



## Evaluation of the implementation of the knowledge management processes in Shiraz University of Medical Sciences teaching hospitals, 2014

Roxana Sharifian<sup>1</sup>, Nasrin Shokrpour<sup>2</sup>, Fahimeh Salehpour<sup>3,\*</sup>

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### ABSTRACT

**Introduction:** Recognition and implementation of knowledge management have an important effect on improving the quality of hospital activities. According to the direct relationship with the society's health, health and treatment departments need knowledgeable and skillful staff. Thus, this research investigated different dimensions of the knowledge management processes in teaching hospitals of Shiraz University of Medical Sciences in 2014.

**Method:** This cross-sectional analytical study was performed on 103 top and middle-ranked managers of Shiraz University of Medical Sciences hospitals. The instrument was a valid and reliable questionnaire containing six knowledge management dimensions. Data were analyzed in SPSS software version 16, using the one-sample t-test and ANOVA.

**Results:** The results of the study showed that among the processes of knowledge management dimensions, "acquisition and knowledge creation" (mean=3.2) and "strategy and policy of knowledge" (mean=3.13) had the highest ranks and "assessment and feedback of knowledge" (mean=2.86) and "knowledge sharing" (mean=2.61) were at the lowest levels. The comparison between these six dimensions demonstrated that there were significant relationships among "strategy and policy of knowledge" and "acquisition and knowledge creation" ( $p=0.047$ ), "strategy and policy of knowledge" and "organizing and documenting of knowledge" ( $p=0.206$ ), "organizing and documenting of knowledge" and "knowledge sharing" ( $p=0.259$ ), "organizing and documenting of knowledge" and "use and reuse of knowledge" ( $p=0.325$ ), "use and reuse of knowledge", and "knowledge sharing" ( $p=0.100$ ).

**Conclusion:** According to the results, the conditions of "strategy and policy of knowledge" and "acquisition and knowledge creation" dimensions are at the average level and other dimensions of knowledge management processes are poor in teaching hospitals of Shiraz University of Medical Sciences. Considering the importance of knowledge management in improving the performance of the hospitals and achieving the organizational goals, applying all dimensions of knowledge management especially "knowledge sharing" and "assessment and feedback of knowledge" is vital.

**Keywords:** Knowledge management, Knowledge management dimensions, Health care organizations

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### Introduction

Rapid changes, ever-increasing competitions, and quick progress in science and technology are essential characteristics of today's world. Nowadays, knowledge is the main source of power and the success of each organization is closely related to the mental resources other than physical and tangible features(1). For designing or improving a system of knowledge management in an organization, first it is necessary to have a concise recognition about the nature of knowledge and knowledge management to achieve the benefits of employing knowledge management in the organization by recognizing the important factors and their uses and paying particular

attention to the fields of success and keeping interaction and balance between them.

Knowledge management is an interdisciplinary concept and its emphasis on knowledge makes it different from other management methods (2). It consists of six main processes including knowledge identification, knowledge acquisition, knowledge development, knowledge sharing/distribution, knowledge utilization, and knowledge retention(3). Knowledge is a crucial factor for competitive organizations and it is a potential value in organization.

Moreover, measuring knowledge is actually something unfamiliar and hard; the method of managing knowledge has become a vital issue and knowledge management has changed to be a key to success for organizations. To

<sup>1</sup> Department of Health Information Management, School of Management and Medical Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

<sup>2</sup> Department of English Language, Faculty of Paramedical Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

<sup>3</sup> Student Research committee, Shiraz University of Medical Sciences, Shiraz, Iran

\* Corresponding Author: F Salehpour, Student Research committee, Shiraz University of Medical Sciences, Shiraz, Iran, Email: salehpur\_f@sums.ac.ir .

obtain an effective knowledge management, we need to measure its efficiency. In some studies, it has been pointed out that measuring knowledge is not possible, but in fact, it is possible to measure the results of knowledge (4).

Today, health care services in each society lead to people's physical and mental health and this is the prerequisite of the sustainable development. Health and treatment departments, especially hospitals, as organizations that need knowledgeable and expert staff, are known as the professional services organizations (5), and because of the direct relationship between these organizations and the community's health, they need to use efficient and cost-effective methods to provide the people with service. This is possible only through application of modern systems of information management and allocating sufficient time to administer knowledge management. Health care industry has focused on high level of knowledge that can lead to learning organizations, administrating knowledge, and competitive progresses (6).

The most important issue in the healthcare system is the patient care that is closely related to the knowledge resources of the hospitals. Thus, the staff's technical skills and experiences should be recorded and reflected in all hospital management policies and activities (7). Administrating knowledge management has important benefits for healthcare systems, including decreasing the costs related to the repeated cases, creating new organizational culture, making closer relationships with patients and increasing their satisfaction, motivating innovations, improving the quality of decision making, accelerating tasks, reusing knowledge resources, and saving time. These benefits can lead to improvement in the quality of the hospitals' services to patients and enhancement of the community's health. Therefore, knowledge management can play an important role in healthcare organizations (8).

According to the researchers' studies, available research on the knowledge management in healthcare systems is very limited and will be discussed below. Results of the previous studies have shown lack of administrating knowledge management processes in Iran's healthcare system. Thus, this study aimed to evaluate the implementation of the knowledge management processes in Shiraz University of Medical Sciences teaching hospitals. Mir Ghafari et al. (2010) have conducted a study on evaluation of the implementation of the knowledge management processes in health and treatment department of Yazd, Iran. The mean of the knowledge management processes there, is lower than the average. Among the six processes of knowledge management in health and treatment department of Yazd, just "use and reuse of knowledge" is in an appropriate condition and there are significant differences among different dimensions of the knowledge management there (9) Chen et al. (2008) have conducted a research on healthcare knowledge management with applications; the results emphasized the necessity of knowing the sources of broad knowledge and recognizing the techniques of knowledge management in healthcare organizations and also administrating organizational memory. They also believe that supporting factors such as

acquiring organizational knowledge, decreasing hazards and costs of technology, getting feedback from specialists and patients, integrating healthcare centers, and providing information in an active way are effective in knowledge management (10). Mac Ken (2005) from the University of Minnesota in a research entitled "Effectiveness of knowledge management in organization action" discusses how structured improvement approach helps to create knowledge in an organization. This research is an attempt to find a systematic approach for creating knowledge in organizations. The results showed that by using a universal and systematic approach it is possible to create knowledge under the control of knowledge management and increase its efficiency and efficacy (11).

An investigation entitled "determinants of successful knowledge management programs" was conducted by Khalifa (2003) in the City University of Hong Kong to identify key elements in the success of the knowledge management programs. The findings revealed that the organizational factors and knowledge processes have the most important effects on the success of the knowledge management programs. Information technology is also effective on the processes of knowledge management by retaining and transferring knowledge (12). Chen et al. (2009) in a research entitled "measuring knowledge management performance using a competitive perspective" assess and compare the performance of knowledge management in organizations. The approach integrates Analytical Network Process (ANP) with Balanced Scorecard (BSC) that contains four perspectives including customer perspective, internal business perspective, innovation and learning perspective, and financial perspective, being adopted as the indicators of Knowledge Management Performance Measurement (KMPPM). These researchers believe that knowledge management increases the decision-making quality, obtains clear effort direction of attaining competitive advantages, and is applicable to benefit an organization (13).

## Methods

This study is a cross-sectional analytical study aiming to evaluate the implementation of the knowledge management processes in Shiraz University of Medical Sciences teaching hospitals in 2014. The subjects of this study consisted of 103 top and middle-ranked managers of Shiraz University of Medical Sciences hospitals. In this research, hospitals are divided into two main groups regarding the number of the managers: 1) hospitals with less than 50 managers, and 2) hospitals with more than 50 managers. Then, sampling was performed based on this categorization; five hospitals, namely Nemazi, Shahid Faghihi, Shahid Rajaei, Khalili and Shahid Chamran, were selected. Data collection instrument was a questionnaire consisting of six parts and forty-seven questions designed on Likert scale. The questions were based on the six dimensions of knowledge management and related factors. The reliability and validity of this questionnaire were approved in Mir Ghafari et al.'s research entitled "evaluation of the implementation of knowledge management processes in teaching hospitals of Yazd" and the Cronbach's alpha coefficient in each six dimensions of the knowledge management process was

more than 70% with a total of 79.9%, which are statistically acceptable. Data were analyzed in SPSS software version 16, using the one-sample t-test and ANOVA test. The  $p < 0.05$  was considered as significant level.

**Results**

According to the results of the study, 66% of the participants were females, 37% of the participants were between forty-one to fifty years old, 40% of the managers had graduate degrees, 32% of them had more than fifteen years old of work experience, and 79% of them had zero to three years of work experience similar to their current job.

According to Table 1, the null hypothesis is accepted only in “strategy and policy of knowledge” and “acquisition and knowledge creation” dimensions (test value > 3).

As shown in Table 2, comparing the six dimensions demonstrated that there were statistically significant relationships among “strategy and policy of knowledge” and “acquisition and knowledge creation” ( $p=0.047$ ), “strategy and policy of knowledge” and “organizing and documenting of knowledge” ( $p=0.206$ ), “organizing and documenting of knowledge” and “knowledge sharing” ( $p=0.325$ ), and “use and reuse of knowledge” and “knowledge sharing” ( $p=0.100$ ). There was no statistically significant relationship in other comparisons. According to this study, the poor condition in “organizing and documenting of knowledge” and “strategy and policy of knowledge” can be improved.

**Table 1.** Results of one sample t-test in KM Process dimensions

The process of knowledge management	Average	CI		The test statistics	Supported/ Not Supported
		Lower limit	Upper limit		
Strategy and policy of knowledge	3.13	0.2	0.052	3.37	Average>3 Support
Acquisition and knowledge creation	3.2	0.37	0.024	0.356	Average>3 Support
Organizing and documenting of knowledge	2.99	0.073	-0.099	-0.273	Average<3 Not Supported
Knowledge sharing	2.86	-0.084	-0.2	-4.72	Average<3 Not Supported
Use and reuse of knowledge	2.87	-0.026	-0.24	-2.46	Average<3 Not Supported
Assessment and feedback of knowledge	2.6	-0.277	-0.49	-7.14	Average<3 Not Supported

**Table 2.** Comparison of different dimensions of the KM process

N*	I	j	Ij	P-value	Supported/Not Supported
A1	1	2	-0.1778	0.047	Supported
A2	1	3	0.14033	0.206	Supported
A3	1	4	0.27342	<0.001	
A4	1	5	0.26562	<0.001	Not Supported
A5	1	6	0.51283	<0.001	Not Supported
B1	2	3	0.31813	<0.001	Not Supported
B2	2	4	-0.45122	<0.001	Not Supported
B3	2	5	-0.44342	<0.001	Not Supported
B4	2	6	-0.69063	<0.001	Not Supported
C1	3	4	-0.13309	0.259	Supported
C2	3	5	-0.125925	0.325	Supported
C3	3	6	-0.37250	<0.001	Not Supported
D1	4	5	-0.00781	0.1	Supported
D2	4	6	-0.23941	0.002	Not Supported
E	5	6	-0.24721	0.001	Not Supported

\*In this table, dimensions of KM process are numbered as follow:

- 1.Strategy and policy of knowledge
- 2.Acquisition and knowledge creation
- 3.Organizing and documenting of knowledge
- 4.Knowledge sharing
- 5.Use and reuse of knowledge
- 6.Assessment and feedback of knowledge

Based on Table 3, in the rankings of knowledge management process dimensions according to the average were estimated via Tukey test; “assessment and feedback of knowledge” (average=2.61) was in the first rank, “knowledge sharing” (average=2.85) in the second, and “use and reuse of knowledge” (average=2.86) was in the third rank. “Organizing and documenting of knowledge” (average=2.99) was in the fourth rank. “Strategy and policy of knowledge” (average 3.28) and “acquisition and knowledge creation” (average = 3.31) were in the fifth and sixth ranks, respectively.

**Table 3.** Ranking of KM Process dimensions according to average studied

Knowledge management dimensions	Ranking according to average			
	1	2	3	4
Assessment and feedback of knowledge	2.61			
Knowledge sharing		2.85		
Use and reuse of knowledge		2.86		
Organizing and documenting of knowledge			2.99	
Strategy and policy of knowledge			3.28	
Acquisition and knowledge creation				3.31
P value	1.00	0.26	0.21	1.00

## Discussion

Many studies have been conducted on the effect of knowledge management in organizations. Researchers believe that the knowledge management process is the key factor in the performance of organizations and talk about the direct effect of knowledge management on the outcomes of organizations and improvement of the products, services and staff. In most of the studies on the related field, knowledge management is believed to be a factor for achieving better performance of the organizations and it affects the outcomes of the organizations.

According to the results of this study, the means of the four processes of the knowledge management are low. Mir Ghafari (2010) claimed that the means of the processes of knowledge management in Yazd is lower than the average. Among six dimensions of the process of knowledge management in Yazd healthcare centers, only “use and reuse of knowledge” was in an acceptable condition; there were also significant differences between each dimension of the knowledge process. In Chen’s research, the findings show that in knowledge management process, “organizing and documenting of knowledge”, “knowledge sharing”, and “assessment and feedback of knowledge” in the healthcare centers of Hong Kong are lower than the average that is almost identical to our research. Also, “strategy and policy of knowledge” and “acquisition and knowledge creation” were higher than the average, i.e. different from our findings in “acquisition and knowledge creation”

dimension. The lack of advanced information system, lack of instructions and guidelines for documenting and organizing data, and failure in performing periodical evaluations and giving suitable feedbacks might be the reasons of this difference.

In other words, the ultimate goal of the knowledge management process is to apply knowledge by the staff as one of its important dimensions. Applying knowledge by the managers shows their high tendency in using the available knowledge. Therefore, by employing appropriate methods, it is possible to provide the up to date knowledge that they require.

Guptill in his research concluded that “knowledge sharing” is a process that is in a poor condition in organizations, and it is similar to our results. He claimed that “knowledge sharing” is an effective tool for improving the organizations’ performance in the competitive environment (14)

The importance of “knowledge sharing” in knowledge management of the organizations is that the reason for the existence of knowledge management is an effective support from knowledge sharing. One reason for the importance of “knowledge sharing” is that it leads to better performance in giving services to customers, decreasing the costs, minimizing the time of developing different services and delivering the products to the customers, and finally decreasing the costs of accessing valuable knowledge in the organizations. By holding different workshops for teaching the staff about “knowledge sharing”, “use and reuse of knowledge” and “assessment and feedback of knowledge”, it is surprisingly possible to improve knowledge management in healthcare centers.

It was also concluded that there were statistically significant relationships between “strategy and policy of knowledge” and “acquisition and knowledge creation” between “strategy and policy of knowledge” and “organizing and documenting of knowledge”, between “organizing and documenting of knowledge” and “knowledge sharing”, between “organizing and documenting of knowledge” and “use and reuse of knowledge”, and between “use and reuse of knowledge” and “knowledge sharing”.

Mir Ghafari et al. found that there were statistically significant relationships between all the six dimensions of the knowledge management process in Yazd hospitals, while in our research there were statistically significant relationships between only four of them

In ranking based on the average, “assessment and feedback of knowledge”, “knowledge sharing”, “use and reuse of knowledge”, “strategy and policy of knowledge”, and “acquisition and knowledge creation” are respectively in poor conditions. For improving these poor processes and achieving better results in each of the knowledge management processes, it is essential to take measures such as designing a detailed written program about the method of performing knowledge management regarding the personal and organizational goals, allocating proper money, holding knowledge management programs, supporting organizational managers, and giving instructions about documenting and organizing.

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