

Nurse Managers' Work Life Quality and Their Participation in Knowledge Management: A Correlational Study

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Received: February 12, 2014; Revised: April 3, 2014; Accepted: April 9, 2014

Background: The association between quality of work life and participation in knowledge management is unknown.

Objectives: This study aimed to discover the association between quality of work life of nurse managers and their participation in implementing knowledge management.

Materials and Methods: This was a correlational study. All nurse managers (71 people) from 11 hospitals affiliated with the Social Security Organization in Tehran, Iran, were included. They were asked to rate their participation in knowledge management and their quality of work life. Data was gathered by a researcher-made questionnaire (May-June 2012). The questionnaire was validated by content and construct validity approaches. Cronbach's alpha was used to evaluate reliability. Finally, 50 questionnaires were analyzed. The answers were scored and analyzed using mean of scores, T-test, ANOVA (or nonparametric test, if appropriate), Pearson's correlation coefficient and linear regression.

Results: Nurse managers' performance to implement knowledge management strategies was moderate. A significant correlation was found between quality of work life of nurse managers and their participation in implementing knowledge management strategies ($r = 0.82$; $P < 0.001$). The strongest correlations were found between implementation of knowledge management and participation of nurse managers in decision making ($r = 0.82$; $P < 0.001$).

Conclusions: Improvement of nurse managers' work life quality, especially in decision-making, may increase their participation in implementing knowledge management.

Keywords: Job Satisfaction; Knowledge Management; Nurse Administrators

1. Background

Knowledge management (KM) is one of the main requirements of today's organizations. However, knowledge management is a challenging process, because managers should extract knowledge from staff mind and organizational processes and share it among other staff (1). Knowledge management is a strategy for acquiring right knowledge from right staff at right time as well as sharing and using such knowledge toward improving performance of the organization (2). Alavi and Leidner (3) emphasized on creating and acquiring internal and external knowledge as well as storing and sharing the knowledge. By creating knowledge, the ability of organization to develop new knowledge, ideas and solutions is under consideration. By developing and renewing previous and current knowledge using a variety of methods, the organization may create knowledge. By storing the knowledge, we refer to recording and storing created/acquired knowledge in databases. Moreover, all staff need to have access to the knowledge required to accomplish their tasks (knowledge dissemination/sharing). Finally,

knowledge usage implies that the organization needs to use created knowledge to represent and improve its quality of products, services and processes (4, 5). A common belief is that organizations need to foster an environment for managing, sharing and transferring knowledge among staff; however, many studies showed that several organizations' attempts to implement knowledge management have failed (6). In general, Iranian studies revealed poor status of knowledge management implementation in hospitals and health centers (7). A great portion of healthcare services is performed by nurses (8) and they possess considerable knowledge regarding healthcare services. Therefore, they can be of great help to create knowledge for provision of different services. The nursing processes cover variety of activities, all of which are dependent on knowledge. In this regard, Hsia et al. (5) provided a framework for KM in nursing practices. From their points of view, nursing practices including assessment, making a nursing diagnosis, developing and implementing a care plan as well as evaluation are

dependent on creation, codification, transfer and application of knowledge (5). Anderson and Willson (9) argued that KM is valuable to organize nursing knowledge, so that it improves quality of healthcare services. Therefore, implementation of KM strategies is critical in the field of nursing. Many studies illustrated that successful implementation of KM depends largely on performance of managers (10-12). In this regard, studies argued that nurse managers should play a key role in development of a supportive culture for knowledge management in their wards (5, 13). Obviously, effective human resource management is an influential factor to implement KM in hospitals. Studies showed that people's role to facilitate and drive the KM process and that of team leaders are crucial for successful KM (14). One of the most important aspects of human resource management is staff's quality of work life (QWL) and their satisfaction with the job (15, 16). Previous researches showed that putting more emphasis on staff's QWL and their satisfaction results in more participation in different organizational affairs and better performance (17). Quality of work life refers to a set of work conditions in an organization such as salary, allowance, leisure facilities, health services, safety, participation in decision-making, managerial factors, job development and enrichment (8, 18). Several studies showed that work life quality of nurses in developing and developed countries is not much satisfactory or at a moderate level (8, 17-21). Dissatisfaction with job and poor perception of QWL may be effective on variety of nurses and nurse managers' activities (22) including knowledge management. To our knowledge, many of studies regarding QWL were performed on nurses rather than nurse managers. Furthermore, there is little literature about implementation of KM by nurse managers. Additionally, there is a paucity of studies on the association between QWL of nurse managers and their participation in implementation of KM strategies.

2. Objectives

The present study was conducted to assess the association between QWL of nurse managers and their participation in implementing knowledge management.

3. Materials and Methods

3.1. Settings and Participants

In this cross sectional study, all nurse managers (matrons and supervisors) in 11 hospitals affiliated with the Social Security Organization in Tehran, Iran (71 managers) were participated. Given the small number of population, no sampling was required.

3.2. The Instrument

We developed a three-part questionnaire. Part A was about demographic questions. Part B (knowledge management questionnaire) with 20 questions was devel-

oped based on a literature review (seven questions on knowledge creation, seven questions on knowledge sharing, two questions on knowledge storage and four questions on knowledge usage). We adopted related questions from previous developed Iranian or International questionnaires (7, 23-27). The nursing managers were asked to evaluate their participation in implementing each of the above dimensions at a five-point scale (very low to very high). Part C (quality of work life questionnaire) with 31 questions was developed based on a literature review (8, 17-20, 28, 29). In this questionnaire, financial facilities were determined with two questions, educational facilities with four, managerial factors with five, participation in decision making with four, job design with six, communication and teamwork with five, work environment with three and job satisfaction with two questions (general satisfaction and tendency to leave the job). With these questions, we asked managers to evaluate their perception of their QWL. The questions were based on a five-point Likert scale (very low to very high). Different approaches were used to assess the validity and reliability of questionnaire. The questionnaire was reviewed by three faculty members of a nursing department (with job experience as a nurse manager). They were asked to rate the importance and clarity of each question from 1 to 4 (1 = low importance/clarity to 4 = high importance/clarity). Then the mean score of importance and clarity was obtained. The mean score of all questions was more than three; therefore, no question was removed. The score of clarity for some questions was less than two. For these questions, we implemented some minor changes in wordings of the question for more clarity. Additionally, in a pilot study, we asked 10 nurse managers (who were from other hospitals) to complete the questionnaire. Factor analysis was used to validate the construct. All questions designed for each subscale were confirmed. In addition, the floor and ceiling effects were checked by calculating the percentage of managers with the lowest and highest possible scores, respectively. The effects should be less than 20% (30, 31). To check reliability of the questionnaire, Cronbach's alpha was used. The coefficients for knowledge management and quality of work life questions were 0.94 and 0.96, respectively.

3.3. Data gathering and Analysis

The questionnaires were handed over to the participants from May to June 2012 and returned after three reminders. Finally, 55 managers from 11 hospitals participated in the study; however five of the questionnaires were excluded as many questions were left blank (response rate = 70.4%). For data analysis, the responses were first scored (very low = 1 to very high = 5). Negative questions were scored inversely. The data was analyzed using mean of scores, t-test, ANOVA test and related non-parametric methods (if the distribution was not normal based on the Kolmogorov-Smirnov test), Pearson's correlation coef-

ficient (based on the Kolmogorov-Smirnov test, data distribution was normal for the total score of KM and QWL), as well as linear regression (Enter method) using the SPSS software (version 16, SPSS Inc. USA). Scores below 25% of the total score were considered as low (weak), 25-50% as moderate, 51-75% as relatively good and more than 75% of the total score as good.

3.4. Ethical Consideration

To conduct the research, the study protocol was provided to hospital managers for authorization. Our proposal was reviewed by the appropriate hospital committee. All hospitals authorized us to conduct the research. Ethical consideration in all stages was observed. Questionnaires were anonymous and the nurse managers were informed about the research and its purposes. The participants were provided with an information sheet regarding their rights such as confidentiality and anonymity. Their consent was also obtained prior to participation in the study.

4. Results

Six of hospitals were specialized (54.5%); 4 of them (36.4%) had less than 100 beds, 4 (36.4%) had 100-200 beds and the others had more than 200 beds (27.3%). Women constituted 62% of the participants and 58% were older than 40. The mean age, work experience and management experience of participants were 41.7 ± 4.1 , 17.6 ± 3.6 and 8.5 ± 4.3 , respectively. Moreover, 92% of participants had a nursing degree and 85% were supervisors and 14% matron (Table 1). The floor and ceiling effects were adequate (less than 20% for all aspects (Tables 2 and 3). As listed in Table 2, nurse managers stated that financial facilities were at moderate level (5 ± 1.26) and other seven axes of QWL were at relatively good level (55-68.8% of possible score). The total score of QWL was 93.4 ± 19.4 (of 155; 60.2%), which implies a relatively good QWL. According to Table 3, four aspects of knowledge management were pointed 53.1 ± 13.7 of 100 (53%). This shows that implementation of knowledge management strategies was at a relatively good level. The results showed that neither of the four aspects of KM nor the total score of KM had a significant association with gender, age group, work experience, management experience and the size (the number of beds) and type of hospitals. Implementation of KM strategies by matrons (58.3 ± 4.2 of 100) was better than supervisors (52.1 ± 14.8) ($P < 0.001$). Matrons also were better in implementing knowledge creation ($P < 0.05$). Moreover, implementation of different KM aspects by managers with a nursing degree was better than those without nursing education (54.1 ± 13.9 vs. 42.2 ± 2.5 ; $P < 0.001$) (Table 4). We found a significant correlation between QWL of nurse managers and implementing KM strategies ($r = 0.82$; $P < 0.001$). Furthermore, a positive significant correlation was found between all aspects of QWL and four aspects of KM (except for knowledge stor-

age and work environment). The strongest correlations were found between the total score of KM and participation of nurse managers in decision making ($r = 0.82$; $P < 0.001$), managerial factors of the job ($r = 0.72$; $P < 0.001$) and job design ($r = 0.66$; $P < 0.001$) (not presented in After running the linear regression model, only "participation of nurse managers in decision making" (of the eight dimension of QWL) remained in the model ($R = 0.879$, R square = 0.772) (Table 5).

Table 1. Demographic Characteristics of Nurse Managers in the Study^a

Variables	Frequency
Gender	
Male	19 (38)
Female	31 (62)
Education	
Bachelor	42 (84)
Master	7 (14)
No response	1 (2)
Age, y	
< 40	19 (38)
≥ 40	29 (58)
No response	2 (4)
Fields of study	
Nursing	46 (92)
Midwifery	2 (4)
MBA	1 (2)
Health Management	1 (2)
Positions	
Supervisor	41 (85)
Matron	7 (14)
No response	2 (4)
Work experience, y	
< 20	35 (70)
≥ 20	15 (30)
Management experience, y	
< 10	23 (46)
≥ 10	22 (44)
No response	5 (10)
Number of managers by hospital beds	
<100	17 (34)
100-200	10 (20)
>200	23 (46)
Number of managers by hospital specialization	
General	17 (34)
Specialized	33 (66)

^a Data are presented as No. (%).

Table 2. Attitudes of Nurse Managers About Their Quality of Work Life ^a

Dimensions of QWL	Possible Score	Mean ± SD	Low-High Scores	Range	Floor Effect, %	Ceiling Effect, %
Financial facilities	2-10	5.0 ± 1.26	2-8	6	4	0
Educational facilities	4-20	11.0 ± 2.1	6-16	10	0	0
Managerial factors	5-25	14.5 ± 4.5	5-23	18	2	0
Participation in decision making	4-20	11.6 ± 3.9	4-19	15	2	0
Job design	6-30	18.5 ± 4.9	8-29	21	0	0
Communication and team working	5-25	17.2 ± 3.2	10-24	14	0	0
Work environment	3-15	10.2 ± 1.5	7-13	6	0	0
Job satisfaction	2-10	6.8 ± 1.5	3-10	7	0	2
Total score	31-155	93.4 ± 19.4	41-131	90	0	0

^a Abbreviation: QWL, quality of work life.

Table 3. Participation of Nurse Managers in Knowledge Management ^a

Dimensions of KM	Possible Score	Mean ± SD	Low-High Score	Range	Floor Effect, %	Ceiling Effect, %
Knowledge creation	7-35	19.3 ± 5.2	9-28	19	0	0
Knowledge transfer	7-35	19.0 ± 4.9	9-28	19	0	0
Knowledge storage	2-10	5.0 ± 1.4	2-7	5	12	0
Knowledge usage	4-20	10.4 ± 3.5	4-18	14	0	0
Total score	20-100	53.1 ± 13.7	24-79	55	0	0

^a Abbreviation: KM, knowledge management.

Table 4. Association Between Personal and Hospital Characteristics With Implementation of Knowledge Management ^a

Variables	Knowledge Creation	Knowledge Transfer	Knowledge Storage	Knowledge Use	Total Score
Gender	0.155 (0.87)	-0.09 (0.92)	223.5 (0.45)	0.243 (0.809)	0.231 (0.82)
Education	0.121 (0.904)	-0.054 (0.96)	84.5 (0.12)	-0.28 (0.779)	-0.035 (0.97)
Age	-1.04 (0.303)	-0.67 (0.505)	178.5 (0.32)	-0.31 (0.755)	-0.927 (0.36)
Field of study	1.33 (0.19)	1.85 (0.07)	75.0 (0.72)	0.707 (0.48)	4.79 (0.001) ^b
Position	-2.66 (0.021) ^b	-1.44 (0.17)	94.5 (0.49)	-0.29 (0.77)	-2.01 (0.024) ^b
Work experience	-0.53 (0.599)	-0.65 (0.52)	220.0 (0.76)	0.24 (0.81)	-0.52 (0.61)
Management experience	-0.042 (0.97)	-0.47 (0.64)	216.0 (0.92)	-0.608 (0.55)	-0.214 (0.83)
Number of hospital beds	0.203 (0.82)	0.54 (0.58)	0.234 (0.89)	0.109 (0.89)	0.109 (0.85)
Hospital specialization	0.25 (0.805)	0.57 (0.57)	223.5 (0.69)	0.44 (0.48)	0.326 (0.75)

^a Numbers out of parenthesis indicate test statistic (t in t-test; F in ANOVA; U in Mann-Whitney or Chi-Square in Kruskal-Wallis) and numbers in the parenthesis indicate P Value.

^b Significant association

Table 5. Linear Regression Regarding Knowledge Management and Quality of Work Life

Dimensions of QWL	B	Std. Error	Beta	t	P Value
Constant	-6.86	9.96	-	-0.68	0.495
Financial facilities	1.71	1.03	0.155	1.66	0.104
Educational facilities	0.58	0.64	0.090	0.901	0.373
Managerial factors	0.22	0.49	0.072	0.446	0.658
Participation in decision making	2.58	0.62	0.723	4.179	<0.001
Job design	-0.77	0.47	-0.263	-1.635	0.111
Communication and team working	0.83	0.50	0.196	1.634	0.111

Work environment	1.15	0.82	0.125	1.419	0.164
Job satisfaction	-0.04	0.87	-0.005	-0.051	0.960

5. Discussion

Although previous researches showed that implementing knowledge management has been improved in several organizations (32), our study showed that nurse managers' participation in implementing KM strategies was not very well in Iran. Another Iranian study showed that hospitals do not acceptably manage knowledge and different aspects of KM need more attention. Tabibi et al. (33) found that implementation of KM was at a low level. Almost similar moderate and low level results were reported by other Iranian studies on implementation of knowledge management (7, 34). These findings revealed that knowledge management is still an immature field of activity in Iranian hospitals and nursing field, in particular. As our results showed, knowledge creation was not at a good level. In this regard, two strategies including "accepting new ideas" and "creating new knowledge through holding workshops and seminars" were better implemented than other strategies (only 22% of responses were low and very low in five-point Likert scale). These findings are similar to other studies (33, 34). Furthermore, as implied by the findings, implementation of strategies for storing and using knowledge was not good, which is consistent with other studies (33). In this regard, "prevention of losing intellectual and knowledge capital" (48% high and very high) and "making decision using the previous knowledge" (28% high and very high) were at better conditions. On the other hand, our results showed a relatively good QWL of nurse managers, so that only 18% of participants evaluated their QWL at moderate and low levels. Moreover, QWL was at a good level except for provision of financial facilities. The results revealed that QWL (especially for participation of nurse managers in decision-making, recognition of managerial factors and improvement of job design) had a positive significant association with nurse managers' participation in KM implementation. Another study showed similar results (27). Moffett's study suggested that welfare of staff is an important factor for KM and those organizations that take the responsibility for staff welfare can successfully implement KM (27). These results indicated that better implementation of KM may be achieved by improving QWL of nurse managers, especially for these three aspects of QWL. Concerning participation in decision-making, only 38% of nurse managers stated that they have been encouraged to participate in decision making or developing long-term (24%) and short-term (32%) plans. Regarding the managerial factors, 26% of the nurse managers stated that their work has been evaluated fairly. Many participants argued that their knowledge and skills are not appreciated (66%), they did not have enough autonomy to perform their job (72%) and their good performance

was not recognized and rewarded (72%). Concerning job design, many of managers believed that their job was not interesting and they did not have enough authorities (74%) and they did not have enough chance to show their management and leadership skills (74%). Issues concerning unfair performance assessment and no room for participation in decision-making were highlighted in other studies (8, 18). These results showed that higher QWL is achievable though improving work condition of nurse managers (especially regarding decision making, managerial factors and better job design), which also may improve participation of nurse managers in implementation of knowledge management strategies. Some limitations were present in interpretation of our results. This study was conducted in governmental hospitals affiliated to the Social Security Organization. Additionally, although many of nurse managers in the Social Security Organization participated in the study and response rate was relatively good, the results cannot be generalized. Other hospitals such as teaching or private hospitals should be considered in future studies. Moreover, lack of any significant association between some of the factors of QWL and KM under regression analysis might be due to small sample size. Therefore, studies with larger sample size in other organizations are recommended. Additionally, our study was cross sectional; therefore, its design limits our ability to predict an exact causal association between KM and QWL. In addition, there are few studies about the association between KM and QWL, especially in the nursing field and we could not easily compare our results with others to reach a consensus. Therefore, more studies are needed to support these results. In conclusion, the results showed that KM strategies are not emphasized enough by nurse managers of these hospitals. Moreover, nurse managers' QWL (especially for participation of nurse managers in decision makings) may affect nurse managers' participation in implementing KM strategies in hospitals. Nurse managers should pay more attention to implementation of KM in nursing processes. Additionally, top managers of hospitals should increase nurse managers' QWL, especially, for decision-making, managerial factors of job and job design.

Acknowledgements

This research was self-funded. We would like to thank all the managers who participated in the study.

Authors' Contributions

All the authors participated in designing the research. Zahra Hashemi Dehaghi and Fariba Dehnavi were responsible for data collection. Abbas Sheikhtaheri was responsible for analysis and prepared the draft of manuscript.

All authors participated in reading and revising the draft and preparing the final version for submission.

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