The Relationship between Effective Factors on Knowledge Sharing among Faculty Members of Alborz University of Medical Sciences

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ABSTRACT

Knowledge sharing among faculty members is an effective and efficient strategy for knowledge gain. The purpose of this study was to determine the relationship between factors affecting knowledge sharing amongst faculty members of the Alborz University of Medical Sciences (Iran). The study was a descriptive-analytic (cross-sectional) study. The statistical population was the entire faculty members working in Alborz University of Medical Sciences in 2018 (N=172). Therefore, sampling was of complete nature including all faculty members. The data gathering tool was a researcher-based questionnaire. Content validity Ratio (CVR) and Content Validity Index (CVI) were used to assess the quantitative content. The reliability of the questionnaire was estimated by Cronbach's alpha at 0.86. One-way analysis of variance (ANOVA) and Pearson correlation coefficient were calculated using the 16 SPSS software. There was a meaningful and positive relationship between knowledge sharing with "enjoying helping others" and "organizational structure" (P<0.05). There was no significant relationship between knowledge sharing and gender and age (P>0.05). The most positive and significant correlations were between "Communication system" and "Organizational Structure" (r=0.676, sig=0.000, N=74) and between "Communication system" and "Supported senior managers" (r=0.657, sig=0.000, N=73). The results of this study suggest that managers of the Alborz University of Medical Sciences encourage faculty members in knowledge sharing by reducing their concern about the loss of their competitive advantage, by creating a reliable open atmosphere and changing the governing structure from hierarchical to a decentralized one. It is also recommended that senior university administrators encourage active participation of faculty members in the decision-making process, and support and encourage faculty members who share their knowledge with others. The senior administrators also need to organize university affairs by forming teams consisting of various educational groups and organize interactive and group discussions.

INTRODUCTION

Knowledge is a key organizational resource [1] and the most important intangible asset; therefore, managers strive in many ways to use this asset to create the highest value for their organization [2]. Knowledge assets are a means of creating value that is sustainable over time [3]. Academic personnel as faculty members in academic institutions are one of the most important constituencies representing their institutions because of their knowledge resource and usabil-

ity [4]. According to Wang and Noe (2010), knowledge sharing refers to "the provision of task information and know-how to help others and to collaborate with others to solve problems, develop new ideas, or implement policies or procedures" [5]. Knowledge sharing is defined as a process of communication between two or more participants involving the provision and acquisition of knowledge [6]. Knowledge sharing is a process where people exchange knowledge and create new knowledge [7]. Knowledge sharing is an activity where individuals, communities or organizations exchange knowledge (information, skills or expertise). Knowledge management involves creating knowledge, storing and retrieving, transferring and using knowledge while knowledge sharing is the transfer of knowledge [8]. Knowledge sharing is a voluntary activity in sharing employee-related work experiences [9]. The survival of an organization may indeed depend largely on knowledge sharing [10]. An important way of enhancing creativity and organizational innovation is to emphasize creativity and individual leadership through the integration of knowledge sharing [11, 12]. The sharing of organizational knowledge plays an important role in demonstrating creativity and organizational competence through the exchange and development of knowledge among members/employees [13, 14]. The importance of knowledge sharing to improve staff competency, ability and efficient performance at work has been widely documented. Knowledge is the main output of universities and research centres. Knowledge must be shared within such institutes before it can be used at different levels. So, the interaction and sharing of knowledge among faculty members working in these centres is indisputable [15]. Among the faculty members of a large independent university, less volunteering and networking have been observed. Moreover, faculty members of universities prefer to go through the mechanisms of publishing books and articles when it comes to sharing their knowledge for apparent reasons [16]. Knowledge sharing is essential between university academic members and it is possible through multidisciplinary research projects [17]. The creation of a knowledge-based society is a goal of Iran's policy-makers. According to the 2025 Vision Document, the Islamic Republic

of Iran must strive to achieve status of a developed country with first economic and scientific capabilities in the Southwest Asian region, including Central Asia, the Caucasus, the Middle East and the neighbouring countries. Therefore, the attention of policy makers to effective sharing of knowledge between university academics is necessary. By creating a knowledge sharing approach between academics, one can avoid rework and address parallel work and achieve the missions of the Iran's Ministry of Health, Medical Education and Medicine. In Iran too universities are faced with the reluctance of faculty members in sharing knowledge and expertise, and knowledge sharing in Iranian universities has become a growing concern. Factors affecting knowledge sharing in Iranian universities have been identified by previous studies by Wangpipatwonget L. [18], Chumg et al. [19], Lin et al. [20], Ramayah et al. [21] and Tan [22]. Therefore, this study aimed to determine the relationship between factors affecting knowledge sharing among faculty members of the Alborz University of Medical Sciences.

MATERIALS AND METHODS

This study was a cross-sectional descriptive-analytic study to determine the relationship between factors affecting knowledge sharing among faculty members of the Alborz University (Iran). The statistical population of this study was the entire faculty members of the Medical Sciences working at Alborz University in 2017, including permanent and contract employees, personnel obliged by law to serve at a higher education institute as part of their contract, and military conscript officers (N=172). The faculty member officers (on- and off-campus) were also considered as part of statistical population. The research proposal was approved by the Alborz University of Medical Sciences Ethics Committee and sampling was done on the entire faculty member population (N=172). The inclusion criteria in this study included the informed consent of the faculty members for participation in the study and the criteria for withdrawal included lack of given consent and/or lack of correct completion of the questionnaire. The research environment included all faculties/departments of Alborz University of Medical Sciences which included Medicine, Public Health, Nursing and

Midwifery, Dentistry, Paramedics, and Pharmacy. The data collection tool was a researcher questionnaire whose questions were divided into two sections: demographic; and variables of factors influencing knowledge sharing. To determine the content validity of the questionnaire design, qualitative and quantitative methods were used. In the qualitative method, a sample questionnaire was provided to 10 faculty members with expertise in medical education, healthcare management and education and biomedical statistics. They were asked to express their opinion on content, structure and appearance of the questionnaire. As part of a quantitative content validity review and after incorporating the recommendations from the expert group Content Validity Index (CVI) and Content Validity (CVR) were performed. To determine the CVI, the clarity and simplicity of each item was checked and values higher than 0.79 were accepted. To determine the CVI, the experts were asked about the necessity of each item and the values above 0.62 were accepted which was based on the Lawshe table. The content validity of all questions remained intact and the reliability of the questionnaire was also studied by calculating the Cronbach's alpha and the statistical reliability was tested-retested among 30 faculty members based on which the minimum Cronbach's alpha value was considered to be 0.7, which varied from 0.74 to 0.86 in overall make-up of the questionnaire. The reliability of the questionnaire structure/make-up in the test-retest was between 0.72 and 0.81. Data were analyzed using descriptive statistics (mean and standard deviation) and inferential statistics (one-way ANOVA, Pearson correlation coefficient) in SPSS 16 software.

RESULTS

Seventy-five faculty members including 46 females (61.3%) and 29 (38.7%) males participated in this study. They had academic ranks from instructor through to full professor (19 Instructors, 51Assistant Professors, 4 Associate Professor and one Full Professor). Participants had work experiences which included: 41.3% with a range of 0 to 5 years; 28% with a range of 5 to 10 years; 12% with a range of 10 to 15 years; 8% with a range of 15 to 20 years, 9.3% with a range of 20 to 25 years. There was no partici-

pant with work experience in the of 25 to 30 years range. The average age of participants was 41 years (youngest was 29 years old and the oldest was 58 years old). 49.3% of the respondents were from the faculty members of the college of Medicine (maximum frequency) and 2% were from the faculty members of the college of Pharmacy (minimum frequency)(Table 1). The comparison of the mean scores of factors shown that the "joy of helping others" factor had the greatest effect and the "reward system" factor had the least effect on knowledge sharing between the faculty members (Table 2). The results of Pearson correlation coefficients show that there was a significant and positive correlation between "Enjoying helping others" and "Self-efficacy of knowledge" (r=0.372, sig=0.001, N=73). There was also a significant and positive correlation between the "Enjoy helping others" and "Knowledge sharing" factors (r = 0.365, sig=0.001, N=74), and similarly between "Organizational Structure" and "Supported senior managers" (r=0.443, sig=0.000, N=74), and between "Organizational Structure" and "Information and communication technology"(r=0.469, sig=0.000, N=75). We observed a meaningful and positive correlation between "Organizational Structure" and "Knowledge sharing" (r=0.335, sig=0.004, N=74), and similarly between the "Reward system" and "Communication system"(r=0.621, sig=0.000, N=74). Also positive correlation between the "Reward system" and "Supported senior managers" (r=0.633, sig=0.000, N=74) as well as between "Reward system" and "Information and communication technology" (r=0.481, sig=0.000, N=75)(Table 3). The ANOVA analysis showed that there was a significant relationship between service record and remuneration (sig=0.02). However, this relationship was not linear. The reward for knowledge sharing was of the highest importance to faculty members with an employment of 0-5 years (with an average of 5.6 years) and was of the least value for faculty members who had 25-20 years of employment (with an average of 4.7 years). We found a significant relationship between employment environment and organizational structure (sig =0.047). There was a significant relationship between employment type and communication system (sig=0.05). Communication in knowledge sharing for faculty members with an average (94.6) was of the highest

importance and for the faculty members with an average (46.8) of the least importance. There was a significant relationship between academic rank and knowledge self-efficacy (sig=0.05). The academic degrees of professors and associate professors with mean of 14showed the highest self-efficacy and academic rank of the trainer with the average of 5.12showed the lowest self-efficacy. Moreover, there was a significant relationship between scientific score and reward (sig=0.000). There was a significant relationship between scientific rank and ICT (sig=0.006). Also there was no meaningful relationship between knowledge sharing with age and gender; the significance level of F statistics was more than 0.05.

DISCUSSION

Since the "enjoyment of helping others" factor has the highest mean among the factors and the highest correlation with knowledge sharing and the "reward" factor has the lowest mean among the factors, it can be concluded that at Alborz University of Medical Sciences, personal ethical values and beliefs of the faculty members have been factors leading to knowledge sharing. Therefore, amongst the members of the academic committee there was an innate tendency and spontaneity in the realization of ethics and ethical values. The results of this study are consistent with the results of Fan Lin (2007), which was conducted on 172 employees from a major Taiwanese organization, in which two personal factors, namely, the enjoyment of helping others and the self-efficacy of knowledge were the two most important individual-based factors contributing to knowledge sharing and also had the greatest impact on the process of knowledge sharing at an organizational level [23]. Considering the positive and significant relationship between "organizational structure" and "knowledge sharing" it can be said that the faculty members of the university believe that actors such as "active participation of faculty members in the decision-making process", "convenient flow of information across the university and among individuals regardless of their roles and ranks" and "performing tasks by forming teams from different educational groups " increase knowledge sharing. The findings of this study concur with findings of Kim and Lee [24] that

showed knowledge sharing occurs in organizations with a decentralized organizational structure.Also, Jones's research [25] showed that the creation of work environments that encourage interactions between employees in an open atmosphere increase knowledge sharing. Moreover, the research by Kubo, Saka and Pam (2001) has also shown that description of job fluidity and job rotation, encouraging communication between all educational groups (across the university) and formation of informal groups increased knowledge sharing [26-28]. The results of this study are consistent with the results of previous studies that show the more structured an organization is, and the more decisions are made at higher levels, hence the lower the knowledge sharing in that organization. Therefore, existence of flexible and non-hierarchical structures can provide an appropriate space for knowledge sharing [29-32]. There was no meaningful relationship between gender and knowledge sharing in any of the areas investigated in this study. This is more than likely because of willingness by individuals to share knowledge and learn from one another sine this is a human attribute; in general people are interested in sharing knowledge, enhance their level of knowledge and social status, aspirations which are not gender-related. The interaction amongst faculty members is partly due to personal growth and job promotion (primary determinants). Secondary determinants are maybe driven by societal needs for example in the forms of attachment to the group, acquisition of respect, base or authority, reputation and social credentials, the attracting attention and admiration of others, as well as acquiring scientific-financial and organizational power, gaining identity and trans-nationalism. The findings of this research are incompatible with the results of the study by Damghaniyan(2011) and Gurteen(2010) who found that knowledge management in men and women is significantly different [33, 34]. Morrison & Nolan, T.(2007) believes that women perform different tasks in their work, they see friendly and sincere relationships as pleasant and which also increase job satisfaction. On the other hand, friendly relations are a way of establishing and transferring knowledge, so women are more likely to partake in transfer knowledge. But in this study, both women and men were found equally important

in sharing knowledge "enjoying helping others" [35]. Aging and changes in work-related circumstances (e.g. rank) may cause changes in individuals' needs. It is also assumed that individual factors such as seniority as a result of aging maybe effective in knowledge sharing; there was no meaningful relationship between age (individual factor) and any of the effective factors of knowledge sharing at Alborz University. The results of this study were compared with that of Connelly & Kevin Kelloway (2003), which examined the impact of organizational factors such as management support, interactive culture and knowledge-sharing technologies and individual factors such as age, gender, and organizational ranks on employee knowledge sharing culture [36]. There were two organizational factors (support for management and interactive culture) and an individual factor (gender) which had a profound effect on knowledge sharing culture among employees. In the absence of an effective factor, the age of knowledge sharing is consistent with the results of the research by Kafashpour, Boozjani and Yazidi (2014), which showed a significant difference in knowledge sharing among different age groups [37]. Perhaps this difference is due to a different statistical population used which was based entirely on the nursing personnel who were non-faculty members.

CONCLUSION

To encourage faculty members and to reduce concern about loss of employee competitive advantage, the senior managers of the Alborz University of Medical Sciences need to create an open and reliable atmosphere and change the governing structure from hierarchical to decentralize. It is also recommended that senior managers of the university attract the active participation of faculty members in the decision-making process, encourage those faculty members who share their knowledge. Moreover, it is recommended that the senior management team involve faculty members in running of university affairs by forming teams of different educational groups and by holding interactive group discussions.

Ethics approval and consent to participate

This study was approved by the School of Medicine Ethics Committee, Alborz University of Medical Science.

Conflict of Interest

The authors declare that they have no conflict of interest.

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Table 1. Descriptive statistics of demographic data

-	Demographic variables	Frequency	Relative frequency (%)
Gender	Female	46	61.3
	Male	29	38.7
Type of employment	Permanent- on probation	3	4
	Permanent	12	16
	Contractual	40	53.3
	Obliged to serve as part of other contract	19	25.4
	Military conscript officer	1	1.3
Name of faculty	Paramedics and emergency medicine	10	13.3
	Dentistry	4	5.4
	Health	12	16
	Medicine	37	49.3
	Nursing and Midwifery	10	13.3
	Pharmacy	2	2.7

Table 2. Mean and standard deviation of factors affecting knowledge sharing among faculty members

Component	Variables	Number	Minimum	Maximum	SD	Mean
Individual	Enjoy helping others	75	9	15	1.58	3.42
	Self-efficacy of knowledge	73	9	16	1.64	3.32
Organizational	Organizational Structure	75	3	13	2.59	1.81
	Reward system	75	3	13	2.44	1.2
	Communication system	75	3	15	2.42	1.89
	Supported senior managers	74	4	20	3.29	2.11
	Information &communication technology(ICT)	75	3	15	2.32	1.85
	Knowledge Sharing	74	30	50	4.25	4.17

Table 3. Pearson correlations analysis indexes and statistics in relation to effective factors in knowledge sharing

-		Enjoy helping others	Self-efficacy of knowledge	Organizational Structure	Reward system	Communication system	Supported senior managers	Information and communication technology	Knowledge sharing
Enjoy helping others	Pearson Correlation	1	0.372**	0.220	-0.013	0.053	0.119	-0.125	0.365**
	Sig. (2-tailed)	-	0.001	0.057	0.915	0.653	0.314	0.284	0.001
	N	75	73	75	75	74	74	75	74
Self-efficacy of knowledge	Pearson Correlation	0.372**	1	0.206	0.220	0.117	0.235*	0.012	0.181
	Sig. (2-tailed)	0.001	-	0.081	0.061	0.329	0.047	0.919	0.127
	N	73	73	73	73	72	72	73	72
Organizational	Pearson Correlation	0.220	0.206	1	0.550**	0.676**	0.443**	0.469**	0.335**

Structure	Sig. (2-tailed)	0.057	0.081	-	0.000	0.000	0.000	0.000	0.004
	N	75	73	75	75	74	74	75	74
Reward system	Pearson Correlation	-0.013	0.220	0.550**	1	0.621**	0.633**	0.481**	0.083
	Sig. (2-tailed)	0.915	.061	0.000	-	.000	.000	.000	.481
	N	75	73	75	75	74	74	75	74
Communication system	Pearson Correlation	0.053	0.117	0.676**	0.621**	1	0.657**	0.605**	0.138
	Sig. (2-tailed)	0.653	0.329	0.000	0.000	-	0.000	0.000	0.245
	N	74	72	74	74	74	73	74	73
Supported senior managers	Pearson Correlation	0.119	0.235*	0.443**	0.633**	0.657**	1	0.522**	0.036
	Sig. (2-tailed)	0.314	0.047	0.000	0.000	0.000	-	0.000	0.760
	N	74	72	74	74	73	74	74	74
Information and communication technology	Pearson Correlation	-=0.125	0.012	0.469**	0.481**	0.605**	0.522**	1	0.109
	Sig. (2-tailed)	0.284	0.919	0.000	0.000	0.000	0.000	-	0.357
	N	75	73	75	75	74	74	75	74
Knowledge sharing	Pearson Correlation	0.365**	0.181	0.335**	0.083	0.138	0.036	0.109	1
	Sig. (2-tailed)	0.001	0.127	0.004	0.481	0.245	0.760	0.357	-
	N	74	72	74	74	73	74	74	74
. Correlation is significant at the 0.01 level (2-tailed).. Correlation is significant at the 0.05 level (2-tailed)									