enablers and results criteria in the EFQM excellence model made a significant contribution to the relationship between enablers and results criteria.

Enablers' Scope: In *leadership* criterion, the hospital obtained the highest score which was due to the development of a strategic plan during 2008-2010 and of course the plan has not been implemented completely. Thus, more attention ought to be paid to the strategic implementation and evaluation of the developed plans. In comparison with other studies conducted in Iran, just Oil

industry Hospital of Ahvaz [23] obtained the highest score in leadership criterion of the enablers which is similar to the present study. This result supports the results of Jafari *et al* study about limited right of decision making on the strategic management of university hospitals (5).

The results delineated that although the hospital applied ISO 9001:2008 standard, according to the evidences, it was not satisfactorily using documentation results to improve the processes. In a previous study conducted to assess German hospitals by EFQM excellence model, the least score all through the model after customer results was related to *processes, products and services* criterion; however in current study in enablers, this criterion obtained the least score right after *partnership & resources* criterion. In studies conducted in Imam Khomeini hospital of Ahvaz [23], Shahid Hasheminejad [24] and Rasul Akram hospitals of Tehran [25] the results show that both *cooperation/resources* and *processes/products/services* criteria in the enablers obtained the highest scores while the same two obtained the least scores in our present study. In several hospitals of Germany [26], processes criterion attained the least score in the enablers while partnership & resources criterion had the highest score.

The Point of partnership & resources criterion in our study was lower than Vernero study [27] in an Italian hospital. It can be due to partners & resources not being well developed in the hospital and in its departments. On the other hand, regarding hospitals consumption of large proportion of health system resources in developing countries [28, 29], it is suggested to reinforce autonomy in decision making principally in optimum financial resources allocation and management.

Regarding interviews in *partnership & resources* criterion, although the hospital outsourced support and medicine affairs with an aim to provide some efficiency, delays and unpunctuality in payments of the debts to the contracted companies as well as weakness in management of providing and assigning resources have caused the hospital to obtain the least score. It should be noted that no specific action has been done so far regarding the assessment system of the satisfaction of the contracted companies, the partners, the entrepreneurs and the outsourced services which, by itself, causes a weakness needing more consideration.

Also Jafari *et al* study showed that the right to make decisions over various aspects of production and market exposure, physical resources management and residual claimant status is limited in Iran's university hospitals [5].

Results Scope: The hospital may be capable of improving its low scores of the *society* results in the model through improving its sensitivity and responsiveness to the society needs as well as improving the performance indicators of the society results by hospital approach. Previous studies in other hospitals of Iran including Ahvaz hospitals [23], Shahid Hasheminejad [24] and Rasul Akram hospitals in Tehran, capital of Iran, [25], showed that the *society results* criterion had the least score among the results criteria of the model which is similar to the results of the present study. It is obvious that the differences between the criteria scores of this section are quite ignorable and areas like perception and performance indicators, the society results and the criteria of employees' results, as well as the key results and customer's results should receive the larger amount of attention.

Generally, obtained results of this self-assessment showed that in both enablers and results, the points are worse than health organizations in other countries such as Sanchez study in Spain [30] and Nabitz *et al* in Netherlands [12], this can be because of implementation of several years of excellence model in improving performance of these health organizations.

Limitations: Our study had some limitations. First, although the used instrument was a validated questionnaire for hospital performance assessment based on EFQM excellence model, questionnaire approach has fewer rigors than other approaches. However, it was controlled to great extent through interviews followed by questionnaire. In the second place, the research has been conducted in a single service, exclusively in the Afzalipour board of trustees' hospital in Kerman, which implies that the research results are only generalisable to an example of board of trustees' hospitals rather than to the total hospitals of Iran. So, it is suggested to conduct more similar studies to explore modified EFQM excellence model in hospitals.

CONCLUSION

Leadership, partnership & resources and people criteria had the most effect on the results. Reorganization reform in public hospitals has potentially devoted the decision right particularly on financial and human resource management to board of trustees' members who act as organization leader. However, this study concluded that there are weaknesses in these two aspects. It is

suggested that the board of trustees' members pay more considerations to apply its decision rights to these aspects in the hospital.

But between these three components, partnership & resources criterion obtained the lowest score therefore this criterion should be considered as an area for improvement. Moreover, the weakness in resource management leads to poor cooperation among partners, causing, in turn, an inefficiency to fulfill results scope especially social responsibility. Therefore, the main point to improve quality in the hospital was to reform and improve the financial and budget management system.

This research makes a positive role in the use of EFQM excellence model in the health services. However, this research should be followed by other efforts in the same direction. Thus, it is recommended to apply EFQM excellence model through other evolutionary methods like Performa, workshop and award-like with the aim to provide external assessment in Iran health care organizations. To summarize, self-assessment based on EFQM excellence model could clearly identify the areas for improvement and strengths.

This study provided the results of an assessment based on EFQM excellence modelin a hospital liable to the reorganisation reform that can be useful for policy makers especially the local authorities of the hospital to determine improvable areas for high performance.

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