The Study of Occupational Stress and Its Relationship with Knowledge Management Based on HSE Model

Hossein Jenaabadi1, Hamed Kord2∗, Fereydon Damani3, Ali Parvaresh4

1Department of Educational Sciences and Psychology, University of Sistan and Baluchestan, Zahedan, Iran
2Department of Management, Velayat University, Iranshahr, Iran
3MA of Educational Management, Tehran University, Tehran, Iran
4Keshavarzi Bank, Chabahar, Iran
Email: *hjenaabadi@ped.usb.ac.ir

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Abstract

The present study aimed to examine the relationship between knowledge management and stress in Zahedan University of Medical Sciences. The statistical population included all faculty members (N = 376) among whom 190 individuals were selected using Morgan’s table. This study was conducted using a descriptive survey method. To collect data, two questionnaires including Knowledge Management Survey (Rafati et al., 2008) and Occupational Stress Questionnaire developed by England Institute of Health and Safety (2004) were used. These questionnaire’s reliability coefficients were 0.89 and 0.78, respectively. To analyze the obtained data, SPSS software version 18 was used. To determine the distribution of the sample, Kolmogorov-Smirnov test was used and to investigate the relationship between knowledge management and stress, Pearson’s correlation was applied. The results of the latter confirmed that there was a significant positive correlation between knowledge management and stress. Other words, it can be stated that enhancing knowledge management normally increased stress.

Keywords

Occupational Stress, Knowledge-Centered, Mental Pressure, Stress Management, Knowledge Management

1. Introduction

Nowadays, mental occupational stress has become one of the most common and costly workplace problems.

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Mental stress is a non-specific response that people may have when confronting with pressures (Selye, 1980). This response can be expressed when facing any internal cognitive stimulus or external and environmental stimulus (stressors). This is while Selye (1980) differentiated between effective stress and harmful stress and asserted that some amount of stress is necessary to continue life (Cordon, 1997). Due to individual differences, people respond to mental stress in different ways and intensity of perceived pressure and the methods of reacting to it are all dependent on the individual’s perception and realization of the issue (Brissette et al., 2002, as cited in Rathus, 2007). In explaining stress, some researchers emphasized the features of environmental stimuli causing disturbance and tension (Cox, 1993).

Maintaining mental health of an organization’s employees plays a determining role in the success of the organization. Obviously, mental occupational stress has a detrimental effect on managers and employees’ performance. People experiencing mental occupational stress face difficulties in making decisions, planning, communicating with others using effective practices and finally enhancing individual performance and productivity. More importantly, when an employee faces stress, he/she can affect other employees; thus, stress in an organization, like a pest, undermines people’s abilities and sterilized their effort (Olovi, 1993: pp. 7-8). Conditions prevailing in faculty members’ workplace, including teaching full time during the week and educational, administrative, and economic problems, make them apply a low level of their scientific capabilities. This process originates from inappropriate working environment conditions in universities, lack of public health, freshness, and vitality in their daily lives, and lack of job satisfaction. This can influence the quality and quantity of their professional work and negatively affect their lives exposing this scientific capital to various physical and mental problems. In this regard, this may influence the next generation (Mirkamali, 1996). The importance of this issue and its impacts on people’s lives have reached a point that Paul Rosch, the president of the American Institute of Stress in Yonkers (New York), surprisingly stated that mental stress caused by today’s social conditions will create an excitement-seeking generation who often voluntarily prefer unrest to quiescence; such that, even high-level managers intentionally arrive hastily at the airport in the last minute well before their flights. It seems that nowadays, people have become addicted to high adrenaline hypersecretion (Elliott, 1993: p. 21). This is while today’s generation plays a more significant role in the development of science compared to previous generations; however, the latest advancement in knowledge has great impacts on stress. Therefore, this question has raised that how does stress, known as the disease of the century, influence today’s people’s lives?

Hence, this study aimed to determine the kind of correlation between knowledge management and stress (mental occupational stress). To this end, it attempted to examine the relationship between every single stressor (mental occupational stress) and knowledge management and finally aimed to propose appropriate strategies to properly manage two variables of knowledge and stress.

Bushy, Stanton and Freeman (2004), in a study entitled “The Effects of a Stress Management Program on Knowledge and Perceived Self-efficacy among Participants from a Faith Community”, indicated that stress management increased knowledge and perceived self-efficacy of participants.

Najafi (2011), in a study entitled “Stress Management Basis of Improving the Productivity of Knowledge Workers”, concluded that stress was more visible in knowledge work. Generally, knowledge and stress can act as generating sources which are correlated.

2. Literature Review

2.1. Knowledge Management

MaeiHotte believes that knowledge management and knowledge include activities and organizational processes which search for the combination of the capacity of processing data and information with the ability of the organization with regard to its staff’s creativity and innovation.

According to Koulopoulous and Frappaolo (2000), knowledge management is associated with application and improvement of knowledge capital in an institute considering its objectives. Armstrong (2002) stated that knowledge management is the use of information to achieve business realities and the art of creating value applying intangible assets to accomplish this goal. Other words, knowledge management is the strategy of creating timely knowledge by people in real time aiding people to share information and improve their organization performance.

From Chrnieleka’s point of view, knowledge management features are those depicted in Figure 1.

2.2. Types of Knowledge

Understanding various types of knowledge and distinguishing their differences are the most important contribu-
Tacit knowledge is the kind of knowledge that is not visible and roots in experiences, culture and values of an individual or an organization.

Explicit knowledge is explicit and codified knowledge.

Theoretical Knowledge is the kind of knowledge which originates from people’s profound specialization. The characteristics of this type of knowledge is more like embedded knowledge (Lytras, Pouloudi, & Poulymenakou, 2002).

2.3. Components and Elements of Knowledge Management

Knowledge management elements are knowledge worker, the main units of creation, storage, and application of knowledge in an organization.

Groups-networks (formal and informal), in terms of knowledge, are significant assets that are usually intangible. Groups are made of employees who have shared experiences, usually creating a growing collection of knowledge.

An organization—the entire organization—can be considered as an institute which embodies the results of a series of knowledge. The basic components of the process of strategic knowledge management indicate that the organization must identify its knowledge network gaining some experiences as its result. All these measures should be conducted within the strategic objectives of the organization. This simple pattern has three important knowledge management dimensions, i.e. storage, transfer and conversion (HSE, 2004). The components of knowledge management are presented in the Figure 2.

Organizational objectives, creating motivation and providing facilities for knowledge workers are also considered as the most important element of knowledge management.

2.4. Stress (Mental Occupational Pressure)

Lexically speaking, stress (mental pressure) is derived from a Latin word “stringere” which means “to draw tight”. In English, this term was common at least from the eleventh century and was generally used as a term to refer to physical pressure. In the early seventeenth century, this term was used with the concept of hard work and vocational suffering and in the last years of the eighteenth century, it was synonymous with pressure including work pressure, force and forced labor. In Persian, the term is known as stress (Fakhimi, 2002).

Stress is defined as a reaction to adapt to a factor or a nerve impulse and/or tension which inflicts mental or physical pressure on an individual (Jafari Moghadam, 2006). Ivancevich and Mattson defined mental pressure as interaction of organisms with the outside world. They believed that stress is an emotional reaction which becomes visible under the influence of individual differences and psychological processes (Bromand, 1995: p. 212).

2.5. HSE Model

Health and Safety Executive (HSE) presented a model of occupational stress that explains the correlation among stress-related anomalies, individual and organizational symptoms, and its results and effects (Palmer et al., 2004). HSE standard was designed based on the 5-step risk assessment model. This standard includes six working areas which may lead to stress (HSE, 2009). HSE guideline (2001), considering six areas, helps to identify problems and provide a framework for solving them. These six working areas include: demands, control, managerial support (supervisor and colleagues), relationship, and changes (Palmer et al., 2004).
Table 1. Types of structure and mastery of knowledge.

| Type of knowledge | Theoretical | Codified | Tacit |
|-------------------|-------------|----------|-------|
| Simple structure  | −           | −        | +     |
| Machine bureaucracy| −           | +        | −     |
| Professional bureaucracy | −   | +        | +     |
| Divisionalized from | +   | +        | −     |
| Adhocracy          | −           | −        | +     |

2.6. Definition of Each Dimension of HSE Model

**Demands:** What a job demands you to do. Indeed, it means what the job imposed on you and the task you have been hired to do.

**Control:** It simply means that how much control and dominant you have on your work (HSE, 2004).

**Managerial support:** In the workplace, support means that to what extent others support you.

**Relationship:** When one mentions relationship, it refers to the way people interact with their colleagues.

**Changes:** Work environment always requires change to improve. For instance, business processes may change and/or production technologies may alter and/or the work environment of an employee may alter, as an example he/she may be transferred from one unit to the other.

Among the reasons for selecting the HSE model in the current study the following can be stated:

- Coordination of this model with the current study;
- Various studies conducted to obtain the content validity of the questionnaire;
- Diverse areas and small number of questions compared to rival questionnaires;
- Acceptable reliability;
- Working areas.

2.7. The Research Conceptual Model

Based on what was mentioned earlier, a model (Figure 3) is depicted in this way that knowledge management can be correlated with stress. Since in the current study, tacit and explicit knowledge and transformation of knowledge are important for knowledge management, therefore, considering Nonaka and Takeuchi’s model (1995), four components of socialization, externalization, internalization and combination were selected. With regard to the second variable, since pressures caused by a job and mental states related to it were considered; hence, the researchers searched for some variables with the stated characteristics and finally five components including demands, control, managerial support, relationship and changes were selected among all components derived from the HSE model.
2.8. Overall Objectives of the Study

- Introducing knowledge management and mental occupational pressure (stress) and recognizing the theoretical framework of research;
- Investigating the relationship of knowledge management with mental occupational pressure (stress) and its components in the study population;
- Providing appropriate recommendations based on the research findings in order to use and guide knowledge management in various organizations.

3. Research Hypotheses

3.1. Main Hypothesis

There is a significant and positive relationship between knowledge management and stress (mental occupational pressure) in faculty members of Zahedan University of Medical Sciences.

3.2. Subsidiary Hypotheses

1) There is a significant positive relationship between knowledge management and demands in faculty members of Zahedan University of Medical Sciences.
2) There is a significant positive relationship between knowledge management and control in faculty members of Zahedan University of Medical Sciences.
3) There is a significant positive relationship between knowledge management and managerial support in faculty members of Zahedan University of Medical Sciences.
4) There is a significant positive relationship between knowledge management and relationship in faculty members of Zahedan University of Medical Sciences.
5) There is a significant positive relationship between knowledge management and changes in faculty members of Zahedan University of Medical Sciences.

The present study aimed to examine the relationship between knowledge management and stress in Zahedan University of Medical Sciences.

4. Methods

This study aimed to examine the relationship between knowledge management and stress (mental occupational pressure) in faculty members of Zahedan University of Medical Sciences in 2014. To collect data and evaluate variables under study, two questionnaires including Knowledge Management Survey (Rafati et al., 2008) and Occupational Stress Questionnaire developed by England Institute of Health and Safety (2004) were used. To calculate these questionnaires’ validity and reliability coefficients, Cronbach’s alpha was used, applying SPSS software version 18, the results of which are presented in Table 2 and Table 3.

In the current study, after examining the obtained data, data analysis was applied using SPSS software version 18. To investigate the correlation among the variables, Pearson’s correlation was used.

The statistical population of the current study included all faculty members of Zahedan University of Medical Sciences.
Table 2. Reliability of knowledge management survey.

| Dimensions    | Cronbach’s alpha coefficient | Overall Cronbach’s alpha coefficient |
|---------------|------------------------------|--------------------------------------|
| Externalization | 0.86                         |                                      |
| Combination    | 0.88                         |                                      |
| Internalization| 0.90                         | 0.78                                 |
| Socialization  | 0.93                         |                                      |

Table 3. Reliability of occupational stress questionnaire.

| Dimensions         | Cronbach’s alpha coefficient | Overall Cronbach’s alpha coefficient |
|--------------------|------------------------------|--------------------------------------|
| Demands            | 0.81                         |                                      |
| Control            | 0.83                         |                                      |
| Managerial support | 0.77                         | 0.89                                 |
| Relationship       | 0.76                         |                                      |
| Changes            | 0.74                         |                                      |

In the present study, after determining the statistical population, the researchers selected the sample using simple random sampling method.

Rafati’s Questionnaire of Knowledge Management has 4 items, assessing managers’, using a 5-point Likert type scale (5 = strongly agree, 4 = agree, 3 = I have no idea, 2 = disagree, 1 = strongly disagree). Equity Perception Inventory has 21, 5-point Likert type scale items (5 = strongly agree, 4 = agree, 3 = I have no idea, 2 = disagree, 1 = strongly disagree) developed by. To measure, an Occupational Stress Questionnaire (2004) including 15 questions was applied. This questionnaire has 6 options (1 = strongly disagree, 2 = somehow disagree, 3 = slightly disagree, 4 = neither agree nor disagree, 3 = slightly agree, 4 = somehow agree, strongly agree). Questions 1, 2, 4, 5, 6, 7, 8, 10, 13, and 14 are scored based on the mentioned points and questions 3, 7, 9, 11, 12, and 15 are reversely scored. The minimum possible score is 15 and the maximum score is 105. Higher scores indicate an individual’s greater commitment to the organization.

Data Analysis

Descriptive data analysis was conducted using mean and standard deviation. Moreover, for inferential data analysis, the Pearson correlation coefficient and stepwise regression analysis were applied. All these statistical data analyses were conducted after entering the obtained data into the SPSS software version 18.

For analyzing the responses related to questions 1, 2, and 3, the Pearson correlation coefficient and for analyzing the responses associated with questions 4 and 5, stepwise regression were used.

5. Results

5.1. Demographic Information

Table 4 indicates the descriptive statistical data demonstrating the demographic information of 190 faculty members of Zahedan University of Medical Sciences, as the statistical sample of the current study, based on the mentioned questionnaires.

Based on Table 4, considering participants’ age, the highest frequency was for the age group 45 - 54 years old and the age group of 54 and higher had the lowest frequency (9.3%). With regard to their gender, 135 individuals (66%) of the respondents were males and 70 individuals (34%) of them were females. Moreover, considering participants’ level of education, 161 individuals (64.4%) of the respondents had a PhD degree and 89 individuals (35.6%) had a MA degree.
5.2. Research Hypotheses

To test the hypotheses (examining the relationship between knowledge management and dimensions of occupational stress), Pearson’s correlation was used, the results of which is presented in Table 5.

5.3. Main Hypothesis

There is a significant and positive relationship between knowledge management and stress (mental occupational pressure).

According to Table 5, since the level of significance is less than 0.05, H0 is rejected and H1, indicating that there is a significant relationship between knowledge management and stress (mental occupational pressure) in Zahedan University of Medical Sciences, is confirmed. As it can be seen, the correlation between knowledge management in Zahedan University of Medical Sciences and stress (mental occupational pressure) is significant at the 99% confidence level and its correlation coefficient is 0.692.

5.4. Subsidiary Hypotheses

5.4.1. First Hypothesis

There is a significant positive relationship between knowledge management and demands.

Based on Table 5, the results show that knowledge management and demands are significantly correlated. There is a direct relationship between knowledge management and demands \( r = 0.542 \) which is significant at the \( p \leq 0.05 \) significance level. Therefore, the results suggest that there is a significant positive relationship between these two variable. Other words, it can be stated that when knowledge management increases, demands increase as well.

5.4.2. Second Hypothesis

There is a significant positive relationship between knowledge management and control.

According to Table 5, since the level of significance is less than 0.05, therefore, H0 is rejected and H1 (research hypothesis), indicating that there is a significant relationship between knowledge management and control in Zahedan University of Medical Sciences, is confirmed.

As it can be seen, the correlation between knowledge management in Zahedan University of Medical Sciences and control is significant at the 99% confidence level and its correlation coefficient is 0.501.

5.4.3. Third Hypothesis

There is a significant positive relationship between knowledge management and managerial support.

Based on Table 5, since the level of significance is less than 0.05, hence, H0 is rejected and H1 (research hypothesis) demonstrating that there is a significant relationship between knowledge management and managerial support in Zahedan University of Medical Sciences is confirmed.

As it can be seen, the correlation between knowledge management in Zahedan University of Medical Sciences and managerial support is significant at the 99% confidence level and its correlation coefficient is 0.487.
5.4.4. Fourth Hypothesis

There is a significant positive relationship between knowledge management and changes.

Considering the results presented in Table 5, since the level of significance is less than 0.05, hence, H0 is rejected and H1 (research hypothesis) demonstrating that there is a significant relationship between knowledge management and changes in Zahedan University of Medical Sciences is confirmed. As it can be seen, the correlation between knowledge management in Zahedan University of Medical Sciences and changes is significant at the 99% confidence level and its correlation coefficient is 0.446.

5.4.5. Fifth Hypothesis

There is a significant positive relationship between knowledge management and relationship.

With regard to the findings presented in Table 5, since the level of significance is less than 0.05, hence, H0 is rejected and H1 (research hypothesis) demonstrating that there is a significant relationship between knowledge management and relationships in Zahedan University of Medical Sciences is confirmed. As it can be seen, the correlation between knowledge management in Zahedan University of Medical Sciences and managerial support is significant at the 99% confidence level and its correlation coefficient is 0.440.

6. Discussion

Main Hypothesis

There is a significant and positive relationship between knowledge management and stress (mental occupational
As it is indicated in Table 5, the correlation coefficient between knowledge management and stress was \( r = 0.692 \) which was significant at the 99% confidence level. Therefore, knowledge management and stress were significantly correlated. This means that when knowledge management is increasing, the level of stress increases. Other words, the researchers’ hypothesis claiming that there is a relationship between knowledge management and stress in faculty members of Zahedan University of Medical Sciences was confirmed. This result that there was a correlation between knowledge management and occupational stress is in line with the results of other studies including Najafi (2011) who believed that stress was more evident in knowledge work and that generally knowledge and stress can be each other’s generating source. Moreover, the finding is consistent with the results of Craig, Sommerville, and McCarney (2004). Considering this consistency between the results of the current study and those of previously conducted studies, it can be stated that this was supported by a strong theory and this hypothesis was based on a reliable theoretical basis. To avoid the removal of the concept of knowledge management, like other managerial concepts, occupational stress should be managed correctly.

7. Conclusion

7.1. First Subsidiary Hypothesis

There is a significant positive relationship between knowledge management and demands in faculty members of Zahedan University of Medical Sciences.

As indicated in Table 5, the correlation coefficient between knowledge management and demands was \( r = 0.542 \) which was significant at the 99% confidence level. Therefore, knowledge management and demands were significantly correlated. This means that when knowledge management is increasing in an organization, the level of demands increases. This result, indicating that knowledge management and demands were correlated, is in line with the results of Shanhong (2004), asserting that ever since knowledge has become the driving force from social development, the society has paid growing attention to information and knowledge and individuals’ demands for information and knowledge are increasing step by step.

7.2. Second Subsidiary Hypothesis

There is a significant positive relationship between knowledge management and control in faculty members of Zahedan University of Medical Sciences.

As demonstrated in Table 5, the correlation coefficient between knowledge management and control was \( r = 0.501 \) which was significant at the 99% confidence level. Therefore, knowledge management and control were significantly correlated. This means that when knowledge management is increasing in an organization, the level of control increases. This result, indicating that knowledge management and control were correlated, is in line with the results of Sarabi and Ismaeeli (2007).

Zargar (2004) stated that knowledge management is taking individual experiences and knowledge of an organization’s employees and timely dissemination of experiences among other employees in that organization and among those who need the knowledge and experience to conduct a task under control. This is not a product; however, it is the process of collection, management and dissemination of individual knowledge capital in an organization.

7.3. Second Subsidiary Hypothesis

There is a significant positive relationship between knowledge management and managerial support in faculty members of Zahedan University of Medical Sciences.

As demonstrated in Table 5, the correlation coefficient between knowledge management and managerial support was \( r = 0.487 \) which was significant at the 99% confidence level. Therefore, knowledge management and managerial support were significantly correlated. This means that when knowledge management is increasing in an organization, the level of managerial support increases. This result, indicating that knowledge management and managerial support were correlated, is in line with the results of Moharramzadeh, Ameri, and Asadi (2009) who asserted that the more the level of employees’ cooperation and managerial support, considering employees as valued assets, the more the deployment of knowledge management.
Every employee in an organization has some raw knowledge; however, for better and complete utilization of these organization’s knowledge assets, managers should collect each individual’s raw knowledge. This requires having the ability of listening to the employees’ ideas. In organizations where paying attention to employees’ ideas is neglected, expectation of establishing knowledge management is futile.

7.4. Fourth Subsidiary Hypothesis

There is a significant positive relationship between knowledge management and relationship in faculty members of Zahedan University of Medical Sciences.

As Table 5 indicated, the correlation coefficient between knowledge management and changes was $r = 0.446$ which was significant at the 99% confidence level. Therefore, knowledge management and changes were significantly correlated. This means that when knowledge management is increasing in an organization, the level of changes increases. This finding confirmed that there was a significant relationship between knowledge management and changes in faculty members of Zahedan University of Medical Sciences. This result, indicating that knowledge management and changes were correlated, is in line with the results of Sarabi and Ismaeeli (2007). Considering the consistency between the results of the current study and those of the previously conducted studies, it can be stated that this was supported by a strong theory and this hypothesis was based on a reliable theoretical basis.

7.5. Fifth Subsidiary Hypothesis

There is a significant positive relationship between knowledge management and changes in faculty members of Zahedan University of Medical Sciences.

As Table 5 indicated, the correlation coefficient between knowledge management and relationship was $r = 0.440$ which was significant at the 99% confidence level. Therefore, knowledge management and relationship were significantly correlated. This means that when knowledge management is increasing in an organization, the level of relationship increases. This finding confirmed that there was a significant correlation between knowledge management and relationship in faculty members of Zahedan University of Medical Sciences. This result, indicating that knowledge management and relationship were correlated, is in line with the results of Barkhordar (2010). Considering the consistency between the result of the current study and that of the previously conducted studies, it can be stated that this was supported by a strong theory and this hypothesis was based on a reliable theoretical basis.

8. Recommendations

8.1. Executive Recommendations

Zahedan University of Medical Sciences is recommended to consider the following suggestions to keep the stress caused by knowledge management in the organization optimized.

8.2. In Terms of Demands

- Reducing the number of students accepted to the university;
- Reducing professors’ teaching time and giving them more time for conducting scientific research;
- Reducing their teaching time and providing more time for advising students to avoid phone calls.

8.3. In terms of Control

- Monitoring the process of collection, management and dissemination of knowledge management of individuals working in an organization;
- Observing balance when developing fields of study considering the number of faculty members.

8.4. In Terms of Managerial Support

- Encouraging staff’s continuing training to create value for the organization;
- Granting facilities and material and spiritual advantages in certain time intervals based on teachers’ performance evaluation.
8.5. In Terms of Changes

- Paying attention to previous employees’ experiences, especially during reorganization process, to prevent the irrecoverable loss of knowledge and experiences of retirees;
- Involving faculty members in the process of designing service and providing credits in the Regulations on Promotion, Advancement and Converting the State;
- Changing the Regulation on Promotion and Advancement using a group-oriented approach instead of an individual-oriented approach in the allocation of concessions to activities of faculty members related to training, education and service.

8.6. In Terms of Relationship

- Holding camps outside the organization to create face to face relationships, shared language and experiences, and trust and teamwork;
- Interacting and cooperating with faculties and psychological health centers considering the fact that human structure should be recognized prior to health advices;
- Shaping institutional relations based on friendly relationships and mutual trust between individuals;
- Using facilities and formal and informal gatherings to exchange ideas and experiences related to occupational stress and problems.

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