Factors Affecting on the Deployments of Knowledge Management in Teaching Hospitals Affiliated to Qom University of Medical Sciences, Iran

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Background & Aims of the Study: In a competitive world, knowledge management is a major task for the organization. This study was carrying out to recognize the essential factors for deployment of knowledge management in teaching hospitals affiliated to Qom University of Medical Sciences (QUMS), Iran.

Materials and Methods: This descriptive-correlational study was operated on 570 employees of teaching hospitals of QUMS in 2017. A researcher-made questionnaire was expanded. Its validity was confirmed by specialist and also reliability was confirmed by Cronbach's alpha ratio. Data were analyzed by Kolmogorov-Smirnov test, Spearman correlation ratio and multiplex regression.

Results: The outcome showed that the average score of knowledge management in teaching hospitals was moderate (3.35). Spearman correlation coefficient showed there is affirmative and significant relation between strategy and policies, staff motivation, learning culture, top management support& decentralization with the deployments of knowledge management. Multiple regressions showed there is a lineal relation between independent variables and dependent variable. Multiple regression ratio (R=0.799) and the coefficient of determination (R^2 =0.0607) and adjusted coefficient (R^2adj=0.602) in the level of 0,05 are significant.

Conclusion: The outcome of this survey, demonstrate that knowledge management has a relatively favorable status. Therefore, top manager's support of knowledge-based strategies and increasing member participation in resolve making and the presence of staff in workshops can help to deployments of knowledge management.

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Background

Knowledge is the principal source of power in an organization (1) and preserves long-term ascendancies in competitive situations (2). In recent years, the pace of change in organizations has speeded up (3) and organizations have begun to follow knowledge trends. Peter Drucker believes that investiture in knowledge to leads the highest amount of profit; moreover, organizations make use of the power of mind instead of the power of arm (4) and turn into knowledge-based organizations rather than product-based ones (5).

Scholars divide organization knowledge into two original batch of explicit and tacit knowledge (6). Thus, knowledge management is the flow of making value out of invisible assets of organization (7). So that the efficiency of work processes are improved (7) and

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problem solving processes, dynamic learning, and decision making is facilitated (8). WHO considers knowledge management as a tool to reduce costs, decrease medical errors, and increase the quality of patient care (2). Medical science universities to become knowledge-based organizations, it is necessary to be seriously dependent on knowledge management (9). Since healthcare services in every society act as the underlying foundation of the physical and mental health of the citizenry and as the prerequisite of acceptable development, hospitals need expert and knowledge-based employees within the frame of knowledge management (10).

As hospitals are rapidly changing their medical technologies (11) such as medical experiments, diagnostic and therapeutic measures (12), an increase in demands for highly standard health services need to the newest scientific methods (13). Therefore, teaching hospitals should not only work with their main goal of increasing general health, but also create new knowledge (14). Therefore, they ought to select an appropriate approach to knowledge management to facilitate such a process (15).

The theoretical basis and review related literature show that science is formed through social human factors. These factors include culture, organizational structure, and employees' motivation (16). Other experts stated that organizational strategies and senior management support is also some key operator on establishing knowledge management procedures (17,18).

Today, organizations have realized that their life depends on having an explicit strategy for recording and valuing knowledge (19). According to some research findings, the main hindrances in process of knowledge management are organizational culture (20). In the right culture, creativity and innovation must be considered (21) and teamwork and learning are promoted (22). The organizational structure reflects the stable duties and activities (23). Research shows that centralized organizational structure leading to a non-contributing work environment and decreases the chance for interpersonal interactions (24). The generation of motivation among employees is decisive step in process of knowledge management (21), and existence of a reward system encourages employees share their knowledge with others and create new knowledge (8). Hence, knowledge management activities bring up many changes in organization, and these changes require cooperation by the senior management (25).

Given the government's approach to knowledge-based systems And the importance of knowledge in the 1404 vision document of Iran, paying due attention to knowledge-based organizations is critically important (4). Despite vast research in this regard, it is still difficult to adopt knowledge management procedures in organizations (26). Although a huge amount of knowledge is created in health and medical organizations every year, the existence of knowledge silos and intellectual property protection policies among the staff are quite common in organizations. Various types of human resource displacements and deposals result in losing intellectual properties that create the need for the management of knowledge in organizations (19).

Among different factors affecting the deployment of knowledge management procedures, the current research selected the following factors: strategy-policies, employees' motivations, learning culture, senior management support, and organizational decentralization. Accordingly, this study tried to investigate the effects of such factors on the deployment of knowledge management from the perspective of managers, supervisors, and experts of teaching hospitals. Given that so far little studies have been done in teaching hospitals that have addressed all these dimensions, this study set to investigate the factors affecting the deployment of knowledge management in teaching hospitals affiliated to Qom University of Medical Sciences in 2017.

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184

Materials & Methods

Methods

This study was a descriptive-correlational design with an applied purpose, conducted on a cross-sectional survey basis in 2017. The participants of the study were employees in Iranian teaching hospitals who had a bachelor's degree or higher degrees (2047 employees in total). 570 employees were determined as the sample size and samples were obtained from each hospital in proportion to the number of personnel. Those people who were not interested in participating in the study and the incomplete questionnaires were removed from the study and replaced by other sample. 570 questionnaires were distributed among the volunteer employees of the teaching hospitals who expressed their consent in writing and had bachelor's degree and at least three years of working experience after obtaining the required written permissions from the VPR office. Finally, 570 samples were taken from the normal statistical population.

The variables of the study were investigated based on expert opinions (Specialist in the field of health management) in two steps and were finalized based on Fing consensus standard (16). A researcher-made questionnaire was used to collect data that was extracted from previous related studies and was adapted to existing conditions. Questionnaires were arranged in a five-point Likert scale. The Questionnaires were validated based on content validity and Cronbach's alpha test was used to examine internal consistency and reliability. The alpha scores for the instruments were as follows: knowledge management questionnaire (24 items, α=0.96), learning culture questionnaire (7 items, α=0.89), organizational decentralization questionnaire (6 items, α=0.85), employees' motivation questionnaire (6 items, α=0.88), senior management support (6 items, α=0.86), and strategy-policies questionnaire (6 items, α=0.91). It needs to be mentioned that the instruments of this study

were designed based on a 5-point Likert scale and the maximum and minimum averages were 5 and 1, respectively. Thus, on a par with previous studies and experts' opinions, the numerical amount of 0 to 1 was considered as very weak, 1.1 to 2 as weak, 2.1 to 3 as neutral, 3.1 to 4 as good, and 4.1 to 5 as very good (20). The data were analyzed by SPSS based on descriptive (frequency, ratio, and mean) and inferential statistics. To check the normality of the data, the Kolmogorov-Smirnov test of normality was conducted. Finally, Spearman correlation and multiple regression tests were used to test the research hypotheses.

Results

The results showed that 33.3% (190 people) of the participants were women and the rest were male. About 50.4% (287 people) of these participants belonged to the 31-40 age group. Most Participants had 59.6% (328 people) working experience between 3 and 10 years old. Similarly, the most of them 88.1% (502 people) had a bachelor degree, and the minority (1.1%, 6 people) had a Ph.D. degree.

The knowledge creation variable with the mean score and standard deviation of 3.28±1.115, the knowledge-storage variable (3.24±1.018), the knowledge-sharing variable (3.39±1.013), and the knowledge applying variable (3.49±1.043) was in the minimum distance of 1 and the maximum distance of 5, respectively. The knowledge applying had the highest amount and the knowledge-storage variable had the lowest amount in teaching hospitals. In addition, the knowledge management component (the sum of 4 variables) had the mean of 3.354±.8160 that shows a moderate condition. Of the variables affecting knowledge management, the learning culture with the mean score of (3.49±1.707), the strategy-policies variable (3.37±1.774),), the organizational decentralization variable (3.15±1.810), and the employees' motivation variable (3.05±1.318), the senior management

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variable (3.02±1.311 had the highest and lowest scores, respectively, that is higher than the specified mean level (3) (Table 1).

The results of Kolmogorov-Smirnov test revealed that the data were not normally distributed (P=0.001); therefore, non-parametric statistical tests (Spearman correlation) were conducted (Table 2).

The results of Spearman correlation showed that there was a significantly positive correlation between the strategy-policies and knowledge management variables (r=0.654 & P=0.001). Likewise, there was a significantly positive correlation between employees' motivation and knowledge management variables (r=0.689 & P=0.001). There were also significantly positive correlations between culture learning and knowledge management variables (r=0.58 & P=0.001), senior management support and knowledge management variables (r=0.646 & P=0.001), and organizational decentralization and knowledge management variables (r=0.638 & P=0.001).

To ensure the results achieved, Research hypotheses were also investigated based on the relationships between the independent and dependent variables. The linear relationship between the variables, while they were simultaneously affecting the dependent variable was analyzed. Additionally, the priority of independent variables in affecting the dependent variable was also tested (Table 4).

 to the independent variable. (Deployment of knowledge management) was accounted for by independent variables (Strategy-policies, employees' motivations, learning culture, senior management support, and organizational decentralization). The other variations in dependent variable (38.8%) were due to the chance (Other variables that were not controlled by the study). The multiplex regression coefficient was 0.799, The concept is that the predictive power of independent variables was 79.9% (Table 4).

In Table 4, the first row shows the fixed amount of the equation (3.603). The significance level of this equation was 0.257 that was more than 0.05. Therefore, it was not significant and not placed in the regression equation. The second row shows the strategy-policies variable. The beta was 0.888 and the test statistics was 4.115 with a significant level (0.001). Thus, there was a linear relationship between independent variable (strategy-policies) and dependent variable (deployment of knowledge management), showing that they must be kept in the equation. The third row belongs to employees' incentive variable. The beta coefficient was 0.732 and the test statistics was 3.882 with a significant level (0.001). This proves that there was a linear relationship amongst the employees' motivation and knowledge management variables that keeps them in equation. The variable learning culture is listed in the fourth row. The beta coefficient was 0.641 and the test statistics was 4.137 with a significant level (0.001). Consequently, there was a linear relationship among the independent and dependent variables that keeps them in equation. The fifth row shows the senior management support variable. The beta coefficient was 0.567 and the test statistics was 2.699 with a significant level (0.007). Therefore, there was a linear relationship between senior management support and knowledge management variables, keeping them in the equation. Finally, the sixth row demonstrates the organizational decentralization variable. The beta coefficient was 0.476 and the test statistics was 2.401 with a significant level (0.017). Therefore, there was a linear relation among the independent (organizational decentralization) and dependent variables (deployment of knowledge management) that keeps them in the equation.

The standardized beta coefficient (ß) row demonstrates that the strategy-policies variable had the greatest impact on the deployment of knowledge management than other variables because one unit of change in this variable

changed the knowledge management variable by 0.233 units. The employees' motivation variable had the second highest impact as it changed the dependent variable by 0.213 units. The third place was for the learning culture variable changing the dependent variable by 0.176 units, followed by the senior management

support variable occupying the fourth place by 0.159 units. Finally, the organizational decentralization variable had the lowest impact by changing the dependent variable by 0.130 units.

Table 1) Descriptive statistics of knowledge management component and research variables

	Variable	Mean	Std. Deviation	Variance	Minimum	Maximum
Knowledge Management	knowledge creation	3.28	1.115	.667	1	5
	knowledge storage	3.24	1.018	.647	1	5
	Knowledge sharing	3.39	1.013	.638	1	5
	Knowledge application	3.49	1.043	.746	1	5
Knowledge Management		3.35	.8160	.535	1	5
Strategy and Policies		3.37	1.774	.600	1	5
Employee motivation		3.05	1.318	.740	1	5
Learning culture		3.49	1.707	.500	1	5
Top Management support		3.02	1.311	.677	1	5
Decentralization		3.15	1.818	.658	1	5

Table 2) The results of Kolmogorov-Smirnov test for determining the normality of the research variables

Research variables	sample size	statistic	df	Alpha value	Sig	Test result	
Knowledge Management	570	.070	380	.05	.001	Reject H0	abnormal
Strategy and Policies	570	.091	380	.05	.001	Reject H0	abnormal
Employee Motivation	570	.073	380	.05	.001	Reject H0	abnormal
Learning culture	570	.068	380	.05	.001	Reject H0	abnormal
Top Management support	570	.067	380	.05	.001	Reject H0	abnormal
Decentralization	570	.063	380	.05	.001	Reject H0	abnormal

Table 3) Spearman correlation coefficient of research variables

Variables	Spearman correlation with Knowledge Management	Significant level (sig)
Knowledge Management	1	.
Strategy and Policies	.654[**]	.001
Employee Motivation	.689[**]	.001
Learning culture	.580[**]	.001
Top Management support	.646[**]	.001
Decentralization	.638[**]	.001

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4) Multiple Regression Analysis and Model Summary for Prediction of knowledge Management Component by Variables of Research

		Regression Coefficients					Summary of Regression Model			
Criterion variable	Predictors variables	Unstandardized Coefficients		Standardized coefficients	t	Sig.	R	R Square	Adjusted R Square	Std. Error of the Estimate
		B	Std. Error	Beta						
K	Intercept	3.603	3.174	-	1.135	.257	.799	.607	.602	11.31
	Strategy and Policies	.888	.216	.233	4.115	.001				

187

Employee Motivation	.732	.189	.213	3.882	.001
Learning culture	.641	.155	.176	4.137	.001
Top Management support	.567	.210	.159	2.699	.007
Decentralization	.476	.198	.130	2.401	.017

Discussion

The dynamicity of hospitals relies heavily on the organization knowledge and application of knowledge in the today's knowledge-based world. Accordingly, this study set to investigate those factors affecting the implementation of knowledge management in teaching hospitals in the second semester of the academic year.

The results of the study reveal that strategy-policies, employees' motivation, learning culture, senior management backing, and organizational decentralization factors have significant effects on the implementation of knowledge management.

Based on the findings of this study, the knowledge-based strategies and policies play a main role in the procedure of knowledge management. Therefore, educational hospitals should consider knowledge-based strategies in their strategy planning in order to realize the establishment of knowledge management. According to the results of this research, the current relevant literature expresses that availability of educational and development plans for employees are essential based on the latest information for hospitals to improve their service quality. Likewise, updating knowledge and developing the working skills of jobholders and Encourage them to share such knowledge should be among the working policies of hospitals. In accordance with the findings of this study, Zheng et al. (23) found that organizational strategy had a significantly positive effect on knowledge management and organizational efficiency. RAO et al. (27) They also found that organizations needed to combine knowledge-based strategies with competitive attitudes So that they can deliver effective results. Lee et al. (28) found that

hospital managers should develop practical strategies for employing knowledge-based staff and teach them how to manage knowledge.

The existence of a significant relation among the employees' motivation and knowledge management implementation makes hospital managers use various motivational methods, such as Extrinsic rewards(Financial reward) and intrinsic rewards(Employee satisfaction) for motivating employees in knowledge-based programs and knowledge management procedures. Based on the results of this research, Khalaj et al. (29) found a positive correlation among the employees' motivation and the implementation of knowledge management. In the same vein, Najafbeigi et al. (16) observed that there was a significantly positive correlation among the employees' motivation and knowledge management deployment.

Moreover, the significantly positive relationship between learning culture and knowledge management in teaching hospitals makes is essential for senior hospital managers to hold training workshops for the employees, pay regard to their opinions and feedback, and use their scientific learnings and experience to educate others. Similar to the resulting of this study, Khalaj et al. (29) found that learning culture is strategically necessary for implementation knowledge management procedures. Lee et al. in their study in South Korea, observed that the learning culture factor had a positive correlation with knowledge management (11). Zheng et al. (23) also found that there was a significant relationship among organizational culture and knowledge management. In line with the above-mentioned findings, Ghorbanizadeh et al. (25) showed that organizational culture had a strong, positive correlation with knowledge management;

188

though the correlation they found was stronger than what was observed in this study because of some cultural differences between the contexts of the two studies.

There was also a significantly positive relationship among senior management support and knowledge management establishment. This indicates that senior managers of hospitals need to support knowledge-based activities, expert opinions, and innovative ideas, and through providing their employees with learning opportunities, trying to upgrade the quality of the health service. Ghorbanizadeh (25) mentioned the positive correlation among senior management support and knowledge management (r=0.86). This correlation coefficient is higher than the one in this study that may be because of different management methods. Ehsani et al. (15) found that senior management support played an effective role in deployment knowledge management in hospitals more than any other factors. Similarly, Khajefard (26) observed that senior management support drastically influenced the flow of knowledge management. They found that organizational culture factor and senior management support were significantly correlated with each other. In agreement with the findings of this research, participation and senior management support are very effective in the knowledge management procedure, especially sharing knowledge in health centers (13).

Given the significant relationship among organizational decentralization and knowledge management in hospitals, hospital managers need to comply with the decisions of committees and consultation groups, involve employees in the process of decision-making, and let work units make their own decisions (delegation of authority). Corroborating the findings of this study, Zheng (23) found a significantly negative correlation between organizational structure (centralization) and knowledge management, meaning that if organizations move toward decentralization,

They will succeed in deploying knowledge management. Finally, Khalaj et al. (29) approved the significant relationship between decentralization and knowledge management and found that decentralization and delegation of authority in lower levels of organizations could facilitate the circulation of ideas.

Conclusion

The results show that variables, such as strategy-policies, employees' motivation, learning culture, senior management support, and organizational decentralization, have a significant effect on the deployment of knowledge management in hospitals. Thus, it is essential to codify knowledge-based strategies into the strategic planning of hospitals. Moreover, the following measures can pave the way for a successful deployment of knowledge management procedures: using various methods to motivate employees to participate in knowledge-based programs and knowledge management, making plans to participate employees in training workshops, encouraging managers to support knowledge-based activities and pay regard to the decisions made by committees and consultation groups, and involving employees in organizational decision making.

Footnotes

Conflict of Interest:
The Authors have no conflict of interest.

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189

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190

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191