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# Studying the status of knowledge management aspects by using Bukowitz & William model in Staff and Deputy of Hamadan University of medical sciences

Yadollah HAMIDI[1], Alireza SOLTANIAN[2], Iraj MOHAMMADFAM[3], Taghi RABBANI[4,*]

[1]Associate Professor, Hamadan University of Medical Sciences, Faculty of Health, Department of Health Management.
[2]Associate Professor of Biostatistics, Hamadan University of Medical Sciences, Faculty of Health, Department of Biostatistics
[3]Full Professor of Occupational Health and Safety, Hamadan University of Medical Sciences, Faculty of Health, Department of Occupational Health
[4]MSc in Economics and student Mph, Hamadan University of Medical Sciences, Faculty of Health, Department of Health Management, Responsible Author

**Summary**

Given the importance of knowledge management in organizational processes and its effective role in knowledge generation, helping to identify important resources, reforming processes, applying tools in planning services development and increasing customer satisfaction, this research aims to determine the status of knowledge management using William & Bukowitz model in Staff and Deputy Of Hamadan University of Medical Sciences and Health Services and study its' various dimensions and provide an appropriate executive model to help executive managers in order to use knowledge management guide in successful performance and apply knowledge management system in the health sector to enhance performance with an emphasis on effectiveness and provide recommendations to develop the software and implementation of knowledge to improve decision making at university level and customer satisfaction. At the end, enjoying the research results, there are strategies provided here for better implementation of knowledge management in Chiefs and Vice-Chancellors of the University of Medical Sciences in Hamadan.

**Keywords**: knowledge, University of Medical Sciences, knowledge management, William & Bukowitz model

## 1. Introduction and Statement of problem

Since the late '90s, knowledge management was introduced as a new management method which was the evolution of other management methods. In several years ago, successful companies have used their resources in a competitive market for business excellence and organizational knowledge has been known as one of the most valuable resources; organizations have had much attention in the management of such intangible assets to obtain and maintain organizational competitive advantage and knowledge has been their most important asset and knowledge management has been a key factor and the secret of

* - t.irabbani@umsha.ac.ir

organizations success in 21st century (1) (2). Knowledge management is one of the most important issues to the attention of both domestic and foreign researchers. The importance of knowledge management has been mentioned in the subject of many organizational theories (3).

With the formation of a knowledge-based society and moving towards a knowledge-based economy, the importance of knowledge has been introduced and identified as the most important assets of an organization. In fact, this is the only competitive advantage of organization in new condition with the advent of new information technologies (7, 8). In knowledge-based economy, (KM) knowledge management and intellectual capital have been considered as the most important organizational assets and success of organizations is mainly rooted in their intellectual prowess (9). Knowledge management includes topics such as organizational behavior, information technology, leadership, training and strategies that are important both for organization and for the health of individuals (10). Now, due to rapid development of information communication technologies, wide application of knowledge and its' effective management as a stable competitive advantage, an organization will successfully implement the process of taking data, acquiring, maintaining and developing knowledge (11). Knowledge managemnt creates value for the organization by changing human capital to the organized intellectual assets (1, 12). The purpose of establishing knowledge management systems is to support the creation, transmission and application of knowledge in the organization. Knowledge management system provides tools and services for end users to acquire, share, reuse, update and create new experiences in solving problems and best practice to help employees in decision-making processes, problem solving and innovation and thus enhancing the overall performance of the organization (13). Innovation increases clearly and dramatically in the organizations which gathering knowledge is running. As a result, successful application of knowledge management for achieving organizational innovation will improve performance and increase customer satisfaction inevitably (12).

## 2. Definitions and basic concepts of knowledge management

The concept of knowledge management was introduced in the early 1990s, (1). Since then, various definitions of knowledge management have been provided. A simple definition of knowledge management is the process of identifying, selecting, organizing, summarizing and categorizing the information necessary for the organization. In this process, improving employee performance and competitive advantage of organization is highly regarded (2). A more comprehensive definition of knowledge management was presented by Pet Ritch: knowledge management is the right knowledge acquisition for the right people at the right time and place so that they can make the most use of knowledge to achieve the goals of the organization. In the early 1990s, the concept of knowledge management was introduced (1). According to Wilson (2002), Knowledge management is the process of identifying, selecting, organizing, summarizing and categorizing the information necessary for the organization; in this process, improving employees' performance and competitive advantage of the organization is highly considered (2). Knowledge management refers to a

set of processes by which knowledge is acquired, stored and used. It aims to exploit from intellectual assets in order to increase productivity, create new values and enhance competitiveness (3). In today's business world, the production speed and taking service from knowledge management is essential for any organization which aims to be at the summit of progress and development (4). We are in an era in which we are drowning in data, but we need knowledge strongly. In fact, individuals and organizations are faced with a host of information and data which may be very important and critical, but it is very difficult to manage the correct use of it (5).

**3. The importance of knowledge management**

Knowledge is the most important power source that its' vital role in organizations is determined day to day. Hence, knowledge also requires management (6, 7). In response to the question of why organizations are interested in knowledge management, having cited the results of conducted studies, they have expressed that productivity, profitability, rapid responding to customer needs, reducing costs and also improving quality by capital, machinery and labor doesn't figure more, the success of any organization is in today's competitive and changing environment of business depended on the human resources knowledge and this is the most important capital of any organization. In other words, an organization that can change its' employees' knowledge into the organizational ability is in the path of success and excellence.

**4. Implementation of knowledge management**

There are 4 stages for implementation of knowledge management as following:

1. The stage of designing knowledge management system
2. Deployment stage
3. Exploitation stage
4. Review stage (8)

**5. Knowledge management success factors**

In summary, the most important success factors of knowledge management are mentioned below:

People, process, technology, commitment to continuous strategy, structure, culture, environment, identifying strategic major objectives, re-engineering and social capital are some of most important success factors of knowledge (61).

**6. Knowledge Management in higher education institutions**

As stated earlier, higher education institutions and universities are one of the most important infrastructure of knowledge management (65). Given that the global environment is changing rapidy in current situation and processes of decision making and operation in educational institutions is more dynamic and faster than ever, thus, universities are facing big challenges such as rapid technological changes, extended systems, variety of community demand, increase training costs and the need to adapt to the era of knowledge and information. In such circumstances, the implementation and

application of knowledge management is absolutely essential both in terms of achieving educational goals and in order to reach the greates benefits. There will be an integrity between prior knowledge and new knowledge by applying knowledge management in universities and higher education institutions and its' reflection will be visible in business interaction and education (66).

## 7. Knowledge Management Goals

The main objectives of implementing knowledge management can be summarized to create value in organizations, tactic knowledge management, awareness of the importance of knowledge and effectiveness of knowledge management technology, identify deficiencies (gaps) in organizational knowledge, more efficiency from organizational capitals, more efficient and effective learning of staffs, providing value-added goods and services, increase customer satisfaction, avoid repeating errors, reduce rework, saving time when problem-solving, infuse creativity and innovation and create closer relationships with customers (71).

## 8. Knowledge management models

Since, there has not been a knowledge management model that all can agree till now, it is required that in addition to get familiar, we take advantage of some provided models in this field according to the case and relevance to the subject matter. In this section, the most important knowledge models are briefly reviewed from the prespective of all different experts and authors. Bukowitz and Williams model is used in this study. This model has indicators for measuring implicit and explicit knowledge level of individuals and organizations. Thus, according to such importance, we have discussed more extensively about the mentioned model.

**Table1**: Comparison of Key Km Cycle Processes

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Wiig | Build | Hold | Pool | Use | | | | |
| McElroy | Knowledge Production | | Knowledge Integration | | | | | |
| Meyer & Zack | Acquire | Refine | Store | Distribute | Distribute | | | |
| Rollet | Planning | Creating | Integrating | Organizing | Transferring | Maintaining | Assessing | |
| Nickols | Acquisition | Organization | Specialization | Store/access | Retrieve | Distribution | Conservation | Disposal |
| Bukowitz & Williams | Get | Use | Learn | Contribute | Divest | Build / Sustain | Divest | |
| Nonaka & Takeuchi | Socialization (tacit-to-tacit) | | Externalization (tacit-to-(explicit | | Combination (explicit-to-(explicit | | Internalization (explicit-to-tacit) | |

## 9. Knowledge Management Process Model

Bukowitz and Williams model divides knowledge management processes into strategic and tactical parts. Tactical part includes the process of acquiring knowledge required for activities, applying knowledge in creation of value, learning, exchanging and sharing knowledge between individuals. Strategic process is obtaining value from tactic process where the strategy of organization is used with organizational goals (6). Factors that can help these processes (or prevent them) are known as enablers (stimulus). These enablers

are strategy and leadership, culture, measurement (criteria) and technology. In the process of the research, this model is used as the main model of representing knowledge management processes.

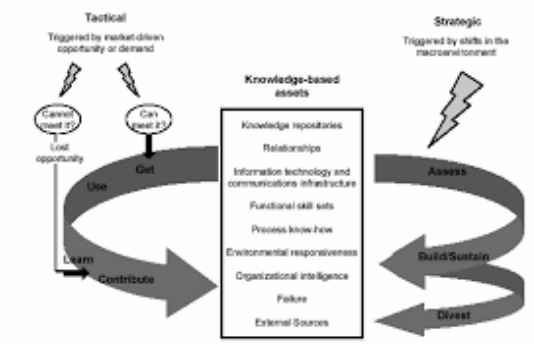


**Figure 1**: Knowledge Management Process Framework Bukowitz and Williams (1999)

Components of knowledge management process provided by Bukowitz and Williams include seven factors: find, apply, learn, share, evaluate, create, maintain and remove which should be managed in a single unit to create a knowledge-based capital (26, 82).

**10. Review of literature**

Shabani, A. et al, (2012) in a study identified, reviewed and ranked the factors affecting implementation of knowledge management in libraries of Shiraz University of Medical Sciences using Bukowitz and Williams model. They stated that all factors of the model (find, apply, learn, share, evaluate, create, maintain and remove knowledge) effected on the impementation of knowledge management and all factors were in good standing except learning and removing knowledge. They concluded that implementing these programs in healthcare environments lead to better services and facilitate learning, teaching and research (9).

Madhoushi, M. and Niazi, E. (2011) in a descriptive and cross-sectional study gathered data via questionnaire based on stratified sampling and data analysis using SPSS16 software evaluated the status of selected universities of the country (Tehran, Isfahan, Tarbiat Modarres, Alzahra, Mazandaran, Gilan, Yazd, Arak and Razi) in terms of the level of knowledge management. They expressed that the status of all selected universities were not suitable and less than the average of the desired indicator in terms of knowledge management level (10).

Hossein Zadeh, A. et al, (2010) in a descriptive study evaluated the extent of the application of knowledge management among employees in universities and hospital libraries of Tabriz University of Medical Sciences based on Hissig model. They stated that the extent of the application of knowledge creation component among employees of central, universities and hospital libraries of Tabriz University of Medical Sciences was higher than the average; but, the component of knowledge storage was lower than the average among the studied components. Therefore, it is essential to develop the importance

of knowledge storage among employees of libraries and use knowledge storage systems (11).

Shafaghat, H (2012) in Islamabad, Pakistan in a study reviewed the concepts of knowledge management in the health sector. He evaluated the healthcare system of Pakistan using knowledge management model and stated that although healthcare in most countries has had dramatic improvement, but there are many medical errors in this sectors yet. He has recommended NADRA model to Pakistan Ministry of Health to reduce these errors. In this model, the information related to patients and best operation and care process is recorded and kept. This model helps the improvement of quality and reducing errors in treatment section (12).

Chang et al, (2009) in a study evaluated the key factors in knowledge management in Taiwan's National government. They showed that there are two distinct categories of key factors in knowledge management including main processes of knowledge management (values and organizational policies, application of information technology, process management and human resources) and implementation of knowledge management (acquisition and transmission of knowledge, sharing knowledge and value-added ). They also realized the effect of key factors of knowledge management process and knowledge management performance in the organization (13).

Zaeem et al, (2013) in a research titled "modeling system dynamics in the process of knowledge management" concluded that activities of knowledge management process (stablishment or creation, save or modify, transmit or share and application) have positive relation with each other. Also, the results showed that there was a positive relation between activities of knowledge management process and organizational performance. In other words, whatever activities of knowledge management process is improved, organizational performance will be improved to the same amount (14).

**12. Type of study and Method:**

This descriptive-analytical study is correlational. The study population is consisted of managers, experts and other assistances of the university. Total volume of sample was selected by stratified random sampling at confidence level of 95% using Cochran formula and the desired sample volume in each department was calculated using proportional allocation technique in stratified sampling. Data analysis was performed using descriptive and inferential statistics in SPSS16 software. The results of this applied study help to indentify important resources, processes, tools and method of successful implementation and provide recommendations for software development and implementation of knowledge management system in healthcare sector and improve current situation and select applied decisions. Thus, it is used to explain the correlation, hypothesis testing and providing predictions in order to achieve the meanings for describing situations or events.

**Table 2** : population and Sample size

| Unit Name | The number of employees according to educational level (population size) | | | | Sample size |
|---|---|---|---|---|---|
| | Ph.D. | MA | bachelor | sum | |
| headquarters | 10 | 17 | 139 | 166 | 76 |
| health department | 15 | 8 | 46 | 69 | 32 |
| Educational department | 6 | 3 | 24 | 33 | 15 |
| research department | 4 | 6 | 24 | 34 | 16 |
| Affairs Student Assistance department | 3 | 3 | 25 | 31 | 14 |
| treatment department | 11 | 6 | 53 | 70 | 32 |
| food and drug department | 10 | 9 | 29 | 48 | 22 |
| Total | 59 | 52 | 340 | 451 | 206 |

**13. Data collecting tool:**

The measurement tool is the questionnaire of individual information and assessment of knowledge management. This is a Likert questionnaire and the individual is asked to read the terms carefully and select the most closely matched option according to the desired scale. In this research, the highest index score is 5 and the lowest is 1 and the average of questions is 3. (A= very high B=high C= average D=low E=very low).

Different parts of mentioned questionnaire were:

1. Introduction: in this section, in addition to state the purpose of the research, administrative and departmental experts of the university were asked to study the questionnaire carefully and give appropriate and qualified answers to its' statements.
2. Demographic characteristics or personal information: factors such as age, gender, place of work, education, field of study and work experience were considered.
3. Two standard questionnaires of knowledge management were used to measure the research variables.

This tool evaluates the dimensions of knowledge management in the organization. The questionnaire of knowledge management individuation was created by Bukowitz and Williams with 100 questions in 1999. Bukowitz and Williams defined a seven-step process for knowledge management that includes the following steps:

1. To gain knowledge: using different tools is to achieve knowledge; library and documentation sections are examples of these tools (questions 1-15).
2. To apply knowledge: using the obtained knowledge in case of being useful and appropriate (questions 16-29)
3. Learning (from knowledge process): learn from the obtained experiences (knowledge and information) (questions 30-44)
4. Share and exchange of knowledge: transfer and exchange knowledge of the organization members with each other so that to exchange the culture of "sharing knowledge is power" with "knowledge is power" (questions 45-59)
5. Knowledge assessment: assess the knowledge status and knowledge assets of the organization (questions 60-73)

6. Creation and consolidation of knowledge: ability of organization in creation and generation of knowledge and also establish and protect it in the organization (74-87)
7. Optimal use of knowledge: complete and optimal use of the organization from the available knowledge at the time the new position and chance arises for the organization before using the organizational external sources (88-100)

**Validity and reliability**

Questionnaires are standard and their validity has been previously confirmed in several studies. Comments and tips of supervisor professor was used to ensure the validity of the questionnaires after their compilation and it was included in the final questionnaire. Reliability of the questionnaire items was analyzed in terms of conent consistency using Cronbach's alpha and it was confirmed with 89% Cronbach's alpha.

## 14. Review the research findings

In this chapter, the data analysis is done in two parts. First, to describe the sociology of sample group, frequency, percentage, cumulative percentage, average, standard deviation, minimum and maximum scores are used for gender, age, place of work, education, work experience, field of study. In second section, Pearson correlation test and regression is used in SPSS16 software to assess the research hypothesis.

### 14.1. The descriptive findings and demographic

**Gender**: Gender-related results showed that 118 individuals (57.3%) were male group and 88 individuals (42.7%) of the sample were women group. 43 studied subjects were women (23%) and 144 were men (77%).

**Age**: the average of the results showed that 63 subjects (30.6%) of the sample group were under 35 years, 78 subjects (37.9%) were between 35 to 45 with the highest amount, 61 subjects (29.6%) were also between 45 to 55 years and 4 subjects (1.9%) were more than 55 years.

**Place of work**: the results related to the place of work showed that 75 individuals were headquarters experts with the highest amount (36.4%), 33 (16%) individuals were from health department, treatment department with 32 individuals (15.5%), food and drug department with 22 individuals (10.7%), research department with 16 individuals (7.8%) and Educational Affairs and Student Assistance with 14 individuals (6.8%) had the lowest amount.

**Degree of education**: The results related to the educational level indicate that the highest frequency relates to the Bachelor’s degree with 105 individuals (51%) of sample group and the lowest frequency relates to PhD degree with 22 individuals (1.7%).

**Type of degree**: evaluation of the status of the field of study in the studied sample showed that the number of 66 individuals (23%) had a degree in humanities, 21 individuals

(10.2%) had engineering degree with the lowest frequency, 78 individuals (37.9%) had a degree in healthcare with the highest frequency and 41 individuals (19.9%) had a degree in other fields.

**Years of service:** the average of work experience showed that 21 individuals (10.2) of the sample group had up to 5 years of service with lowest frequency and 44 individuals (21.4%) had between 20 to 25 years of service with the highest frequency.

**Gather and analyze findings:**
In this study, first establishment status of knowledge management and its different dimensions were determined using Bukowitz and Williams model in Hamadan University of Medical Sciences. Then, knowledge management status was reviewed among different groups. Mean and standard deviation of knowledge management for each of components was respectively: obtain stage: 3.1936 and 0.55039 (highest amount); stage of using knowledge: 2.7923 and 0.74039 (lowest amount) and total score of knowledge management in sample group: 20.1123 mean and 3.99391 SD.

**Table 3** : status of knowledge management and its different dimensions

| | Mean | Std. Deviation | Maximum | Minimum |
|---|---|---|---|---|
| To gain knowledge | 3.19 | 0.55 | 4.40 | 1.87 |
| To apply knowledge | 2.79 | 0.74 | 6.71 | 1.14 |
| Learning | 2.86 | 0.66 | 4.67 | 1.27 |
| Share and exchange of knowledge | 2.89 | 0.63 | 4.73 | 1.07 |
| Knowledge assessment | 2.79 | 0.74 | 4.50 | 1.00 |
| Optimal use of knowledge | 2.78 | 0.75 | 6.18 | 1.00 |
| Creation and consolidation of knowledge | 2.84 | 0.65 | 4.67 | 1.27 |
| Total of knowledge management | 20.14 | 4.01 | 31.79 | 10.31 |
| Valid N (listwise) | | 206 | | |

**Table 4** : status of knowledge management in different group

| | | To gain knowledge | To apply knowledge | Learning | Share and exchange of knowledge | Knowledge assessment | Optimal use of knowledge | Creation and consolidation of knowledge | Total of knowledge management |
|---|---|---|---|---|---|---|---|---|---|
| age group | up to 35 years | 3.21 | 2.84 | 2.87 | 2.80 | 2.76 | 2.87 | 2.85 | 20.19 |
| | between 35 to 45 years | 3.27 | 2.87 | 2.96 | 3.04 | 2.89 | 2.81 | 2.93 | 20.77 |
| | between 45 to 55 years | 3.09 | 2.65 | 2.73 | 2.79 | 2.71 | 2.66 | 2.72 | 19.34 |
| | more than 55 years | 3.15 | 2.73 | 2.58 | 2.85 | 2.75 | 2.68 | 2.68 | 19.43 |
| Gender | men | 3.19 | 2.83 | 2.91 | 2.97 | 2.86 | 2.81 | 2.90 | 20.47 |
| | women | 3.20 | 2.73 | 2.78 | 2.79 | 2.70 | 2.74 | 2.75 | 19.70 |
| Place of work | headquarters | 3.22 | 2.90 | 2.94 | 3.00 | 2.84 | 2.79 | 2.92 | 20.61 |
| | health department | 3.22 | 2.71 | 2.88 | 2.81 | 2.74 | 2.83 | 2.82 | 20.01 |
| | Educational department | 3.14 | 2.63 | 2.86 | 2.72 | 2.60 | 2.53 | 2.66 | 19.13 |
| | research department | 3.07 | 2.60 | 2.93 | 2.91 | 2.86 | 2.74 | 2.78 | 19.89 |
| | Affairs Student Assistance department | 3.43 | 3.16 | 2.86 | 3.15 | 3.15 | 2.96 | 3.16 | 21.88 |
| | treatment department | 3.19 | 2.78 | 2.85 | 2.87 | 2.78 | 2.80 | 2.76 | 20.04 |
| | food and drug department | 3.03 | 2.55 | 2.49 | 2.58 | 2.58 | 2.73 | 2.66 | 18.60 |
| Degree of education | Associate Degree | 3.02 | 2.82 | 2.92 | 3.00 | 2.97 | 2.92 | 3.03 | 20.68 |
| | BS | 3.20 | 2.78 | 2.82 | 2.89 | 2.85 | 2.79 | 2.87 | 20.19 |
| | MA | 3.31 | 2.81 | 2.93 | 2.83 | 2.71 | 2.69 | 2.80 | 20.08 |
| | PhD degree | 3.10 | 2.74 | 2.80 | 2.89 | 2.49 | 2.80 | 2.55 | 19.37 |
| Type of degree | Humanities | 3.19 | 2.81 | 2.93 | 2.93 | 2.90 | 2.72 | 2.89 | 20.38 |
| | Technical | 3.28 | 2.94 | 2.90 | 3.03 | 2.87 | 2.91 | 3.03 | 20.94 |
| | Health | 3.17 | 2.68 | 2.77 | 2.81 | 2.63 | 2.71 | 2.67 | 19.45 |
| | Other | 3.20 | 2.90 | 2.88 | 2.90 | 2.90 | 2.94 | 2.97 | 20.67 |
| Years of service | up to 5 years | 3.31 | 2.93 | 3.09 | 3.09 | 3.05 | 3.19 | 3.17 | 21.84 |
| | between 5 to 10 years | 3.11 | 2.64 | 2.69 | 2.63 | 2.47 | 2.59 | 2.55 | 18.68 |
| | between 10 to 15 years | 3.21 | 2.79 | 2.89 | 2.89 | 2.91 | 2.83 | 2.87 | 20.38 |
| | between 15 to 20 years | 3.25 | 2.95 | 2.96 | 3.00 | 2.90 | 2.84 | 2.99 | 20.90 |
| | between 20 to 25 years | 3.25 | 2.86 | 2.88 | 2.97 | 2.75 | 2.74 | 2.82 | 20.28 |
| | more than 25 years | 3.09 | 2.64 | 2.75 | 2.84 | 2.83 | 2.69 | 2.79 | 19.63 |
| Total | | 3.19 | 2.79 | 2.86 | 2.89 | 2.79 | 2.78 | 2.84 | 20.14 |

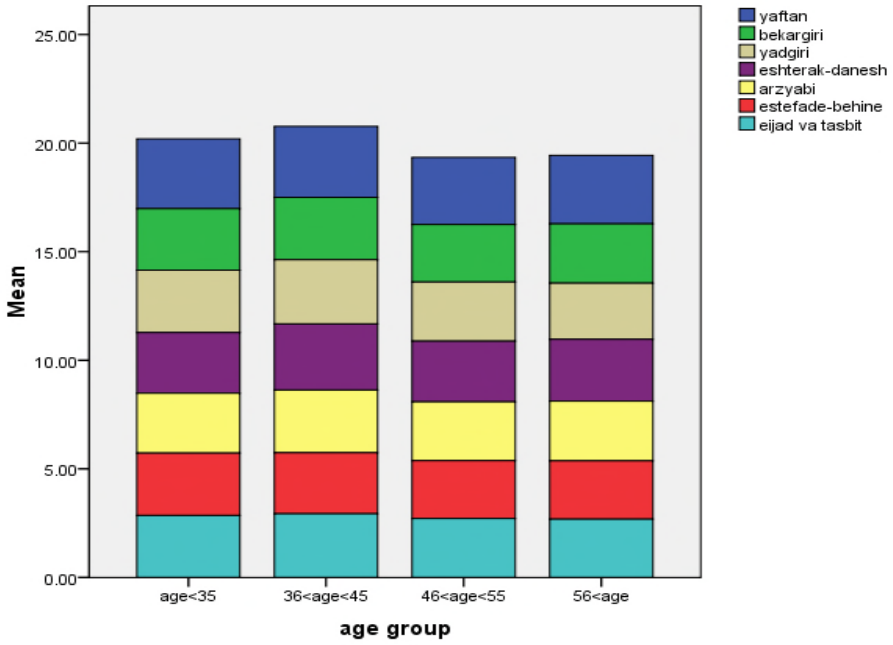


**Figure 2**: status of knowledge management in age group

## 15. Discussion and conclusion

Having drawn the scatter plot, it was observed that there is a direct linear relation with constant width of origin between knowledge management and its' components (getting, using, learning, sharing, evaluating, creating, maintaining and removing). Regression test was used to determine the coefficient and its' significant relation. The result of regression equation test of knowledge management with different dimensions is obtained as follows:

E (Km| get) =645/5+113/2 get414/4+ use +447/9learn + 750/5contribution + 606/4assess + 494/4divest + 534/5 build

(t=2.027) ,(t=17.543), (t=6.029) , (t=29.087) , (t=8.201) , (t=29.759), (t=29.087) , (t=8.201)

R Square = ./806

The obtained p-value is less than 5%, so there is a significant relation between the two variables and the hypothesis of the relation between knowledge management and its' dimensions is approved. Also, the dimensions of knowledge management have had 80% effect on knowledge management and fit the above equations. Accordingly, there is a significant relation between knowledge management dimensions and total of knowledge management in the studied population. This was consistent with findings of Tofighi, Sh. et al, Hossein Zadeh, A. et al, Maleki, M. et al, Shabani, A., Madhoushi, M and Niazi, E.

Tofighi, Sh. et al, (2010) in a military hospital in Tehran conducted a research based on Malcolm Baldrige Excellence model; they expressed that the score of "knowledge management" criterion was 43.67 (48.52%).
Hossein Zadeh, A. et al, (2010) in a descriptive study based on Hissing model found that the application rate of knowledge creation component among employees of central, university and hospital libraries covered by Tabriz University of Medical Sciences was higher than the average and knowledge storage component was lower than the average.
Zaeem et al, (2013) concluded that the activities of knowledge management process (creation, save or modify, transmit or share and use) have positive relation with each other and also there is a positive relation between activities of knowledge management process and organizational performance.
Maleki, M. et al, (2009) evaluated the performance of Hashemi Nejad hospital based on the criteria of knowledge management, analysis and measurement of Malcolm Baldrige treatment, health and education model; they stated that 47.5% belongs to the criteria of knowledge management and information; based on Likert method, performance of this hospital had the average score in the field of treatment and weak score in the field of education.
Shabani, A. et al, (2012) in libraries of Shiraz University of Medical Sciences using TOPSIS technique and based on William and Bukowitz model stated that all factors of the model (finding, using, learning, sharing, evaluating, creating, maitaining and removing knowledge) effect on implemetation of knowledge management and all factors are in good standing except learning and removing knowledge.
Madhoushi, M and Niazi, E. (2011) in a descriptive and cross-sectional study evaluated the status of selected universities of the country (Tehran, Isfahan, Tarbiat Modarres, Alzahra, Mazandaran, Gilan, Yazd, Arak and Razi) in terms of knowledge management level. They expressed that the situation of all selected universities was not good in terms of the index of knowledge management level and lower than the average of the desired index.
This indicates the need for more attention to knowledge management, especially in the field of education. Accordingly, it is necessary to develop effective and efficient programs to improve knowledge management. Although, appropriate measures have been done to develop knowledge management infrastructures, but training human resources and optimal use of all capabilities of health information system should be improved.
These results showed that in Hamadan University of Medical Sciences, the activities aimed at knowledge management is important and most experts in Hamadan University of Medical Sciences access to the internet and office automation technologies. Using the tools such as email, blogs, intranet and office automation is very low cost and available; they can be used to create and share organizational knowledge.
Information of the present study indicates that the participation of experts is considered in terms of individual and organizational activities of experts for knowledge management such as participation in formal and informal corporate meetings, holding and participating in training courses, participate in scientific and professional conferences and also transmission and share of knowledge in form of writing papers and recommendations.

It seems that the bonus system can be considered sufficient as one of the most effective tools for motivation and commitment to participate in knowledge management processes. According to the findings of this research, managers of Hamadan University of Medical Sciences should provide the possibility of using available substrates by planning in order to perform knowledge management processes. Therefore, the experts not only should pay attention to management of external information, but also they should focus on the management of produced information inside the organization. In addition, if managers believe in their key role in advancing the organization goals and importance of applying knowledge management measures in syncing them with these goals and realize their high position as a principle element in organizational cycle and help to stay in competitive environments, then they can act much more successful and better in universities.

It seems that knowledge management has created a new horizon for management of Hamadan University of Medical Sciences. If the experts fail to cync with existing rapid changes following the emergence of knowledge management, they may face challenges regarding the new job positions in coming years. Thus, there should be significant changes in thinking, attitude and education of experts.

Reviewing the contexts during the past decade shows that several sources have reviewed the required understanding and skills in knowledge management and have confirmed the merit of experts in this field. Experts should have a broader prespective in the implementation of knowledge management. Friendly and informal communication with other staffs can help to exchange knowledge and makes the experts more aware of affairs. Finally, we can conclude that there are two challenges of reduction in budget and human resources that universities are facing. Knowledge management can be implemented as an aid for overcoming these challenges.

**16. Practical recommendations**

According to the results, the following suggestions are provided to improve the organizational status of Hamadan University of Medical Sciences:

- Specialized committee should be formed in the university and qualified experts and knowledge oriented should be used for required plannings in implementation of knowledge management.
- training classes should be held in order to learn how to use existing technologies such as discussion groups, email, blogs, intranet, office automation and … to use knowledge management processes.
- Senior, middle and base managers of university should be familiar with new management methods and learn how to implement knowledge management. Also, there should be an atmosphere in which experts of Hamadan University of Medical Sciences have autonomy and freedom to practice their professional activities and implementation of knowledge management. This also provides the incidence of new ideas and willingness to initiatives such as knowledge management activities.

It is suggested to conduct this study using other research methods so that to generalize the results more confidently.

Since few researches have been done about the obstacles and incentives for the implementation of knowledge management, it is recommended that further researches be done in this regard in various organizations so that to provide strategies to improve the sharing of knowledge in different organizations such as universities as fundamental elements of knowledge management.

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