

# Evaluating the relationship between knowledge management development and information technology with performance improvement among Dehdasht Imam Khomeini hospital in 2016

## Abstract

The purpose of this study was to investigate the relationship between knowledge management and information technology management with performance improvement among employees working in Dehdasht Imam Khomeini Hospital in 2016. This research is a descriptive and analytical survey. To determine the sample size, 400 samples were selected from the statistical population. After collecting information in the form of standardized questionnaires of information technology, knowledge management and performance improvement, using SPSS software, statistical tests of correlation coefficient and linear regression were analyzed using descriptive and analytical tables. The results of multiple regression, linear regression and simulation of Pearson correlation coefficients show that between knowledge management and its dimensions (acquisition of knowledge, knowledge creation, knowledge storage, knowledge distribution, knowledge maintenance) and information technology, both improve the performance of the relationship.

**Keywords:** information technology, knowledge management and performance improvement

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Mohammedtaghi Mohammedpour

Iran

**Correspondence:** Mohammedtaghi Mohammedpour, Iran,  
Email mohammadpour1365@gmail.com

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## Introduction

Knowledge development is one of the main elements in knowledge management that focuses on the development of new skills, new products, better ideas and more productive processes. Knowledge development includes all those management efforts that the organization tries to capture, capabilities that have deficiencies and the creation of capabilities that are still not within the organization.<sup>1</sup> Hospital, as the most important unit for providing health services, plays a vital role in the patients' health. The optimal use of the scientific process and the development of knowledge along with information technology play an essential role in the quantity and quality of services.<sup>2</sup> Imam Khomeini's Dehdasht Hospital was no exception to this rule and due to the importance of providing health services in the Dehdasht city, the necessity of using scientific knowledge and information technology to improve the performance of health care services is essential. The researchers believes that the institutionalization of knowledge management, coupled with technological and information technology, could speed up the hospital's performance in delivering health services to patients.<sup>3</sup> Accordingly, the goal of improving the performance of Imam Khomeini's Dehdasht Hospital is one of the main requirements of the organization that should be produced or absorbed and developed in the organization. Today, not only the survival and development of organizations depends on the knowledge and proper management of it, but also the survival of the society is dependent on the use of up-to-date knowledge.

The benefits of IT development are:

- i. Training efficient and skilled human resources
- ii. Quality education
- iii. Training of labor force and employment assistance

- iv. Easy access to information resources
- v. Reducing educational spending in the long time
- vi. Updating the administrative and educational system
- vii. Retraining employees, increasing their skills and knowledge
- viii. Creating motivation and effort and innovation in working practices
- ix. Reducing the gap between staffing capabilities and educational services
- x. Use of international experience.<sup>4</sup>

The present era is referred to as the information era and the development of all-round information and new technologies. The world has turned into a global village, which plays an important role in the development of information. In the meantime, the quantitative and qualitative improvement of hospital performance is due to the importance of hospital services dependent on the development of information technology and knowledge development. Therefore, the researcher believes that attention to the knowledge approach and the development of knowledge management along with the technology of information can play a role in providing hospital services and improving hospital performance.

## Methods

This study was a descriptive-analytic study that was done on 400 patients of Imam Khomeini Hospital in Dehdasht. To calculate the sample size, the Cochran formula was used with considered P and q equal to 5,  $z=1.96$ ,  $d=0.01$  and 5% percentage error. Also, in this study, sampling was done by probabilistic and simple random method.

The data collection tool was a 38-item knowledge management questionnaire that was measured on a Likert scale. The dimensions of the questionnaire were: acquisition of knowledge questions, creating knowledge questions, reserving knowledge questions, distributing knowledge questions, and maintaining knowledge questions. The information technology questionnaire was completed. The questionnaire consisted of 32 questions and considered the underlying factors, including “Internet speed, hardware requirements, and computer workshop.” The performance improvement questionnaire was designed in 18 questions and evaluated the performance improvement variable on the Likert spectrum.

To assess the validity of the questions, the following methods were used, and its validity was confirmed. For reliability evaluation, Cronbach’s alpha test was performed using SPSS software and validation of the questionnaire was confirmed and were obtained in this way: knowledge management ( $r=0.79$ ), information technology ( $r=0.86$ ) and performance improvement ( $r=0.81$ ). To test the research hypotheses data analysis was done using descriptive statistics including frequency, mean and standard deviation, Spearman correlation and one-variable regression analysis. Also, data analysis was done using SPSS software.

## Results

According to the findings, 153 women and 247 men were among the participants. In terms of age, among the samples studied, 100 were in the age group of 20-30years old, 152 were in the age group of 31-40years and 148 were over 40years old. In terms of work experience, a sample of 173 people with 1 to 10years of experience, 147 people with 11 to 20years, and 80 had more than 20 years of work experience, were sampled. In terms of educational level, 52 students were graduate students, 223 were bachelor and 125 were masters (Table 1). In the variable of improvement of personnel performance, mean and standard deviation were 74.3 and 0.3719 respectively, in knowledge management variable 3.59 and 0.4339, acquisition knowledge 3.89 and 0.5065, knowledge creation 3.76 and 0.6053, knowledge storage 3.54 and 0.5790, knowledge distribution 3.76 and 0.4926, knowledge storage 3.49 and 0.6611 (Table 2).

In analyzing the research hypotheses, the results showed that there is a positive and significant relationship between different variables with improving the performance of the staff, so that the significance level and correlation coefficient of staff performance improvement were respectively with knowledge management ( $P=0.001$ ,  $r=0.67$ ), acquisition of knowledge ( $P=0.001$  and  $r=0.45$ ), knowledge creation ( $P=0.001$ ,  $r=0.56$ ), knowledge saving ( $P=0.001$  and  $r=0.54$ ), Knowledge distribution ( $P=0.001$  and  $r=0.62$ ), knowledge preservation ( $P=0.001$ ,  $r=0.51$ ) and information technology ( $P=0.001$  and  $r=0.50$ ) (Table 3).

Based on the results of the regression analysis, 52.42% of the changes in personnel performance improvement related to knowledge management, 20.4% related to knowledge acquisition, 30.7% knowledge creation, 29.4% saving knowledge, 38.4% knowledge distribution, 25.9% knowledge management and 25.3% information technology. Therefore, there is a significant relationship between knowledge management and staff performance improvement ( $P<0.05$ ) (Table 4).

**Table 1** Demographic information of population study

Variable		Number	Percent
Sex	Female	153	38.3
	Male	247	61.8
Age	20-30	100	25
	30-40	152	38
	40	148	37
Work experience	10-Jan	173	43.3
	20-Nov	147	36.8
	20	80	20
Educational level	Associate Degree	52	13
	Bachelor	223	55.8
	Master	125	31.3
<b>Total</b>		<b>400</b>	<b>100</b>

**Table 2** Variables result based on Mean and Standard deviation

Statistical index	Mean	Standard deviation	n
<b>Variables</b>			
Knowledge management	3.81	0.4878	400
Acquisition of knowledge	3.74	0.3719	400
Creating Knowledge	3.59	0.4353	400
Saving knowledge	3.89	0.5065	400
Knowledge Distribution	3.76	0.6053	400
Keeping knowledge	3.54	0.579	400
Information Technology	3.76	0.4926	400

**Table 3** Correlation result between statistical index of predictive variables and staff performance improvement

Main variable	Statistical index of predictive variable	Correlation coefficient	P-value	n
Staff performance improvement	Knowledge management	0.67	0.001	400
	Acquisition of knowledge	0.45	0.001	400
	Creating Knowledge	0.56	0.001	400
	Saving knowledge	0.54	0.001	400
	Knowledge Distribution	0.62	0.001	400
	Keeping knowledge	0.51	0.001	400
	Information Technology	0.5	0.001	400

**Table 4** Result of Regression analysis for study hypothesis

Main variable	Statistical index of predictive variable	RS	F and its probability	Regression coefficient		
				β	t	P-value
Staff performance improvement	Knowledge management	0.524	F=327.6 P<0.001	0.753	18	P<0.05
	Acquisition of knowledge	0.204	F=101.9 P<0.001	0.435	10	P<0.05
	Creating Knowledge	0.307	F=176.3 P<0.001	0.447	13	P<0.05
	Saving knowledge	0.294	F=165.3 P<0.001	0.456	13	P<0.05
	Knowledge Distribution	0.384	F=284.3 P<0.001	0.614	16	P<0.05
	Keeping knowledge	0.259	F=139.3 P<0.001	0.376	12	P<0.05
	Information Technology	0.253	F=134.7 P<0.001	0.503	12	P<0.05

## Discussion

The results showed that there is a significant positive correlation between knowledge management and employee performance. The researcher's inference is that knowledge management is an important factor in relation to improving the performance of employees. The creation, updating and utilization of conscious, explicit and systematic knowledge to maximize the effectiveness and efficiency of the organization's assets (their employees).

With proper planning in order to improve the performance of the employees based on knowledge management, one can predict the future conditions of the organization and use all of the organization's

resources. On the other hand, when knowledge is passed on to others, it becomes information again and can include facts and deceptions, views and concepts, judgments and expectations, and challenges, problems, barriers and, in general, weaknesses and strengths. Identify the organization to take advantage of proper planning based on knowledge management to improve staff performance and remove barriers and strengthen positive points. On the other hand, given the fact that the knowledge derived from individual and collective thinking and individual thinking is created in a dilemma, it can be disseminated in different ways among employees, and the organizers of the organization are designed and planned to improve their performance and achieve the goals of the organization. In addition,

given the fact that organizational knowledge has four characteristics, unique, rare and scarce, worthwhile and non-replaceable, any organizational approach and improvement of the performance of employees affected by these characteristics will be of great efficiency. Such a function, based on which knowledge management, helps the organization to build a huge power with a small force and provide a new way of managing the organization and sharing its intellectual and scientific resources.

Soliman's study showed that there is a positive and significant relationship between organizational strategy, knowledge management and occupational involvement of employees. According to the results of this research, managers of organizations should pay close attention to organizational strategy and knowledge management and provide the necessary conditions and infrastructure. It also provides human resources strategy and increased employee engagement to improve their performance and organization.<sup>5</sup> Their study also showed that the most influential human resources strategy is from the elements of knowledge management infrastructure from the nature of the organization (competence, organizational culture, classification of tasks) and the elements of the process of knowledge management from the point of transfer and application of knowledge.<sup>5</sup>

A study conducted by Youndt et al. showed that knowledge management through knowledge sources has a positive and significant effect on different aspects of customer relationship management strategy. The various aspects include, customer satisfaction, customer loyalty, customer engagement, and customer engagement.<sup>6</sup> Steven's et al's study showed that there is a significant correlation between knowledge management, organizational strategy of learning organization and organizational agility.<sup>7</sup> The study conducted by Chen et al. showed that the design of the knowledge structure at all levels of the country's sports organizations would be effective in improving the effectiveness of these organizations, and in this regard, the chief executives play an important role as producers and national knowledge holders.<sup>8</sup> Hitt et al's study shows that learning culture has a positive and significant effect on organizational agility and knowledge management. In this study, the effect of knowledge management on organizational agility with controlling the role of learning culture was not confirmed.<sup>9</sup> A study by two other researchers showed that information technology is an effective factor in the establishment of knowledge management. Due to the importance of organizational culture, organizational learning and human resources, these factors have not affected the establishment of knowledge management.<sup>10</sup> Becker's study showed that the amount of use of mechanisms in the stage of extrapolation was greater in the use of these mechanisms by the librarians, in the two stages of socialization and combination. One of the research suggestions is to provide the necessary conditions for motivating the managers to participate more librarians and use these platforms.<sup>11</sup> McDermott study showed that knowledge management dimensions are more influenced by information technology and organization's strategy, and for quality of service, it is determined that these dimensions are reasonably more influenced by culture.<sup>12</sup>

The study of Alavi in a research in the field of knowledge management has shown that the existence of interactive and multi-faceted communication patterns, procedures and flexible structure, and the existence of a knowledge-based manager who supports and appreciates the members of the organization against innovation and presentation of new ideas production of knowledge helps.<sup>13</sup> Park's study shows that different characteristics in organizations (goals, strategies,

priorities, managerial attitudes), the existence of each of the barriers faces the challenges of implementation in an organization different from one organization to another, with severity and weakness.<sup>14</sup> In another study, it was concluded that it had the greatest impact in designing and planning, then learning and in the field of educational evaluation in the current society of information technology cannot play a role. The use of computers to store specialized information in terms of educational planning is very important.<sup>15</sup> In conclusion, there is a significant relationship between knowledge management and its dimensions (acquisition of knowledge, creation of knowledge, knowledge storage, knowledge distribution, knowledge maintenance) and information technology with performance improvement.

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## Conflict of interests

Authors declare that there is no conflict of interest.

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