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The relationship between patient safety culture with patient satisfaction and hospital performance in Shafa Hospital of Kerman in 2020

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Abstract:

BACKGROUND: Hospitals are a significant part of the health system, so their performance is always measured based on some factors such as patient satisfaction and their safety level.

AIM: The present study was aimed to examine the relationship between patient safety culture with patient satisfaction and hospital performance.

MATERIALS AND METHODS: This descriptive–analytical, cross-sectional study was performed on 240 patients, 240 staff and 20 hospital managers in Shafa hospital of Kerman, Iran, in 2020. To collect data, the patient safety culture, the patient satisfaction, and the hospital performance questionnaires were used. The data were analyzed by SPSS and PLS software; to measure the research model, structural equation models and confirmatory factor analysis were used.

RESULTS: The variable “patient satisfaction” and its components had a high mean, with the component “the treating physician” having the highest mean. The variables “patient safety culture and hospital performance” had a medium mean. There was a significant positive relationship between patient safety culture–hospital performance, patient safety culture–patient satisfaction, and patient satisfaction–hospital performance.

CONCLUSION: The patient satisfaction level was appropriate in the studied center, and a positive and significant relationship was found between patient safety culture and patient satisfaction and hospital performance.

Keywords:

Hospital performance, patient safety culture, patient satisfaction

Introduction

Hospitals account for a significant portion of the health system budget. Concerning the high cost of hospitals, policy makers and health system managers expect the optimal performance of hospitals as well as the provision of high-quality, safe, effective, and efficient services.^[1] For optimum medical services to be provided, managers and planners must have some knowledge of the hospital performance

based on the relevant index. Therefore, it is important to identify the factors affecting the overall performance of the hospital. According to a study, factors such as patient safety culture and patient satisfaction are strongly associated with the hospital performance.^[2]

Accordingly, patient safety which arose from the health-care quality movement is defined as “the prevention of damage due to errors resulted from negligence in duties.”^[3] Based on to this study, safety and effective

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care require all various elements of a health care system to be well integrated and coordinated.^[4] According to statistics, one-fifth of the population of every society is exposed to medical errors and this rate may be up to 35%–42%.^[5] As a result, millions of people may die or be injured owing to preventable medical errors.^[5] Accordingly, patient safety has attracted the attention of many researchers in the field of health in recent years.^[6] Since patient safety culture affects performance, it causes authorities to prioritize maintaining and promoting patient safety when providing health-care services by influencing the voluntary behaviors of health-care providers.^[7] Assessing the organization's existing safety culture is the first step in developing the safety culture.^[8] Assessing patient safety culture, required by reputable international organizations, allows health-care organizations to gain a clear view of patient safety aspects that need immediate attention, identify strengths and weaknesses of their safety culture, help health-care units identify their patient safety, and benchmark their problems and scores against other hospitals.^[9]

Moreover, as the competition increases, organizations have no choice but to satisfy users of their services and products in order to survive and achieve effectiveness. Meanwhile, health-care providers always expect their patients to be satisfied not only with health-care services and their results but also with nonclinical experiences. Therefore, the patient satisfaction level is one of the indicators showing the effectiveness of health-care service quality in the hospital accreditation standard.^[10] The results of the Patient Satisfaction Survey allow health-care providers to identify cases that need improvement.^[11] Higher patient satisfaction with medical services improves patients' behavioral goals such as sticking to their treatment which is recommended by the physician, paying attention to follow-up visits and recommending the treatment center to others.^[12] Given what was said above, the aim of this study was to investigate the relationship between patient safety culture and patient satisfaction and hospital performance. To improve the level of health services and performance of the hospitals, the results of this study can provide useful information to health managers and policy makers.

Materials and Methods

Study design and setting

In this descriptive–analytical and cross-sectional study, the studied population were from Shafa Hospital in Kerman, Iran.

Study participants and sampling

In the structural equation modeling methodology, the sample size can be determined between 5 and 15 observations per measured variable.^[13]

$$5Q < n < 15Q$$

Where Q is the sample size and n is the number of observed variables or the number of items (questions) of the questionnaire. The patient satisfaction questionnaire consisted of 37 questions. The required sample size must be between 185 and 555 and should not be <200. Therefore, the sample size in this study was 240. Moreover, since the patient safety culture questionnaire has 42 questions, the required sample size is between 210 and 630. Thus, the sample size in this study was 240 people. All managers of different parts of the hospital ($n = 20$) were selected using the census method.

Data collection tool and technique

A two-part questionnaire was used to collect data. The first part consisted of demographic questions (age, gender, education, and work experience) and the second part included questions related to research variables. To assess the patient safety culture, a questionnaire^[14] including 12 items and 42 questions was completed by employees of different wards of the hospital that were selected by classification sampling. A localized questionnaire^[15] comprising 6 items and 37 questions was used to measure patient satisfaction; it was completed by patients referring to Shafa Hospital. To assess hospital performance,^[16] 6 questions were used and completed by the managers of different departments. All three questionnaires had a Likert scale of 5. Five professors of Kerman University of Medical Sciences confirmed the content validity of the questionnaires. After questionnaires were collected, they were entered into the software and their reliability was calculated using Cronbach's alpha test (0.892, 0.845, and 0.807 respectively). The KMO test was used to test the adequacy of the sampling; Bartlett's test of Sphericity was used in SPSS version 20 software (Chicago, IL, USA) to ensure that the correlation matrix, which is the basis of factor analysis, is not zero in the society. The results showed that the sampling is sufficient; therefore, the structural model can be performed. In this study, the significance level was 0.05.

Ethical consideration

This study has been registered in the Ethics Committee of Kerman University of Medical Sciences (IR. KMU. REC.1399.150). Written informed consent was obtained from all the study participants.

Results

240 patients participated in the study; 108 (45.0%) of them were female and 200 (43.8%) were male. In addition, 27 people did not specify their gender. The average age of patients was 41.05 ± 9.77 . Of 240 employees, 160 (66.7%) were female and 50 (20.8%) were male. In

addition, 30 people did not specify their gender, their average age was 33.9 ± 37.26 , and their average year of service was 9.7 ± 21.55 . Of 20 managers, 3 (85.0%) were female and 17 (15.0%) were male. Their average age was 47.7 ± 64.53 [Table 1].

Concerning the calculated means, the variable “patient satisfaction” and its components had a high mean, for example, the highest accumulation was found in high limit scores. The variable “the treating physician” had the highest mean, so according to the obtained means, satisfaction with the treating physician had the highest satisfaction index. The variables “patient safety culture and hospital performance” had a medium mean, for example, the highest accumulation was found in medium scores [Table 2].

Table 1: Frequency and percentage of demographic variable

| Participants | Frequency, n (%) |
|------------------------------|------------------|
| Patients (n=240) | |
| Gender | |
| Female | 108 (45.0) |
| Male | 200 (43.8) |
| No response | 27 (11.3) |
| Total | 240 (100.0) |
| Staffs (n=240) | |
| Gender | |
| Female | 160 (66.7) |
| Male | 50 (20.8) |
| No response | 30 (12.5) |
| Education | |
| Associate’s degree and lower | 21 (8.8) |
| Bachelor’s degree | 129 (53.8) |
| Master’s degree or higher | 43 (17.9) |
| No response | 47 (19.6) |
| Managers (n=20) | |
| Gender | |
| Female | 3 (85.0) |
| Male | 17 (15.0) |
| Education | |
| Associate’s degree and lower | 0 |
| Bachelor’s degree | 4 (20.0) |
| Master’s degree or higher | 16 (80.0) |

Table 2: Descriptive statistics of variables

| Variables | Mean±SD | Median | Minimum | Maximum |
|---|-----------|--------|---------|---------|
| Patient satisfaction | 3.74±0.39 | 3.86 | 2.30 | 5.00 |
| Nursing staffs | 3.76±0.55 | 4.00 | 1.71 | 5.00 |
| Health, services, and facilities | 3.69±0.50 | 3.84 | 2.23 | 5.00 |
| Satisfaction with the surgical department | 3.73±0.66 | 4.00 | 1.00 | 5.00 |
| The treating physician | 3.80±0.51 | 4.00 | 2.29 | 5.00 |
| Guard and reception | 3.73±0.69 | 4.00 | 1.00 | 5.00 |
| Discharge | 3.77±0.68 | 4.00 | 1.00 | 5.00 |
| Patient safety culture | 3.00±0.23 | 3.00 | 2.33 | 3.57 |
| Hospital performance | 3.04±0.48 | 3.00 | 2.17 | 3.83 |

SD=Standard deviation

The model suitability was first examined using confirmatory factor analysis. Cronbach’s alpha, composite reliability (CR), average variance extracted (AVE), and discriminant validity were used to fit the measurement models. Cronbach’s alpha and CR of the research variables were >0.7 , indicating the appropriate reliability of the research variables. AVE examined the correlation level between each structure and its questions (indicators). Hair *et al.*^[17] stated that 0.5 and more was sufficient for AVE. Hence, the results of all three measurement models are confirmed [Table 3]. Discriminant validity compared the correlation level between a structure and its indicators and the correlation of that structure with other structures. The Fornell–Larcker method^[18] provides us with a matrix in which the correlation values on its principal diameter must be greater than its underlying cells. It shows that the structures (latent variables) in the model have more interaction with their indicators than with other structures; hence, the discriminant validity of the model was appropriate. In this study, discriminant validity of the model was appropriate.

According to the observed values, t statistic was significant for all paths at $\alpha = 0.05$. Hence, all research hypotheses were confirmed, and the redundancy index showed that the structural model was of good quality, i.e., independent variables had the ability to predict the independent variable [Table 4 and Figures 1 and 2].

Discussion

Measuring patient satisfaction plays a very important role in the commitment of health-care providers and can be considered a reliable criterion in monitoring the quality and safety of the provided services. Accordingly, the hospital performance can be thought of as the final indicator of achieving the primary goals of the result of factors such as patient satisfaction and safety. Results of the patient satisfaction survey revealed that satisfaction with the treating physician had the highest satisfaction index. Various studies have shown that there is a relationship between physician’s communication skills and patient satisfaction.^[19] Moreover, results of

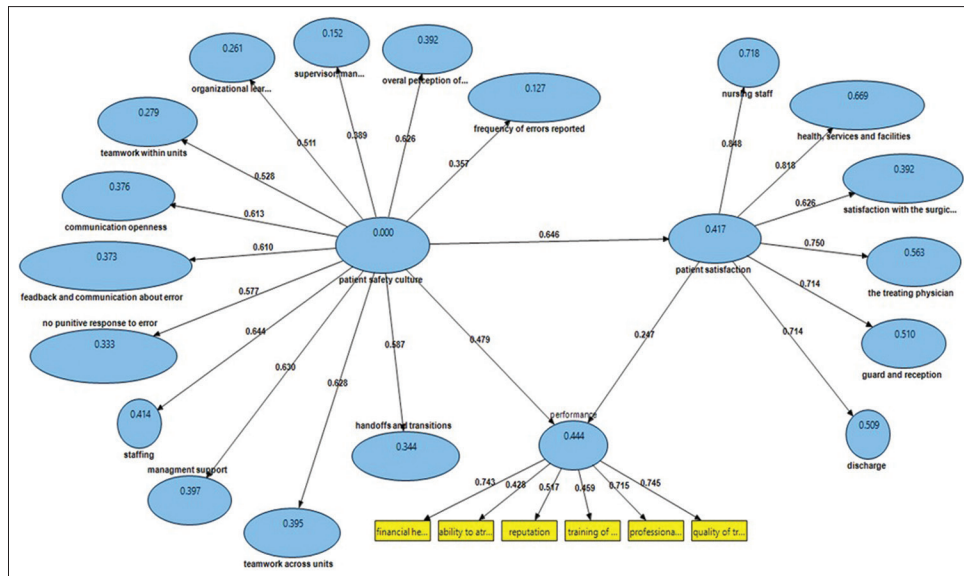


Figure 1: Structural model (standard coefficients)

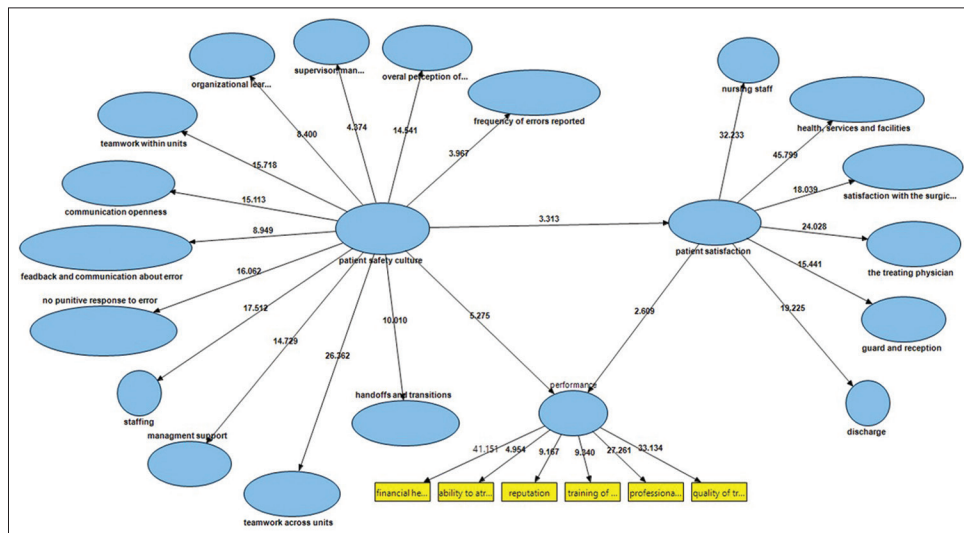


Figure 2: Structural model (t statistic)

Table 3: Average variance extracted, composite reliability, and Cronbach's alpha

| Variable | CR | Cronbach' alpha | AVE |
|------------------------|-------|-----------------|-------|
| Patient safety culture | 0.905 | 0.757 | 0.656 |
| Patient satisfaction | 0.756 | 0.872 | 0.514 |
| Hospital performance | 0.917 | 0.733 | 0.586 |
| Acceptable amount | ≥0.7 | ≥0.7 | ≥0.5 |

AVE=Average variance extracted, CR=Composite reliability

the first hypothesis revealed that patient safety culture had a positive and significant relationship with patient satisfaction; it was in line with the results of a previous study.^[20] Experts believe that hospitals and medical centers should, along with structural interventions, promote patient safety culture among their staff to improve the quality and safety of health-care services. This culture indicates the priority of observing

health-care instructions by staff working in the treatment department; it increases the quality of provided services and thus the patient satisfaction level by reducing the incidence of errors such as physical, psychological, and emotional injuries to patients, their companions, and even staff during the treatment and health-care processes.^[21]

Results of the study indicated a positive and significant relationship between patient safety culture and hospital performance.^[2] Safety culture is the product of individual and group values, attitudes, perceptions, competencies, and behavioral patterns governing the work environment of medical centers. Therefore, it highlights the commitments, methods and skills of an organization in terms of safety management and focuses on patient safety as the first priority of the organization.

Table 4: The results of hypothesis test

| Hypothesis | Independent variable | Dependent variable | Path coefficient (β) | t statistic | Result of the hypothesis |
|------------|------------------------|----------------------|------------------------------|-------------|--------------------------|
| 1 | Patient safety culture | Patient satisfaction | 0.646 | 3.313 | Confirmed |
| 2 | Patient safety culture | Hospital performance | 0.479 | 5.275 | Confirmed |
| 3 | Patient satisfaction | Hospital performance | 0.247 | 2.609 | Confirmed |

More skills represent more focus on achieving the inherent goals of the organization and thus better performance.^[22]

The examination of findings of the third hypothesis indicated that there was a positive and significant relationship between patient satisfaction and hospital performance, which was consistent with the findings of previous studies.^[23-25] Researchers believe that patient satisfaction is essential in achieving definite goals and means the fitness degree between patients' expectations of a service and its actual performance. In fact, medical centers which satisfy their patients are organization that perform their intrinsic duties and tasks they have been created for. They know that commitment to satisfying patients should be supported by a full understanding of the patient, competition, and the ability to create environments that need a change and an appropriate response to these environments.^[26,27] Medical centers that can keep their patients satisfied can make them loyal to themselves and make them receive services only from these institutions for a long period of time. In fact, patient satisfaction is considered a predictor of the patient's desire to pursue treatment, return to the center, or recommend services to others. In the United States, the Centers for Medicare and Medicaid Services (CMSs) regard patient's experience with health-care services as an important determinant of money paid to hospitals. Thus, since the 2013 fiscal year, at least 0.3% of hospital revenue has been determined by their performance in relation to the experience of satisfaction.^[24]

Limitation and suggestion

Due to limited financial resources and research time, this study was conducted only in one educational treatment center which is considered a limitation of this research. Therefore, it is suggested that this study be repeated in other hospitals to have a better understanding of the status quo and to compare public and private medical centers.

Conclusion

Accordingly, managers of the studied hospitals and health centers are required to take more effective measures to improve facilities and equipment of the hospitals. Therefore, it is suggested that improving the safety culture be a priority in management programs and that the environment be adjusted so that employees can express their opinions and mistakes as well as their

colleagues' opinions and mistakes without any blame and criticism. In fact, the evaluation of patient safety culture in hospitals can clarify the status of safety culture governing the center and its strength or weakness for managers and supervisors and can also have the ability to improve patients' conditions by increasing staff awareness of patient safety. Another result of the study was the positive relationship between patient satisfaction and hospital performance. Accordingly, it is recommended that managers improve the technical and specialized knowledge of their medical staff by holding in-service training courses. Paying more attention to factors (based on interpersonal relationships such as physician-patient relationship and nurses' behavior), providing counseling services for patients, and providing hardware factors (such as medical facilities, comfort, and room quality) are other issues that must be taken into account.

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Conflicts of interest

There are no conflicts of interest.

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