

## Original Article

# Association between Quality of Work Life and Stress among Nurses in a Tertiary Care Hospital in Saudi Arabia

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### ABSTRACT

**Background:** Quality of work life (QWL) influences the performance and commitment of employees in health-care organizations. **Objectives:** This study aimed at assessing the QWL and its associated factors among nurses in a tertiary care hospital in Al-Madinah, Saudi Arabia. **Methods:** This cross-sectional study was conducted among 212 nurses at Madinah Cardiac Center in Al-Madinah in Saudi Arabia using the Brooks and Anderson's quality of nursing work life survey and the stress subscale of the Depression, Anxiety and Stress Scale. The *t*-test, analysis of variance, Pearson correlation coefficient, and multiple linear regression were conducted to analyze the data. **Results:** Most participants (65.1%) had high QWL and one-third (33%) had severe stress. Factors that independently predicted QWL were monthly income ( $P = 0.007$ ), number of working hours per week ( $P = 0.041$ ), and stress level ( $P = 0.001$ ). **Conclusion:** Most participants had high QWL. Minimizing stress and improving the work environment are necessary to improve the QWL of nurses.

**KEYWORDS:** Nursing, Quality of work life, Saudi Arabia, Stress

## INTRODUCTION

Quality of work life (QWL) explores employees' emotions toward job scope, working environment, salaries, remunerations or compensations, career advancements, and involvement in decision-making. It is also influenced by occupational health and safety issues, work stress, job security, and work-life imbalance.<sup>[1]</sup> In health-care systems, nurses constitute the largest and part of the workforce.<sup>[2]</sup> Brooks defined QWL among nurses as "the degree to which a registered nurse is able to satisfy important personal needs through his or her experience within the working organization while simultaneously achieving the organization's mission and goals."<sup>[3]</sup>

The literature identified that QWL among nurses was seriously compromised. The bulk of studies reported that nurses had poor to moderate level QWL.<sup>[4-6]</sup> The poor QWL among nurses are influenced by a variety of demographic (income level and education status), occupational (type of hospital, working years, working hours, team communication, workplace, workload, career advancement opportunities, risk exposures to

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disease, or procedures), and psychological factors (occupational stress).<sup>[1,2,5,7]</sup> Stress among nurses was attributed to strenuous job with high and complicated demands combined with work accumulations and limited authority within the organization.<sup>[7,8]</sup>

### Objectives

As QWL may compromise the level of professional engagement or increase turnover intention among nurses that affects the continuity of patient care, this study aimed at exploring the level of QWL and its associated factors among nurses at the Madinah Cardiac Center in Al-Madinah, Saudi Arabia.

## METHODS

### Study setting and participants

This cross-sectional study was conducted among 212 nurses at Madinah Cardiac Center in Al-Madinah city, Saudi Arabia. Those who had working experience of <6 months or who were on leave were excluded. The sample size was calculated using this formula:  $n = Z^2 (1 - \alpha) \sigma^2/d^2$ . Accordingly, with a confidence level of 95%, a  $\delta$  of 26.8,  $Z$  of 1.96, and a  $d$  of 4, a sample of 171 was identified to be needed for the study.<sup>[9]</sup> By addition of 25% to compensate for nonresponse, the calculated sample size was 214. All the eligible nurses (280) in the hospital were approached and 212 of them returned completed questionnaires (response rate = 76%).

### Study instruments

A self-administered questionnaire was used. The questionnaire consisted of four parts. The first part included questions on the sociodemographic characteristics such as age, marital status, number of children, income, living arrangement, and qualification. The second included questions on the work characteristics such as years of experience since the last graduation, years of experience in this hospital, working hours/week, night duties/shifts, and department.

The third part included the validated Brooks and Anderson's quality of nursing work life survey (BQNWLS). The BQNWLS is a 42-item scale that assesses nurses' QWL. It includes four dimensions, namely work life/home life (seven items), the work design (10 items), the work context (20 items), and the work world (5 items).<sup>[8]</sup> Each item asks participants how much they agree or disagree on a six-point scale from 1; strongly disagree to 6 strongly agree. The total score for the BQNWLS is obtained by adding the 42 items. The total score ranges from 42 to 252; with a higher score indicating better QWL. The scores are interpreted as 42–84: low QWL, 85–168: moderate QWL, 169–252: high QWL.<sup>[9]</sup> The

internal consistency (Cronbach's alpha) of the total BQNWLS scores was reported 0.89.<sup>[9]</sup>

The fourth part measured stress using the stress subscale of the 21-Item Depression, Anxiety, and Stress Scale (DASS-21). The stress subscale consists of 7 items and its Cronbach's alpha was 0.81.<sup>[10]</sup> Participants were asked to score every item on a scale from 0 (did not apply to me at all) to 3 (applied to me very much). The total score was computed by adding up the scores on the items and multiplying them by a factor 2 in order to yield equivalent scores to the full DASS 42.<sup>[10]</sup>

The total score ranges between 0 and 42 and higher score indicates higher level of stress. Score 0–14 indicates normal (absence of stress), 15–18 mild stress, 19–25 moderate stress, 26–33 severe stress, and >33 very severe stress.<sup>[10]</sup>

### Ethical considerations

Ethical approval was obtained from the Ethics Committee of the Directorate of Health in Al-Madinah on January 28, 2020 (IRB 388). The objectives and benefits of the study were explained to the participants. Confidentiality and anonymity of the participants were assured. All the participants signed a written consent form.

### Statistical analysis

The analysis was performed using Statistical Package for the Social Sciences (SPSS®) (version 25.0, IBM, Armonk, NY, USA). The 42 items of BQNWLS and the 7 items of stress subscale were summed to obtain the total score for each tool. The reliability analysis of BQNWLS and stress yielded Cronbach's alpha of 0.84 and 0.85, respectively. Test of normality was performed for BQNWLS and stress subscale using Shapiro test and the distribution was normal.

The *t*-test and analysis of variance were used to assess the association between BQNWLS and the sociodemographic and work-related variables. Pearson correlation coefficient was used to assess the association between BQNWLS and stress. Multiple linear regression analysis (backward technique) was employed to obtain the significant factors associated with BQNWLS. The significant factors in the univariate analysis were entered into the multivariate analysis. Multicollinearity was checked between the independent variables using the variance inflation factor. The accepted level of significance was below 0.05 ( $P < 0.05$ ).

## RESULTS

Most participants were singles (53.8%), aged  $\leq 30$  years (67.5%), had <8000 Saudi Riyal (SAR) monthly income (85.4%), and hold a bachelor

degree (97.2%) [Table 1]. The majority had 6–10 years of experience since graduation (44.8%) and  $\leq 3$  years of experience in the current hospital (63.2%). Most of them worked 48 h per week (71.7%), had 8–10 night shifts per month (41.0%), and had a flexible duty schedule (72.2%). Approximately, one-third worked in the operation room (32.1%) [Table 2]. The mean of QWL was  $180.8 \pm 27.6$  and it ranges from 84 to 252. Most participants (65.1%) had high QWL and 34.9% had moderate QWL [Table 3]. None of the participants scored low QWL. Regarding stress, 9.9% had no stress, 21.7% had mild, 31.1% had moderate, 33.5% had severe, and 3.8% had very severe stress [Table 3]. In univariate analysis, QWL was significantly higher among those who had higher income ( $P = 0.003$ ), those who had selected their profession by themselves ( $P = 0.001$ ), those who had 8–11 years of experience in the current hospital ( $P = 0.012$ ), those who worked  $<48$  h/week ( $P = 0.001$ ), and those who had no night shifts ( $P = 0.018$ ) [Tables 4 and 5]. There was a significant negative correlation between stress score and QWL (Pearson correlation coefficient =  $-0.683$ ,  $P < 0.001$ ) [Table 5]. In multiple linear regression analysis, factors that independently predicted QWL were monthly income ( $P = 0.007$ ), number of working hours per week ( $P = 0.041$ ), and the stress level ( $P = 0.001$ ). The total model was significant and there was no multicollinearity in the model [Table 6].

**Table 1: Sociodemographic characteristics of the participants**

Characteristics	n (%)
Age	
≤30	143 (67.5)
31-35	41 (19.3)
>35	28 (13.2)
Marital status	
Single	114 (53.8)
Married	98 (46.2)
Number of children (n=98)	
No children	33 (33.7)
1-2	50 (51.0)
3-4	15 (15.3)
Income	
<8000	181 (85.4)
≥8000	31 (14.6)
Living arrangement	
Alone	68 (32.1)
With family	40 (18.9)
With friends	104 (49.0)
Qualification	
Diploma	3 (1.4)
Bachelor	206 (97.2)
Master	3 (1.4)

## DISCUSSION

Most nurses in this study reported a high level of QWL. This finding was in contrast with previous studies that reported high rates of low QWL among nurses, ranged between 52.4% and 68.8%.<sup>[1,4,5,11,12]</sup> Such a contrary phenomenon could be attributed to the utilization of different measurement tools and scoring methods to determine the level of QWL among nurses, thus alarming possible overestimates or underestimates when these instruments are adapted cross-culturally to measure QWL. Variations in QWL could also be influenced by different geographical and occupational settings, such as hospitals or clinics that are located in rural, suburban, or urban areas that offer primary, secondary or tertiary services. Better QWL among nurses was observed in tertiary health-care facilities.<sup>[5,6]</sup> These findings corroborated well with the results of the current study that observed a relatively high QWL among nurses affiliated with the Madinah Cardiac Center, a specialist tertiary health-care hospital located in the city of Madinah. The plausibility of such findings could be pointed to the fact that specialized health-care facilities

**Table 2: Work-related characteristics of the participants**

Characteristics	n (%)
Selection of profession (nursing) with interest	
Yes	197 (92.9)
No	15 (7.1)
Years of experience since the last graduation	
≤5	71 (33.5)
6-10	95 (44.8)
>10	46 (21.7)
Years of experience in this hospital	
≤3	134 (63.2)
4-7	60 (28.3)
8-11	18 (8.5)
Working hours/week	
<48	42 (19.8)
48	152 (71.7)
>48	18 (8.5)
Night duties/shift	
No	79 (37.3)
2-7	29 (13.7)
8-10	87 (41.0)
>10	17 (8.0)
Do you have a flexible duty schedule	
Yes	153 (72.2)
No	59 (27.8)
Department	
Inpatient	46 (21.7)
ICU	54 (25.5)
Emergency	15 (7.1)
Surgical/operation room	68 (32.1)
Outpatient	29 (13.6)

ICU: Intensive care unit

**Table 3: Level of quality of work life and level of stress among participants**

Characteristics	n (%)
Level of quality of work life	
Moderate quality of work life	74 (34.9)
High quality of work life	138 (65.1)
Level of stress	
Absence of stress	21 (9.9)
Mild stress	46 (21.7)
Moderate stress	66 (31.1)
Severe stress	71 (33.5)
Very severe stress	8 (3.8)

**Table 4: Association between the quality of work life and demographic characteristics**

Characteristics	Mean ± SD	P
Age		
≤30	181.13 ± 28.71	0.486
31-35	177.05 ± 24.21	
>35	185.11 ± 27.12	
Marital status		
Single	181.39 ± 27.13	0.766
Married	180.26 ± 28.39	
Number of children (n=98)		
No children	178.79 ± 31.06	0.830
1-2	181.96 ± 27.24	
3-4	178.01 ± 27.60	
Income		
<8000	180.59 ± 26.12	0.003
≥8000	185.52 ± 35.83	
Living arrangement		
Alone	180.19 ± 28.19	0.086
With family	181.28 ± 33.67	
With friends	181.15 ± 24.91	
Qualification		
Diploma	176.00 ± 6.08	0.326
Bachelor	181.28 ± 27.88	
Master	157.67 ± 12.34	

SD: Standard deviation

provide focused services as compared to primary or secondary ones which offer a broad range of clinical services and diagnostics that demands multiple skills and accumulation of work functions, thus causing higher psychological repercussions that lead to poor QWL.

An important finding in this study was the association between perceived stress and low QWL among nurses. This finding was consistent with previous studies from Bangladesh, Greece, and Iran<sup>[2,7,13]</sup> but inconsistent with a study from Brazil that found no relationships between perceived stress and QWL among nurses.<sup>[14]</sup> It is worthwhile to note that perceived stress catalyzes negative effects on employee's psychological, emotional, behavioral, and cognitive attributes, causing decreased

**Table 5: Association between the quality of work life and work-related characteristics**

Characteristics	Mean ± SD	P
Selection of profession (nursing) with interest		
Yes	182.58 ± 26.91	0.001
No	157.87 ± 28.40	
Years of experience since the last graduation		
≤5	186.01 ± 23.93	0.125
6-10	179.38 ± 29.26	
>10	176.00 ± 28.94	
Years of experience in this hospital		
≤3	180.16 ± 28.03	0.012
4-7	181.08 ± 27.99	
8-11	185.39 ± 24.63	
Working hours/week		
<48	187.79 ± 30.66	0.001
48	179.94 ± 25.80	
>48	172.56 ± 33.43	
Night duties/shift		
No	186.45 ± 29.61	0.018
2-7	181.52 ± 23.88	
8-10	180.71 ± 23.99	
>10	178.45 ± 40.43	
Do you have a flexible duty schedule		
Yes	181.91 ± 28.60	0.382
No	178.22 ± 25.16	
Department		
Inpatient	169.76 ± 25.51	0.001
ICU	176.35 ± 23.57	
Emergency	196.20 ± 44.15	
Surgical/operation room	184.29 ± 24.49	
Outpatient	190.93 ± 27.51	
Characteristics	Pearson correlation	P
Stress	-0.683	<0.001

ICU: Intensive care unit, SD: Standard deviation

**Table 6: Factors associated with quality of work life in multivariate analysis**

Characteristics	B	SE	β	P	VIF
Income	15.39	1.61	0.178	0.007	1.012
Number of working hours per week	-0.325	0.17	-0.125	0.041	1.033
Stress level	-1.307	0.28	-0.298	0.001	1.022

VIF: Variance inflation factor, SE: Standard error

work efficiency and engagement.<sup>[7]</sup> Stress sustained by nurses will lead to low job satisfaction, negative work attitudes, and serious consequences for patient care.<sup>[15]</sup> Nurses are often confronted with death and dying of patients in hospital wards, conflicts between team members or colleagues, routine heavy workload, struggle to achieve a balance between work demands and family commitments, and discrimination within the profession;

all of which require patience and adjustments with appropriate coping mechanisms to overcome job stress for better QWL.<sup>[2]</sup>

Studies from Ethiopia, Bangladesh, and Iran reported that higher income level was associated with better QWL.<sup>[1,2,12]</sup> This study found that nurses with high-income level ( $\geq$ SAR 8000) had better QWL scores as compared to those with a lower income level, and this association was statistically significant. Health-care employees whose main scope is patient care often face excess responsibilities, overworked, and accumulated functions during clinical practice. With such demands and expectations, Moradi *et al.* found that salaries and work remunerations or benefits are crucial to determine satisfaction among workers, which subsequently leads to better QWL.<sup>[5]</sup>

This study found that nurses who selected the nursing profession with interest had significantly higher QWL scores. Similarly, QWL among nurses was significantly associated with longer duration of work years, shorter working hours per week, night duties or shift work, and work unit. This study found that nurses working for longer duration years had better QWL, consistent with previous studies.<sup>[2,5,14]</sup> Nurses who had been working within their role functions for a long time in the institution may gain necessary experience, thus able to have higher control over their routine workload.<sup>[14]</sup> This study found that nurses with shorter working hours per week or having night duties/shift work in the hospital had better QWL scores. da Silva and Guimaraes found similar findings.<sup>[14]</sup> It was postulated that shorter work duration could lead to a softening effect of demands to overwork overtime, thus catalyzing greater control by the nurses to complete their daily work routine.<sup>[14]</sup> The current study also found a significant association between work unit and QWL among nurses. Nurses working in the outpatient departments had higher QWL scores. Similar findings were observed in previous literature<sup>[1]</sup> A plausible explanation of such associations could be related to the fact that the outpatient departments do not require work engagement at night or shift duties, direct patient care or work overload, and demands for skilled clinical procedures, medications serving or ward administrative duties, resulting in better QWL.<sup>[1]</sup>

The limitations of this study should be acknowledged. First, the cross-sectional nature of this study could not establish temporality between variables. Second, the data are from a self-administered questionnaire, thus responses may be subjected to social desirability or recall bias. Third, the relatively small sample size from single center may be subjected to selection bias and limits the generalizability of the study findings.

## CONCLUSION

More than half of the nurses in this study had high QWL. But the level of QWL among nurses in this study was significantly influenced by demographic (income level), occupational (selection of nursing profession with interest, longer working years, shorter working hours per week, night duties or shift work, and work unit), and psychological (perceived stress) factors that need attention by nursing managers and hospital stakeholders to make appropriate solutions and coping strategies for nurses to maintain professional engagement for continuity of patient care.

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## Conflicts of interest

There are no conflicts of interest.

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