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Designing the Hybrid Model of EFQM- ECSI for Evaluating the Satisfaction of Patients: Case of Hasheminejad Hospital

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Abstract

Background and Objectives: What are the patients' expectations of hospital and health services? What measures do health service experts take to meet these expectations? These are 2 principal questions that the junior managers in hospitals encounter in line with continuous improvement of service quality and patient satisfaction. Organizations, whether big health service organizations or national and state bases, concentrate on the consideration of the role of patients' satisfaction of health service quality. In this study, a model is presented to measure the patients' satisfaction in Hasheminejad hospital and the model will be implemented for 5 years and the results will be compared.

Methods: Due to strategic mission of hospital, and fulfilling patients' expectations as the main axle in a hospital and based on the European Customer Satisfaction Index (ECSI) and with regard to the European Foundation for Quality Management (EFQM), a model presented for measure satisfaction of patient. Then a questionnaire was designed based on the mentioned model in which, first, the qualitative services the patients receive were divided into 4 categories based on the survey model: nursing services, medicine, hoteling and communication. Also patients' loyalty and mentality of hospital are assessed in this questionnaire. Next, all patients underwent seasonal survey based on the designed questionnaire, and the collected data were analyzed by the SPSS software (ver. 22).

Findings: The survey results showed that the hospitalized patients had a high-level satisfaction of the hospital. The general degree of satisfaction of different areas in hospital ranged from 86.9 to 87 in 2014. The highest satisfaction concerns the area of communication that represents the success of hospital educational programs in this area. Survey results from 2008 to 2014 showed that patients' satisfaction in hoteling increased from 83.4 to 86.2 in hoteling, from 84.7 to 88.1 in nursing, from 87.4 to 87.6 in medicine, and from 87.7 to 87.8 in the area of communication.

Conclusions: The model presented in this study provides 360 evaluation of patient satisfaction and can be helpful to hospital managers

Keywords: Patients' expectations, Assessment, European customer satisfaction index

Background and Objectives

In 1990s, the quality management standard has placed expectation fulfilment in patients in the core of its clinical mission. A number of factors influence the patients' satisfaction of the quality of clinical services. They are divided into 2 general categories: 1) Human (providers), and 2) systemic.[1-3] Service quality in line with the assessment and fulfilment of patients' expectations is introduced as an instrument for measuring the patient's expectations. Therefore, awareness of patients' expectations and perceptions is important for service providers.[4] According to Parasuraman et al, who presented a broader definition of service quality and developed the conceptual model of services, the quality of services is the result of services for the assessment and fulfilment of customer's expectations and service functions.[5,6]

In another study in Yazd province in 2010, it was shown that the highest degree of satisfaction in patients concerned the physician's behavior and conduct, and the lowest degree of satisfaction was related to hospital costs. The patients had a complete satisfaction of physician and nursing cadres, a relative satisfaction from the physical space and pre-hospitalization services, and dissatisfaction from hoteling and discharge services.[7]

Leach et al studied the expectations of osteopathic patients.[8] The results showed that 69% of the patients'

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expectations were met. Reck conducted a research on discovering the relationship between the patients' expectations from nurses and the nurses' perceptions of patients' expectations in Chaplains Hospital. He found no a significant relationship between the patients' expectations from nurses and the nurses' perceptions of patients' expectations from them.[9] Blank et al conducted study on the patients' and nurses' expectations of nursing cares in the emergency department. The results of this research revealed that the patients receive positive feedback from the nurses, disseminate nurses' good behavior and, are loyal to them.[10]

The present research evaluated and investigated the expectations and satisfaction in the hospitalized patients and outpatients in the hospitalization ward, surgery room, clinic, and emergency and paraclinical wards in Hasheminejad hospital using the proposed model that is a combination of National Index for Inpatient Satisfaction in France and similar models in the outstanding hospitals of the world such as Johns Hopkins Hospital and the European Index.

Methods

Shahid Hasheminejad teaching hospital is the first and the only special center for the treatment of kidney diseases in Iran. It has operated for over 50 years under the supervision of Iran University of Medical Sciences. Besides urology, nephrology, and ourology and vascular surgery, it has units for renal replacement therapy such as hemodialysis, peritoneal dialysis and kidney transplantation. Moreover, this center is an educational hospital that accepts and educates different learners from associates' degree to the residency of kidney surgery and kidney internal diseases.

In 2002, based on the assessment of a superior organization on this center and by the statement of "it is best: not being that "by the assessors, the hospital managers decided that for maintenance and survival purposes, they need structural changes. Therefore, to reach success in the area of education, to present the best healthcare services, and finally, to the satisfaction of all stakeholders, the junior managers of the organization took measures to found and administer evolution and movement towards excellence.

To this end, in the initial years, this action engaged in the empowerment and development of manager's capabilities, and the use of appropriate assessment tools, i.e. the use of European Foundation for Quality Management (EFQM) for the assessment of the status quo and extraction of abilities and priorities that can be improved. After several years of implementation of the values of this model in the hospital form and changing its culture to working towards quality and excellence, the work processes was reengineering and, was coincided with organizational strategies. In the 2007 review, given the organization goals and the emphasis on the comparison of the results with the best in the world, the organization decided to administer Customer Satisfaction Measurement (CSM) in accordance with the universal methods. As we know, the EFQM covers 9 criteria, 5 of them are enablers (leadership, policy and strategy, staff, participation, and resources and processes) and the remaining 4 are results (customer results, staff results, society results and key operation results). The enablers and the results criteria each carry 50% of the total value in the model, indicating the equal value of the route into which the enabling activities are directed, and the results are achieved. From among the model criteria, the customer results receive the highest score (20%). This high value of the customer results made the junior managers of the hospital to use the patient satisfaction assessment index (customer results) that is appropriate for the hospital conditions and environment, and is in line with the superior and strategic goals of the organization. Thereafter, a model combined of French Customer Satisfaction Measurement (FCSI) and European Customer Satisfaction Index (ECSI) was introduced by the institute consulting the organization for assessing the patients' satisfaction of Hasheminejad hospital. Therefore, an approach was developed based on the ECSI, in the light of EFQM and FCSI. That is, in the first stage, the needs and expectations of all customers including hospitalized patients (illiterate, literate or old), outpatients, those referring to clinic and emergency, etc. were collected by the focus group method and deep interviews with the patients. This process was also performed for collecting the learners' views in all levels of medicine, nursing, etc. By this approach, the subject area was covered, and an instrument was provided according to the customers' needs. It was decided to assess the performance continuously and seasonally throughout the year to ensure area coverage, including sampling from all clients in the morning, evening and night shifts, surveying the emergency units, and the patients being discharged, or interviewing at the time of hospitalization. At the next stage, the survey results were investigated in focus groups, and an appropriate questionnaire was designed and developed. The process is repeated annually to improve the questionnaire in the passage of years. The following flow chart presents the process of administering survey on patients in Hasheminejad Fellowship Center. The process of assessing patient satisfaction in the hospital is shown in Figure 1.

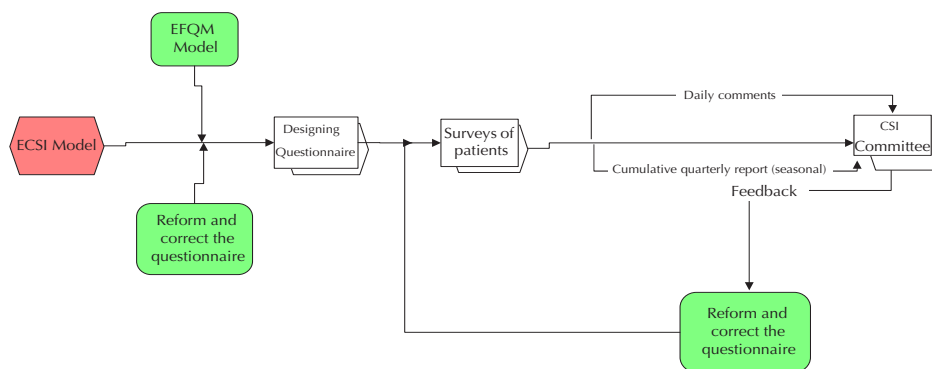Alignment of the Approach With Hospital Strategies

Figure 1 . Flow chart of surveying patients in Hasheminejad Fellowship Center

In its strategic programming, Hasheminejad hospital has defined strategic goals in the 4 dimensions of budget and finance, customer and society, processes and development, and learning based on the strategy in practice. In the dimension of customer and society, expectations, expectancies and the degree of satisfaction of the stakeholders including patients and accompaniments, learners, neighbors and contractors were assessed and interrogated. In the dimension of development and learning, the expectations, expectancies and satisfaction of the staff and physicians were assessed in order to achieve the strategic goals of recruitment management and staff maintenance.

The hospital has coordinated and integrated the approach and outputs of stakeholder satisfaction management (SSM) with the approaches of: (a) investigation and addressing the customers' complaints, b) nursing management, (c) therapy management, (d) education management, (e) supply chain management, (f) salary, wage and payment based on performance, and (g) performance evaluation.

Development of Project Goals and Planning
The first and the most principal step in the establishment and administration of SSM system is development of a collection of goals. Hasheminejad Hospital has depicted the following goals for SSM:

- Supplying the stakeholders' needs and expectations
- Investigating their degree of satisfaction from hospital performance Social Satisfaction Index (SSI)
- Comparison with other organizations
- Determining improvement priorities

Administrative Stages
1. At the first stage, Hasheminejad hospital recognized the stakeholders' needs and expectations, and then determined the sequence of priorities and their importance with regard to each other. To do so,

which was usually carried out in one-year periods, the center assessed their expectations through concentrated groups, deep interviews and semi-open questionnaires, and categorized them in the order of priority and importance with regard to response frequencies.

2. At the second stage, the hospital measured the degree of the stakeholders' satisfaction of its performance in axles, known as expectations. It also measured other axles effective on the stakeholders' satisfaction described in the models.

For this purpose, the stakeholders' satisfaction questionnaire was designed based on new needs so that items and predicates were developed for each one of the factors effective on satisfaction.

3. At the third stage, the improvement priorities were recognized and recorded. To attract the stakeholders' satisfaction, the improvement priorities determined the areas most effective on the patients' satisfaction, factors carrying more weight and importance, and the way the limited resources of the organization is designated to priorities for the purpose of promoting satisfaction in patients.

To this end, areas with the most dissatisfaction are determined. Then the weighting coefficient of each factor achieved in the regression equation was involved in the degree of satisfaction, and the priorities of the improvement areas were determined.

4. At the final stage, the related committees (formed weekly with the presence of key managers) determined and followed necessary measures for promotion of satisfaction.

Using the EFQM Model for the Assessment of Patients' Satisfaction
Investigation of the center's previous situation revealed the lack of new management systems and no use of traditional management methods so that there was no

special definition or statement on the existence of ideal, mission and organization values. Performance goals and indices were not determined. There was not any continuous assessment of customers and staff's satisfaction, except in some units.

In addition, no comprehensive plan was undergone for the empowerment of staff in different areas, and education was limited to intra-unit education in the medical and nursing groups.

To promote the quality of services, the managers of Hasheminejad hospital took measures to use the mentioned concepts, to select and use the excellence model of EFQM, and to establish it in the hospital in order to be placed in the route to excellence. In the EFQM model, special attention is paid to the assessment of the stakeholders' satisfaction (customer results, staff results, and society results).

The Relationship Between the Assessment of Beneficiaries' Satisfaction and the Organizational Excellence Model of EFQM

Given the fact that the quality management foundation in Europe is the designer of customer and staff satisfaction assessment models, and is coordinated with the quality association of Europe and the European Union on many matters, and since it organizes many common activities, integration of these models is maintained. Moreover, there are evidences of the coordination of these approaches with organizational programs and evidences related to the EFQM model.

European Customer Satisfaction Index
Index Components

1. *Received quality:* In the American index of satisfaction assessment, 2 kinds of received quality are suggested individually: (a) product quality (hardware) and (b) quality of secondary services (software).

5. Difference between these 2 kinds of received quality is a definite dimension of the European index. Both kinds of received quality have a direct and positive influence on the general customer satisfaction.

2. *Value:* Value is a stage of understanding the quality of goods or services that includes the cost on the customer (in fact, the price that the customer pays for receiving goods or services) and the value that is created in the customer's mind as a result of this payment. This cost and the services received proportionate to the payment have a direct influence on customer satisfaction, and generally, value depends on both kinds of the quality received.

3. *Mental image (reputation):* This factor was first

introduced in Norwegian satisfaction index in 1998. Mental image is related to the trade mark of an organization and the kind of its relationship with customers. In fact, it depicts what is there in the customer's mind before receiving services. It is expected that the mental image of the organization has considerable influence on satisfaction and loyalty. As a result, in this model, the mental image has a direct relationship with the value created in the customer's mind.

4. *Customer complaints:* This factor is related to the customers' complaints and the way that the organization encounters with them. It is expected that the more is the customers' satisfaction, the less is their complaints.

5. *Loyalty:* Loyalty is the final dependent variable in the model that is considered as an index for ensuring future profitability of the organization. The result of the research has shown that customer retaining cost is one fifth of the cost of gaining a new customer. In addition, a loyal customer encourages others to use the goods or services of that organization.

Figure 2 shows the inputs and outputs of the satisfaction index.

As shown there is a relationship between different parameters and general customer satisfaction in the measurement model.

Recognition of Customers' Needs and Indices Influential on Customer Satisfaction

In order to have a comprehensive assessment of the customers' satisfaction, it is necessary to first recognize all factors effective in the customers' perspectives. To do the survey in hospital, first, a concentrated team tried to recognize customers (those who receive health services) and their needs in the entire hospital. It was determined that patients (customers) who referred to the hospital have referred to different hospital units depending on the services they needed. Because the patients and service receivers were not concentrated in a single hospital unit, several different questionnaires were designed for different units:

1) hospitalized patients, 2) Outpatients (emergency, para clinical units, clinic, etc), 3) Patient accompaniments, and 4) Patients after discharge (including all of the discharge processes).

What is important in the design of a satisfaction assessment questionnaire in hospital is that, in accordance with the ECSI discussed earlier, the quality of the received services (model input) has different parameters, which is
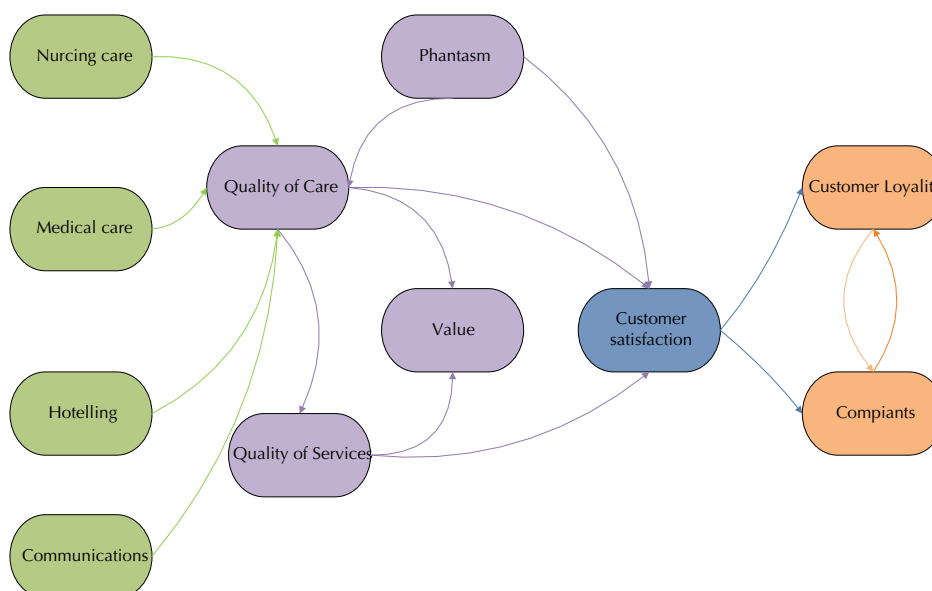
Figure 2. Conceptual Model of the Research.

not limited to a special unit or section of the hospital; rather qualitative questions differ depending on the hospital section that one refers to.

For example, hospitalized patient receives different kinds of services; the quality of them must be assessed. For instance, nursing, medical, hoteling, and communication are services that a hospitalized patient receives. For those referring to other hospital units, the situation is similar: first, the research team recognizes the customers' needs and the kind of services that they receive; then relevant questions are raised in the questionnaire accordingly.

Subsequent materials concern the discourse of loyalty in patients based on the satisfaction assessment model. This discourse should be assessed because, as mentioned earlier, it is an important element in the ensured profit of the organization. In all hospital units, loyalty is assessed with questions such as "Would you like to refer to here again?" or "Do you introduce this hospital to friends and acquaintances". Different results have been gained during the consecutive years of survey.

The next point to raise regarding the satisfaction assessment model is the value generated for the customer. As we know, this is directly related to the payment by the customer for the services received. Since the related health unit has contract with different insurance institutes, the question of satisfaction from costs is directly raised in the questionnaire for all hospital units.

The other parameter is the mental image in the patients referring to the hospital. This factor is asked directly in different hospital units: "What is your mental image of the hospital or unit you referred to? Is it good or bad?" Since

the answers are qualitative, the answer spectrum varies from "completely dissatisfied", to "completely satisfied", and the customer can select one of the options according to his/her viewpoint.

As of customer complaints, they are reported daily and in written form to the hospital management.

At the end, the patient's general satisfaction of hospital is assessed. The mean of these scores provides an image of the general satisfaction in the customer.

To measure customer satisfaction, different factors are considered, based on which questionnaires are provided that contain different questions on a number of areas (model input and output).

The designed questionnaire consisted of 2 parts. The first part included the patients' demographic information (age, gender, etc), and the second part was related to the model designed based on 7-point Likert type (Table 1).

Calculation of Satisfaction Index

In the normal situation, all questionnaire items are supposed to be homogeneous and no special weighting coefficient is regarded for the degree of importance for any item. After data collection and sampling, the data were fed into the SPSS software (ver. 22), and the results were analyzed.

Since the questions are qualitative, and the customers' responses depend on not only the quality but on the other factors such as customer's taste and thought, descriptive statistics methods were used for measurement. The answers were not definite but close to reality given the questionnaire's format.

What is introduced in the analysis of questionnaire

Table1. Frequency of questions raised in different areas

Areas	Item frequency
Nursing	9
Medical	7
Hotelling	9
Communication	8
Loyalty	3
Mentality	5
General items	5

indices under the title of Customer Satisfaction Index (CSI) is the mean of descriptive numbers designated to an index by patients. To calculate the percentage of patient's satisfaction, the CSI value was multiplied by 100 and divided by the number of answers considered in the spectrum.

For example, if we had 6 answer options in the spectrum:

$$CSI + \frac{(Mean \times 100)}{6} \qquad (1)$$

The calculated number would show the percentage of patient's satisfaction of an index like X. It is to be noted that in the ECSI model, the mathematical method for measuring the satisfaction index is the least square methodology in which calculations are conducted by linear regression.

After the results and numbers were achieved, the results of performance from the customers' perspective (actually, the customers' satisfaction.) are reported to different hospital units. So that each hospital unit and section can observe the change process in different survey periods and be aware of the degree of promotion or recession in that unit.

Statistical Methodology
Since the patients referred during the year and their presence in the hospital is variable, the sampling consisted of several stages:

Temporal Sampling
Hospital health services are provided in 52 working weeks round the clock. Therefore, week is one of the time units. In addition, the mean of hospitalization time is 3 days. Therefore, to avoid repetitive samples, reference occurs 2 days a week so that there is an interval of at least 3 days between the first and the second references.

Local Sampling
Since it was necessary that all hospital sections be covered, there was no local sampling, and all locations were included.

Sampling Method
The present research used cluster sampling method for patients. In other words, first, one year is divided into 4 clusters (4 seasons), each including 16 weeks. Given the mean of hospitalization period (2 days), sampling occurs 2 days a week. Therefore, all hospitalized patients are surveyed a complete week per each season (that is, 3 working weeks, 2 days each). This approach (seasonal study) is also used in the European and American model of customer satisfaction in hospitals.

The basis for the selection of outpatients is selecting those who referred to the emergency or clinic or other paraclinical sections and stayed in the hospital less than a day. Selection of this sample is in the form of survey in temporal sample units. That is, at the time of survey, all patients who referred to emergency or clinic at that temporal unit were investigated.

Determining the Validity and Reliability of the Instrument
To determine the validity of the questionnaires, the Cronbach's alpha was used through the SPSS software (ver. 22). In this method, the internal consistency among the items is investigated, and in case that one item is not consisted with others, the software suggests you to delete it.

To determine the validity, the content validity technique was used. In this method, items related to each index are investigated by experts, and necessary refinements are made.

Determining the Data Analysis Method
Frequency distribution tables, cross tables, graphs and figures, central tendency and deviation values were used. In Hasheminejad Hospital, to determine the degree of CSI, Employee Satisfaction Index (ESI) and SSI, the following formula was used based on the recommendation of the quality association of the Europe and US presenting the methodology of measuring customers' satisfaction in the European and American versions:

$$SSI = \frac{\sum i w_i x_i}{\sum w_i} \qquad (2)$$

Where, w_i is the weighting coefficient of the variables, and x_i is the variable values including quality of nursing care, quality of medical care, hoteling, communication, mental image and value.

Discussion and Conclusion
First, the situation of hospitalized patients was investigated. Based on the survey model, the qualitative services that the patients received were divided into 4 categories in the

questionnaire of hospitalized patients: nursing, medical, hoteling and communication.

In order to increase the quality of the job, and to make the responses closer to reality during the survey years, questionnaires, the number of questionnaires and sometimes, the sampling method were changed, and some items were added or deleted to increase precision of the survey. Therefore, the general mean was used in these years for comparison of the process, and minor changes were ignored. Figure 3 shows the degree of patients' satisfaction from the hospital from 2008 to 2014.

As the figure shows, there is a high degree of satisfaction of hospital in the patients.

The 2011 results seem irrational by the junior managers of the hospital. Therefore, to achieve more realistic results for the future years, a tighter approach was exercised for the assessment of satisfaction.

The Changes Exercised Included

CSM system

- Surveys are conducted during the season (not in determined days).
- The number of samples is determined in accordance with the patients' statistics, and in is determined number in all units.
- The survey is not limited to the wards and in the morning shift; rather, the assessment is performed in lobbies, clinic and para clinical sections, as well as on the hospitalized patients.
- Based on definitioned proportionate, phone call is made to the discharged hospitalized patients.
- As much as possible, no survey in conducted in the presence of authorities.
- At the beginning each year, all questionnaires are reviewed according to the available approach.
- Those patients' views that are in need of immediate investigation are informed to the junior managers each day.
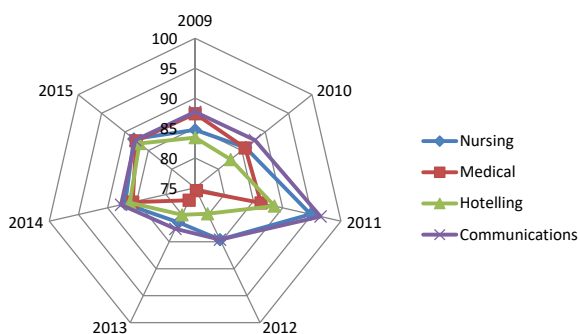
- Questionnaires are different in different wards and also for old and illiterate patients.
- Accompaniments are surveyed and their obtained scores are considered in the ward scores.
- With the presence of the hospital president, the CSM committee decides and defines administrative stages each week based on the patients' views and the reports of Your Voice Unit. The junior managers participating in the committee have to transfer the programs and decisions of the meetings.

Tables 2 and 3 present the survey results in different sections in all areas from 2008 to 2014.

Then the change process in the measurement of customer satisfaction via the satisfaction index was investigated. The results are as follows:

Hasheminejad hospital with 7 hospitalization wards revealed the following results regarding satisfaction: (Figures 3-7 and Table 3)

Mentality and Loyalty in Different wards

As the Figure 7 shows, there is a high degree of patients' satisfaction of different hospital wards. As mentioned in the previous section, the 2011 results were considered irrational by the managers, and by the exercise of a tighter approach, future results were more realistic. Given the mentioned changes, the 2012 results declined in proportion to the previous years, but raised in the next years and the results became more realistic.

It is observed in the mentality and loyalty figures (Figures 6 and 7) that in 2014, satisfaction increased over the previous years in all wards except in the dialysis ward; this ascending process shows the efficacy of the rigid method of evaluation in the hospital.

One of the reasons why hemodialysis patients in the dialysis ward have less satisfaction than in other hospital wards is that they are more familiar with the hospital, staff and services than other patients. Therefore, they feel little changes and react to them.

Investigation of the figure of patients' satisfaction of the entire hospital (Figure 2) in different areas showed that the patients most satisfied by the communication area in the hospital. In general, the patients' satisfaction varied in 2014 from 86.9 to 87, and from 86.2 to 88.1 in 205. Therefore, there is no considerable difference indicating that there is an excellent level of the patient satisfaction from different hospital areas.

Investigation of the previous studies indicated that, in their studies, the researchers have reported survey results, and determined the relationship between demographic features and satisfaction in patients, and that there was no study on the factors effective on satisfaction in patients

Figure 3. RADAR Graph for the Patient's Satisfaction in Different Hospital Areas.

Table 2. Results of Satisfaction Assessment in the Patients Hospitalized in Different Wards

year	General hospital process				Shafa				Sina				Soroush			
	Nursing	Medical	Hoteling	Communication	Nursing	Medical	Hoteling	Communication	Nursing	Medical	Hoteling	Communication	Nursing	Medical	Hoteling	Communication
2009	84.7	87.4	83.4	87.7	87.2	87.4	79.2	94.8	98.6	95.7	95.5	90.2	94.2	89.7	89.3	85.5
2010	85.8	85.7	82.6	87.8	82.2	83.4	78.3	87.7	89.2	83.8	80.5	78.8	89.8	89.9	88.7	90
2011	98.8	86.3	88.6	96.5	93.8	79.5	95.2	97.9	100	98.3	97.5	99.6	98.9	100	99.4	100
2012	84.6	75.5	79.8	84.6	80.8	69.7	75.9	84	83.3	76.3	78.6	85.6	83.3	83.3	79.8	80.4
2013	81.4	77.3	80	82.6	83.9	79.8	79.8	82.6	85.2	81.7	82.8	84.3	87.8	81.6	87.6	87.1
2014	87	85.7	86.2	87.7	89.1	86.5	86.5	88.9	89.6	88.7	88.4	89.4	89.7	88.7	89.5	89.5
2015	88.1	87.6	86.2	87.8	88.5	87.9	86.9	88.9	89.6	89.2	88.3	89.2	89.9	89.3	88.5	89.4

year	Dr. Rasouli				Transplantation				Omid				Dialysis			
	Nursing	Medical	Hoteling	Communication	Nursing	Medical	Hoteling	Communication	Nursing	Medical	Hoteling	Communication	Nursing	Medical	Hoteling	Communication
2009	91.7	93.5	84.9	80.4	98.5	98.4	83.9	85.7	90.3	88.8	86.3	85.4	97.3	83.1	79.2	79
2010	85.4	86.6	82.4	90.6	79.6	80.1	77.9	88.7	84.4	82.5	80.9	88	82.5	78.5	74.3	88.4
2011	97.2	88.5	91.3	98.6	97.9	97.9	83.3	95.8	84.4	85.9	91.4	89.7	98.7	96.8	93.6	100
2012	77.1	65.5	79	82.5	83.3	82.3	79.8	83.3	75.1	74.9	78.7	83.1	78.8	80.8	76.6	83.3
2013	84.4	82.5	82.9	86.7	89.2	86.6	87.9	89.2	82.8	76.8	81.9	82.7	69.6	63.5	71.4	73.8
2014	88.5	86.8	87.3	88.4	89.1	89.3	89.3	89.4	88.2	85.1	86.5	87.4	70.9	88.7	71.2	78.5
2015	89.1	89.2	87	88.8	89.1	89.2	87	88.8	88.8	88.1	87.2	88.5	79.5	78.8	78.7	79.8

Table 3: Results of mentality and loyalty assessment in the patients hospitalized in different wards

|	Loyalty							Mentality						
	Shafa	Sina	Soroush	Dialysis	Dr. Rasouli	Transplantation	Omid	Shafa	Sina	Soroush	Dialysis	Dr. Rasouli	Transplantation	Omid
2009	86.1	89.5	84	88.88	86.9	83.1	88.1	89.6	95.4	89.5	86.7	90.2	85.4	86.3
2010	89.4	87.8	82	88.4	84.1	89.5	91.3	84.7	92.5	84.8	90	83.8	93.4	90.4
2011	85	94.2	99.6	98.5	91	95.3	91	82.5	100	98.1	100	96.8	91.7	93.3
2012	87.5	92.6	95.7	98.5	82.7	87.7	89.8	91.1	97.6	99.6	98.7	83.6	95.2	93.9
2013	98	97.8	99.2	84.8	97	98.8	97.8	94.1	96.8	96.4	86.9	93.5	97.6	94.8
2014	97.9	98.8	98.7	85.3	97.7	99.6	96.5	97.9	98.6	99	82.2	97	99.7	97
2015	87.9	88.8	89.2	79.1	87.7	89.3	87.8	97.8	98.6	98.3	87.4	95.5	98.8	96.3
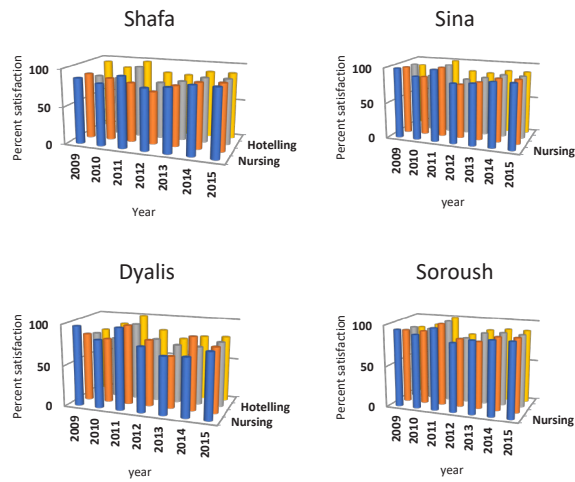
Figure 4. The Process of Satisfaction Assessment in Patients in Different Hospital Wards (2008-2014).
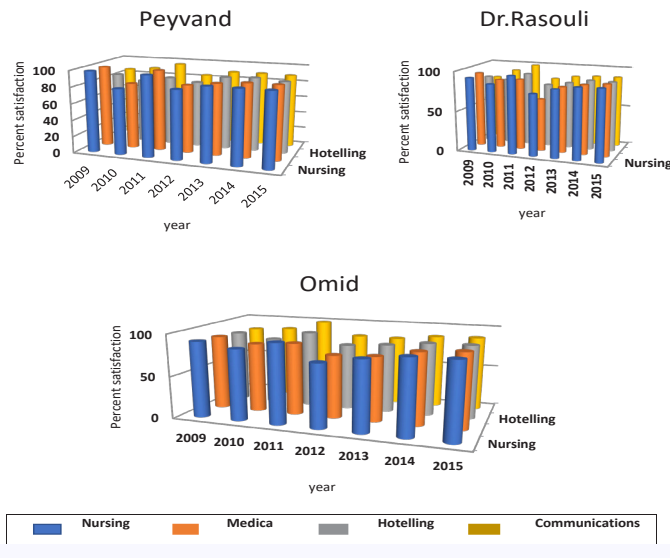

Figure 5. The Process of Satisfaction Assessment in Patients in Different Hospital Wards (2009-2015).
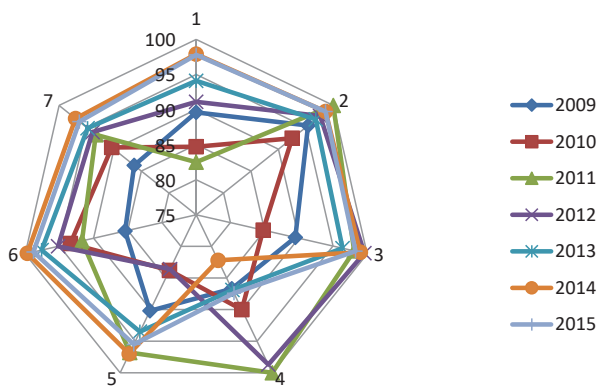

Figure 6. Radar graph of the patients' mentality of different hospital wards
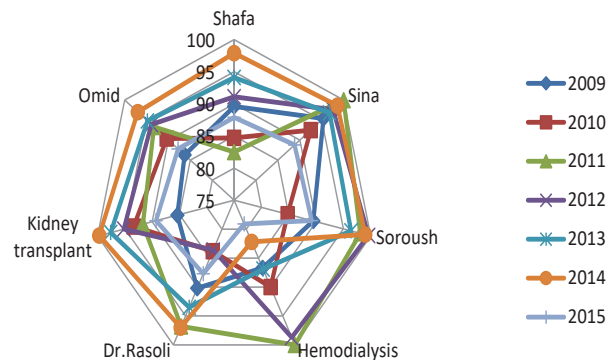
Figure 7. Radar Graph of the Patients' Loyalty to Different Wards.

and the analysis of patients' behaviors. Therefore, research in this research area seems necessary, and it is recommended that future studies analyze factors influencing satisfaction in hospitalized patients.

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