AOSIS

Assessing compassion satisfaction, compassion fatigue, stress and job satisfaction among nurses

CrossMark

Author:
Emad Shdaifat[1] ![ORCID]

Affiliation:
[1]Community Nursing Department, College of Nursing, Imam Abdulrahman Bin Faisal University (IAU), Dammam, Saudi Arabia

Corresponding author:
Emad Shdaifat,
ealshdaifat@iau.edu.sa

Orientation: Nurses experience occupational risks, including compassion fatigue and satisfaction with patient care, which could affect the quality of care provided.

Research purpose: This study examined the prevalence of compassion satisfaction (CS), burnout, secondary traumatic stress (STS), stress, and job satisfaction (JS) among nurses. Furthermore, this study aimed to determine the predictors of nurses' professional quality of life (ProQOL).

Motivation for the study: This study aimed to inform policymakers about nurse well-being, improve working conditions, and provide valuable insights into quality of life.

Research approach/design and method: A cross-sectional study was conducted with 347 nurses from a teaching hospital in eastern Saudi Arabia. Data were collected using three scales: ProQOL, Nursing Stress Scale and the Job Satisfaction Scale.

Main findings: The mean scores for CS, burnout, STS, nursing stress and JS were 38.1, 12.1, 23.0, 38.4 and 91.8, respectively. Predictors of CS included experience ($\geq$ 26 years), stress and JS. Female gender, stress and JS were predictors of burnout. Nursing stress and JS were predictors of STS.

Practical/managerial implications: The results of this study enhance policymakers understanding of ProQOL and contribute to improving nurses' working conditions. Policymakers can provide the necessary support and ensure that nurses have the resources for optimal patient care.

Contribution/value-add: This study addresses the gap in international comparative research on worker quality of life in developing countries and the Gulf Cooperation Council region, offering valuable insights into its dynamics and influences. This enhances our understanding of the critical aspects of workers' well-being.

Keywords: ProQOL; stress; satisfaction; nurses; burnout.

Introduction

Working in a hospital places great challenges and stress on healthcare professionals, especially nursing staff, who are responsible for delivering a wide range of services. These services not only involve advanced medical care but also require exceptional interpersonal communication and empathy. Nurses play a central role in delivering holistic and person-centred care, as they are at the forefront of interacting with patients. Their impact extends to overall quality of care, patient satisfaction and health outcomes (Foss Durant et al., 2015; Friese et al., 2008; Letvak et al., 2012).

Nurses are increasingly facing numerous challenges in the workplace, including routine work, excessive duty burdens and decision-making responsibilities with limited support as well as complex tasks (Letvak & Buck, 2008; Umann et al., 2012). Such working conditions have an impact on professional quality of life (ProQOL), particularly in terms of compassion satisfaction (CS) or compassion fatigue. Compassion satisfaction is associated with altruism and engenders positive feelings linked to helping others (Stamm, 2010). According to Tremblay and Messervey (2011), CS is influenced by self-efficacy beliefs, sense of community and effective coping with various life situations. Compassion satisfaction is derived from caring, demonstrating kindness and empathising with others, all of which contribute to caregivers' well-being in their professional and personal lives (Smart et al., 2014).

Providing empathetic services to patients and their relatives, alongside the demanding professional obligations of biomedical care, has a draining and negative effect on healthcare

providers, particularly nurses. This detrimental impact on ProQOL is referred to as compassion fatigue (CF) (Stamm, 2010). Compassion fatigue is characterised by two specific symptoms: burnout (BO) and secondary traumatic stress (STS) (Kelly et al., 2015). Burnout manifests as exhaustion, frustration, anger and depression, while STS manifests as fear and work-related trauma (Stamm, 2010). Both the positive and negative aspects of ProQOL significantly impact the ability to provide safe and high-quality patient care (Halbesleben et al., 2008).

According to the Occupational Safety and Health Institute of the United States (US), nurses report higher levels of stress and pressure than other healthcare providers (Ahangarzadeh Rezaei et al., 2008). This stress stems from the nature of their work (Gholam Nejad & Nikpeyma, 2009). Job satisfaction (JS) is a crucial factor in determining quality of service in healthcare institutions. Satisfaction, in particular, relates to nurses' emotional and behavioural evaluations of their performance, work life and work environment (Özden et al., 2013).

This study is significant because it examined the impact of multiple factors on nurses' quality of life and JS, with a particular focus on CS, BO and STS. Caregivers in hospital settings face various challenges, including heavy workloads, limited support and complex tasks that can significantly affect their professional well-being. By examining the positive and negative aspects of these factors, this study aimed to gain a deeper understanding of their impact on nurses' quality of life and JS. In addition, this study aimed to determine the prevalence of CS, BO, STS, stress and JS among nurses while identifying predictors affecting their job quality of life.

Good quality health services depend on various factors including ProQOL, work-related stress and JS (Halbesleben et al., 2008). Compassion fatigue can lead to disconnection with patients, development of negative behaviours, poor job performance, reduced concern and low achievement at work (Collins & Long, 2003; Poghosyan et al., 2010).

Materials and methods

Design and setting

This cross-sectional study was conducted at a teaching hospital in Saudi Arabia.

Sampling and sampling criteria

The sampling frame included nurses from different units working across all the shifts. A convenience sampling technique was used to collect the data, with the inclusion criteria specifying that participants must be registered nurses with at least a diploma and currently employed as staff nurses in the specified teaching hospital. Nurses with less than 6 months of professional experience were excluded from the study. The sampling was categorised into critical and non-critical units, including the Medical

Intensive Care Unit (MICU), Surgical Intensive Care Unit (SICU), Burn Unit, Coronary Care Unit (CCU), Neonatal Intensive Care Unit (NICU) and Paediatric Intensive Care Unit (PICU).

A sample size calculation was performed with the Gpower software to determine the required sample size for our study using linear multiple regression with a fixed model and the effect size measured by f. With an effect size of 0.15, a significance level of 0.05 and a desired power level of 0.80, the analysis yielded a noncentrality parameter of 17.70, a critical F-value of 1.92, and 10 degrees of freedom for the numerator and 107 for the denominator. The total sample size required for this study was 118 participants (Faul et al., 2009).

Study measures

To gather data, we administered surveys covering a range of topics including demographic characteristics, CS, burnout, STS, stress levels and JS. We used the Professional Quality of Life Scale, which consists of 30 items rated on a five-point Likert scale from 1 (never) to 5 (very often), to assess CS, BO and STS. The scale includes statements such as 'I like my work as a nurse', 'I am happy' and 'I am preoccupied with more than one person I help' (Hemsworth et al., 2018). Each dimension of the CS, BO and STS has a maximum score of 50. For each dimension of CS, BO and STS, scores ranged from 0 to 50, with higher scores indicating higher levels of the construct. The alpha scale reliability values were 0.88 for CS, 0.75 for BO and 0.81 for STS, demonstrating the internal consistency of the scale. Additionally, subscale scores can be categorised as low ($\leq$ 22), average (23–41) or high based on established thresholds (Stamm, 2010). To further assess the scale's reliability, we calculated the Cronbach's alpha coefficients. The coefficients for the CS, BO and STS were 0.81, 0.66 and 0.85, respectively, indicating good internal consistency for each dimension.

The Nursing Stress Scale (NSS) was used to assess nurses' stress levels. The NSS, which consists of 34 items scored on a five-point Likert scale ranging from 0 (never) to 4 (very frequently), contains items such as 'supervisor criticism' and 'unpredictable staffing and scheduling'. The NSS is divided into seven subscales that address different stresses, such as death and dying, conflict with physicians, poor preparedness, a lack of support, conflict with other nurses, workload and treatment uncertainty (Gray-Toft & Anderson, 1981). Cronbach's alpha was utilised in our study to assess the NSS's internal consistency, with a resulting value of 0.94 suggesting a good degree of reliability.

A job satisfaction survey (JSS) was conducted to evaluate JS. The JSS consists of 36 statements, such as 'I like the people I work with' and 'My job is enjoyable', and is divided into nine dimensions: salary, promotion, supervision, fringe benefits, contingent rewards, operational circumstances, co-workers,

nature of work and communication. Participants rated each item on a six-point scale ranging from 1 (strongly disagree) to 6 (strongly agree) (Spector, 1997). The analysis revealed that the JSS exhibited strong internal consistency, as indicated by Cronbach's alpha coefficient of 0.90. This result suggests that the survey reliably captured various facets of JS among participants.

Ethical considerations

Ethical clearance to conduct this study was obtained from the Imam Abdulrahman Bin Faisal University Institutional Review Board (reference no.: IRB-2019-04-171). All participants were provided with a thorough explanation of human and participant rights, both orally and in a written consent form, which was obtained from each participating nurse. The purpose of the study, as well as the assurance of data anonymity and the right to withdraw, were clearly explained and guaranteed to the participants.

Data analysis

Data were stored and analysed using Statistical Package for Social Sciences (SPSS) version 22.0. The reliability of the scales used in this study was assessed through reliability analysis, specifically Cronbach's alpha coefficients. The scale results are presented in terms of mean, standard deviation (SD), minimum, maximum and quartiles. The ProQOL scale was analysed in terms of frequency and percentage. To compare differences between groups, two independent t-tests or one-way analysis of variance (ANOVA) were employed. Simple linear regression analysis was performed to examine the relationship between stress, JS and ProQOL. Multiple linear regression analysis was used to identify the predictors of ProQOL, with statistical significance set at a p-value < 0.5. Missing data in the dataset were accounted for by replacing continuous variables with mean and categorical variables with median. The Mahalanobis distance method was used to identify the outliers. The results indicated that observations with values greater than 26.12 should be considered outliers (degree of freedom [df] = 8, p = 0.001, X^2 = 26.124). Consequently, these outlier data points were removed from the dataset.

Results

Table 1 presents descriptive statistics for JS, stress and job quality based on a sample of 347 participants. The mean values indicate the average scores for each variable.

The participants' CS scores had an average of 38.1 (SD = 5.0) and ranged from 18.0 to 50.0. The BO scores averaged 12.1 (SD = 3.0) and ranged from 4.0 to 20.0. The STS scores had an average of 23.0 (SD = 6.8) and ranged from 10.0 to 47.0. The mean nursing stress score was 38.4 (SD = 8.4), with values ranging from 19.0 to 63.0. Job satisfaction had an average score of 91.8 (SD = 8.7), with values ranging from 53.0 to 129.0.

Table 2 displays the frequency distribution of quality of professional life at various levels (low, average and high) among nurses. The table provides the number and percentage of participants falling into each category for different variables: regarding 'compassion', 2 (1%) participants reported low levels, 264 (76%) participants reported average levels and 81 (23%) participants reported high levels. In terms of 'burnout', all 347 (100%) participants reported low levels, with none reporting average or high levels. For 'STS', 174 (50%) participants reported low levels, 171 (49%) participants reported average levels and 2 (1%) participants reported high levels. The majority of nurses reported average levels of compassion, while none reported high levels of burnout. Regarding STS, about half of the participants reported low scores, while a smaller percentage reported high scores. These results suggest that further research and potential interventions are needed to support caregiver well-being and mitigate the effects of STS.

Table 3 illustrates the variations in the nurses' demographic characteristics concerning their ProQOL. The results reveal significant findings for certain categories. Age demonstrated significant differences between the CS (p < 0.011) and STS (p < 0.023) groups. The experience exhibited significant differences in CS (p < 0.001). The education level demonstrated significant differences in BO (p < 0.001). However, no significant differences were observed in terms of gender, marital status, nationality, unit or shift work. These findings underscore the

TABLE 1: The mean, standard deviation, minimum and maximum of job satisfaction, stress and professional quality of life (N = 347).

Variable	Min.	Max.	Mean	SD	1st quartile	2nd quartile	3rd quartile
Compassion satisfaction	18.0	50.0	38.1	5.0	35.0	38.0	41.0
Burnout	4.0	20.0	12.1	3.0	10.0	12.0	14.0
Secondary traumatic stress	10.0	47.0	23.0	6.8	19.0	22.0	27.0
Nursing stress	19.0	63.0	38.4	8.4	33.0	38.0	44.0
Job satisfaction	53.0	129.0	91.8	8.7	86.0	92.0	97.0

Min., minimum; Max., maximum; SD, standard deviation.

TABLE 2: Frequency of professional quality of life with varying severities, low, average and high (N = 347).

Variable	Low		Average		High	
	n	%	n	%	n	%
Compassion satisfaction	2	1	264	76	81	23
Burnout	347	100	0	0	0	0
Secondary traumatic stress	174	50	171	49	2	1

TABLE 3: The difference between demographic characteristics of nurses about professional quality of life (N = 347).

Variable	Frequency	Percent	Compassion satisfaction				Burnout				Secondary traumatic stress			
			Mean	SD	t/F	p	Mean	SD	t/F	p	Mean	SD	t/F	p
Age					3.47†	0.017*			4.00‡	0.008*			1.45	0.228
≤ 30	124	35.7	37.6	4.7			12.5	3.0			24.0	6.7		
31–40	145	41.8	37.9	4.9			12.4	2.9			22.6	6.5		
41–50	63	18.2	38.5	5.4			11.2	2.8			22.4	6.9		
≥ 51	15	4.3	41.7	4.3			10.9	3.3			21.8	9.2		
Experience					5.31§	0.001*			3.90¶	0.009*			0.688	0.560
≤ 5	108	31.1	37.3	4.1			12.2	2.8			23.2	6.5		
6–15	182	52.4	38.0	5.2			12.5	3.0			23.1	6.7		
16–25	43	12.4	39.2	5.2			11.2	2.5			22.9	6.9		
≥ 26	14	4.0	42.3	4.7			10.5	3.5			20.5	9.0		
Gender					0.45	0.661			3.46	0.001*			-0.014	0.989
Female	310	89.3	38.4	4.8			13.7	2.6			23.0	6.7		
Male	37	10.7	38.0	5.0			12.0	2.9			23.0	7.3		
Marital status					-1.37	0.169			0.755	0.451			-1.045	0.297
Single	133	38.3	37.6	4.8			12.3	2.7			22.5	6.1		
Married or Divorce	214	61.7	38.4	5.1			12.0	3.1			23.3	7.1		
Education level					0.24	0.807			-3.77	0.001*			-2.30	0.022*
Diploma	64	18.4	38.2	4.9			10.9	2.9			21.3	6.7		
BSN or MSN	283	81.6	38.0	5.0			12.4	2.9			23.4	6.7		
Nationality					0.28	0.782			0.45	0.651			1.51	0.132
Saudi	29	8.4	38.3	5.2			12.4	2.9			24.8	7.6		
Non-Saudi	318	91.6	38.0	4.9			12.1	3.0			22.8	6.7		
Unit					0.31	0.758			-2.00	0.45			0.12	0.903
Critical units	162	46.7	38.2	4.7			11.8	3.0			23.1	7.2		
Non-critical units	185	53.3	38.0	5.2			12.4	2.9			23.0	6.4		
Shift work					1.399	0.163			-1.398	0.163			-0.314	0.754
Fix (A, B, C)	88	25.4	38.7	4.6			11.8	2.8			22.8	6.9		
Rotational	259	74.6	37.8	5.1			12.3	3.0			23.1	6.7		

*, Significant.

†, One-way ANOVA: the Tukey HSD post hoc test with significance between Age ≤ 30 and ≥ 50, and between 31–40 and ≥ 50, p < 0.011, p < 0.022; ‡, One-way ANOVA: the Tukey HSD post hoc test with significance between Age ≤ 30 and 41–50, and between 31–40 and 41–50, p < 0.023, p < 0.035; §, One-way ANOVA: the Tukey HSD post hoc test with significance between Experience ≤ 5 and ≥ 26 and 6–15 and 2≥ 26; ¶, One-way ANOVA: the Tukey HSD post hoc test with significance between Experience 6–15 and 16–25.

importance of considering age, experience and educational level when comprehending ProQOL among nurses.

A simple regression analysis was conducted to examine whether nursing stress and JS could predict CS, BO and STS levels (Table 4). Nursing stress dimensions, including death and dying, conflict and uncertainty, showed statistically significant predictive power for CS, accounting for 13.9% of the variability (adjusted R^2 = 12.1%, F [7, 339] = 7.814, p < 0.001). Moreover, JS dimensions, such as promotion, fringe benefits, contingent rewards and nature of work, were found to be significant predictors of CS, explaining 28.2% of the variability (adjusted R^2 = 26.3%, F [9, 337] = 14.690, p < 0.001). For the prediction of BO, nursing stress dimensions (conflict, lack of support and workload) showed a statistically significant effect, explaining 24.6% of the variability (adjusted R^2 = 23.0%, F [7, 339] = 15.786, p < 0.001). Similarly, JS dimensions related to operating conditions and communication were significant predictors of BO, accounting for 22% of the variability (adjusted R^2 = 19.9%, F [9, 337] = 10.572, p < 0.001). In terms of STS, nursing stress dimensions (death and dying, conflict and uncertainty) displayed a statistically significant predictive effect, explaining 23.2% of the variability (adjusted R^2 = 21.6%, F [7, 339] = 14.611, p < 0.001). Additionally, JS dimensions encompassing pay, fringe benefits, the nature of work and

communication were significant predictors of STS, accounting for 23.9% of the variability (adjusted R^2 = 21.8%, F [9, 337] = 11.749, p < 0.001). These findings highlight the important role of nursing stress and JS in predicting CS, BO and STS levels among nurses.

Table 5 presents the results of the multiple regression analysis examining the predictors of several factors of nurses' ProQOL. For CS, the results revealed that experience (≥ 26 years) had a significant positive effect on CS (B = 3.958, standard error [SE] B = 1.53, β = 0.157, p < 0.01), suggesting that each additional year of experience over 26 years resulted in an average increase of 3958 units in CS. Job satisfaction also had a significant positive impact on CS (B = 0.124, SE B = 0.3, β = 0.218, p < 0.01), with each one-unit increase in JS having an average CS increase of 0.124 units. Conversely, nursing stress had a significant negative association with CS (B = –0.167, SE B = 0.031, β = –0.283, p < 0.01), indicating that each one-unit increase in nursing stress corresponded to an average decrease of 0.167 units matched in compassion and contentment. The overall regression model was significant (F = 4.690, p < 0.01), and the model explained 16.5% of the variance in CS among nurses.

Regarding BO, gender was a significant predictor, with female nurses exhibiting lower levels of BO than male

TABLE 4: Simple regression of nursing stress and job satisfaction with professional quality of life for nurses (N = 347).

Variable	Subscales	Compassion satisfaction			Burnout			Secondary traumatic stress		
		B	t	p	B	t	p	B	t	p
Nursing stress	Death and dying	-0.556	-3.249	0.001*	0.124	1.303	0.193	0.874	3.962	0.000*
	Conflict with physician	0.298	2.331	0.020*	0.238	3.340	0.001*	-0.089	-0.537	0.592
	Inadequate preparation	-0.279	-1.737	0.083	0.045	0.498	0.619	0.275	1.329	0.185
	Lack of support	-0.088	-0.514	0.607	0.206	2.158	0.032*	0.364	1.650	0.100
	Conflict with other nurses	0.366	1.499	0.135	0.102	0.749	0.454	0.766	2.432	0.016*
	Workload	0.017	0.073	0.942	0.399	3.152	0.002*	0.055	0.189	0.850
	Uncertainty concerning treatment	-1.155	-2.773	0.006*	0.126	0.542	0.588	0.293	0.545	0.586
Job satisfaction	Pay	-0.194	-1.918	0.056	0.082	1.309	0.192	0.307	2.162	0.031*
	Promotion	0.167	2.299	0.022*	-0.028	-0.626	0.531	0.171	1.671	0.096
	Supervision	0.223	1.955	0.051	-0.119	-1.690	0.092	0.026	0.163	0.871
	Fringe benefits	0.896	6.030	0.000*	-0.027	-0.290	0.772	-0.611	-2.924	0.004*
	Contingent rewards	0.172	2.212	0.028*	0.064	1.320	0.188	0.195	1.784	0.075
	Operating conditions	-0.076	-0.867	0.386	0.172	3.164	0.002*	-0.039	-0.316	0.752
	Co-workers	0.246	1.737	0.083	-0.125	-1.422	0.156	-0.162	-0.812	0.417
	Nature of work	-0.285	-2.492	0.013*	0.073	1.025	0.306	0.367	2.280	0.023*
	Communication	-0.359	-1.618	0.107	0.491	3.572	0.000*	1.605	5.153	0.000*

Note: Nursing Stress - Compassion satisfaction: R^2 = 0.139, F = 7.814**, Adjusted R^2 = 0.121. Burnout: R^2 = 0.246, F = 14.786**, Adjusted R^2 = 0.23. Secondary traumatic stress: R^2 = 0.232, F = 14.611**, Adjusted R^2 = 0.216. Job satisfaction – Compassion satisfaction: R^2 = 0.282, F = 14.69**, Adjusted R^2 = 0.263. Burnout: R^2 = 0.22, F = 10.572**, Adjusted R^2 = 0.199. Secondary traumatic stress: R^2 = 0.239, F = 11.749**, Adjusted R^2 = 0.218.

*, Significant.

B, Unstandardised coefficients.

TABLE 5: Multiple regression of predictors of professional quality of life for nurses (N = 347).

Variable	Compassion satisfaction			Burnout			Secondary traumatic stress		
	B	SE B	β	B	SE B	β	B	SE B	β
Experience (≥ 26)	3.958	1.530	0.157**	-	-	-	-	-	-
Gender (female)	-	-	-	-1.384	0.453	-0.145**	-	-	-
Nursing stress	-0.167	0.031	-0.283**	0.144	0.017	0.409**	0.348	0.041	0.432**
Job satisfaction	0.124	0.300	0.218**	0.038	0.016	0.111**	0.110	0.039	0.142**
R^2	-	0.165	-	-	0.293	-	-	0.236	-
F	-	4.690**	-	-	9.810**	-	-	7.340**	-
Adj R^2	-	0.130	-	-	0.263	-	-	0.204	-

Note: Compassion: R^2 = 0.165, F = 4.690**, Adjusted R^2 = 0.130. Burnout: R^2 = 0.293, F = 9.810**, Adjusted R^2 = 0.263. Secondary traumatic stress: R^2 = 0.236, F = 7.340**, Adjusted R^2 = 0.204.

*, $p < 0.05$; **, $p < 0.01$.

nurses (B = –1.384, SE B = 0.453, β = –0.145, $p < 0.01$). Nursing stress was also a significant predictor, with higher levels of nursing stress being associated with increased BO (B = 0.144, SE B = 0.017, β = 0.409, $p < 0.01$). The results indicated that JS had a significant positive effect on BO (B = 0.038, SE B = 0.016, β = 0.111, $p < 0.01$); therefore, for every unit increase in JS, there was an average increase of 0.038 units in BO. The regression model accounted for 29.3% of the variance in BO levels among the nurses (R^2 = 0.293). The overall model was statistically significant (F = 9.810, $p < 0.01$), suggesting that the predictor variables collectively contributed to BO prediction. The adjusted R^2 value indicated that 26.3% of the variance in BO was explained by predictor variables after adjusting for the number of predictors.

The regression analysis indicates that nursing stress has a statistically significant and aggravating effect on STS (B = 0.348, SE B = 0.041, β = 0.432, $p < 0.01$), suggesting that for every unit increase in nursing stress, there was a mean increase of 0.348 in STS. Furthermore, JS had a significantly positive effect on STS (B = 0.11, SE B = 0.039, β = 0.142, $p < 0.01$), suggesting that for every unit increase in JS, there was an average increase of 0.11 units entered STS. The regression model accounted for approximately 23.6% of the variance in STS among nurses. The overall model was

statistically significant (F = 7.340, $p < 0.01$), suggesting that the predictor variables contributed to the prediction of STS. The adjusted R^2 value showed that after adjusting for the number of predictors, approximately 20.4% of the variance in STS was explained by predictor variables. In conclusion, the regression analysis reveals that experience, JS and nursing stress are significant factors in predicting the levels of CS, burnout and STS. These findings emphasise the need to address JS and stress to enhance nurses' well-being and minimise the adverse impacts of burnout and STS. It is crucial to explore additional interventions and support systems to improve the quality of life for nurses.

Discussion

This study aimed to investigate the prevalence of CS, BO, STS, stress and JS among nurses and to identify predictors of ProQOL among nurses working at a teaching hospital in Saudi Arabia. The findings indicated that most nurses had average levels of CS and low levels of BO and STS. Significant group differences were found in CS for age and experience. Likewise, BO showed significant differences depending on age, experience, gender and level of education. In addition, STS showed significant differences in relation to educational level. Predictors for CS included experience (≥ 26 years),

stress and JS. Female gender, nursing stress and JS were identified as the predictors of BO. Nursing stress and JS were predictive factors for STS.

The study revealed that when it came to CS, the majority of participants reported average values. Furthermore, most nurses had a low level of STS, which aligns with the findings from numerous studies conducted in different countries. For instance, in a multi-centre study conducted in Spain by Ruiz-Fernández et al. (2020b), the mean CS was 35.48, and the mean BO was 23.44. Wang et al. (2020) conducted a study across 11 tertiary hospitals in China, where they found a mean CS of 32.6, a mean BO of 27.4 and an STS score of 26.9. Additionally, among critical care nurses in Saudi Arabia, Alharbi et al. (2020) found that the majority had average levels of CS (77.3%), BO (92.5%) and STS (80.4%).

In contrast, Balinbin et al. (2020) found that 44.5% of nurses experienced low levels of CS, whereas 58.8% reported moderate levels of BO. These findings may be attributed to the demographic characteristics of the sample. In both studies, a significant proportion of the participants were younger than 40 years, and a large majority had less than 15 years of experience. Shahar et al. (2019) suggested that lower levels of CS and BO could indicate better coping with work stress and improved working conditions. Environmental factors may also influence these parameters, such as in the context of the current study conducted in a teaching hospital. Teaching hospitals are often associated with more extensive and up-to-date clinical facilities, available resources, and a focus on staff development and support. It is worth noting that the hospital in this study obtained Magnet Hospital certification a few months prior to data collection, which further emphasises its commitment to nursing excellence and professional support.

This study showed a significant relationship between the various factors. Compassion satisfaction was found to be significantly related to age and experience, whereas BO was significantly associated with age, experience, gender and educational level. Secondary traumatic stress was significantly associated with educational attainment. These findings align with those of previous studies that reported similar associations. Previous studies have specifically highlighted the association between age and CS and the combined impact of age and experience on CS. The association between age and BO and the combined effect of age and experience on BO were also highlighted. Additionally, studies have highlighted the interplay between age, gender, and STS associated with experience. Finally, the relationship between age and STS was also examined (Balinbin et al., 2020; Borges et al., 2019; Erkorkmaz et al., 2018; Kawar et al., 2019; Kolthoff & Hickman, 2017; Ruiz-Fernández et al., 2020a; Sacco et al., 2015; Salimi et al., 2020; Shen et al., 2015; Wang et al., 2020).

In contrast, several other studies have found no significant relationship between certain variables. In particular, Kolthoff and Hickman (2017), and Ruiz-Fernández et al. (2020b) found

no significant relationship between CS and experience. Similarly, Ruiz-Fernández et al., (2020) and Salimi et al. (2020) found no significant relationships between BO and age, experience, gender, and education. Salimi et al. (2020a) and Wang et al. (2020) found no significant relationship between STS and educational level. In addition, Yu et al. (2016) found no significant relationships between demographic variables and CS, STS and BO. The high level of CS among older and more experienced nurses can be explained by their accumulated work experience, which enables them to manage work situations effectively and successfully completing tasks on time. This finding is consistent with the supportive environment of a certified training hospital where nurses receive ongoing training, mentoring and resources to improve their skills and well-being.

The result of the simple regression was confirmed using multiple regression. A multiple regression analysis found that CS predictors were working experience (≥ 26 years), stress and JS. These findings confirm previous studies that identified significant associations between CS and experience (Kelly et al., 2015; Duarte & Pinto-Gouveia, 2017); JS (Kelly & Lefton, 2017; Wang et al., 2020), and stress (Meyer et al., 2015). In contrast, Ruiz-Fernández et al. (2020a) found a significant difference between experience and CS. The higher CS of the more experienced nurses may be because of their accumulated work experience. More experienced nurses have encountered many challenges faced by patients and their families, which has increased their knowledge and ability to deal with difficult situations. These factors contribute to the higher levels of CS.

The predictors of BO included being female, experiencing high stress, and having a low JS. These findings support previous research on JS (Wang et al., 2020), age and experience (Mangoulia et al., 2015; Duarte & Pinto-Gouveia, 2017), stress and JS (Kelly & Lefton, 2017; Meyer et al., 2015) and JS (Haik et al., 2017; Xie et al., 2020). However, Alfuqaha and Alsharah (2018) found no association between BO and gender among nurses. Interestingly, Mooney et al. (2017) reported that male nurses exhibited lower levels of BO than their female counterparts.

This study revealed that nursing stress and JS were significant predictors of STS. These results align with previous studies by Kelly et al. (2015) and Wang et al. (2020) which also confirmed the relationship between JS and STS. Additionally, Kelly and Lefton (2017) supported the association between JS, job stress and STS. The main stressors for nurses, including conflicts with physicians, lack of support, workload, satisfaction with operating conditions and communication, contribute to these relationships. Implementing stress prevention strategies can enhance personal control of stress through education and training. At the organisational level, effective management, communication and improved working conditions can reduce stress (Khamisa et al., 2015). Insufficient support from nursing and hospital leadership and management can impede goal achievement and intensify pressure. Notably, older nurses with more experience

demonstrated greater proficiency in stress management, as reflected by higher CS levels and lower BO and STS.

Implication of the study

An implication of this study is that the findings can provide valuable guidance for hospital decision-makers and nurse managers in identifying areas for improvement to enhance ProQOL among nurses. At the individual level, it is crucial to ensure that all professionals have the necessary support to effectively care for their patients. This includes maintaining open communication channels between employees, supervisors and colleagues within a supportive workplace environment characterised by mutual support and care among professionals.

Additionally, this research enables managers to better predict the risk profiles of their workforce by considering JS, work stress and established factors, such as CS, secondary trauma and BO. Understanding these risk profiles can help managers make informed decisions and take appropriate action to address the specific needs of their nurses. In addition, this study highlights the significant impact of job stress and job dissatisfaction on levels of CS and burnout. In addition, it underscores the importance of considering the age and experience of nurses in relation to these outcomes. The value of older, more experienced nurses in providing mentoring and guidance and in contributing to a positive work environment should be recognised. Recognising and leveraging the expertise and insights of these experienced professionals can potentially increase overall JS and reduce burnout among less experienced employees. These factors can contribute to presenteeism, absenteeism and high turnover rates within the healthcare system, leading to increased costs and negative consequences for both patients and employers.

Limitation

This study has several important limitations that must be considered. Firstly, convenience sampling was used in our study, which may limit the generalisability of the findings primarily to teaching hospitals in Saudi Arabia. Secondly, the cross-sectional design employed in our study only allowed for a snapshot of participants' experiences and did not assess changes over time. In addition, an important suggestion for future research is to include a control group, such as nurses in a non-training hospital or high-stress emergency ward environment, and to consider the impact of both older and younger seniors or leaders on the experiences.

Recommendations

Further studies are needed to examine causality and to gain a deeper understanding of the complex relationships between work-related stress, JS and ProQOL. Exploring the mediation between these variables would provide valuable insights into their underlying mechanisms (Khamisa et al., 2015). Moreover, conducting longitudinal studies would enable an analysis of the strength of associations between the identified variables over time, offering a more comprehensive understanding of their impact on nurses' ProQOL. These research endeavours would contribute to existing knowledge and inform interventions and strategies aimed at improving nurses' well-being and JS.

Conclusion

This study aimed to investigate the prevalence of CS, BO, STS, stress and JS among nurses and identify predictors of ProQOL among nurses working at a teaching hospital in Saudi Arabia. The key findings of this study indicated that CS was at an average level, BO was at a low level and most nurses experienced a low level of STS. Age and experience were positively associated with higher CS, while age, experience, gender, and education level were significantly associated with lower BO. Secondary traumatic stress was found to be significantly associated with education level. The predictors of CS included experience (≥ 26 years), stress and JS. Female gender, nursing stress and JS were the predictors of BO. Nursing stress and JS were identified as predictors of STS.

Acknowledgements

Competing interests

Authors' contributions

E.S. is the sole author of this research article.

Funding information

Data availability

The data that support the findings of this study are available on request from the corresponding author, E.S.

Disclaimer

The views and opinions expressed in this article are those of the author and do not necessarily reflect the official policy or position of any affiliated agency of the author.

References

Ahangarzadeh Rezaei, S., Sagizadeh, M., & Shams, S. (2008). Survey of job stressors and coping strategies in nurses of psychiatric and general centers in Urmia. *Journal of Urmia Nursing and Midwifery Faculty, 6*(1), 1–7.

Alfuqaha, O., & Alsharah, H.S. (2018). Burnout among nurses and teachers in Jordan: A comparative study. *Archives of Psychiatry and Psychotherapy, 20*(2), 55–65. https://doi.org/10.12740/APP/80168.

Alharbi, J., Jackson, D., & Usher, K. (2020). Compassion fatigue in critical care nurses and its impact on nurse-sensitive indicators in Saudi Arabian hospitals. *Australian Critical Care, 33*(6), 553–559. https://doi.org/10.1016/j.aucc.2020.02.002

Balinbin, C.B.V., Balatbat, K.T.R., Balayan, A.N.B., Balcueva, M.I.C., Balicat, M.G.B., Balidoy, T.A.S., Macindo, J.R.B., & Torres, G.C.S. (2020). Occupational determinants of compassion satisfaction and compassion fatigue among Filipino registered nurses. *Journal of Clinical Nursing, 29*(5–6), 955–963. Available at: https://doi.org/10.1111/jocn.15163

Berger, J., Polivka, B., Smoot, E.A., & Owens, H. (2015). Compassion fatigue in pediatric nurses. *Journal of Pediatric Nursing, 30*(6), e11–e17. https://doi.org/10.1016/j.pedn.2015.02.005

Borges, E.M.D.N., Fonseca, C.I.N.D.S., Baptista, P.C.P., Queirós, C.M.L., Baldonedo-Mosteiro, M., & Mosteiro-Diaz, M.P. (2019). Compassion fatigue among nurses working on an adult emergency and urgent care unit. *Revista latino-americana de enfermagem, 27*, e3175. https://doi.org/10.1590/1518-8345.2973.3175

Collins, S., & Long, A. (2003). Too tired to care? The psychological effects of working with trauma. *Journal of Psychiatric and Mental Health Nursing, 10*(1), 17–27. https://doi.org/10.1046/j.1365-2850.2003.00526.x

Duarte, J., & Pinto-Gouveia, J. (2017). The role of psychological factors in oncology nurses' burnout and compassion fatigue symptoms. *European Journal of Oncology Nursing, 28*, 114–121. https://doi.org/10.1016/j.ejon.2017.04.002

Erkorkmaz, U., Dogu, O., & Cinar, N. (2018). The relationship between burnout, self-esteem and professional life quality of nurses. *Journal of the College of Physicians and Surgeons--Pakistan, 28*(7), 549–553.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*(4), 1149–1160. https://doi.org/10.3758/BRM.41.4.1149

Foss Durant, A., McDermott, S., Kinney, G., & Triner, T. (2015). Caring science: Transforming the ethic of caring-healing practice, environment, and culture within an integrated care delivery system. *The Permanente Journal, 19*(4), e136–e142. https://doi.org/10.7812/tpp/15-042

Friese, M.A., White, S.V., & Byers, J.F. (2008) *Chapter 34. Handoffs: Implications for nurses, patient safety and quality: An evidence-based handbook for nurses*. Retrieved from www.ncbi.nlm.nih.gov/books/NBK2649/.

Gholam Nejad, H., & Nikpeyma, N. (2009). Occupational stressors in nursing. *Iran Occupational Health, 6*(1), 22–27. Retrieved from http://ioh.iums.ac.ir/article-1-164-en.html.

Gray-Toft, P., & Anderson, J.G. (1981). The nursing stress scale: Development of an instrument. *Journal of Behavioral Assessment, 3*(1), 11–23. https://doi.org/10.1007/BF01321348

Haik, J., Brown, S., Liran, A., Visentin, D., Sokolov, A., Zilinsky, I., & Kornhaber, R. (2017). Burnout and compassion fatigue: Prevalence and associations among Israeli burn clinicians. *Neuropsychiatric Disease and Treatment, 13*, 1533–1540. https://doi.org/10.2147/NDT.S133181

Halbesleben, J.R.B., Wakefield, B.J., Wakefield, D.S., & Cooper, L.B. (2008). Nurse burnout and patient safety outcomes: Nurse safety perception versus reporting behavior. *Western Journal of Nursing Research, 30*(5), 560–577. https://doi.org/10.1177/0193945907311322

Hemsworth, D., Baregheh, A., Aoun, S., & Kazanjian, A. (2018). A critical enquiry into the psychometric properties of the professional quality of life scale (ProQol-5) instrument', *Applied Nursing Research, 39*, 81–88. https://doi.org/10.1016/j.apnr.2017.09.006

Kawar, L.N., Radovich, P., Valdez, R.M., Zuniga, S., & Rondinelli, J. (2019). Compassion fatigue and compassion satisfaction among multisite multisystem nurses. *Nursing Administration Quarterly, 43*(4), 358–369. https://doi.org/10.1097/NAQ.0000000000000370

Kelly, L., & Lefton, C. (2017). Effect of meaningful recognition on critical care nurses' compassion fatigue. *American Journal of Critical Care, 26*(6), 438–444. https://doi.org/10.4037/ajcc2017471

Kelly, L., Runge, J., & Spencer, C. (2015). Predictors of compassion fatigue and compassion satisfaction in acute care nurses. *Journal of Nursing Scholarship, 47*(6), 522–528. https://doi.org/10.1111/jnu.12162.

Khamisa, N., Oldenburg, B., Peltzer, K., & Ilic, D. (2015). Work related stress, burnout, job satisfaction and general health of nurses. *International Journal of Environmental Research and Public Health, 12*(1), 652–666. https://doi.org/10.3390/ijerph120100652

Kolthoff, K.L., & Hickman, S.E. (2017). Compassion fatigue among nurses working with older adults. *Geriatric Nursing, 38*(2), 106–109. https://doi.org/10.1016/j.gerinurse.2016.08.003

Letvak, S., & Buck, R. (2008). Factors influencing work productivity and intent to stay in nursing. *Nursing Economics, 26*(3), 159–167. Retrieved from https://go.gale.com/ps/i.do?p=AONE&sw=w&issn=07461739&v=2.1&it=r&id=GALE%7CA180516222&sid=googleScholar&linkaccess=fulltext.

Letvak, S.A., Ruhm, C.J., & Gupta, S.N. (2012). Original research: Nurses' presenteeism and its effects on self-reported quality of care and costs. *American Journal of Nursing, 112*(2), 30–38. https://doi.org/10.1097/01.NAJ.0000411176.15696.f9

Mangoulia, P., Koukia, E., Alevizopoulos, G., Fildissis, G., & Katostaras T. (2015). Prevalence of secondary traumatic stress among psychiatric nurses in Greece. *Archives of Psychiatric Nursing, 29*(5), 333–338. https://doi.org/10.1016/J.APNU.2015.06.001

Meyer, R.M.L., Li, A., Klaristenfeld, J., & Gold, J.I. (2015). Pediatric novice nurses: Examining compassion fatigue as a mediator between stress exposure and compassion satisfaction, burnout, and job satisfaction. *Journal of Pediatric Nursing, 30*(1), 174–183. https://doi.org/10.1016/j.pedn.2013.12.008

Mooney, C., Fetter, K., Gross, B.W., Rinehart, C., Lynch, C., & Rogers, F.B. (2017). A preliminary analysis of compassion satisfaction and compassion fatigue with considerations for nursing unit specialization and demographic factors. *Journal of Trauma Nursing, 24*(3), 158–163. https://doi.org/10.1097/JTN.0000000000000284

Özden, D., Karagözoğlu, Ş., & Yildirim, G. (2013). Intensive care nurses' perception of futility: Job satisfaction and burnout dimensions. *Nursing Ethics, 20*(4), 436–447. https://doi.org/10.1177/0969733012466002

Poghosyan, L., Clarke, S.P., Finlayson, M., & Aiken, L.H. (2010). Nurse burnout and quality of care: Cross-national investigation in six countries. *Research in Nursing & Health, 33*(4), 288–298. https://doi.org/10.1002/nur.20383.

Ruiz-Fernández, M.D., Pérez-García, E., & Ortega-Galán, Á.M. (2020a). Quality of life in nursing professionals: Burnout, fatigue, and compassion satisfaction. *International Journal of Environmental Research and Public Health, 17*(4), 1253. https://doi.org/10.3390/ijerph17041253

Ruiz-Fernández, M.D., Ramos-Pichardo, J.D., Ibáñez-Masero, O., Cabrera-Troya, J., Carmona-Rega, M.I., & Ortega-Galán, Á.M. (2020b). Compassion fatigue, burnout, compassion satisfaction and perceived stress in healthcare professionals during the COVID-19 health crisis in Spain. *Journal of Clinical Nursing, 29*(21–22), 4321–4330. https://doi.org/10.1111/JOCN.15469

Sacco, T.L., Ciurzynski, S.M., Harvey, M.E., & Ingersoll, G.L. (2015). Compassion satisfaction and compassion fatigue among critical care nurses. *Critical Care Nurse, 35*(4), 32–42.

Salimi, S., Pakpour, V., Rahmani, A., Wilson, M., & Feizollahzadeh, H. (2020). Compassion satisfaction, burnout, and secondary traumatic stress among critical care nurses in Iran. *Journal of Transcultural Nursing, 31*(1), 59–66. https://doi.org/10.1177/1043659619838876

Shahar, I., Asher, I., & Ben Natan, M. (2019). Compassion fatigue among nurses working in a long-term care facility: The Israeli experience. *Nursing and Health Sciences, 21*(3), 291–296. https://doi.org/10.1111/nhs.12594

Shen, J., Yu, H., Zhang, Y., & Jiang, A. (2015). Professional quality of life: A cross-sectional survey among Chinese clinical nurses. *Nursing and Health Sciences, 17*(4), 507–515. https://doi.org/10.1111/nhs.12228

Smart, D., English, A., James, J., Wilson, M., Daratha, K.B., Childers, B., & Magera C. (2014). Compassion fatigue and satisfaction: A cross-sectional survey among US healthcare workers. *Nursing and Health Sciences, 16*(1), 3–10. https://doi.org/10.1111/nhs.12068

Spector, P.E. (1997). *Job satisfaction: Application, assessment, causes, and consequences* (Vol. 3). Sage.

Stamm, B.H. (2010). *The concise ProQOL manual*. ProQOL. p. 78. Retrieved from http://proqol.org/uploads/ProQOL_Concise_2ndEd_12-2010.pdf.

Tremblay, M.A., & Messervey, D. (2011). The job demands-resources model: Further evidence for the buffering effect of personal resources. *SA Journal of Industrial Psychology, 37*(2), a876. https://doi.org/10.4102/sajip.v37i2.876

Umann, J., De Azevedo Guido, L., & Da Silva Grazziano, E. (2012). *Presenteeism in hospital nurses Presenteísmo em enfermeiros hospitalares. Revista Latino-Americana de Enfermagem, 20*(1), 159–166. https://doi.org/10.1590/S0104-11692012000100021

Wang, J., Okoli, C.T.C., He, H., Feng, F., Li, J., Zhuang, L., & Lin, M. (2020). Factors associated with compassion satisfaction, burnout, and secondary traumatic stress among Chinese nurses in tertiary hospitals: A cross-sectional study. *International Journal of Nursing Studies, 102*, 103472. https://doi.org/10.1016/j.ijnurstu.2019.103472

Xie, W., Wang, J., Okoli, C.T.C., He, H., Feng, F., Zhuang, L., Tang, P., Zeng, L., & Jin, M. (2020). Prevalence and factors of compassion fatigue among Chinese psychiatric nurses: A cross-sectional study. *Medicine, 99*(29), e21083. https://doi.org/10.1097/MD.0000000000021083

Yu, H., Jiang, A., & Shen, J. (2016). Prevalence and predictors of compassion fatigue, burnout and compassion satisfaction among oncology nurses: A cross-sectional survey. *International Journal of Nursing Studies, 57*, 28–38. https://doi.org/10.1016/j.ijnurstu.2016.01.012