

Relationship between Leadership Behavior, Quality of Work Life and Human Resources Productivity: Data from Iran

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Abstract

Background and Objectives: Quality of work life is an increasingly important organizational factor in health facilities. Most studies on quality of work life in hospitals have been conducted in developed countries. The few studies performed in developing countries have targeted low- and middle-performance hospitals, and they have not explored the relationship between quality of work life and other organizational factors. The purpose of this study was to gain insight on how Quality of Work Life (QWL), Leadership Behavior (LB), and Human Resources Productivity (HRP) would be inter-related in the high-performance hospitals in developing countries.

Methods: A cross-sectional study was carried out over the period of July to September 2011 in Hasheminejad Kidney Center, which is one of the largest Urology hospitals in Iran. Two scales were developed for measuring LB and QWL based on the literature review, and HRP was measured using a simple questionnaire with single-item questions for each dimension. The scales were distributed to 403 healthcare employees and 316 valid questionnaires were returned. The data was analyzed using exploratory factor analysis to examine the similarity of the factor structure between scales and collected data. An iterative model improvement procedure was adopted for improving the LB and QWL measurement models, and the final models were validated against the collected data using confirmatory factor analysis. The reliability of scales and dimensions was determined by calculating Chronbach's alpha. Correlation analysis was carried out to examine construct validity, and the relationship between constructs was studied by regression analysis.

Findings: (1) Employees had high positive perceptions of the LB (73%), QWL (70%) and HRP outcome variables (78%); (2) LB was positively correlated with QWL ($\beta = 0.78$, $P < 0.001$) and HRP ($\beta = 0.74$, $P < 0.001$); (3) QWL was positively correlated with HRP ($\beta = 0.68$, $P < 0.001$). All individual dimensions of LB were found positively and significant correlated with QWL.

Conclusions: Our results indicate that satisfactory levels of QWL are achievable in hospitals of developing countries. In addition, higher employee perception of QWL was found to correspond with higher employee perception of LB. Leadership style, treating subordinates with trust and respect, motivating and in-person recognition of subordinates, and promoting organizational values were identified as strong predictors of QWL and HRP.

Keywords: Quality of Work Life, Well-being, Leadership, Behavior, Human Resources, Productivity, Hospital, Workplace, Organizational Health

Background and Objectives

An organization's success and effectiveness is crucially dependent on how tasks and processes are performed by its employees [1]. Employees are able to perform well provided that they enjoy physical, mental, and spiritual health and have a general sense of well-being. Employee perception of well-being is significantly influenced by job characteristics and workplace conditions [1-3]. This has led to a growing understanding that in order to attain a high level of human resources productivity (HRP) outcomes,

organizations need to develop workplace improvement strategies with the scope of effects extending beyond the organizational environment and influencing the employees' non-work life [4, 5]. These strategies should consider the profound psychological effects of working conditions on employees' state of being and be able to positively impact workers' perception of life satisfaction through work factors [6]. Recognizing work life within the context of the entire life, and approaching employee well-being through workplace factors is debated and speculated under the umbrella title of Quality of Work Life (QWL).

While the QWL concept shares many common facets with job satisfaction, it places more emphasis on the relation of work to whole life satisfaction. Therefore, this construct is considered to offer a broader HRP scope relative to work-based factors such as job satisfaction,

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and functions as a driver for them [7]. Studies have indicated that employees with a high level of psychological well-being are more committed, and more productive than employees with a low level of well-being [8, 9]. Organizations with desirable QWL achieve higher productivity and competitive advantages [10]. High QWL has been linked to reduced loss due to absenteeism, lower rate of turnover, and improved job satisfaction [11]. Employees with high perception of well-being are reported to have three times higher productivity than unwell workers [12]. Humanizing the work and workplace by designing meaningful tasks, providing skill development and career growth opportunities, supporting job security, and promoting work safety and health has been shown to be correlated with higher job satisfaction and life well-being [11, 13-15]. By contrast, inadequate levels of QWL have been found to be a significant source of human resources productivity loss and inefficiency. The statistics of the American Psychological Association shows that over half of employees perceive themselves less productive in work due to work stress [16]. Worrall and Cooper reported that a low level of well-being in work has an annual cost of about five to ten percent of GNI [17]. While this picture shows the importance of QWL for success and productivity of any organization, when it comes to healthcare organizations (HCO), the impact increases manyfold. Healthcare professionals generally deal with difficult and crucial tasks that exert intensive physical and psychological pressure on them. Specifically, heavy workload, work hazards, responsibility for patient outcomes and dealing with illness, death and their related unpleasant emotions are among the important factors threatening the wellbeing of healthcare workers [15]. The problems arising from health care difficulties have been associated with several mental and physical injuries to healthcare workers [18-21]. As healthcare professionals are responsible for the patients' health and lives, such injuries directly lead to decreased level of quality of healthcare and HCO performance [22]. The concern has induced a large body of effort in developed countries in pursuit of solutions for promoting health workers' well-being and their work-life quality [23, 24]. However, QWL is less popular in the health sector of developing countries, and there is a lack of reports on evaluating the factor or conducting relevant intervention programs in HCOs [25-27]. There is a growing consensus in workplace health promotion community that effective interventions should target determining factors of workplace health and organizational causes of wellness [28]. The effective approach to QWL improvement thus appears to be very demanding, facing with the full-range of change management challenges in the organization, requiring strong

leadership [24]. The prominent role of leadership in successful health and well-being promotion is markedly emphasized in several literature and organizational reports [29-32]. The US National Institute for Occupational Safety and Health (NIOSH) identifies strong leadership among key attributes of healthy organizations [24]. According to the Canadian Council for Integrated Health, leadership is one of the major hallmarks of healthy workplace, and without leadership commitment, workplace health cannot move forward [23]. These notions suggest identifying the nature of relationships between leadership behavior (LB) and well-being as a primary step for the promotion of employee QWL.

Several investigators have examined the influence of LB on employees' well-being in health facilities [33-35]. Gregersen *et al.* (2011) systematically reviewed the results of research on the relationship between leaders' behavior and employees' well-being and state of health. They found that transformational and employee-oriented leadership has positive effects on workers' well-being, whereas there were instances of inappropriate leader's behavior being a source of stress [36]. In the present study, we explored the relationship between LB, QWL and the correlation of these two factors with HRP outcomes in Hasheminejad Kidney Center (HKC), one of the largest Urology facilities in Iran. Selection of HKC as our target sample was based on an awareness that there is an ongoing longitudinal HRP program in the hospital, and that leadership closely supports and monitors this program, and inputs provided feedbacks into the decision making process. Reviewing hospital statistical data showed that the hospital has achieved high rates of human resources productivity outcomes such as job satisfaction, job involvement, and organizational commitment. We were interested to examine how the measures of LB, QWL, and HRP stand in relation to each other in a hospital from a developing country with the experience of high HRP outcomes. We thought that such a study would provide leaders in low QWL hospitals of Iran and other developing countries with useful insight for intervention programs.

It is important for managers to understand how employees perceive leadership behavior in the organization and their workplace attitudes, as these perceptions may affect employee commitment and motivation as well as the quality of services delivery. Such an understanding can be achieved through valid measuring of LB and QWL, which in turn requires reliable measurement tools. Thus, our study also involved the development of surveys with appropriate psychometric properties for measuring LB and QWL in the Iranian health facilities. The implications of the results in comparison with precedent studies are discussed.

Methods

Study Design

A cross-sectional study was conducted in Hasheminejad Kidney Hospital (HKC) over the period of July to September 2011.

Measurement Tool

The LB measurement tool was developed by reviewing literature [37-40] and consulting several popular LB inventories such as the Multifactor Leadership Questionnaire (MQL-5X) [41], the Leadership Behavior Description Questionnaire (LBDQ) [42], and Supervisory Behavior Description [43]. The QWL assessment tool was built based on literature review [5, 33, 44-51] the NIOSH quality of work-life questionnaire [52], Hospital Consultants' Job Stress & Satisfaction Questionnaire (HCJSSQ) [53], Job Diagnosis Survey [54], and Work-Related Quality of Life scale (WRQoL) [55]. To avoid a low response rate due to the coverage of large number of variables, the dimensions of HRP were evaluated by single-item questions. The initial LB questionnaire consisted of 35 items belonging to seven dimensions that included: (1) Leader's Personal Characteristics and Leadership Style; (2) Personalized Recognition; (3) Treating Subordinates with Trust and Respect, (4) Promoting and Establishing Organizational Values, (5) Supportive Supervision, (6) Motivating Employees, and (7) Clarifying Visions and Expectations. The initial QWL questionnaire contained 35 items related to nine dimensions including, (1) Job Recognition and Significance; (2) Feedback, (3) Interpersonal Relationships; (4) Task Clearance; (5) Autonomy and Control at Work; (6) Skill Development and Use in Work; (7) Career Growth Opportunity; (8) Work-family Balance; and (9) Work Stress. The human resources productivity questionnaire comprised three single-item dimensions, including Job Satisfaction ('I am satisfied with my job'), Job Involvement ('I am completely involved in my work'), and Organizational Commitment ('For me this is the best of all possible organizations for which to work'). All items were scored on a five-point Likert type scale (1 = "very weak" to 5 = "very strong"). The validity of the questionnaire was confirmed by expert opinion method.

Data Collection

The data was collected over the period of July to September 2011 from Hasheminejad Kidney Center (HKC). During the study period, there were 403 healthcare employees in the HKC. The same number of questionnaires were distributed with the aid of research assistants from Hospital Management Research Center (affiliated to Tehran

Table 1 Demographic characteristics of the respondents

Variables	Number	%
Gender (<i>n</i> = 316)		
Female	224	71
Male	92	29
Marital Status (<i>n</i> = 316)		
Married	218	69
Single, never married	98	31
Educational Level (<i>n</i> = 316)		
College	104	33
University	145	46
Postgraduate	67	21
Tenure (<i>n</i> = 316)		
1-10 years	180	57
11-21 years	88	28
21-30 years	48	15

University of Medical Sciences) and the employees were asked to answer the questions voluntarily. Of the total distributed questionnaire 316 valid questionnaire were returned (response rate = 78%). Table 1 summarizes the demographic characteristics of the participants. Of the total respondents, 71% were female, 31% were single or never married, 80% had university education and 57% had tenure at the hospital of 1-10 years. In addition, while 36% of the study group were managers, 34% were hospital staff and the rest were clinical personnel.

Data Analysis

Descriptive Statistics

Data was summarized using descriptive statistics. For negatively worded items the scores were reversed so that higher scores always mean more positive rating of an item. The Likert-type scale was converted to a 100-point scale (1 = 0, 2 = 25, 3 = 50, 4 = 75, and 5 = 100). For the purpose of study, a score above 70 indicated high attitude toward a given item/dimension, a score between 50-70 reflected moderate attitude and anything below 50 meant a low (negative) rating.

Exploratory Factor Analysis

The collected data was analyzed using exploratory factor analysis (EFA) to identify variable loadings across the dimensions and to inspect if the factor structures underlying the data fitted to those of designed scales. The sufficiency of sample size for factor analysis was determined

Table 2 Mean and Reliability Analysis of Leadership Behavior, Quality of Work Life and Human Resources Productivity

Dimensions	Mean	Reliability
Leader's personal characteristics and management style (LB1)	4.20	0.837
• The leader decides what should be done and who should do it (R).	3.79	
• The leader is friendly and approachable.	3.87	
• Followers being directly influenced by the leader and their personal relationship with him/her.	4.58	
• The leader leads by saying rather than by doing (R).	4.26	
• The leader says things that make employees feel proud of being a part of this organization.	4.24	
• The leader displays a sense of power and confidence.	4.41	
• The leader inspires others with his/her plan for future.	4.29	
Treating the subordinates with trust and respect (LB2)	4.10	0.844
• The leader let the members do their work the way they think best.	4.07	
• The leader does not respect and trust subordinates (R).	4.17	
• The leadership tries to develop and establish a trustful culture.	3.93	
• The leader treats subordinates fairly and ethically.	4.20	
Promoting organizational values (LB3)	4.00	0.819
• The leader emphasizes commitment to patient satisfaction as an organizational value.	4.35	
• The leader emphasizes commitment to employee well-being as an organizational value.	3.57	
• The leader encourages employee commitment to the organizational values.	3.78	
• The leader himself acts according to organizational values.	3.92	
• My personal values are consistent with those held by the leader.	4.32	
Supportive supervision (LB4)	3.52	0.761
• The leader does not pay attention to the personal welfare of the employees (R).	3.44	
• The leader does not support employees to meet their family responsibilities (R).	3.18	
• Whenever I require assistance, the leader or a supervisor is always there to help.	3.79	
• The leader or a particular supervisor will always listen to my issues and assist me in resolving them.	3.74	
Motivating subordinates and in-person recognition (LB5)	4.05	0.745
• The leader builds a high degree of confidence in the follower's in meeting expectations.	4.39	
• The leader publicizes the activities of the groups.	3.87	
• The leader put suggestions made by employees into operation (R).	3.99	
• The leader demonstrates high performance expectation.	4.48	
• The leader treats subordinates as individuals rather than just as members of the group.	3.68	
• The leader gives the followers special recognition when the work is done very good.	3.86	
Clarifying visions and expectations (LB6)	3.52	0.716
• The leader will communicate messages that contain references to his /her overall vision.	3.35	
• The leader let group members know what is expected of them.	3.77	
• The leader interacts with the followers to portray his vision and attitudes clearly.	3.42	
Job recognition and significance (QWL1)	4.12	0.788
• I do not make significant contributions to the final product or service (R).	4.23	
• My job provides me with the opportunity to both communicate with my supervisors and to receive recognition from them as well.	3.99	
• My job influences decisions that significantly affect the organization.	4.13	

Table 2 Mean and Reliability Analysis of Leadership Behavior, Quality of Work Life and Human Resources Productivity (continued)

Feedback and job familiarity (QWL2)	4.06	0.802
• I receive feedback from my co-workers about my performance on the job.	4.05	
• My supervisor provides me with constant feedback about how I am doing.	3.95	
• I have an understanding of how my job relates to the organization's mission.	4.17	
• On my job, I do not know exactly what is expected of me (R).	3.93	
• My organization provides enough instruction and information as to how get the job done.	4.18	
Interpersonal relationship (QWL3)	4.05	0.832
• I am satisfied with the communication status between colleagues within other departments.	4.08	
• I am not satisfied with the communication status between colleagues within my department (R).	3.91	
• There is a spirit of collaboration and cooperation toward organizational vision in my workplace.	4.14	
Autonomy and control at work (QWL4)	4.07	0.797
• My job gives me considerable freedom in doing the work.	4.28	
• My job provides me the opportunity of self-directed flexibility of work hours (R).	4.33	
• I am able to act independently of my supervisor in performing my job.	3.56	
Skill development and use in work place and career growth opportunity (QWL5)	4.20	0.856
• I believe I will be able to develop a wide variety of skills by continuing work in this organization.	4.32	
• I have a chance to do a number of different tasks that need multiple skills and talents.	3.97	
• My organization gives me enough space and opportunities to grow as an individual and an employee.	4.57	
• I feel that my skills and expertise are put to their best use.	3.43	
• I believe I will grow my career in this organization in future and I will be able to take higher positions.	4.50	
Work-family balance (QWL6)	3.12	0.815
• I can easily balance work and family life.	2.89	
• In this organization it is very hard to leave during the workday to take care of personal or family matters.	3.56	
• My work schedule makes it difficult for me to fulfil my domestic obligations (R).	2.83	
• My work obligations make it difficult for me to feel relaxed at home (R).	3.16	
Work stress (QWL7)	3.40	0.742
• I have too great an overall volume of work (R).	2.85	
• I feel under pressure to meet deadlines (R).	2.94	
• I receive enough resources and facilities to do my job properly.	3.83	
• I am satisfied with organization's stress relief program.	2.90	
• The job security is good.	4.65	
• My workplace is stressful (R).	3.25	
Job Satisfaction (HRP1)		
• I am satisfied with my job.	4.22	
Job Involvement (HRP2)		
• I am completely involved in my work.	3.97	
Organizational Commitment (HRP3)		
• For me, this is the best of all possible organizations to work for.	4.17	

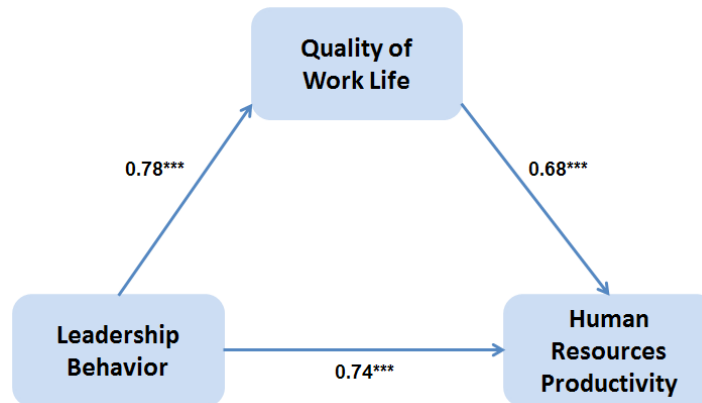


Figure 1 The relationship between leadership behavior, quality of work life and human resources productivity

by calculating Kaiser-Meyer-Olkin measure (KMO). The KMO score was obtained 0.705, which is sufficiently above the 0.5 criterion. Bartlett's test of sphericity resulted significant P-value, which indicates that the correlation matrix is meaningful. Principal component analysis was then performed with Varimax rotation for factor extraction. The internal consistency reliability of the extracted factors was calculated using Chronbach's alpha.

Model Improvement

Due to inadequate internal consistency of some extracted factors, a model improvement procedure was carried out. The data was randomly divided into two equal-size parts, one for model development, and the other for model validation. Starting from the original model, the items with low factor loading and communalities were gradually eliminated. The criteria for stopping the procedure were communalities and factor loadings of higher than 0.5 for all items. The criteria for both models were met after removal of eight items from the LB scale, and nine items from the QWL scale. The refined models were then validated against the second half of the data by performing confirmatory factor analysis (CFA). A series of goodness-of-fit indices including comparative fit index (CFI), goodness-to-fit index (GFI), Tucker-Lewis index (TLI), and root mean squared error of approximation (RMSEA) were considered to evaluate the quality of model fit. The internal consistency reliability of the factors in the improved models was assessed using Chronbach's alpha. Construct validity of the improved model was examined by conducting correlation analysis among the factors.

Regression Analysis

Correlation between independent and dependent variables was examined using regression analysis. Simple linear regression was used to evaluate if LB was positively associated with QWL, and if QWL was positively

associated with HRP. Hierarchical regression analysis was used to determine if LB was independently associated with HRP when the effect of QWL was controlled for. Finally, a series of linear regression analyses were carried out to examine the correlation of LB dimensions with the overall QWL index. CFA was carried out by IBM AMOS version 20 software, and all other analyses were performed using IBM SPSS 19 Software.

Results

Factor Analysis and Model Improvement

Initial EFA extracted seven factors for LB and 10 factors for QWL. While the factor structure was generally consistent with the designed questionnaires, there were many items not clustered to the same factors as within the scales. We grouped the factors according to the questionnaires to examine factors' internal consistency reliability. Regarding LB, the Chronbach's alpha for all items was 0.861. The internal consistency was found adequate for five factors, but the factors 'Clarifying Vision and Expectations' and 'Motivating Sub-ordinates', showed insufficient reliability (alpha < 0.7). Regarding QWL, Chronbach's alpha for all items was 0.78. The internal consistency was found adequate for five factors, but the factors 'Job Familiarity', 'Skill Development and Use', and 'Work Stress' fell short of an adequate level of reliability (alpha < 0.7). To develop more reliable scales, an iterative cycle of model modification was run for each construct, and at each run, a single item that had low factor loading and communality was dropped from the scale. The criteria for stopping the procedure were communalities and factor loadings of more than 0.5 for all items. The criteria were met for the constructs after removal of eight items from LB, and nine items from QWL. In the LB model, 'In-person Recognition' and 'Motivating Employees' grouped into a single factor resulting in a scale with 29 items clustering into six factors (Table 2). In the QWL model, the

Table 3 Correlation Analysis among Leadership Behavior, Quality of Work Life and Human Resources Productivity

Variables	Leadership Behavior							Quality of Work Life							Human Resources Productivity		
	LB 1	LB 2	LB 3	LB 4	LB 5	LB 6	LB 7	QWL 1	QWL 2	QWL 3	QWL 4	QWL 5	QWL 6	QWL 7	HRP 1	HRP 2	HRP 3
LB1	1																
LB2	0.423**	1															
LB3	0.393**	0.415**	1														
LB5	0.450**	0.300**	0.243**	1													
LB6	0.328**	0.222**	0.442**	0.235**	1												
LB7	0.347**	0.251**	0.229**	0.251**	0.246**	1											
QWL1	0.623**	0.376**	0.352**	0.382**	0.572**	0.216**	1										
QWL2	0.360**	0.339**	0.331**	0.135*	0.389**	0.411**	0.204**	1									
QWL3	0.461**	0.409**	0.488**	0.186*	0.313**	0.283**	0.239**	0.383*	1								
QWL4	0.519**	0.597**	0.218**	0.203**	0.420**	0.255**	0.380**	0.189*	0.167*	1							
QWL5	0.634**	0.434**	0.277**	0.268*	0.508**	0.142*	0.356**	0.200**	0.194*	0.324*	1						
QWL6	0.158*	0.152*	0.087	0.193*	0.092	0.129	0.145*	0.137*	0.175**	0.188**	0.204**	1					
QWL7	0.236**	0.312**	0.220**	0.266*	0.081	0.184*	0.240**	0.176*	0.248*	0.283*	0.214**	0.324**	1				
HRP1	0.513**	0.414**	0.217**	0.443**	0.424**	0.283**	0.351**	0.245**	0.366**	0.402**	0.459**	0.111	0.114	1			
HRP2	0.541**	0.424**	0.281**	0.411**	0.538**	0.239**	0.470**	0.283**	0.332**	0.434**	0.577**	0.125	0.185*	0.584**	1		
HRP3	0.668**	0.572**	0.370*	0.322**	0.44**	0.382**	0.388**	0.197**	0.344**	0.591**	0.583**	0.106	0.163*	0.591**	0.477**	1	

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed)

Table 4 The Linear Regression of Leadership Behavior and its Sub-scales and Quality of Work Life

Leadership Behavior	Leadership Behavior dimensions						
	Leader's personal characteristics and management style	Treating the subordinates with trust and respect	Promoting organizational values	Supportive supervision	Motivating subordinates and in-person recognition	Clarifying vision and expectations	
	β (t value)	β (t value)	β (t value)	β (t value)	β (t value)	β (t value)	β (t value)
Quality of Work Life	0.78 (28.8***)	0.64 (21.32***)	0.62 (19.64***)	0.60 (18.7***)	0.52 (15.21***)	0.56 (16.76***)	0.43 (11.51***)

*** $P < 0.001$, β = standardized regression coefficient, t value = test statistics of β

model reduction led to merger of 'Job Familiarity' with 'Feedback' and merger of 'Skill Development and Use' with "career Growth Opportunity". Hence, the final model consisted of 29 items clustered into seven factors (Table 2). Three items from the LB scale and two items from the QWL scale were not grouped with pre-specified factors. To facilitate interpretation of data, we grouped these items with the designated factors during model validation and reliability measurement. We assumed that this relocation would not have considerable effect on the results.

The resulting models were validated against the second half of data using CFA. Goodness-of-fit indices suggested adequate fitness of both models to data with GFI = 0.82, CFI = 0.93, TLI = 0.84 and RMSEA = 0.073 for LB model, and GFI = 0.78, CFI = 0.88, TLI = 0.91 and RMSEA = 0.057 for the QWL model. Reliability analysis of the improved model identified adequate levels of internal consistency for all factors ($\alpha > 0.7$) (Table 2).

Survey Results

The average score of LB was 3.92 with the scores of dimensions varying between 3.52 and 4.20. The highest score was obtained by 'Leader's Personal Characteristics and Management Style' (4.20), followed by 'Treating Subordinates with Trust and Respect' (4.10), and 'Motivating Subordinates and In-person Recognition' (4.05). The lowest score was obtained by 'Clarifying Vision and Expectations' (3.52) (Table 2).

The average score of QWL was 3.81 with the scores of dimensions varying between 3.12 and 4.20. The highest score was obtained by 'Skill Development and Use in Workplace and career Growth Opportunity' (4.20), followed by 'Job Recognition and Significance' (4.12), and 'Autonomy and Control at Work' (4.07). 'Work-family Balance' received the lowest score (3.12) (Table 2).

The average score of HRP was 4.12. While 'Job Satisfac-

tion' received a score as high as 4.22, 'Job Involvement' and 'Organizational Commitment' scored 3.97 and 4.17 respectively (Table 2).

Correlations

The result of correlation analysis between dimensions of LB and QWL is presented in Table 3. With the exception of 'Work-family Balance' correlation with 'Supportive Management', 'Motivating Subordinates and In-person Recognition' and 'Clarifying Vision and Expectations' and the correlation of 'Work Stress' with 'Supportive Management', other correlations between LB and QWL are significant. This indicates the association of the two constructs in the investigated hospital. Moreover, dimensions within each scale show positive significant correlations, with no very strong intercorrelation suggesting the construct validity.

Table 4 shows the results of the regression analyses of LB and LB dimensions with QWL. The positive association of LB and QWL is demonstrated by the standardized regression coefficient of 0.78 ($P < 0.001$). In addition, all sub-scales of LB display positive correlation with QWL. The relationship between HRP and predictor variables LB and QWL is described in Table 5. LB demonstrates positive association with HRP with the standardized regression coefficient of 0.74 ($P < 0.001$). QWL shows positive correlation with HRP with the standardized regression coefficient of 0.68 ($P < 0.001$). The relationship between the three variables is illustrated in Figure 1.

Discussion

Satisfactory QWL level is an essential driver of high organizational productivity [15, 56] and effectiveness [57]. In order to improve QWL, knowledge of how the construct is related to and affected by other organizational variables is required. Several theoretical and empirical studies have identified leadership as one of the most important factors

Table 5 The Linear Regression of Leadership Behavior, Quality of Work Life and Human Resources Productivity

	Leadership Behavior	Quality of Work Life ^a
	β (t value)	β (t value)
Human Resources Productivity	0.74 (30.42***)	0.68 (31.07***)

^a The effect of Leadership Behavior was controlled for.

*** P < 0.001, β = standardized regression coefficient, t value = test statistics of β

influencing other organizational variables [33-36]. In this study, we sought to explore how LB and QWL are inter-related in a hospital in the developing world with high profile of human resource productivity.

The result of our study demonstrated a strong positive correlation between LB and QWL. We deliberately excluded monetary and job content-related variables to be able to explore the inter-relation of the constructs independent of these "difficult to change" factors. Our results reflect five major findings: First, the workers of the investigated hospital have a perception of leadership behavior. Second, the investigated hospital features a high level of QWL as perceived by the employees. Third, the workers' perception of LB is positively correlated with their perception of QWL. Fourth, the QWL level is positively correlated with HRP outcome variables, including job satisfaction, job involvement, and organizational commitment. Fifth, LB is directly and positively associated with HRP outcome variables.

In developing countries, including Iran, QWL is a new concept and studies in this area are scarce. However, the small number of studies performed to date, have reported low to moderate rates of employee satisfaction with work-life quality [15, 56, 58]. Considering the lack of specific data, the low levels of QWL in Iranian hospitals can be attributed to the same factors that have created other critical human-resources-for-health (HRH) challenges in Low-Middle-Income Countries (LMICs), including of the limited understanding of HRH issues, lack of knowledge about the nature of HRH planning and management, and socio-economic factors [27]. Given these barriers, the vision of attaining a high QWL level in HCOs of LMICs may seem far-reaching, and contingent on fundamental reform of the health system. A particular implication of our study is that this postulation is not true; the HCOs in LMICs can achieve high levels of QWL in spite of the current socio-economic situation and health system problems. In addition, our result demonstrated that higher levels of QWL as perceived by healthcare workers are associated with their higher perceptions of the behavior of leadership.

Regression analysis showed that QWL was mostly correlated with 'Leader's Management Style and Personal Characteristics'. This dimension has also received the highest score among all LB factors, with the highest graded item being 'Subordinates are directly influenced by the leader and personal relationship with him/her'. This observation reinforces the evidence supporting the primary role of leader's management style and personal characteristics in catalyzing organizational well-being [29-32]. Our results recommend that leaders who want to promote QWL, need to establish close and friendly relationship with subordinates, involve them in the organization's goals, build high degrees of confidence, and develop transformational leadership abilities.

'Treating the Subordinates with Trust and Respect' showed the second highest correlation with QWL. This is in accord with research carried out by Lowe *et al.* where trust and respect were identified as the strongest predictor of employee perceptions of a healthy work environment [24, 59]. Based on the results, the authors stressed that the organization's culture must be trust-based in order that healthy workplace initiatives can achieve success [24]. The fact that the highest correlation of trust and respect factor is with 'Autonomy and Control at Work' suggests that the extent of leader's trust in employees is perceived by the level of autonomy that staff feel at work. The third strongest correlation of QWL was found with 'Promoting Organizational Values'. 'Organizational values' is recognized as fundamental to high QWL attainment. The congruity between personal and organizational values plays crucial role in employees' well-being and performance [60]. When employees' personal values agree with those held by the organization, they would draw more satisfaction out of their job and would be able to appreciate the values provided by working in the organization, thereby gaining a more positive perception of QWL [60]. Lowe places the values within the major enablers for achieving organizational health [24]. Shoaf *et al.* describe values and goals as the constituents of organizational culture that drive effectiveness and QWL within

the context of organizational climate [32]. Our study provides empirical support for these conceptual models by demonstrating association between QWL and promotion of values by leaders. It is also interesting to find the highest correlation of values promotion with 'Interpersonal Relationships' among QWL dimensions. This observation suggests that the leader's emphasis on organizational values can positively affect employee tolerance and conflict resolving capacity.

Regression analysis also identified a positive significant correlation between 'Motivating and In-person Recognition' and QWL. This result, together with high employees' perceptions of being role players in the decision-making process, together with being recognized by the leader following their good performance, reflects the importance of non-monetary incentives for developing a "well-performing workplace" [48, 61]. The highest correlation of motivation and in-person recognition related to 'Job Recognition and Significance'. In the investigated hospital, there is an electronic suggestion system, and the workers are trained to use it. Statistics show high contribution of the employees in making suggestions. The leadership periodically reviews the suggestions, and employees whose suggestions are constructive are appreciated and rewarded.

Our results also highlight the influence of supportive supervision on achieving high QWL levels. NIOSH identifies supportive supervision among the important management practices for creating a healthy organization [6]. WHO emphasizes the role of supportive supervision in improving health workers' performance, job satisfaction, and motivation [61]. Kameswara and Venugopal, identified 'supportive management and favorable work environment' as a benchmark measure of QWL in India [62]. Supportive supervision implies a shift from strict ordering-result-receiving management style to the one where the supervisor supports the employees to enhance their knowledge and skills to perform the job well [63]. Supportive supervisors direct and train the employees to deal with the job themselves while ensuring that they can rely on their managers when necessary [61, 63]. Supportive supervision is also responsible for the emotional energy that employees need to effectively perform the job [64, 65]. Supervisors can approach this responsibility by acknowledging complexity of personalities and inter-relations, helping employees in managing their stress, understanding home and family-related problems, and involving themselves in discussion with their subordinates over such issues [66, 67].

The studied hospital has not yet implemented a job redesign and job enrichment program. Nonetheless, our results indicate that high levels of QWL can be achieved even in advance of such challenging strategies, and this achievement is related to leadership behavior. This

achievement, however, does not undermine the importance and necessity of job reforming plans which aim at improving task identity and job meaningfulness. Rather, given that the successful implementation of changes is dependent upon the way the organization will respond to changes, it can be urged that high quality LB has the potential to prepare the organization for smooth response to changes by supporting relatively straightforward QWL improvements in advance.

Despite the above-mentioned achievements, not everything is perfect in the investigated hospital, and there is room for improvement in other areas. In particular, the employees expressed relatively low satisfaction with their ability to easily balance work and family life and fulfill their domestic obligations due to work schedules. The work-family balance also exhibits the lowest correlations with LB. While high performance expectation and high job demand may have contributed to low work-family balance ability, this observation can also be interpreted in terms of work-family conflict being less amenable to current support policies, as reflected in literature [25, 68]. Meta-analysis of 115 samples from 85 studies demonstrated that work-family-specific support can play a central role in an individual's work-family conflict experiences [69]. Several studies indicate that work-family conflict relates to key outcomes such as job satisfaction [3, 70]. This recommends that the focus of our hospital's leadership on improving employee work-family balance can lead to achieving higher levels of QWL.

In addition to work-life balance scores, the scores of work stress reflect some aspects of work conditions that employees are not satisfied with. Most employees asserted that they are under heavy workload, feel pressured to meet deadlines, and are not satisfied with the organization's stress relief program. Although positive aspects of work-stress management, including high job security and availability of the resources needed, have considerably counterbalanced the undesired aspects, hospital managers must consider the importance of the negatively rated measures in HRP outcomes.

We also investigated the correlation of mean scores of LB and QWL as input factors with the mean scores of three HRP outcome variables including job satisfaction, job involvement and organizational commitment. While the measured scores for all HRP outcomes were already found high, the regression results indicated that the higher perceptions of employees towards HRP outcomes are associated with their higher perceptions on LB and QWL. This finding supports the already established impact of employees' well-being on human resources productivity [11-15]. The finding also promises that considerably higher HRP can be achieved in the organization by adopting appropriate work-life balance and job stress management strategies.

Study Limitations

The purpose of this study was to explore the relationship between LB, QWL and HRP in a hospital with a high profile of human resources productivity outcomes. Our survey results, therefore, do not represent the average status of these factors in Iranian hospitals. However, the results can provide a benchmark for comparative evaluation of the healthcare workers' perceptions on LB and QWL.

It is also worth mentioning that our models for measuring LB, QWL and HRP are by no means comprehensive. Several measures of transformational leadership were not included in the LB scales. Assessment of human resources productivity was limited to three outcomes that were measured by single item variables. In addition, due to the scope of the study, our QWL survey did not include some important factors that are influenced by job content such as task identity and job meaningfulness. The survey also did not cover the measures of monetary and financial rewards. Hence, the results should be interpreted in the light of these limitations.

Conclusions

This study aimed at: (1) developing appropriate tools for measuring leadership behavior (LB) and quality of work-life (QWL) in Iran's healthcare context; (2) measuring LB and QWL in an Iranian hospital with high profile of human resources productivity (HRP), and (3) exploring the relationship between LB, QWL and HRP in a high-HRP hospital in Iran as a developing country. Two measurement models were developed for LB and QWL with good psychometric properties. Hospital employees showed high perceptions of both constructs. Regression analysis demonstrated positive association of LB with QWL and HRP and positive correlation of QWL with HRP. Correlation analysis also showed that the dimensions of LB and QWL are generally interrelated with significant correlations. Our findings have two important implications: achievement of high QWL levels in hospitals of developing countries is a feasible and attainable goal, and perception of QWL by hospital employees is associated with their perception of LB.

Abbreviations

LB: Leadership Behavior; QWL: Quality of Work Life; HRP: Human Resources Productivity; LMICs: Low- Middle Income Countries; EFA: Exploratory Factor Analysis; CFA: Confirmatory Factor Analysis; GFI: Goodness-of-fit index; CFI: Confirmatory Fit Index; TLI: Tucker-Lewis Index; RMSEA: Root Mean Squared Error of Approximation

Competing Interests

Authors declare that there is no competing interest.

Authors' Contributions

SJT designed the study. MB and EA collected, refined and analyzed the data. MB and SJT contributed to the interpretation of the results. MB and EA participated in preparation of the draft manuscript. MB and BD revised and finalized the manuscript. The final manuscript was read and approved by all authors.

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