

# The Effectiveness of Implementing a Quality Management System on Improvement in Social Security Clinic of Kangan, Bushehr, Iran

Abbas Ghavam<sup>1</sup>, Ali Rabbanizadeh<sup>2</sup>

<sup>1</sup>Assistant professor, Department of Environment, Institute of Sciences and High Technology and Environmental Sciences, Graduate University of Advanced Technology, Kerman, Iran

<sup>2</sup>MSc student, Department of Health Services Management, Azad university of Marvdasht, Marvdasht, Iran

**Abstract: Backgrounds: Performance improvement is considered as one of the most important organizational success measures. One of the most suitable applications in this area is the use of a quality management system (QMS) that influences various dimensions and pillars of the system. The present study was aimed to investigate the effect of QMS on performance of social security polyclinic in Kangan County.**

**Key words: Quality Management System, social security organization, performance indicator, Kangan**

## Introduction

Management is the most important element of any organization, and play a significant role in setting and achieving organizational goals. The success or failure of organizations undoubtedly depend on management practice. Thus, adopting appropriate management practices and principles can play a significant role in effective management and improving organization performance (1). The optimal management of healthcare facilities of social security organizations (SSOs), whose services are provided to the insured individuals free of charge, has always drawn attention of policy makers and decision makers. Due to high cost of healthcare services and factors such as cost of establishing health centers, high costs of medicine and medical equipment, and lack of qualified human resources specialized in this area, development and growth of healthcare services is slow and challenging. Therefore, optimal resource utilization and adaptation of appropriate management solutions are essential in the development of healthcare facilities and services. Accordingly, head managers, experts and practitioners of the health centers reached consensus for adopting management strategies, while there are disagreements in use of the most appropriate strategies and protocols in the organizations (2).

One of the most appropriate management strategies is comprehensive management. Comprehensive quality management is a collaborative approach to meet customers' needs through participation of all employees in the development and growth of organizational processes. Another benefit of quality management is the wide-ranging attitude that involves processes, in addition to inputs and outputs. The World Health Organization has always emphasized on the quality of services, with regard to the credibility of the methods, as well as the quality of service provision with emphasis on protocols of establishment, management and implementation, and has published specialized books and booklets (3).

Various studies have focused on cost savings, increased job satisfaction, improvement of quality of healthcare services, elimination of in-person and redundant processes, increased customer satisfaction, and reduced complaints of staff and customers in using quality

management systems (QMS). This system has yielded better and more comprehensive outcomes compared to other quality patterns. Some key factors such as strong leadership, customer orientation, communication management, evidence-based decision-making, continuous improvement, and employee engagement attitudes or team work play a significant role in successful implementation of QMS. (4).

Quality management represents organizational change and requires consideration of factors such as knowledge towards quality management, implementation of systems for continuous improvement, as well as participation of all employees within the organization. There are a variety of perspectives that can be taken in defining quality. The International Organization for Standard defines quality as perfection and desirability of anything. The quality of health care is defined as level of health services provided to individuals and communities that potentially increase the probability of desirable health outcomes based on modern knowledge. Correct implementation of this system in health centers accelerates healthcare services, prevents wasting time and reduces complaints of patients and clients, which can lead to employee satisfaction and improve organization performance. Finally, evaluation and audit by using measurable information and improvement of executive activities are known as major elements of any functional activity that is being implemented (5).

Promotion and improvement of performance is considered as one of the most important indicators of organizational success. As such, the Kangan Social Security Polyclinic periodically evaluates the performance by implementation of QMS based on indicators such as reduced number of clients and staff complaints, implementation of new equipment and infectious disease control, satisfaction of staff and clients with organization performance. Opinions and suggestions of all stakeholders as clients of health centers provides useful information for managers of corresponding organizations to achieve better outcomes. Thus, the present study was carried out to examine the effect of QMS on improvement of performance in Kangan Social Security Polyclinic.

## **Methods and materials**

This was a descriptive analytical cross-sectional study. The required data were extracted from data on implementation of QMS in Boali Social Security clinic of Kangan County, Bushehr, Iran in 2019. Data collection was performed using an assessment checklist according to the QMS standards. Data were analyzed by using SPSS version 22.0 with Kolmogorov–Smirnov test to assess normality of data, and independent t-test to determine statistical mean differences.

*Results:* The average number of training sessions before and after implementation of QMS were 6.28 and 9.71, respectively. Hence, the number of sessions was not statistically significant. Also, the average financial performance before and after the implementation of QMS were 844308357 and 1204006443. Besides, the number of equipment was shown to be significantly different, as the average number of equipment before and after the implementation of QMS were 2.11 and 4.22, respectively. Moreover, the frequency of provided services was significantly different, as the mean service provision before and after implementation of QMS were 19004 and 22402, respectively. The number of complaints was significantly different, that is the mean number of complaints before and after implementation of QMS were 3.33 and 2.44, respectively. Also, the frequency of infection control and safety measures was shown to be statistically significant, as the mean frequency of infection control and safety measures before and after the implementation of QMS were 32.64 and 125.79.

## **Results**

The results of this study reveal that study data were normally distributed ( $p > .05$ ). The average number of training sessions and financial performance before and after implementation of QMS were not statistically significant ( $p > .05$ ). Besides, the number of facilities and equipment was shown to be significantly different. Moreover, the frequency of provided services was significantly different, before and after implementation of QMS. The findings of this study also reveal that the number of patient complaints and frequency of infection control and safety measures were significantly different before and after implementation of QMS, that is the number of infection control and safety measures significantly increased, after implementation of QMS ( $p < .05$ ).

## Discussion

Table 1. The effect of QMS on number of training sessions

	<i>Frequency</i>	<i>Mean</i>	<i>SD</i>	<i>SE</i>
<i>Training sessions before intervention</i>	68	6.286	2.138	0.808
<i>Training sessions after intervention</i>	44	9.714	3.904	1.475
<i>Effect of implementation of QMS on training quality</i>	<i>Levene statistic</i>	<i>P.value</i>	<i>Sample t.test</i>	<i>p.value</i>
	2.915	0.11	2.038	0.064

The average number of training sessions before and after implementation of QMS were 6.28 and 9.71, respectively. According to the first study hypothesis, there was a positive effect of implementation of QMS on training quality. In spite of increased number of training sessions, after implementation of QMS, the average training quality was not statistically significant ( $t=2.038$ ,  $p=0.064$ ). Therefore, the first hypothesis of this study was not accepted according to the results, as shown in table 1.

Hakimzadeh and colleagues (2012) stated that implementation of QMS improved training quality in Iranian enterprises, which was inconsistent with our study [6]. These contradictory results can be attributed to differences between investigated organizations. As such, we investigated only social security polyclinic which is a division of health system, in which periodic training intervention aimed at standardization of organizational processes is implemented prior to implementation of QMS. Thus, the effectiveness of QMS in such organizations may not be significant compared to other Iranian organizations. Since the present work was a descriptive study, results were expressed as hypothesis to be investigated in future research. Asefzadeh and colleagues showed that implementation of QMS improved effectiveness of hospital care services, whereas there was no significant improvement in training indicators and implementation of QMS, which was supported by results of our study [7].

Table 2. The effect of QMS on improvement of financial performance in Kangan social security polyclinic

	<i>Frequency</i>	<i>Mean</i>	<i>SD</i>	<i>SE</i>
<i>Financial performance before intervention</i>	5	844308357	1123623857	424689899
<i>Financial performance after intervention</i>	5	1204006443	1688624447	638240049
<i>Effect of implementation of QMS on Financial performance</i>	<i>Levene statistic</i>	<i>P.value</i>	<i>Sample t.test</i>	<i>p.value</i>
	0.753	0.41	5.871	0.016

The average financial performance before and after the implementation of QMS were 844308357 and 1204006443. According to the second study hypothesis, implementation of QMS positively affect financial performance. However, the results of this study reveal that financial costs increased, after implementation of QMS ( $t=5.871$ ,  $p=0.016$ ), showing the reverse effect of QMS on financial performance, and therefore hypothesis3 was rejected.

Asefzadeh and colleagues examined the relationship between implementation of ISO QMS and performance improvement in hospital, and showed that performance was positively associated with cost performance, which was inconsistent with results of present study [7]. Abdollahi and colleagues also stated that implementation and acceptance of comprehensive quality management reduced financial costs and improved organization performance, which was inconsistent with our study [8]. Aloulia and colleagues (2011) proposed that implementation of comprehensive quality management in hospitals improved financial management and subsequently reduced expenditures [11]. The results of the present study show that financial performance was not significantly different, after implementation of QMS. Further research is required to investigate this correlation.

*Hypothesis3: the positive effect of QMS on provision of advanced equipment*

Table 3. the effect of implementation of QMS on provision of advanced equipment in Kangan social security polyclinic

	<i>Frequency</i>	<i>Mean</i>	<i>SD</i>	<i>SE</i>
<i>infection control and safety measures before intervention</i>	14	32.64	57.93	15.48
<i>infection control and safety measures after intervention</i>	14	125.79	159.90	42.74
<i>Effect of implementation of QMS on infection control and safety measures</i>	<i>Levene statistic</i>	<i>P.value</i>	<i>Sample t.test</i>	<i>p.value</i>

	17.69	0.00	2.049	0.05
--	-------	------	-------	------

Results of this paper show that the number of purchased equipment significantly increased, after implementation of QMS. The number of equipment was shown to be significantly different, as the average number of advanced equipment before and after the implementation of QMS were 2.11 and 4.22, respectively ( $t=1.522$ ,  $p=.05$ ). Accordingly, the third hypothesis regarding the positive effect of QMS on the number of purchased equipment was accepted.

Delgoshaee and colleagues suggested that implementation of international standards requires advanced equipment which is simply provided after implementation of QMS. These results were in accordance with our study [9].

Results of the present paper indicate that the number of advanced equipment significantly increased, after implementation of QMS.

Table 4. The effect of implementation of QMS on the number of provided services in Kangan social security polyclinic

	<i>Frequency</i>	<i>Mean</i>	<i>SD</i>	<i>SE</i>
number of provided services <i>before intervention</i>	133030	19004.2	20007.4	7562.1
number of provided services <i>after intervention</i>	156820	22402.8	22907.3	8658.1
<i>Effect of implementation of QMS on number of provided services</i>	Levene statistic	P.value	Sample t.test	p.value
	0.743	0.40	7.296	0.013

The frequency of provided services was shown to be significantly different, that is the mean service provision before and after implementation of QMS were 19004 and 22402, respectively ( $t=7.296$ ,  $p=.013$ ). These results approved hypothesis4 regarding the effect of QMS on the number of provided services. As such, the number of provided services significantly increased, after implementation of QMS (3300 services per year), showing the positive effect of QMS on the number and duration of provided services. Doctor visit, dentistry, laboratory and paramedical services were shown to be significantly increased, after implementation of QMS, which were in accordance with results of the present study [7]. Delgoshaee and colleagues also revealed that implementation of international hospital standards increased frequency of provided services, which was in line with our study [9]. Aloulia and colleagues (2011) investigated the effect of implementation of comprehensive QMS significantly improved the frequency of provided services, which was supported by our results [11].

In conclusion, results of the present study suggest the positive effect of implementation of QMS on the number of provided services. This may help policy makers and managers of health systems in planning and implementation of effective interventions to improve organization performance.

Table 5. The effect of implementation of QMS on the number of patient complaints in Kangan social security polyclinic

	<i>Frequency</i>	<i>Mean</i>	<i>SD</i>	<i>SE</i>
--	------------------	-------------	-----------	-----------

number of complaints before intervention	30	3.33	2.34	.78
number of complaints after intervention	22	2.44	1.50	.50
Effect of implementation of QMS on number of complaints	Levene statistic	P.value	Sample t.test	p.value
	1.631	.21	-2.956	.049

The number of complaints was significantly different, that is the mean number of complaints before and after implementation of QMS were 3.33 and 2.44, respectively (t=2.956, p=.049).

Therefore, the fifth hypothesis of this study was accepted according to the results. The average number of patient complaints was shown to significantly decrease, after implementation of QMS. Hakimzadeh and colleagues (2012) revealed that the average frequency of complaints for products and provided services of Iranian enterprises significantly reduced, after implementation of QMS, which was in line with our study results [10]. Asefzadeh and colleagues also showed that implementation of ISO QMS in hospitals significantly reduced clients' complaints, which was in accordance with our study [7]. Aloulia and colleagues (2012) evaluated the effect of comprehensive QMS on performance in hospitals, and found that patients' complaints significantly reduced after implementation of QMS [11]. Finally, the frequency of staff and client's complaints can be considerably reduced by promoting the quality and quantity of provided services through use of international standards.

The effect of QMS on effectiveness of infection control and safety measures in Kangan social security polyclinic

	<i>Frequency</i>	<i>Mean</i>	<i>SD</i>	<i>SE</i>
infection control and safety measures before intervention	14	32.64	57.93	15.48
infection control and safety measures after intervention	14	125.79	159.90	42.74
Effect of implementation of QMS on infection control and safety measures	Levene statistic	P.value	Sample t.test	p.value
	17.69	0.00	2.049	0.05

Results of this work suggest that the number of infection control and safety measures significantly improved, after implementation of QMS, showing the positive effect of QMS on infection control and safety measures. Asefzadeh and colleagues found that implementation of ISO QMS increased effectiveness of functional indicators such as infection control and safety measures, which was in compliance with the results of our study [7].

Abdollahi and colleagues also proposed that implementation of QMS can effectively improve infection control and safety measures, which was supported by results of the present study [8].

The findings of the present paper show the positive effect of QMS on infection control and safety measures. It can be concluded that measures aimed at improving quality in health organizations such as social security organizations, can significantly improve performance and further increase infection control and safety measures leading to reduced expenditures and number of complaints, and satisfaction level.

### **Acknowledgement**

We would like to appreciate the management and personnel of the Social Security Clinic of Kangan as well as fellow researchers whose past works have helped us find insights into this area of research. We would also like to thank our family and friends who have supported us in this endeavor.

### **References**

1. Rubenstein-Montano B, Liebowitz J, Buchwalter J, McCaw D, Newman B, Rebeck K, et al. A systems thinking framework for knowledge management. *Decision support systems*. 2001;31(1):5-16.
2. Landon BE, Hicks LS, O'malley AJ, Lieu TA, Keegan T, McNeil BJ, et al. Improving the management of chronic disease at community health centers. *New England Journal of Medicine*. 2007;356(9):921-34.
3. Evans JR. Total quality management. *INFOR*. 2002;40(4):364.
4. Yusof SrM, Aspinwall E. Total quality management implementation frameworks: comparison and review. *Total quality management*. 2000;11(3):281-94.
5. Sallis E. *Total quality management in education*: Routledge; 2014.
6. Hakimzadeh M, Koosha H. Identify critical factors for the success and failure of quality management system deployment projects in services. *Mashahad medical sciences journal*. 2011;7(20):21-30.
7. Asefzadeh S, Mamikhani J, Agoosh L. Influential of Relationships between ISO 9001-2008 Quality management system and altering indicators of effectiveness in Rasht hospitals. *Journal of Holistic Nursing and Midwifery*. 2015;25(4):1-8.
8. Abdolahy shirazy h. Provides a model for measuring the acceptance of organizations in implementing comprehensive quality management. *hospital*. 2016;5(9):11-20.
9. Delgoshaiy b, tofighy s. Comparison of Hospital Standards with ISO Principles and Providing Appropriate Model for Hospital Standardization. *yafte*. 1383;6(4):19-26.
10. Rezaei D, Bahiraei M. Discoveries management achievements in deployment of quality management system and training. *Scientific- Propagative Journal of Oil & Gas E32*.
11. Alolayyan MNF, Mohd Ali KA, Alolayyan MNF, Mohd Ali KA, Idris F, Ibrehem AS. Advance mathematical model to study and analyse the effects of total quality management (TQM) and operational flexibility on hospital performance. *Total Quality Management & Business Excellence*. 2011;22(12):1371-93.