Quality of Work Life and Its Related Factors: A Survey of Critical Care Nurses in Kashan, Iran, 2014

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Abstract

Background: Improving quality of work life (QWL) is a comprehensive process and is essential to attracting and retaining employees, especially in health care.

Objectives: The purpose of the present study was to determine quality of nursing work life and its related factors in intensive care units in Kashan city hospitals in 2014.

Methods: This cross-sectional study was conducted on 157 critical care nurses from September to November, 2014 in all educational hospitals of Kashan, Iran that had critical care units. A three part questionnaire was used in this study: demographic and professional characteristics, quality of nursing work life (QNWL), and the national aeronautics and space administration task load index (NASA-TLX). Data were analyzed using the t-test, the Mann-Whitney U test, and the chi square and Fisher’s exact test with SPSS software, version 16.

Results: The majority of the participants (N = 112) were female (83.3%), and the mean age of the subjects was 33 ± 6.98 years. Age, education, job position, job location, and a second nursing job in another hospital were found to predict QNWL. Among the six subscales of NASA-TLX, frustration and mental demand had the lowest and highest rating score, respectively. Temporal demand, frustration, and effort levels were significantly correlated with QNWL.

Conclusions: It is necessary to pay more attention to the QNWL and its related factors, especially nursing workload, to improve quality of care as an organization goal.

Keywords: Nurses, Critical Care, Quality of Life, Workload

1. Background

Improving job satisfaction is important for all organizations to attract and preserve skilled personnel (1). Some believe that job satisfaction is not a proper indicator of employees’ feelings about work and the work environment. They suggest that quality of work life (QWL) might be a better indicator in this field (2). QWL is different from job satisfaction (3), which is only one QWL factor (3, 4). QWL was first introduced in the 1930s (5). Despite its importance, an accepted definition for QWL has not yet been introduced (6).

Brooks et al. explained that QWL is a process by which the organizations’ personnel and stakeholders learn how to work better together to simultaneously improve staff quality of life and organizational productivity (7, 8). Improving QWL is a comprehensive process and is essential to attracting and retaining personnel (9-11). QWL can improve work commitment and productivity (10, 12), the psychosomatic health of employees (13, 14), professional performance (15), and job satisfaction (4, 16).

On the other hand, work environments, work design, societal factors, and work and home life balance are factors that can influence work life (15). QWL has received increasing attention in health care (8). Critical care nurses are a group of health care personnel that are working under complicated, dynamic, and stressful conditions (17). They must make vital decisions about patients’ lives (18). Use of technical and complicated equipment is another challenge in these units (17). These factors increase both physical and mental workload (19).

Many studies have reported nurses’ dissatisfaction with their working conditions in Iran (9, 10, 12, 16, 20). The reasons for this issue have not been investigated sufficiently and comprehensively. There are many factors that can influence QNWL. Identifying these factors can help managers increase productivity and enhance quality of care in health care settings. In separate investigations, Dehghan Nyieri et al. (10) and Koushki et al. (12) mentioned that QNWL had no significant relationship with age, sex, work experience, or job location, a result opposite those
of some other studies (8, 13, 21). Thakkar in India (21) and Almalki et al. in Saudi Arabia (22) separately found that QNWL had no significant relationship with education; however, Moradi et al. reported a significant relationship between these two variables (8).

On the other hand, heavy workload and insufficient social support can lead to anxiety (23). Heavy workload is one of the chief job stressors reported by intensive care unit (ICU) nurses (19). Heavy workload can have negative effects on nurses, other ICU personnel, and patients (19, 24). Physical and mental workload can decrease QNWL (25).

2. Objectives

Due to limited studies about factors related to QNWL—especially for critical care nurses—and controversial results, the present study was designed to determine QNWL and related factors for nurses working in ICUs in Kashan city hospitals in 2014.

3. Methods

This cross-sectional study was carried out from September to November, 2014 in all educational hospitals of Kashan, Iran that had critical care units. All intensive care (ICU), cardiac care (CCU), dialysis units, and emergency departments (ED) were included in this study. Kashan has four educational hospitals, four ICUs, two CCUs, two dialysis units, and four EDs.

A three part questionnaire was used in this study: demographic and professional characteristics, QNWL, and the national aeronautics and space administration task load index (NASA-TLX).

The demographic and professional characteristics identified were age (extracted into three categories), sex, education, marital status, work experience (in years), job location (ICU, CCU, ED, or dialysis), job position (nurse, head nurse, or supervisor), employment type (permanent, temporary, contract, or compulsive governmental service), satisfaction with flexibility of work shift, whether participants had a second nursing job at another hospital, whether participants had another job besides nursing.

Brooks’ QNWL statements contain 40 items in four subscases, (a) work life-home life is defined as the interface between the nurses’ work and home life, (b) work design is the arrangements of nursing work and describes real work performance, (c) work context includes the practice settings in which nurses’ work and explores the impact of the work environment on nurses, and (d) work world is defined as the effects of societal influences on the practice of nursing. Respondents determine how much they agree or disagree with each item.

To facilitate analysis, the rating scale was divided into levels of agreement and disagreement. The subsequent sections are the percentages of nurses who responded with ratings of agree to strongly agree (ratings of 4, 5, and 6), which are considered high QNWL ratings, and the percentage of nurses who responded with ratings of strongly disagree to disagree (ratings of 1, 2, and 3), which are considered low QNWL ratings (2, 6). A lower score indicates a low overall QNWL, whereas a high score indicates a high QNWL. This variable was measured as the dependent variable. The validity and reliability of this instrument for use in the Iranian setting were obtained by Azarang et al. (26). Cronbach’s alpha for the total scale was 0.97, and the dimensions ranged from 0.50 to 0.87 (26).

Mental workload was evaluated by NASA-TLX. This is one of the most widely used operator-based measures of workload instruments to assess overall subjective workload. It contains six dimensions, each of which is evaluated by six related questions: mental demand, physical demand, temporal demand, performance, effort, and frustration levels. The possible score is any number between 0 to 100 for each question. A score of zero indicates the lowest mental workload, and 100 indicates the highest mental workload in these six dimensions. This was considered the independent variable. The validity and reliability of this instrument for use in critical care units were obtained by Hoonakker et al. (19). The validity and reliability of this instrument for evaluation of critical care nurses in the Iranian setting were obtained by Mohammadi et al. (18). Face validity and reliability of the NASA-TLX technique were confirmed (α = 0.897). Therefore, the NASA-TLX method can be used to assess the workload of ICU nurses (18). In this study, the reliability of the three-part questionnaire was assessed by test re-test, and Cronbach’s alpha was calculated as 0.88 in 20 nurses.

After institutional research board and administrative approvals, all the nurses working in the critical care units in four governmental hospitals of Kashan, Iran were considered to participate in this research; this included about 200 nurses.

Nurses who had more than one year of work experience and did not have any psychosocial or psychosomatic problems were included in this study. Nurses who submitted an incomplete questionnaire were excluded.

The researcher explained the study aims, and if they agreed to take part, each participant was provided with a questionnaire and asked to complete it at home or in the rest room of the hospital and return it to the researcher within one day. The questionnaire was anonymous, and participants were assured that information would be kept
confidential. Before the presentation of the questionnaire, informed consent was obtained from the nurses.

Data analyses: Data were statistically analyzed using SPSS for Windows version 16, and data were described by frequencies, means, and standard deviations. To determine the relationship between QNWL and quantitative variables such as NASA-TLX, the normality test (Kolmogrov-Smirnov) was performed, and then, according to normality, the appropriate test was considered (two-tailed Student’s t-test or Mann-Whitney U). To denote the relationship between QNWL and other qualitative variables, the chi square test and Fisher’s exact test were used. A significance level of 0.05 was considered for all tests.

4. Results

A total of 157 questionnaires were retrieved. About 50 critical care nurses did not have any intention to participate in this research and did not complete the questionnaires entirely. Of the subjects, 89 (56.7%) had high scores, and 68 (43.3%) had low scores for QNWL.

The majority of the sample (N = 112) were female (83.3%), and 43.9% (n = 69) were between the ages of 20 and 30 years; 80.9% of the participants were married, and 76.4% had a bachelor’s degree in nursing (Table 1). Of the critical care nurses, 57 (36.3%) had low satisfaction with the flexibility of their work shifts. Only 49 (31.2%) of the critical care nurses were employed permanently (Table 2).

According to the chi square tests, QNWL had a significant relationship with age and education (P = 0.001). Therefore, older personnel, especially those in the age range of 30 - 40 years, had higher QWL, and nurses with associate’s degrees and master’s degrees reported a better QNWL than others. The QNWL had no significant relationship with the marital status or sex of the participants (Table 1).

Chi square tests showed a significant relationship between QNWL score and job location (P = 0.026) (Table 2): Nurses in dialysis units reported a better QNWL than others. In addition, job position had a significant relationship with QNWL (P = 0.0001): There were significant differences among the QNWL scores for all job positions (nurse, head nurse, and supervisor) (Table 2).

A significant relationship was also found between QNWL and the factor of having a second nursing job in another hospital (P = 0.019); nurses working at multiple hospitals had better QNWL. Other measured variables had no significant relationship with QNWL. (Table 2).

Among the six subscales of NASA-TLX, frustration and mental demand had the lowest and highest rating scores, respectively. According to Student’s t-test and Mann-Whitney U analysis, temporal demand, frustration, and effort levels had significant relationships with QNWL (P = 0.0001, P = 0.002, and P = 0.037, respectively). Therefore, if temporal demand, frustration, and effort levels decrease, QNWL increases (Table 3).

5. Discussion

The results of the present study show that the critical care nurses had an adequate work life (56.7%). In other studies, QNWL in different hospitals was evaluated from poor to good (8, 13, 22, 26-28).

In this study, we found that age, education, job location, and job position had significant relationships with QNWL. Sherment and Krepcio in North Carolina found that acceptable pay, good mentors and colleagues, attractive benefits, flexible scheduling, and positive interactions with physicians were the top five reasons for high QWL cited by registered nurses (29).

In the current study, personnel within the age range of 30 - 40 years had higher quality of work life (56.7%). In other studies, QNWL in different hospitals was evaluated from poor to good (8, 13, 22, 26-28).

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Table 2. Professional Predictive Variables in Two Groups (Low and High QNWL)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Low QNWL, No. (%)</th>
<th>High QNWL, No. (%)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job position</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurse</td>
<td>61 (43.9)</td>
<td>78 (56.1)</td>
<td>0.0001</td>
</tr>
<tr>
<td>Head nurse</td>
<td>7 (87.5)</td>
<td>1 (12.5)</td>
<td></td>
</tr>
<tr>
<td>Supervisor</td>
<td>0</td>
<td>10 (100)</td>
<td></td>
</tr>
<tr>
<td>Job location</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICU</td>
<td>12 (35.3)</td>
<td>22 (64.7)</td>
<td>0.026</td>
</tr>
<tr>
<td>CCU</td>
<td>17 (60.7)</td>
<td>11 (39.3)</td>
<td></td>
</tr>
<tr>
<td>Dialysis</td>
<td>6 (23.1)</td>
<td>20 (76.9)</td>
<td></td>
</tr>
<tr>
<td>Emergency room</td>
<td>33 (47.8)</td>
<td>36 (52.2)</td>
<td></td>
</tr>
<tr>
<td>Work experience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 10</td>
<td>43 (44.3)</td>
<td>54 (55.7)</td>
<td>0.219</td>
</tr>
<tr>
<td>10 - 20</td>
<td>8 (28.6)</td>
<td>20 (71.4)</td>
<td></td>
</tr>
<tr>
<td>&gt; 20</td>
<td>7 (53.8)</td>
<td>6 (46.2)</td>
<td></td>
</tr>
<tr>
<td>Have second nursing work in another hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>0</td>
<td>7 (100)</td>
<td>0.009</td>
</tr>
<tr>
<td>No</td>
<td>68 (45.3)</td>
<td>82 (54.7)</td>
<td></td>
</tr>
<tr>
<td>Have another job besides nursing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>4 (28.6)</td>
<td>10 (71.4)</td>
<td>0.241</td>
</tr>
<tr>
<td>No</td>
<td>64 (44.8)</td>
<td>79 (55.2)</td>
<td></td>
</tr>
<tr>
<td>Employment type</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Permanent</td>
<td>19 (38.8)</td>
<td>10 (61.2)</td>
<td>0.051</td>
</tr>
<tr>
<td>Temporary</td>
<td>25 (37.9)</td>
<td>41 (62.1)</td>
<td></td>
</tr>
<tr>
<td>Contract</td>
<td>16 (69.6)</td>
<td>7 (30.4)</td>
<td></td>
</tr>
<tr>
<td>Compulsive governmental service</td>
<td>8 (42.1)</td>
<td>11 (57.9)</td>
<td></td>
</tr>
</tbody>
</table>

*Fisher's exact test.

Table 3. NASA Score Subscales in Two Groups (Low and High QNWL)

<table>
<thead>
<tr>
<th>NASA-TLX</th>
<th>Low QNWL</th>
<th>High QNWL</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental demand</td>
<td>79.2 ± 20.3</td>
<td>82.6 ± 15.4</td>
<td>0.478</td>
</tr>
<tr>
<td>Physical demand</td>
<td>67.7 ± 20.4</td>
<td>62.9 ± 26</td>
<td>0.168</td>
</tr>
<tr>
<td>Temporal demand</td>
<td>74.4 ± 24</td>
<td>55.9 ± 20.4</td>
<td>0.001</td>
</tr>
<tr>
<td>Performance</td>
<td>79.5 ± 19.3</td>
<td>79.5 ± 17.8</td>
<td>0.582</td>
</tr>
<tr>
<td>Frustration</td>
<td>52.9 ± 27.9</td>
<td>40.2 ± 26.4</td>
<td>0.002</td>
</tr>
<tr>
<td>Effort</td>
<td>83.3 ± 15.1</td>
<td>78.9 ± 14.4</td>
<td>0.037</td>
</tr>
</tbody>
</table>

*Two-tailed student's t-test.

higher expectations for their working life and thus experienced more boredom, especially when their work environment did not meet their expectations (26).

QNWL had no significant relationship with marital status according to the results obtained by Moradi et al. (8). It is generally thought that married nurses receive greater emotional support from their families, which decreases their stress, thus providing them with better QNWL (8), but this viewpoint was not supported by the current study.

Work experience had no relationship with QNWL. Several studies confirmed our results (11, 30), but these results are inconsistent with the studies of Thakkar (21) and Moradi et al. (8). Overall, it seems that novice employees had more occupational stress and less stability in their jobs and thus experienced lower QWL (20, 22).

There was a significant relationship between job position and QNWL. As a result, head nurses indicated lower QWL. This finding was similar to those of several studies (13, 21, 22). However, Koushki et al. mentioned that QNWL had no significant relationship with job position (12). This result may be due to the fact that head nurses not only attend as ward managers but also conduct other nurses’ tasks and have clinical contact with patients. This heavy workload can affect their attitude towards work life.

Our findings showed a significant relationship between QNWL and job location. There is no similar or dissimilar finding for this factor. In our study, dialysis unit staff had better QWL, which might be due to the higher nurse to patient ratio in these units. The QNWL differences in various units could also be attributed to the unit’s circumstances. Factors such as unit size, number and type of patients, hospital policies, and physical environment may affect QNWL (8). Work setting specialization and lower levels of stress may also be related to QNWL (26).

Having a second nursing job in another hospital was also positively correlated with QNWL, which could be attributed to higher salary and expanded social interactions. However, Vagharseyyedin et al. found no correlation be-

ings of other studies (8, 10, 12). However, the lower QNWL in male nurses might be due to the fact that male nurses usually participate in more stressful nursing activities, such as core pulmonary resuscitation, which may negatively affect their QNWL.

There was a significant relationship between education and QNWL in our study: Nurses who had a bachelor’s of science degree indicated lower QWL. This result is similar to the findings of Moradi et al. (8). However, neither Thakkar (21) nor Almalki et al. (22) found such a relationship. It seems that nurses with higher education levels had
between these two variables (11). The QNWL of nurses who have another job besides nursing was not substantially different from that of other nurses. This finding may be due to the fact that different jobs involve separate environments and different work lives.

A flexible shift schedule can positively influence family interactions and offer opportunities for continuing education. In this study, nurses who were satisfied with the flexibility of their work shift had higher QNWL, but this relationship was not significant. Vagharseyyedin et al. also found the same results (11).

Employment status had a relationship with QNWL, although the relationship was not statistically significant (P = 0.05). Moradi et al. (8) found that there is no relationship between these two variables. Contract nurses had the worst QWL among other nurses. It has been reported that better career outlook, higher income, and job constancy of nurses with permanent employment results in better QWNL than that of nurses with temporary or contract employment (8, 9).

Studies have shown that nurse workload has adverse effects on QWL (5, 6). Different methods exist to evaluate workload. One of these methods evaluates mental workload and was developed by NASA. In this study, only temporal demand, frustration, and effort levels evaluated by NASA-TLX had indirect significant relationships with QNWL. Increasing time pressure, frustration, and effort levels in critical care nurses decrease QNWL. Critical care nurses are asked to do many tasks in a short time, which can create time pressure and negatively influence QNWL. Lack of time to perform important care tasks can lead to complications, poor patient outcomes, and increased mortality (24). Moreover, lack of time can have a negative impact on nurse-physician and nurse-patient communication (19, 31). We did not find any significant relationship between QNWL and other dimensions of NASA-TLX.

There are several instruments to evaluate QWL; we used Brooks’ questionnaire, which we believe to be comprehensive. However, other instruments might be considered in future research.

When using the results of this study, one should consider that we included all critical care nurses, which may limit the generalizability of the findings. Some critical care nurses did not have any intention to participate in this study and did not fully complete the questionnaires. Therefore, the current study has sample size limitations.

As a conclusion of Brooks’ questionnaire, some aspects of nursing work life such as nursing job satisfaction, staffing issues, communication, and human resources remain problematic. QNWL has an important impact on attracting, satisfying, and retaining nurses, so it is necessary to pay more attention to QNWL and its related factors, specifically nursing workload, to improve job satisfaction and productivity and eventually achieve high quality of care as an organizational goal.

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Footnotes

Authors’ Contribution: Zohreh Sadat and Mohammad Sadegh Aboutalebi contributed to the planning and prepared the first draft and critical revisions of the manuscript. Zohreh Sadat supervised the study and conducted data analysis. Mohammad Sadegh Aboutalebi was involved in data collection, and Negin Masoudi Alavi contributed to the study conception and design, supervised the study, and assisted in the critical revision of the manuscript.

Conflicts of Interest: The authors declare no conflicts of interest in this study.

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