



Does implementation of ISO standards in hospitals improve patient satisfaction?

Vahid Keshtkar^{1,*}, Meisam Bazgir², Mehrdad Anvar²

Received 21 Mar 2016 ; Accepted 6 Jun 2016

ABSTRACT

Introduction: Around the world, a large number of projects have been developed with the aim of assessing patient satisfaction especially in hospitals. As an important indicator of the quality of health care system, Patients' perception of health care has been the center of attention over the recent 20 years.

Method: 402 patients who were hospitalized in teaching hospitals affiliated to the Shiraz University of Medical Sciences were investigated. Patients' satisfactions of the health care services were assessed using the translated and modified version of the KQCAH consisted of 44 questions divided to 7 categories of Respect and Caring, Effectiveness and Continuity, Appropriateness, Information, Efficiency, Meals, First Impression, Staff Diversity. All of the patients were asked to fill out the questionnaire (with written informed consents) at the time of discharge from the hospitals.

Results: Regarding total score of patient satisfaction the ISO-certified hospitals did not show advantages over the uncertified hospitals. The total score of patients' satisfaction ranged from 66.5 to 77.5 in. Overall, only in one ISO-certified hospital the total score of patient satisfaction representing all dimensions, was significantly higher comparing to other hospitals included in the study.

Conclusion: It seems that solitary application of ISO standards could not improve patient satisfaction in hospitals affiliated to Shiraz University of Medical Sciences.

Keywords: ISO, Patient satisfaction, Teaching hospitals

► Please cite this paper as:

Keshtkar V, Bazgir M, Anvar M. Does implementation of ISO standards in hospitals improve patient satisfaction? *J Health Man & Info.* 2017;4(1):7-11.

Introduction

'Quality' is the essence of healthcare service and is the common mission and purpose of managers of healthcare organizations and professionals in the health care delivery systems of the 21st century (1). As an important indicator of the quality of health care system, Patients' perception of health care has been the center of attention over the recent 20 years. The usual indicators for quality of care in institutes providing health care could and should be supplied by patients' opinions and therefore an important source of information for screening the problems of health care organizations is Patient expression (2). Around the world, a large number of projects have been developed with the aim of assessing satisfaction especially in hospitals (3). At the same time, the methods for assessing patient's satisfaction have evolved especially in the way of designing generic in-patient satisfaction questionnaires which are a generally used method to obtain customer feedback (3-5).

On the other hand, measurement of standards for quality

of service is rapidly growing around the world. Many, including health organizations have already implemented standards and more are in the process of doing so. Of the systems which have been introduced for assessment of quality, ISO 9000 series are standards which originally focus on quality management systems for manufacturing industry, but the application of such standards have now emerged in the quality assessment of health services, and in whole hospitals and clinics. Hospitals (or, more commonly, parts of them) are assessed by independent auditors who are themselves regulated by a national 'accreditation' agency. Certification is widely available from independent certificated auditors and is recognized in many other service and manufacturing industries, and across national borders (6).

ISO 9001:2000 is an International Standard for Quality Management Systems. However, there are only a few numbers of teaching hospitals in Iran and Shiraz which are certified by ISO9001:2000. In addition, little is known that whether such standardizations have lead to improvement in patient satisfaction during their hospital stay.

¹ Health Policy Research Center, Community Medicine Department, Shiraz University of Medical Sciences, Shiraz, Iran

² Community Medicine Department, Shiraz University of Medical Sciences, Shiraz, Iran

*Corresponding Author: V Keshtkar, Health policy Research Center, Community medicine department, Shiraz University of Medical Sciences, Shiraz, Iran. Email: keshtkarv@sums.ac.ir.

In this regard, the present study was designed with the aim of comparing patient satisfactions in teaching hospitals certified by ISO 9001:2000 standards with those hospitals which does not carry such certification.

Method

Study subjects

This study was designed as a cross-sectional one which was conducted on 402 patients who were hospitalized in teaching hospitals affiliated to the Shiraz University of Medical Sciences. Patients were recruited from 7 hospitals, three of which had the ISO 9001:2000 certification including hospital 1 and 2 (general referral centers with sub special wards) along with hospital 3 which is a general pediatric referral center. The remaining four hospitals did not have the certification by the time our study initiated. These included hospital 4 and 5 referral centers for Obstetrics and Gynecology, hospital 6 referral center for otolaryngology and ophthalmology, hospital 7 a center of referral for orthopedics and rehabilitation.

Inclusion and exclusion

Considering the percentage of active wards and bed occupancy rate in each hospital, half of the patients were selected from the ISO certified hospitals while the other half, were recruited of those hospitals without ISO 9001:2000. Individuals who had at least 48 hours of hospital stay were included in the study, while patients admitted to the psychiatric wards, those with mental status alteration, critically ill patients, individuals from intensive care units and those who were expired during their hospitalization were excluded from the study in that reliability of their statements could not be confirmed.

Data gathering and measurements

A data gathering form with 2 subsequent parts was used to obtain data from the patients. In the first part, baseline demographic information including age, gender, level of education, and length of hospital stay were asked. In the second part, Patients' satisfactions of the health care services were assessed using the translated and modified version of the KQCAH (Key Quality Characteristics Assessment for Hospitals) questionnaire developed originally by sower et al (7). This modified version consists of 44 questions divided to 7 categories of Respect and Caring, Effectiveness and Continuity, Appropriateness, Information, Efficiency, Meals, First Impression, Staff Diversity. All of the questions were set as five level likert items, ranging from strongly disagreed (1), disagreed (2), neutral (3), agreed (4) to strongly agreed (5). Regarding dimensions of satisfaction, Percentage of patients giving their care a 4 or 5 in likert scale, was estimated in order to demonstrate patients' satisfaction status. Some of the questions were deleted of the original questionnaire due to cultural dissociations and differences of care delivery in Iranian hospitals. The reliability and validity of this translated version of the KQCAH questionnaire was confirmed by Vaziri in a separate study (8). All of the patients were asked to fill out the questionnaire (with written informed consents) at the time of discharge from

the hospitals.

Statistical Analysis

Data were reported as mean \pm standard deviation (SD) for the quantitative variables and percentages for the categorical variables. The Pearson's correlation coefficient test was used to assess correlation between the quantitative variables. The t-tests and ANOVA test were used to assess correlation between the continuous variables with categorical variables. For comparison groups, Tukey was used as post hoc test. This study was conducted with the power of 80% and P values of 0.05 or less were considered statistically significant. All the statistical analyses were performed using SPSS version 15.0 (SPSS Inc., Chicago, IL, USA).

Results

There were 203 patients recruited from the ISO certified hospitals while 199 individuals were enrolled from those hospitals without ISO certification. The overall base line characteristics of the patients are represented in table 1.

Table 1. baseline characteristics of the surveyed patients

Hospital Number	
1	71(17.7)
2	76(18.9)
3	56(13.9)
4	52(12.9)
5	52(12.9)
6	45(11.2)
7	50(12.4)
Gender	
Female	227(56.5)
Male	175(43.5)
Level of Education	
Illiterate	76(18.9)
Under Diploma	178(44.3)
Diploma	125(31)
Bachelor	23(5.8)
State of Residency	
Province Center	187(46.5)
County	93(23.2)
Village	122(30.3)
Service	
Non-surgical	212(52.7)
Surgical	190(47.3)

In ISO-certified centers the majority of surveyed patients were collected of surgical wards while in centers without ISO certifications the majority of included patients were hospitalized in OB/GYN wards. Distribution of patients in different hospital wards is represented in table-2.

The total score of patients' satisfaction ranged from 66.5% in Hafez hospital to 77.5% in hospital 3. Overall, only in one

ISO-certified hospital (number3) the total score of patient satisfaction representing all dimensions, was significantly higher comparing to other hospitals included in the study. Table 3 represents all of the dimensions of patients' satisfaction in the studied hospitals. In different hospitals, the total value of patients' satisfaction was represented as the mean of patients' satisfaction dimensions.

Patients with lower levels of education had greater level of satisfaction of hospital services only in hospital 3 hospital while there was no relation between level of education and patient satisfaction in other centers. There was a statistical significant correlation between age and the level of patient satisfaction in hospital 3.

The level of patient satisfaction was positively correlated to the age of patients in the population of individuals who were residents of counties in contrast to the residents of province center($r=0.25$, $p=0.01$).

Similarly in the ISO certified centers, individuals with lower levels of education had higher satisfaction level but such relationship was not detected in hospitals without ISO standards.

Discussion

To our knowledge, in our country the present study is the first of its kind comparing ISO certified hospitals with those hospitals without such standards, in terms of patient satisfaction.

Table 2. distribution of patients in different hospitals and wards

Ward	Number of Participants	
	hospitals with ISO 9001:2000	hospitals without ISO 9001:2000
Internal	49(24.1)	36(18.1)
Surgery	57(28.1)	35(17.6)
Pediatrics	43(21.2)	17(8.5)
Gynecology	13(6.4)	61(30.7)
Dermatology	12(5.9)	-
ENT	16(7.9)	13(6.5)
Ophthalmology	13(6.4)	37(18.6)
Total	203(100)	199(100)

Table 3. percentage of patients' satisfaction regarding surveyed dimensions of satisfaction in teaching hospitals affiliated to Shiraz University of Medical Sciences

Factors of Patients' Satisfactions	Hospital 1	Hospital 2	Hospital 3	Hospital 4	Hospital 5	Hospital 6	Hospital 7
Respect and Caring	68.8	69.7	77.4	68	68.7	70.4	75.3
Effectiveness and Continuity	70.1	70.2	79.7	68.3	73.8	69.2	75.5
Appropriateness	71.8	70.5	81.8	68	76.6	73.2	77.2
Information	64.1	60.7	70.8	65	66.5	56	69.3
Efficiency	59	64.5	75.1	60.3	63.5	58	69
Meals	71.7	62.6	72.5	60.8	66.3	67.8	71.6
First Impression	74	71.8	77.7	67.8	67.8	71.1	73.5
Total	69	68	77.5	66.5	70.7	68.1	74.3

Table 4. comparison of ISO-certified hospitals with uncertified hospital representing percentage of satisfaction dimensions

Respect and Caring	71.5	70.5
Effectiveness and Continuity	73	72
Appropriateness	74	74
Information	64.6	64.4
Efficiency	65.5	63
Meals	68.5	66.5
First Impression	74	70
Total	71	70

Patients with more advanced age had higher level of satisfaction comparing to younger individuals ($P=0.007$). However there were no statistical significant difference between ISO certified hospitals and those without ISO standards in terms of relation between age and patient satisfaction ($p> 0.05$).

The results of our study showed that only in one ISO-certified hospital (number 3) the total score of patient satisfaction representing all dimensions, was significantly higher comparing to all of the surveyed hospitals but regarding total score of patient satisfaction the ISO-certified hospitals did not show advantages over the

uncertified hospitals. There may be a different variety of causes which can explain the situation, but one of the important causes is that ISO-certified hospitals in Shiraz University of medical sciences (1 and 2 hospitals) are two main referral centers covering the entire southern part of the country. Delivering health care services far beyond their capacity, these two hospitals could have disadvantages regarding the multitude of crowd resulting in modest patient satisfaction. These results agree with a study of American referral hospitals in which a substantial range of performance regarding patient satisfaction was detected across the 40 largest regions. In Birmingham, Alabama, with a population of 212000 individuals, on average, 71.9% of the patients gave their care a high global rating (9 or 10), whereas in Long Island New York as the most populated areas of the United states only 49.9% of patients did so (9).

Another cause which may further explain such results is the originating nature of the ISO series. The ISO 9000 standards originate from industry and they were not considered specifically designed for health care quality management systems, although applications in non-clinical environments such as the radiology and laboratory departments have been issued (10, 11). Modification of basic principles may be of need while applying ISO standards into clinical environments. Considering the results that ISO-certified hospitals did not prove advantages over uncertified centers, it is proposed that ISO standards could be substituted by standard principles of clinical governance since they are usually evidence-based, and designed to be consistently applied across many different kinds of organization or professional groups related to health care services (12).

Although Evidence suggests that age has a major influence on patient satisfaction and patients generally indicate that they are satisfied with care, the results reported here are contrary. In the surveyed hospitals irrespective of ISO standards, there were no correlation between age and level of patient satisfaction in general; although older individuals who were residents of counties had higher level of satisfaction only in hospital 3 which itself was an ISO-certified hospital with the highest patient satisfaction. A possible explanation for this finding may be that in Iran, residents of counties have lower expectations of health care providers. However other studies have reported different findings, in the study of Jenkinson et al age and self-reported health status as major determinants of satisfaction were found to be significantly correlated, although the levels of correlation were low (13).

In our study total percent of patients' satisfaction was approximately 70 both in ISO and non-ISO centers, representing the fact that 70 percent of the participants chose 4 (agreed) or 5 (strongly agreed) in likert scales regarding score of satisfaction. However, a wide range of satisfaction scores have been published in different studies worldwide. The values have ranged from 63% in the United States to 98.8 % in Spain (8, 14). It seems that methodological differences of studies regarding design of the scales used for assessing patient satisfaction could be mentioned as an important cause for such diversity. In the

study of patients' perception of hospital care in the United States, on average, 63% of patients gave their care a high global rating (9 or 10), and an additional 26% rated their care as 7 or 8. In the US study a global rating of the hospital on a scale of 0 to 10 was designed, with 0 being the worst and 10 being the best a hospital can be. The global ratings were further grouped into one of three categories, 0 to 6, 7 or 8, or 9 or 10, rather than made available individually. Considering the summation of values for the top two categories, approximately the vast majorities (90 %) of patients have scored their care from 7 to 10 (9).

The value seems to be higher in other studies. In the study of Sanchez et al it was reported that the overall patients' satisfaction was higher than 89% in all settings, in most of the cases higher than 95%. However the authors pointed to a number of limiting factors including the descriptive nature of the study which could put a restriction on causal relationship of method and reported results (15).

In neighboring countries patient satisfaction surveys have been conducted although different methodologies have been used. In a study in Riyadh it was reported that a significant satisfaction was recorded regarding respectful staff (87.4%). Comparing to our results, satisfaction scores are higher in Riyadh study however, a number of used items in assessing patients' satisfaction in Riyadh were different from items used in our study (16).

Conclusion

Although increasing patient satisfaction is the ultimate goal of implementing ISO standards in health care systems, it seems that solitary application of ISO standards could not improve patient satisfaction in hospitals. However, the present study was the first to compare ISO certified hospitals with uncertified hospitals in terms of patients' satisfaction and there were a number of limiting factors diminishing the impact of our study. Lack of studies with similarly designed satisfaction surveys prevented us from further comparing our results. Therefore, this issue remains to be the subject of further research in Iranian hospitals.

Acknowledgment

This article was derived from a student thesis which was approved by Shiraz University of Medical Sciences under the proposal registration number of 6905. We are indebted to health policy center affiliated to Shiraz University of Medical Sciences due to financial support of this study.

References

1. Chung KP, Yu TH. Are quality improvement methods a fashion for hospitals in Taiwan? *International Journal for Quality in Health Care*. 2012;24(4):371-9.
2. Boyer L. Perception and use of the results of patient satisfaction surveys by care providers in a French teaching hospital. *International Journal for Quality in Health Care*. 2006;18(5):359-64.
3. Salomon L, Gasquet I, Mesbah M, Ravaud P. Construction of a scale measuring inpatients' opinion on quality of care. *International Journal for Quality in Health Care*. 1999;11(6):507-16.

4. Auquier P, Blache JL, Colavolpe C, Eon B, Auffray JP, Pernoud N, et al. Échelle de vécu périopératoire de l'anesthésie. I — Construction et validation. *Annales Françaises d'Anesthésie et de Réanimation*. 1999;18(8):848-57.
5. Labarere J. Development of a French inpatient satisfaction questionnaire. *International Journal for Quality in Health Care*. 2001;13(2):99-108.
6. Oja PI, Kouri TT, Pakarinen AJ. From customer satisfaction survey to corrective actions in laboratory services in a university hospital. *International Journal for Quality in Health Care*. 2006;18(6):422-8.
7. Sower V, Duffy J, Kilbourne W, Kohers G, Jones P. The Dimensions of Service Quality For Hospitals: Development and Use of the KQCAH Scale. *Health Care Management Review*. 2001;26(2):47-59.
8. Vaziri S. Survey on patient satisfaction about hospital quality services with KQCAH scale in namazi and shahid faghihi hospitals: BSc thesis of Shiraz University of Medical Sciences; 2004.
9. Jha AK, Orav EJ, Zheng J, Epstein AM. Patients' Perception of Hospital Care in the United States. *New England Journal of Medicine*. 2008;359(18):1921-31.
10. Klazinga N. Re-engineering trust: the adoption and adaption of four models for external quality assurance of health care services in western European health care systems. *International Journal for Quality in Health Care*. 2000;12(3):183-9.
11. Heuvel J, Koning L, Bogers A, Berg M, Dijen M. An ISO 9001 quality management system in a hospital Bureaucracy or just benefits? *Int J Qual Health Care*. 2005;18:361-9.
12. Braithwaite J, Travaglia JF. An overview of clinical governance policies, practices and initiatives. *Australian Health Review*. 2008;32(1):10.
13. Jenkinson C. Patients' experiences and satisfaction with health care: results of a questionnaire study of specific aspects of care. *Quality and Safety in Health Care*. 2002;11(4):335-9.
14. Rodríguez Cerrillo M, Fernández Díaz E, Iñurrieta Romero A, Poza Montoro A. Implementation of a quality management system according to 9001 standard in a hospital in the home unit. *International Journal of Health Care Quality Assurance*. 2012;25(6):498-508.
15. Sanchez E. A descriptive study of the implementation of the EFQM excellence model and underlying tools in the Basque Health Service. *International Journal for Quality in Health Care*. 2006;18(1):58-65.
16. Alaloola NA, Albedaiwi WA. Patient satisfaction in a Riyadh Tertiary Care Centre. *International Journal of Health Care Quality Assurance*. 2008;21(7):630-7.