



The relationship between quality of work life and human resource productivity in knowledge workers

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Received 17 Jan 2014; Accepted 22 Mar 2014

ABSTRACT

Introduction: Health care systems depend critically on the size, skill, and commitment of the health workforce. Therefore, researchers have a close observation on the subjects which leads to an increase in the productivity of human resources. This study aims at determining the relationship between the quality of work life and the productivity of knowledge workers of the central field of Shiraz University of Medical Sciences, in order to determine the factors effective in the quality of their working life.

Method: This cross-sectional study was conducted on 300 individuals selected by stratified random sampling method. On 761 knowledge workers of the central field of Shiraz University of Medical Sciences by using Timossi questionnaire of Quality of Work Life and Knowledge Worker Productivity Assessment questionnaire of Antikainen, during May and June 2011.

The collected data were recorded by SPSS version 15 software and then it underwent statistical analysis using Pearson correlation. The P value level for statistical significance was set at 0.05.

Results: In general, 50% of the knowledge workers were dissatisfied about their quality of work life, and the other 50% had little satisfaction. 18% of the staff were in an unfavorable condition and 82% had a poor productivity. Also, the quality of work life had a positively significant relationship with the productivity of human resources ($r=0.568$; $P>0.001$).

Conclusion: Most of the knowledge workers in the central field of Shiraz University of Medical Sciences had low productivity and quality of work life. Considering the relationship between the two variables, taking measures to improve the quality of work life can lead to more creative and profound planning in presenting services and, as a result, improving the productivity of the knowledge workers.

Keywords: Quality of work life, Human resource productivity, Knowledge workers

► Please cite this paper as:

Hatam N, Zarifi M, Lotfi M, Kavosi Z, Tavakoli A. The relationship between quality of work life and human resource productivity in knowledge workers. *J Health Man & Info*. 2014;1(3):59-65.

Introduction

Health care systems depend critically on the size, skills, and commitment of the health workforce (1). Although human resources can face organizations with lots of expenditure, they have a great influence on the organizations' performance (2).

The demand for health care services is affected by a variety of factors such as the aging population and technological improvements. The progress of health care services can be measured in different ways; for instance, investing in input factors, such as capital and labor, or

increasing the productivity regarding one or more inputs, such as the labor productivity. Therefore, the indicators of health care services are considerably important (3).

Pfeffer (1994, 1998) suggests that success, in today's dynamic and complex markets, depends more on innovation, speed, and adaptability, which is certainly related to human resources, rather than economy, technology, patents, and access to capital (4).

Of course, the structure of the economy continues to change; once companies were dependent on the productivity of a manual workforce while, nowadays, they increasingly depend on the productivity of the knowledge

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workers. Today, knowledge workers account for more than two-thirds of the workforce of the world and, thus, should be the focus of the strategic plans to improve the productivity (5).

The term knowledge worker, which is sometimes known as white-collar worker is relatively a new term. Drucker first used this term for the employees who worked with intangible resources. Later on, the researchers defined the knowledge employees as those who used knowledge to produce products or services (5).

Knowledge workers are inherently cognitive rather than physical. Some examples of knowledge workers' outputs include analysis, evaluations, instructions, programs, plans, assurances, reasoning or arguments, decisions, and action plans (6). A lot of such duties can be found on the medical staff.

Some researchers consider the promotion of the quality of work life (QWL) as a method for improving the productivity of human resources. Enhancing the quality of work life increases the quality of life as a whole. The quality of work life includes the kind of planning, strategies and environment which all affect the employees' satisfaction (7).

According to Fernandes (1996), the conception of quality of work life includes not only protecting the workers and estimating their basic needs, but also considering their social responsibilities as well as spiritual aspects (8).

High quality of work life also defines the characteristics of the work and the working environment which affects the employees' work lives. QWL has been well recognized as a multi-dimensional construct (9). Walton proposed the conceptual categories of QWL in 1974. He enclosed eight factors in which the employees' perceptions towards their work organizations could determine their QWL: adequate and fair compensation, safe and healthy environment, development of human capacities, growth and security, social integration, constitutionalism, the total life space, and social relevance. Despite the growing complexity of working life in the course of time, Walton's (1975) conceptual categories have still remained a useful analytical tool (10).

A high quality of work life is vital for organizations to absorb the best staff and help keep them (10). The philosophy of QWL aims to empower the leaders and the employees to improve their subjective QWL-dimensions, such as work and job satisfaction, and to improve health as well as performance (11).

Improving the quality of work life promotes the sufficient use of the existing workforce skills and increases the employees' involvement. Most importantly, it encourages the enhancement of the internal skills in order to create a more professional, motivated, and efficient working environment (12).

Quality of work life programs can result in life satisfaction, happiness, and subjective well-being. The core role of the QWL movement is to fulfill the employees' needs through the organization development. Therefore, QWL is associated with the employees' productivity, job satisfaction, organizational commitment, and low turnover rates (13, 14). Hence, companies need to find out

the factors which influence the employees' satisfaction and to ensure about their quality of work life (15).

Productivity is also one of the measures for monitoring the organizations' outcomes as well as personnel efficiency. Productivity means goods and services produced in a specified period of time in relation to the resources utilized. Cohen et al. (1995) believe that productivity is more than a narrow economic measure, since it also measures how well a group performs its required responsibilities to satisfy its customers. So, productivity suggests effectiveness and efficiency of the employees (16).

The traditional productivity measures have certain requirements. The compared outputs have to be similar and comparable in characteristics as well as quality. The data used in the measurement has to be quantitative. If the products are different in characteristics or quality, the comparison becomes more complex and sometimes even impossible. These problems are highlighted in evaluations of services and become more and more complicated when considering the knowledge workers whose outputs can be even more difficult regarding their abstract and incomparable nature (17).

Currently, there are no universally accepted methods to measure the knowledge workers' productivity, or even the generally accepted categories (5). An alternative way to approach the knowledge worker' productivity assessment is to ask for the subjective opinion of the employees. As Pepitone (2002) states, social sciences can provide insights to productivity measurement, at least for a better understanding of the knowledge workers. For this issue, subjective productivity measurement (SPM) is a method which is based on collecting the subjective data from the target group and performing the productivity analysis on it (17).

Regarding the above-mentioned points, the present study aims to evaluate the productivity as well as the working life quality of the central field in Shiraz University of Medical Sciences, and to study the relationship between these variables.

Methods

A cross sectional design was used in this study. The population under the study consisted of all the knowledge workers of the central field of Shiraz University of Medical Sciences, which includes 60% (761) of the administrative as well as the support staff of the central field in this study 300 individuals were selected by stratified random sampling method.

The central field of Shiraz University of Medical Sciences is responsible for supervising, organizing and supporting health centers, hospitals and medical schools which are located in Fars province of Iran. Moreover, the research context included different sections of the central field of Shiraz University of Medical Sciences: the deputy of developing management and resources, deputy of health, deputy of treatment, deputy of food and medicine, deputy of education, deputy of research, deputy of culture, deputy of student affairs, and the chief field.

Two questionnaires were used in order to gather the data. The first questionnaire, which was a 35-item one, was the

quality of work life evaluation which was designed by Timossi et al. in 2008, based on Walton's factors. Eight aspects of this questionnaire included adequate and fair compensation (question 1-4), safe and healthy environment (question 5-10), development of human capabilities (question 11-15), growth and security (question 16-19), social integration (question 20-23), constitutionalism (question 24-27), the total life space (question 28-30), and social relevance (question 31-35) (18).

A Likert scale was used and polarized in five points (1=very dissatisfied, 2= dissatisfied, 3= neither satisfied nor dissatisfied, 4=satisfied and 5=quite satisfied). In the evaluation of the scores obtained, the criteria with an average over 3, which corresponds to 50% on the scale of 1 to 5 points, were considered as positive or the factors of satisfaction in the working environment. On the other hand, the criteria indicating an average lower than 3 were classified as negative/unsatisfactory on the QWL (18).

The second questionnaire, which was used in order to evaluate the knowledge workers' productivity, was designed by Antikainen et al. in 2005. It consisted of 60 questions and 4 sections as follows:

Organizational inputs (questions 1-20) include Human capital, Innovative potential, Organizational standards, practices and routines, Information systems, Quality of information, Networks, Time allocation, Working environment, and Aim.

Personal inputs (questions 21-28) include Motivation, Job satisfaction, Personal network, Personal life affairs , and Physical fit.

Process (questions 29-50) include Organization of work, Division of tasks, Organization of decision making, Clarity of job descriptions, Teamwork, Knowledge sharing, Delays and waiting, and the Ability to affect one's own work.

Outputs (questions 51-59) include Innovations, Quality, Innovation, Time-efficiency and Fulfillment of the customers' expectations.

In question 60, also, the productivity was questioned from one's own point of view. The questions were negative, and respondents were required to answer the questions by selecting from the following alternatives: 1) Very often or always, 2) Often, 3) Sometimes, 4) Seldom, 5) Seldom or never.

The results are interpreted as follows: Factors should be paid attention to if the mean of the answer is lower than 3. However, the statements about the output factors are defined as alarming if their mean is lower than 3.5. The limit setting is based on the assumption that if the problems in productivity are reflected in the output, they are more essential to the organization compared to other problems (19).

Furthermore, in order to gather the demographic information, 8 questions regarding age, sex, marital status, working experience, level of education, organizational position, place of work, and employment status were posed at the beginning of the questionnaire.

It should be noted that both questionnaires were used for the first time in Iran. The strong point of knowledge workers' productivity questionnaire is that it is particularly designed for knowledge workers and there is no similar

questionnaire in local studies. Also, the quality of work life questionnaire contains clear terms comprehensible for people with low level of education.

By using a standard "forward-backward" translation, cognitive debriefing, and cultural adaptation procedure, the English version of the questionnaires was translated into Persian which is the official language of Iran. In order to determine the validity of the questionnaires, health care services experts were asked for assistance and both questionnaires were confirmed with respect to their content validity. Besides, in order to determine the reliability of the questionnaires, test-retest and alpha Cronbach's methods were applied. The correlation coefficients of 0.930 and 0.809 were obtained for the questionnaire of the quality of work life and the questionnaire of knowledge workers productivity assessment, respectively. Also, alpha Cronbach's coefficient was calculated as 0.922 and 0.905 for the mentioned questionnaires, which confirms their reliability.

In this questionnaire-based study, the sample size was 5 times more than the number of the questions in the knowledge worker productivity assessment (KWPA) questionnaire. That is due to the fact that the number of questions in this questionnaire was more than those of the Quality of work life (QWL) questionnaire. Therefore, the minimum number of the samples is calculated as 60×5 , i.e. 300 individuals. In addition, stratified sampling was performed so that the sample size in each stratum was identified, based on the total population in each stratum.

The inclusion criterion of the study was being a specialist, not particularly having B.A. or B.S. degrees. In this way, different individuals with a diploma, A.D., B.A. or B.S., M.A. or M.S., and Ph.D. could work in organizational position of a specialist, head of section or manager. Therefore, the individuals who, in spite of having university degrees, did simple office work were excluded from the study.

Necessary consent was obtained from research centers in order to observe research ethics. Moreover, the participants of the study consciously participated in the study. The confidentiality of the information was also emphasized.

Afterwards, the gathered data were analyzed in SPSS statistical software (version 15) using descriptive statistics, such as mean and SD. Finally, Pearson correlation coefficient was utilized in order to determine the relationship between the knowledge workers' productivity and quality of work life, and their relationship with demographic variables.

Results

Based on the demographic data of the study sample, almost 78% of the study subjects were less than 40 years old. Besides, 87% of them had less than 20 years of working experience, which shows that most of the organization's employees were young. Moreover, the male to female ratio was almost equal, and the ratio of the married staff to the single ones was obtained as 3 to 1. Furthermore, more than 84% of the staff had at least B.A. or B.S. degrees, and 78% of them were working as a specialist, which confirms the fact that their jobs were knowledge-based. Also, their employment status was official, contract, semi-official, and

project staff.

Based on the results of the quality of work life questionnaires, knowledge workers in the central field of Shiraz University of Medical Sciences are dissatisfied with the general quality of work life, as well as aspects of adequate and fair compensation, growth and security, constitutionalism, and the total life space. Moreover, they have little satisfaction in aspects of safe and healthy environment, development of human capabilities, social integration and social relevance. Furthermore, based on the results of the knowledge worker productivity assessment questionnaire, the productivity and all its aspects were not highly desirable and were, in fact, too far from the ideal status (score 5 that is the best status). These findings are shown in Tables 1 and 2.

Table 1. Mean and Std. Deviation of the quality of work life

Criteria of the quality of work life	N	Mean	Std. Deviation
Adequate and fair compensation	295	2.47	0.79
Safe and healthy environment	287	3.09	0.67
Development of human capacities	279	3.21	0.68
Growth and security	260	2.52	0.71
Social integration	284	3.05	0.71
Constitutionalism	295	2.91	0.79
The total life space	294	2.81	0.93
Social relevance	291	3.37	0.70
Total (Quality of work life)	218	2.93	0.55

Table 2. Mean and Std. Deviation of the productivity of the knowledge workers

Criteria of the Productivity	N	Mean	Std. Deviation
Organizational inputs	259	3.17	0.53
Personal inputs	282	3.58	0.66
Process	272	3.46	0.55
Outputs	270	3.63	0.56
Total (Productivity)	211	3.42	0.47

It has also been observed that the quality of work life and all its aspects have a positive significant correlation with the productivity of the knowledge workers ($P \leq 0.001$). And as to the correlation of the quality of work life with the general productivity, the correlation coefficient includes

(consequently from more to less) the development of human capabilities ($r=0.649$), constitutionalism ($r=0.544$), social integration ($r=0.528$), social relevance ($r=0.466$), safe and healthy environment ($r=0.407$), total life space ($r=0.367$), growth and security ($r=0.351$), and adequate and fair compensation ($r=0.245$). This means that the more satisfied the workers are from the quality of work life, the more desirable productivity they have. Moreover, the general quality of work life has a highly positive relationship with the general productivity ($r=0.568$; $P < 0.001$). It implies that the higher the quality of work life, the more the productivity. The results are shown in Table 3.

At the end, to investigate the relationship of quality of work life and knowledge workers' productivity with demographic variables, quality of work life and knowledge workers' productivity mean scores were compared in different groups. Based on the overall score on the quality of work life (without a separate calculation for each aspect), quality of work life had a significant relationship with gender, marital status, organizational position and place of work; men and single ones had higher satisfaction than women and married individuals. Also, those who had higher organizational positions had more satisfaction from their quality of work life, and personnel of chief field had the highest satisfaction with QWL. But the four other demographic characteristics, i.e. age, working experience, level of education and employment status didn't show a significant difference. In contrast, the total score of knowledge workers' productivity had no significant relationship with any of the demographic variables.

Discussion

The findings of the present study are completely in line with the results of the studies by Kongkiti Phusavat et al. (2009), Loossee Beh et al. (2007), and Kongkiti Phusavat (2002). They have also found that improvement of the quality of work life can increase the productivity of the work force (20-22). Furthermore, it is in line with the study carried out by Kalayanee Koonmee et al. (2010), indicating that the quality of work life has positive effects on three employment job-related outcomes of the workers (work satisfaction, organizational commitment, and spirit of teamwork) (14). It also agrees with the study by Amina Hameed et al. (2009), showing that the office design is vital in increasing the workers' productivity (23). The results of the present study are in line with the findings of the study by Mark Eslasky et al. (2000), which have revealed that the manager who experiences better health and welfare represents a better managerial performance (24). However, Islam and Siengthai (2009) reported that although the quality of work life is positively related to the organizational performance, it is not as significant as supposed to be (15).

Furthermore, comparison with the results of the domestic studies revealed that the results of the present study are completely in line with the findings of Yashar Salamzade et al. (2009), showing that all dimensions of the quality of work life and productivity are related to each other, and quality of work life and productivity have a positive and significant correlation; also their correlation coefficient is close to our results ($r=0.644$; $P < 0.001$) (25).

Table 3. Correlation between the quality of work life and the productivity of knowledge workers

		Organizational inputs	Personal inputs	Process	Outputs	Total (Productivity)
Adequate and fair compensation	Pearson Correlation	0.266(**)	0.339(**)	0.207(**)	0.184(**)	0.245(**)
	P-value	<0.000	<0.000	0.001	0.003	<0.000
Safe and healthy environment	Pearson Correlation	0.495(**)	0.378(**)	0.388(**)	0.277(**)	0.407(**)
	P-value	<0.000	<0.000	<0.000	<0.000	<0.000
Development of human capacities	Pearson Correlation	0.651(**)	0.544(**)	0.561(**)	0.475(**)	0.649(**)
	P-value	<0.000	<0.000	<0.000	<0.000	<0.000
Growth and security	Pearson Correlation	0.464(**)	0.330(**)	0.320(**)	0.266(**)	0.351(**)
	P-value	<0.000	<0.000	<0.000	<0.000	<0.000
Social integration	Pearson Correlation	0.569(**)	0.428(**)	0.472(**)	0.383(**)	0.528(**)
	P-value	<0.000	<0.000	<0.000	<0.000	<0.000
Constitutionalism	Pearson Correlation	0.588(**)	0.517(**)	0.470(**)	0.432(**)	0.544(**)
	P-value	<0.000	<0.000	<0.000	<0.000	<0.000
The total life space	Pearson Correlation	0.459(**)	0.345(**)	0.327(**)	0.281(**)	0.367(**)
	P-value	<0.000	<0.000	<0.000	<0.000	<0.000
Social relevance	Pearson Correlation	0.541(**)	0.439(**)	0.416(**)	0.478(**)	0.466(**)
	P-value	<0.000	<0.000	<0.000	<0.000	<0.000
Total (Quality of work life)	Pearson Correlation	0.640(**)	0.536(**)	0.516(**)	0.486(**)	0.568(**)
	P-value	<0.000	<0.000	<0.000	<0.000	<0.000

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

This is also in line with the studies by Shahbazi et al. (1388), Sabokroo et al. (1388), and Sharifzadeh et al. (1387), in who have found that all dimensions of the quality of work life have a significant and positive relationship with performance or productivity, and that their correlation coefficients are similar to ours (0/763 and 0/670) (26-28). Tabarsa et al. (1388), Tabibi et al. (1387), Fattah et al. (1387), and Dehghan Nayyeri et al. (1387) have also observed that there is a significant relationship between the quality of work life and the performance or productivity of the workers, and the correlation coefficients of the second and third ones are close to the results of this study and correlation coefficient of the last one is lower than our results (0.630, 0.680, 0.357) (29-32). Therefore, the results of the present study are in line with most local studies. Moreover, the findings of this study are in line with the results of other studies in some dimensions of the quality of work life; for instance, Rahimian et al. (1388) have reported that the four dimensions of adequate and fair compensation, safe and healthy environment, growth and security, and social relevance have a significant relationship with the organizational performance (33). Monajjem zadeh et al. (1388) also showed a positive

significant relationship between performance and fair payment, utilities, mutual trust of the workers, mutual trust of the workers and the employers, and the constitutionalism dimensions (34). In another study, Honary et al. (1382) have also found that worker utilities improve the environmental factors, and attention to the nature of work is related to the productivity (35). Finally, Moqadas et al. (1381) have shown that environmental conditions, utilities, and social rewards have had a significant relationship with the workers' and the managers' productivity, while the compensation had a significant relationship with the productivity only in the workers (36).

Conclusion

Most of the knowledge workers recruited in central field of Shiraz University of Medical Sciences have low quality of work life and productivity. Regarding these two variables, applying actions in order to improve the quality of work life and the workers' satisfaction could lead to a more profound and creative planning in presenting services, resulting in the improvement of the productivity of the knowledge workers. These actions can include developing suggestion systems, considering fair and appropriate

encouragement and motivational systems which could differ either financially and/or non-financially based on workers' needs, creating a friendly environment based on mutual trust between the managers and the staff, rewards based on equality and function, increasing workers' job security through the conversion of paid workers to permanent forces, entrusting and enriching the job, encouraging the staff to continue their education, improving the environmental security and health, applying technology in order to promote the method of working, designing the appropriate informing system to present functional feedback, arranging for flexible work hours, and providing opportunities for distance-working which increases the quality of work life.

Acknowledgments

This research was a part of Zarifi's MSc. thesis, in partial fulfillment of the requirements for certification as an MSc in Health Management School at Shiraz University of Medical Sciences in Shiraz, Iran.

The present article was adopted from the proposal number 90-5530 approved by vice-chancellor for research affairs of Shiraz University of Medical Sciences.

The authors would like to thank the research deputy of Shiraz University of Medical Sciences for financially supporting the present work and Vice-chancellor for Health of Shiraz University of Medical Sciences and Antti lonnqvist who provided me with the KWPA questionnaire. Research Improvement Center of Shiraz University of Medical Sciences and Keivanshekouh are also appreciated for improving the use of English in the manuscript.

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