

The Relationship between Performance Indexes and Service Quality Improvement in Valiasr Hospital of Tehran in 1393

Seyedeh Matin Banihashemian, Somayeh Hesam

Abstract

This research aims to study the relationship between performance indexes and service quality improvement in an Iranian hospital. It is a descriptive-analytical research and a cross-sectional study. The research population includes employees from Hazrat Valiasr Hospital, a hospital affiliated to Tehran Medical Science University and 200 people were selected as the sample using Cochran's Formula and Stratified Sampling Method. Having collected the required data using the questionnaire tool and the field study as well as SPSS software, we used the statistical test of Pearson Correlation Coefficient and T-test to assess the relationship between the components of performance indexes (bed occupancy rate, average length of hospital stay, bed flow, the percentage of patients treated within 6 hours, the percentage of temporarily admitted patients who leave the emergency department within 12 hours, the percentage of successful CPRs, the percentage of patients leaving the emergency department with personal liability, the average length of time to triage for a patient, , the total number of patients admitted to the emergency room) and service quality improvement in Hazrat Valiasr Hospital. Findings: increased productivity is nowadays considered a necessity for the growth and development of any society and organization, and the success of the leading organizations relies on doing correct things and doing things correctly. Today, organizations should be able to act in the best way strategically and operationally so that they can face the challenges of the present and future world. A strategy that can be used to direct an organization's movement in the right direction and warn any possible deviation is performance measurement. It is very important in an organization like hospital which has a great responsibility in the society to understand the status quo and measure the performance of its departments in order to identify the strengths and weaknesses, opportunities and threats. We reviewed the literature related to the hospital performance indexes and examined their role in improving the service quality in Valiasr Hospital. The research results revealed that there is a positive and significant relationship between the components of performance indexes and improvement of service quality in the hospital under study and the severity of correlation between the two variables is +52.9 percent.

Keywords: performance index, hospital, improvement, services, quality

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Introduction

Nowadays, technology development, customers' enhanced expectations, increased demand, scarcity of resources and concerns about the health system errors have added to the complexity of the medical health systems, thus putting an emphasis on the performance of medical health systems. Performance is an important tool for any organization that can be measured by collecting information and evaluating what has been done in relation to the goals and hypotheses. Indexes are criteria that can measure the success of an organization and the degree to which it has achieved its desired goals (Ra'dabadi et al., 1392). Since indexes reflect the efficient and effectiveness of organizational units, they therefore create an environment for controlling and evaluating the activities. Today, organizational performance has turned into the national priority in the economy of every country and it has been defined as the total final results of all business processes and organizational activities. Therefore, we need to use appropriate indexes in order to be able to have more effective control. For this purpose, both quantitative and qualitative indexes are of importance. Having information regarding the need to medical care may be a helpful criterion tool in planning in this field and help determine the goals and provide services. Furthermore, hospital indexes should be regularly examined and weighed and their status should be determined in different provinces and regions and in different public and private organizations, Social Security Organization and so on (Seifi, 1386). Hospital indexes are the most important performance markers of hospitals in different fields. Therefore, overall attention to these indexes is essential because the weaknesses and strengths of hospitals are revealed through a look at and reflection on the status of hospital performance indexes (Amerion et al., 1392). The indexes related to the emergency department also show the performance of this department in various areas. Due to the raison d'etre of emergency department, patients should not stay in this department because patients are to be temporarily hospitalized in order to decide on their stay or admission and treatment by the specialized units of the hospital. Hospital emergency admits ill patients from pre-hospital emergency or other medical centers on the one hand, and has the duty of establishing patients' vital signs for entrance to the wards, certain departments and the operating rooms of the hospital or other hospitals. In addition, this department is faced with a host of outpatient clients who have chosen the emergency department for their treatment due to various reasons and expect timely and high-quality services (Dahlen, 2003). Besides, this department is one of the most important

parts of hospitals and those patients who refer to this department have a critical condition in terms of physical status such that the medical and nursing personnel in this department have to treat them as soon as possible and give them high-quality services. Therefore, giving effective services in due time relies on the efficient and effective performance of this department (Richard, 1997). Based on the above-mentioned points, the measurement rate and accuracy of hospital indexes is of undeniable importance for performance evaluation. The grown, developed and enhanced complexities of environment has made the managers of medical health organizations seek further precise information in order to achieve the effectiveness and productivity of their organizations' performance and to survive in the market. These managers need a system such as Hospital Information System (HIS) in order to improve the performance indexes of their hospitals. Such a system provides the managers with the actual rate of the existing indexes accurately and in the shortest possible time. HIS improves decision-making in health and medical care by providing the policy makers of hospitals with precise information and most managers also believe that a change in hospitals involves the use of this system (Ra'dabadi et al., 1392).

Literature

Service Improvement and a new approach in the field of health economics

Buyers and suppliers compare and measure performances inside or between the service providers. This phenomenon should be continuously considered by social security organizations and the insurance organizations. Directing the medical, diagnostic and rehabilitative options of service buyers from traditional mechanisms into low-cost but more effective methods is the most important phenomenon of the present era in providing the services required by the people insured by social security organizations (Rassin, 2007). Creating a comparative mechanism in the different departments of each manufacturing institute and extending it to the competing external agencies has valuable competitive advantages for both the buyer and consumer as it improves the quality, reduces the costs and creates a balance in it. This phenomenon will in turn lead to a healthy competition in the market through the use of the data related to quality improvement (Nazar, 1999). Today, the tendencies of insuring institutions which select service purchase instead of service production is the result of this, because, based on the statistical data and indexes of health economics, direct production is costlier for service-providing organizations and can hardly meet the consumers' expectations and satisfaction.

The Importance of performance evaluation

Evaluating the efficiency and effectiveness rate is one of the main issues in hospitals. The way of utilizing hospital beds is very important in determining the hospitals' efficiency (Karami & Safdari, 1389). A strategy proposed for improving the service quality is standardization and comparison with standards. Standards are expectations from the resources, processes and outputs of hospital systems for assurance of high-quality service presentation and it is necessary to compare all the hospital programs and services with the standards in order to reveal the strengths and weaknesses in performance, because any increase or decrease in the costs and revenues of hospitals relies on this. Determining the appropriate levels of performance in terms of quality and quantity refers to the use of standards for each type of activities and actions (Askaraqaei, 1379). The indexes introduced in this regard are known as performance indexes that can be used to help determine the rate of the services provided, evaluate the services and comparing them with the standards of the Ministry of Health. Indexes should be valid and reliable. Some of these indexes are as follow: bed occupancy percentage, bed performance percentage, the average day of hospitalization and cycle distance or performance (Masouri & Sharifian, 1382). In Iran, some hospital indexes are not acceptable and in some cases are far away from the desirable limit, which means the wasting of the great national capital. According to the estimate made by the Budget Organization, each hospital bed needs an average of 250 million Rials in order to reach the stage of use and about 300 billion toman is annually wasted for the inactive hospital beds. However, there are a lot of patients who cannot be hospitalized due to the lack of access to hospital beds or other reasons. Since the evaluation of hospital performance using the important performance indexes is a good way of detecting the problem, the performance measurement and comparison in the country has been dealt with by different studies. Some of these studies have compared the performance of the centers using the indexes, some others have sought to compare these indexes with the present standards and some others have tried to identify the factors affecting the increase and decrease of the indexes (Karami & Safdari, 1389). Studies have shown that the performance index of bed occupancy rate has been examined as an effective factor in crisis management plan and can be analyzed by the evaluating team in the annual evaluation of hospital performance.

The main indexes of quality

Basically, the definition of measurable indexes is one of the fundamental requirements of any planning. These indexes' being timely, reliable and significant is very important in determining the strategies, policies and executive solutions. Indexes warn the decision-makers about the existence of potential or hidden problems in some specific areas or the continuation of the desirable trend in other areas. The use of criteria and principles that specify the qualitative features in quantitative form and make them measurable is referred to as index. Indexes usually originate from theories, attitudes or situations and can be used just like signs that show the directions. More than one index is normally used to make sure about conclusions and show the psychological, sociological and cultural conditions and status so that the possibility of emergence of errors is minimized (Dolan, 2003). The position and status of institutions can be described using indexes in terms of planning or doing scientific research; Indexes are considered an appropriate criterion for evaluation; indexes are used for prediction of the workflow.

Martin Shirley showed in a research that in order to determine a successful manager, indexes such as the mission and goals of the organization, motivation, organizational climate, and relationship with clients should be considered as the indexes of evaluation. Sergiovanni introduces the main indexes of an efficient leader as follow:

the number of innovative solutions, the ability to solve problems in a creative way, the ability to encourage the employees to reflect on their own performance (Duncan & Brebbia, 2009).

Methodology

The Research Method

The present research describes the research issues part by part in order to achieve its goals and collects the data without making any changes in them. Therefore, this research is a "descriptive" (non-experimental) research. This research has examined the status quo of the variables by gathering data from the managers and experts. Therefore, the research is a descriptive-survey research, and because achieves the goals by processing and analyzing the data, it is a descriptive-analytical research (Sarmad et al., 1390). The population in this research all the patients and personnel of Valiasr Hospital, affiliated to Tehran University of Medical Sciences. The sampling method used in this research is "simple random sampling method, in which each all of the elements of the population have an equal chance. Thus, the sample size in this research is 200 people. The preliminary data from the research population was collected using a 50-item questionnaire, the evaluation of which was done based on Likert Scale and the reliability of the variables of which has been shown in Table 1. Finally, descriptive and inferential statistics methods have been used in this research for data analysis. In descriptive statistics, the table of frequencies and percentages, averages and standard deviations have been used, and in inferential statistics, Pearson Correlation Test has been used for testing the research hypotheses, and SPSS (ver20) Software has been used for the calculations.

Table 1. Reliability of the questionnaire

Cronbach's Alpha	The number of questions	B
0/786	30	Hospital performance indexes, service presentation by the employee
0/711	25	Hospital performance indicators and their impact on health care quality

Findings

The Results of the research hypotheses

- There is a significant relationship between bed occupancy rate and improvement of service quality in Valiasr Hospital.
- There is a significant relationship between the average length of hospital stay and improvement of service quality in Valiasr Hospital.
- There is a significant relationship between bed flow and improvement of service quality in Valiasr Hospital.
- There is a significant relationship between the percentage of patients treated within 6 hours and improvement of service quality in Valiasr Hospital.
- There is a significant relationship between the percentage of temporarily admitted patients who leave the emergency department within 12 hours and improvement of service quality in Valiasr Hospital.
- There is a significant relationship between the percentage of unsuccessful CPRs and improvement of service quality in Valiasr Hospital.
- There is a significant relationship between the percentage of patients leaving the emergency department with their own personal liability and improvement of service quality in Valiasr Hospital.
- There is a significant relationship between the average length of time to triage for a patient and improvement of service quality in Valiasr Hospital.
- There is a significant relationship between the total number of admissions to the emergency department and improvement of service quality in Valiasr Hospital. Table 2 shows the results of the statistical analysis of the data.

Table 2. Results of the research hypotheses

T-test statistic		Fisher Test statistic	Standard error	Coefficient of determination	Fault Tolerance level	Correlation coefficient	Research indexes
coefficient	Fixed value						
9/808	14/934	96/197	0/328	0/3317a	0/0001	0/576	bed occupancy rate
6/651	12/457	44/232	0/181	0/1857a	0/01	0/431	Patient's stay
7/273	10/564	157/899	0/210	0/2143a	0/01	0/463	bed flow
12/930	14/881	167/193	0/460	0/4624a	0/01	0/680	Patients treated within 6 hours
2/206	27/302	4/866	0/019	0/0243a	0/01	0/156	Patients leaving the emergency department within 12 hours
7/967	157/234	63/471	0/243	0/2470a	0/01	0/497	the percentage of unsuccessful CPRs
8/605	14/461	74/040	0/272	0/2766a	0/01	0/526	Patients leaving the emergency department with their personal liability
12/930	14/881	167/199	0/480	0/4843a	0/01	0/698	the average length of time to triage for a patient
12/890	14/998	167/193	0/490	0/4925a	0/01	0/569	the total number of admissions to the emergency department

Discussion and Conclusion

As shown by the Kolmogorov-Smirnov Test statistic related to the effect of the variable "the average length of time to triage for a patient" on the improved quality of hospital services, which are 1.35 and 1.195 and because the fault tolerance level of the two is less than 0.05, it can be said that the influence of the average length of time to triage for a patient on the improved quality of hospital services is confirmed. Therefore, the hypothesis of the normality of the data distribution of the two variables is not rejected. Therefore, Pearson Correlation Test is used for determining the relationship between the variables "the total number of admissions to the emergency department" and "the improved quality of hospital services". We use one-variable Regression Model in order to understand the impact of the total number of admissions to the emergency department on the improved quality of hospital services. Fisher Test statistic is 167193, and as the fault tolerance level is smaller than 0.01, it can be said that the effect of "the total number of admissions to the emergency department" on service quality improvement is confirmed. The first hypothesis is about the relationship between bed occupancy rate and service quality improvement of Valiasr Hospital. The T-test statistic related to regression coefficients is 14.934 and 9.808 for the two variables respectively and the accuracy of Regression Model is confirmed as the fault tolerance level is less than 0.01 in the two cases. The second hypothesis is related to the relationship between patients' average length of stay and improvement of services in Valiasr Hospital. The research findings related to this hypothesis show that one of the most important components of hospital performance index can be average length of patients' stay in the hospital. The third hypothesis is related to the relationship between patients' average length of stay and improvement of services in Valiasr Hospital. The research findings related to this hypothesis show that Pearson Correlation Coefficient for the variables bed flow and service quality improvement is 1.286 and 1.162 and the fault tolerance level for the two variables is greater than 0.05. The fourth hypothesis is about the relationship between percentage of patients treated within 6 hours and service quality improvement. The research findings related to this hypothesis show that Pearson Correlation Coefficient for the two variables is 0.680 and the fault tolerance level for the two variables is 0.0001, which confirms the relationship between the two variables. The fifth hypothesis is about the relationship between the variable "the percentage of temporarily admitted patients who leave the emergency department within 12 hours" and service quality improvement. The result show that an increase in the percentage of temporarily admitted patients who leave the emergency department within 12 hours will lead to an improvement in the quality of hospital services and acceleration of hospital operations. Therefore, it will help improve service giving. The sixth hypothesis is about the relationship between the variables "the percentage of unsuccessful CPRs" and "service quality improvement". Pearson Correlation Coefficient for the two variables is 0.497 and the fault tolerance level for the two variables is 0.0001, which confirms the relationship between the two variables. We use one-variable Regression Model in order to understand the impact of the percentage of unsuccessful CPRs on the improved quality of hospital services. The seventh hypothesis is about the relationship between the variables "the percentage of patients leaving the emergency department with their own personal liability" and "service quality improvement". A decrease in the percentage of unsuccessful CPRs can result in an improvement in the quality of hospital services. The eighth hypothesis is about the relationship between the variables "the average length of time to triage for a patient" and "service quality improvement". Pearson Correlation Coefficient for the two variables is 0.698 and the fault tolerance level for the two variables is 0.0001, which confirms the relationship between the two variables. We use one-variable Regression Model in order to understand the impact of the average length of time to triage for a patient on the improved quality of hospital services. The ninth hypothesis is about the relationship between the total number of admissions to the emergency department and service quality improvement in Valiasr Hospital. The investigations show that the smaller number of admitted patients will lead to their higher satisfaction with the services. Therefore, the total number of admissions to the emergency department can play an effective role in improving the quality of services.

Suggestions

We suggest that the senior managers of hospitals in our country hold planned sessions and meetings with the personnel when doing the project of hospital performance indexes in order to increase their employees' support and organizational commitment and that they instruct their employees about the correct application of the changes in the principles and methods of the work in order to increase their efficiency and service giving to patients. While the employees and consultants are used in many research projects as a factor of change, the executive efforts will not be fruitful and helpful without the senior manager's support and commitment. Accordingly, managers should take this important issue into consideration, so that the way is paved for improving the quality of services to potential patients through effective changes. Any organization should formulate a special methodology considering its own internal and external processes, or provide a method proportionate with its conditions by modifying a methodology so that it can organize its service giving activities and systematically follow the goals of performance indexes and consequently improve the quality of its services. Managers should assess, study and scrutinize all the conditions and statuses of their organizations and then make use of an appropriate technique for the creation and success of hospital performance indexes.

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Seyedeh Matin Banihashemian, Department of Medical Health Service Management, Fars Science and Research Branch, Islamic Azad University, Marvdasht, Iran, Department of Medical Health Service Management, Marvdasht Branch, Islamic Azad University, Marvdasht, Iran

Somayeh Hesam, Department of Medical Health Service Management, Marvdasht Branch, Islamic Azad University, Marvdasht, Iran

Corresponded Author: Somayehh59@yahoo.com