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Research Article

An Investigation of Compassion Fatigue and Compassion Satisfaction among Critical Care Nurses: A Cross-sectional Study

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Background

Critical care nurses (CCNs) employed in critical care units encounter adverse working conditions, such as substantial workloads and inadequate managerial support, as well as professional challenges, including the management of patients with severe health issues, engagement with patients' emotional and physical suffering, and ethical dilemmas. These circumstances contribute to considerable physical and psychological stress, resulting in complex emotional responses such as anxiety, fear, frustration, and burnout.

Objective

This study aims to evaluate the levels of compassion fatigue (CF) and compassion satisfaction (CS) among CCNs and to propose evidence-based strategies for enhancing and promoting their psychosocial health and well-being.

Methods

A descriptive cross-sectional design was adopted, employing the Professional Quality of Life-5 scale. A convenience sample of 168 CCNs participated, with anonymous online questionnaires serving as the primary data collection method. Data were analyzed using descriptive and inferential statistical tests, with the significance level established at $\alpha < 0.05$.

Results

The findings revealed that participants exhibited low-to-average levels of CS, alongside average-to-high levels of burnout and secondary traumatic stress. Statistically significant differences were observed in the mean scores for CS, burnout, and secondary traumatic stress across variables such as age, sex, education, and work experience.

Conclusion

Average-to-high levels of CF were observed among nurses, whereas CS was approximately average. Nurse managers and healthcare organizations should implement strategies to enhance CS and mitigate CF. These strategies may include mentoring, mindfulness practices, stress-reduction techniques, resilience building, coping strategies, and fostering positive workplace relationships.

1. INTRODUCTION

Critical care nurses (CCNs) working in critical care units experience demanding working conditions. These include elevated patient loads, critical patient conditions, high workload demands,[1] challenge in managing unstable patients, and resource- and technology-intensive care environments. Moreover, they must respond to demands from

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patients and their families,[2] face elevated work complexity and intensity, inadequate rest periods, monotonous tasks, restricted autonomy in shaping work conditions, and diminished job satisfaction.[3] In addition, they remain highly attentive to patients' emotional pain and physical distress,[4] while encountering inadequate management support, communication challenges, and ethical dilemmas.[5] These conditions trigger substantial physical, psychological, and emotional stress, leading to difficult emotions such as anxiety, fear, frustration, and burnout.[1] Consequently, CCNs frequently experience heightened ambiguity, disempowerment, helplessness, and estrangement, which increases their risk of developing depression and fatigue. This situation adversely impacts their decision-making, attention, and overall performance, ultimately resulting in reduced quality and safety of patient care.[6] Therefore, it is unsurprising that critical care units are widely acknowledged as emotionally taxing environments.[7]

Compassion fatigue (CF) poses a substantial risk to nurses actively involved in professional practice. CF comprises both burnout and secondary traumatic stress.[8] It is a state of exhaustion and dysfunction across biological, psychological, and social domains, arising from chronic exposure to compassion stress and its related challenges. CF impedes the development and maintenance of relationships between patients and their families. This phenomenon underscores the detrimental effects of burnout and secondary traumatic stress, which stem from interactions with various elements of the work environment.[8] Secondary traumatic stress arises from exposure to extremely stressful workplace events and is characterized by insomnia and avoidance of trauma reminders. This condition may induce emotional disengagement and heightened arousal responses. Secondary traumatic stress occurs when individuals feel unable to prevent harm to others.[9] Burnout leads to frustration, disempowerment, and decreased morale as individuals experience obstacles in achieving desired outcomes.[9] Burnout is widely acknowledged as an occupational phenomenon that significantly impacts both patients and healthcare professionals.[10]

While experiencing CF, nurses may simultaneously attain a sense of compassion satisfaction (CS) from assisting traumatized patients.[11] This dual experience of CF and CS is conceptualized as professional quality of life (ProQoL), which can be attained through a sustainable equilibrium between the positive and adverse facets of caregiving. This phenomenon constitutes an essential dimension of professional caregiving and is considered predictable, treatable, and preventable.[12] CS represents the positive emotions generated through assisting others and reflects the motivation to integrate joy and satisfaction into occupational activities. Self-awareness and related activities can nurture CS. In general, CS serves as a protective factor against CF,[8] such that low levels of CF are associated with high levels of CS.[13]

CF adversely impacts individuals, patients, and healthcare organizations. Elevated levels of CF can lead to disengagement from patients, negative job attitudes, absenteeism, and diminished concern for patient care.[14] Nurses, in particular, experience substantial emotional strain and reduced job satisfaction.[7] Healthcare organizations may encounter decreased staff retention, increased incidence of sharp injuries, higher rates of medical errors, more frequent patient infections, and reduced nurse productivity.[15] Job turnover, increased psychological injury claims, higher rates of sick leave,[16] and workflow disruptions[2] may also occur. Prolonged exposure to stress undermines work efficiency and quality and may delay patient recovery.[17] The financial consequences of CF are yet to be quantified.[5]

The personal characteristics of nurses—such as age, sex, work experience, marital status, educational level, and clinical role in nursing—significantly influence the levels of CF and CS.[18] Symptoms of CF include emotional suppression, unhealthy lifestyle choices, deteriorating physical and mental health, exhaustion, irritability, and adverse coping behaviors such as substance abuse.[4] CF can inflict emotional trauma and even suicide, and is correlated with cardiovascular diseases, high cholesterol levels, increased body mass index, and insomnia.[13] Paradoxically, CF reflects suffering experienced by those engaged in the relief of others' pain. The prevalence of CF among nurses has increased. Accordingly, nurses have called for managerial support to address these challenges and foster supportive and motivational dynamics within organizational environments.[19]

Although numerous studies have examined the levels of CF and CS among nurses, a paucity of research exists regarding these levels among CCNs in Middle Eastern countries, particularly Saudi Arabia. Hence, this study addresses gaps in the literature specific to the Saudi Arabian healthcare system and provides context-sensitive data that can inform prospective research, comparative studies, and evidence-based recommendations for improving and promoting nurses' psychosocial health and well-being. More specifically, this study aims to evaluate the levels of CF and CS among CCNs and to determine how demographic characteristics influence nurses' ProQoL.

2. MATERIALS AND METHODS

2.1. STUDY DESIGN AND SETTING

A quantitative descriptive research design was used to assess levels of CF and CS among CCNs. This study also examined the sociodemographic factors influencing CF and CS among CCNs working in three major hospitals in Riyadh, Saudi Arabia. Recruitment was voluntary and involved a convenience sample of eligible participants, specifically nurses with a minimum of 1 year of experience in a critical care unit. Both registered and technical nurses were invited to participate.

In Saudi Arabia, the Saudi Commission for Health Specialties defines the legal and clinical boundaries separating technical nurses from registered nurses (RNs). Technical nurses typically complete a 2- to 3-year diploma program and are licensed to provide fundamental nursing care under the supervision of RNs or physicians. Conversely, RNs must hold a bachelor's degree in nursing and obtain certification through the national licensing examination. RNs possess a broader scope of practice, which includes conducting complex nursing procedures, developing care plans, and supervising nursing personnel.[20] Unit managers, educators, and coordinators were excluded from the study. Data collection was conducted from November 2021 to February 2022.

2.2. MEASUREMENTS TOOLS

The survey package consisted of a sociodemographic sheet and the ProQoL-5 questionnaire.[21] The sociodemographic sheet collected data on CCNs' characteristics, including age, sex, education, unit type, nursing experience, clinical designation, shift rotation, average weekly working hours, average nurse-to-patient ratio, and the number of patient deaths witnessed in the preceding week.

The ProQoL-5 is a self-report instrument that specifies the occurrence of CF resulting from organizational burden.[21]

It consists of 30 items rated on a five-point Likert scale (1 = never; 5 = very often) and measures three subscales: burnout, secondary traumatic stress, and CS (Appendix). Burnout and secondary traumatic stress were measured to determine CF, whereas CS was evaluated independently. Each subscale contains 10 items, with total scores interpreted as low (⩽22 points), average (23–41 points), or high (⩾42 points). Low CS and high CF scores were indicative of poor ProQoL.[21] The validity and reliability of each subscale were evaluated using Cronbach's α values of 0.75 (burnout), 0.81 (secondary traumatic stress), and 0.88 (CS).[21]

2.3. ETHICAL CONSIDERATIONS

The Institutional Review Board of the Alfarabi College for Dentistry and Nursing at Alfarabi Colleges in Riyadh approved the study procedure before data collection (IRB No.: alf.dent-2020047). Data were collected using an online survey. Participants' consent was obtained after they were informed of the purpose of the study and assured of confidentiality, anonymity, and voluntary participation before completing the online questionnaire. Participants were also informed that they could withdraw from the study at any time without facing disciplinary actions or repercussions. Because the questionnaire was concisely prepared, participants completed it in approximately 10–15 min. Furthermore, due to its non-interventional design, the study did not pose any risk to participants. The authors had sole access to the study's data, which were stored on a password-protected computer.

2.4. DATA COLLECTION PROCEDURE

The data collection process initially involved posting an official notice on the unit's noticeboard to indicate the commencement of the study. Anonymous online questionnaires were employed as the primary data collection method. Eligible nurses received an information sheet with a link to the survey questionnaire. The survey was accessed through a quick response code displayed on the unit's noticeboard. Google Forms were utilized to create the online survey, which incorporated built-in features to track response rates. The survey link was distributed via WhatsApp within closed groups corresponding to their respective hospital units. The link remained active for 12 weeks, with follow-up reminders administered at 3- and 8-week intervals to ensure participation. Participants voluntarily completed the survey at a time of their choosing. The software settings allowed only one response per individual, preventing duplication to ensure confidentiality.

2.5. DATA ANALYSIS

Comprehensive procedures were utilized to ensure data preparation, accuracy, and identification of duplicates, transcription errors, and missing data, using Statistical Package for the Social Sciences version 26 (IBM, United States). The Kolmogorov–Smirnov test, along with skewness and kurtosis values, was used to determine data normality. Descriptive statistics, including means, frequencies, and standard deviations (SDs), were computed to characterize the participants' sociodemographic attributes and determine their CS, burnout, and secondary traumatic stress levels. For normally distributed data, parametric tests, including independent *t*-tests and analysis of variance (ANOVA), were conducted to compare the means across groups. When significant differences in the means of burnout, secondary traumatic stress, and CS scores occurred, a *post hoc* analysis of the Tukey honestly significant difference test was conducted, with $p<0.05$ considered statistically significant.

3. RESULTS

3.1. SAMPLE CHARACTERISTICS

A total of 168 CCNs completed the study questionnaire, yielding a response rate of 87.5%. Among these respondents, 105 (62.5%) were female, 116 (69.1%) had a baccalaureate degree, and 102 (60.7%) worked more than 49 h weekly. Most participants were aged between 21 and 30 years, and 69 of them (41.1%) had 3–7 years of experience in a critical care unit. Among them, 130 (77.4%) were RNs. Table 1 provides detailed sample characteristics.

3.2. CF AND CS AMONG NURSES

Table 2 depicts the means and SDs of the ProQoL-5 components. The CS, burnout, and secondary traumatic stress had mean scores of 30.91 (SD = 8.31), 36.21 (SD = 7.54), and 34.83 (SD = 7.96), respectively. According to the ProQoL-5 manual, these findings indicate low-to-average levels of CS and average-to-high levels of burnout and secondary traumatic stress.

Female nurses exhibited higher scores than their male counterparts in burnout (female: mean = 42, SD = 4.96; male: mean = 31, SD = 6.21) and secondary traumatic stress (female: mean = 44, SD = 4.18; male: mean = 33, SD = 6.38). Conversely, male nurses had higher scores than female nurses in CS (female: mean = 29, SD = 5.61; male: mean = 36, SD = 4.32). An independent sample *t*-test confirmed the statistical significance, with female nurses scoring higher than male nurses in burnout ($t[166] = 22.3$, $p<0.001$) and secondary traumatic stress ($t[166] = 32.1$, $p<0.001$). In contrast, male nurses had higher CS values than female nurses ($t[166] = 13.1$, $p<0.001$).

Participants were categorized into four age groups: ⩽20 years, 21–30 years, 31–40 years, and >41 years. ANOVA analysis revealed significant differences in CS scores across the groups ($F[3,164] = 6.5$, $p<0.01$). A Tukey *post hoc* test demonstrated that CS scores were higher in the >41 (mean = 46, SD = 3.17) and 31–40 (mean = 43, SD = 5.07) age groups than in the 21–30 (mean = 30, SD = 4.61) and ⩽20 (mean = 26, SD = 6.15) age groups. No significant differences ($p>0.05$) were observed between the remaining groups. These findings suggest that older nurses have higher CS levels than their younger counterparts.

In addition, one-way ANOVA revealed significant differences in burnout and secondary traumatic stress scores across age groups. For burnout, nurses aged ⩽20 ($F[3,164] = 4.7$, $p<0.016$) and 21–30 years ($F[3,164] = 8.47$, $p<0.016$) scored higher than older age groups. *Post hoc* Tukey tests revealed that the ⩽20 age group (mean = 42, SD = 5.88) had higher burnout scores than the 21–30 group (mean =28, SD = 4.38), 31–40 (mean = 21, SD = 7.17), and >41 (mean = 18, SD = 7.23) age groups. Similarly, for secondary traumatic stress, the ⩽20 and 21–30 age groups exhibited higher scores than older nurses. The >41 age group had lower burnout and secondary traumatic stress scores than younger nurses. These results suggest that younger nurses, particularly those aged ⩽20 or 21–30 years, exhibit higher

Table 1. Participant characteristics (*n*=168)

Variable	Frequency	Percentage (%)
Sex		
Female	105	62.5
Male	63	37.5
Age		
⩽20	12	7.1
21–30	86	51.2
31–40	42	25
⩾41	28	16.7
Educational level		
Diploma/college	38	22.6
Bachelor's degree	116	69.1
Master's degree	14	8.3
Years of experience in nursing		
⩽2	33	19.6
3–7	72	42.9
8–12	40	23.8
⩾13	23	13.7
Years of experience in nursing		
⩽2	25	14.9
3–7	69	41.1
8–12	55	32.7
⩾13	19	11.3
Marital status		
Single	53	31.5
Married	89	53
Divorce/separated	26	15.5
Working hours per week		
⩽40	25	14.9
41–48	41	24.4
⩾49	102	60.7
Nationality		
Saudi	44	26.2
Non-Saudi	124	73.8
Clinical title		
Technician nurse	38	22.6
Registered nurse	130	77.4
Type of unit		
General critical care	73	43.5
Medical critical care	51	30.3
Surgical critical care	44	26.2
Shift rotation		
8 h	56	33.3
12 h	112	66.7
Patient-to-nurse ratio		
1:1	32	19
2:1	136	81

levels of burnout and secondary traumatic stress than their older peers.

One-way ANOVA revealed significant differences in burnout, secondary traumatic stress, and CS levels among nurses according to their years of work experience. For burnout, the analysis revealed a significant difference between groups (F[3,164] = 8.74, p<0.001). A subsequent Tukey *post hoc* analysis demonstrated that nurses with 1–5 years of experience had higher burnout scores (mean = 31, SD = 5.81) than those with 9–11 years (mean = 28, SD = 6.13, p<0.05) and those with 12 or more years of experience (mean = 28, SD = 7.21, p<0.05). Regarding secondary traumatic stress, a significant difference was observed across the experience groups (F[3,164] = 3.87, p=0.029). *Post hoc* comparisons revealed that nurses with 1–5 years of experience had higher secondary traumatic stress scores than their more experienced counterparts (p<0.05). For CS, significant differences were observed based on years of nursing experience (F[3,164] = 14.57, p<0.001), with more experienced nurses exhibiting higher CS levels than their less experienced peers. These findings suggest that nurses with fewer years of work experience are at greater risk of burnout and secondary traumatic stress, whereas more experienced nurses report higher CS.

Table 2. Compassion satisfaction and compassion fatigue scores (burnout and secondary traumatic stress) among participants (*n*=168)

Domain	Levels	*n* (%)	Mean	Standard deviation
Compassion satisfaction	Low (⩽22)	37 (22)	30.91	8.31
	Moderate (23–41)	103 (61.3)		
	High (⩾42)	28 (16.7)		
Burnout	Low (⩽22)	34 (20.2)	36.21	7.54
	Moderate (23–41)	86 (51.2)		
	High (⩾42)	48 (28.6)		
Secondary traumatic stress	Low (⩽22)	28 (16.7)	34.83	7.96
	Moderate (23–41)	101 (60.1)		
	High (⩾42)	39 (23.2)		

To investigate the impact of educational attainment on CS, burnout, and secondary traumatic stress, participants were categorized into three groups based on their highest educational qualification: Diploma, bachelor's degree, and master's degree. Significant differences were observed among the groups for CS (F[2,165] = 16.7, p<0.01), burnout (F[2,165] = 8.5, p<0.01), and secondary traumatic stress (F[2,165] = 5.29, p=0.021) scores. *Post hoc* Tukey tests revealed that nurses with bachelor's or master's degrees had lower burnout and secondary traumatic stress scores and higher CS scores than those with diplomas (p<0.05). No significant differences (p>0.05) were observed between bachelor's and master's degree holders. These findings suggest that higher educational qualification is associated with reduced CF, burnout, and secondary traumatic stress among CCNs. No significant effects were observed (p>0.05) for average patient-to-nurse ratio, shift rotation, years of experience in the unit, nationality, or marital status (Table 3).

4. DISCUSSION

This study contributes to the understanding of CF and CS among CCNs. The findings revealed moderate-to-high levels of CF and low-to-moderate levels of CS. Several studies have reported increased CF and diminished CS,[19] whereas others have suggested moderate levels of both CF and CS among CCNs.[22]

Within the unique environment of critical care units, nurses—who represent the largest cohort of healthcare

Table 3. Mean compassion satisfaction and compassion fatigue scores (burnout and secondary traumatic stress) by nurses' descriptive characteristics (*n*=168)

Variable	*n* (%)	Score											
		Compassionate satisfaction				Burnout				Secondary traumatic stress			
		Mean	SD	Statistic	*p*	Mean	SD	Statistic	*p*	Mean	SD	Statistic	*p*
Sex													
Female	105 (62.5)	29	5.61	*t*=13.1	<0.001	42	4.96	*t*=22.3	<0.001	44	4.18	*t*=32.1	<0.001
Male	63 (37.5)	36	4.32			31	6.21			33	6.38		
Age													
⩽20	12 (7.1)	26	6.15	F=6.5	<0.01	42	5.88	F=4.7	0.016	43	5.09	F=8.47	<0.001
21–30	86 (51.2)	30	4.61			28	4.38			29	4.25		
31–40	42 (25)	43	5.07			21	7.17			19	8.13		
⩾41	28 (16.7)	46	3.17			18	7.23			17	6.72		
Educational level													
Diploma/college	38 (22.6)	22	6.13	F=16.7	<0.01	30	6.45	F=8.5	<0.01	32	5.60	F=5.29	0.021
Bachelor's degree	116 (69.1)	30	5.80			26	7.21			27	7.84		
Master's degree	14 (8.3)	33	5.19			24	8.08			26	6.43		
Years of experience in nursing													
1–5	33 (19.6)	31	6.61	F=15.57	<0.001	31	5.81	F=8.47	<0.001	35	5.07	F=3.87	0.029
6–8	72 (42.9)	34	6.09			30	7.60			32	6.46		
9–11	40 (23.8)	38	4.83			28	6.13			33	7.61		
⩾12	23 (13.7)	40	5.50			28	7.21			31	5.17		

Abbreviation: SD: Standard deviation.

professionals—experience pronounced challenges while executing their clinical duties. These challenges primarily manifest in physical, psychological, mental, and emotional domains. Nurses have been shown to exhibit diminished personal accomplishment, elevated burnout and CF, and reduced quality of care delivered to critically and acutely ill patients.[23] Experiencing CF among nurses can lead to decreased engagement, increased human errors in hospital settings, suboptimal patient outcomes, and diminished quality of care.[17]

Our primary findings align with prior research, although some contrasts persist. For instance, a Chinese study reported varying levels of burnout, from low to moderate, and moderate-to-high levels of CS among nurses.[24] High levels of CS are considered motivational for nurses. Resource accessibility, leadership support, and professional opportunities in the work environment significantly influence CS and mitigate stress, serving as critical determinants of ProQoL.[22]

Aligning with our findings, previous studies have reported that CCNs exhibit moderate-to-high levels of burnout and CF.[25,26] An Iranian study reported that CS, burnout, and secondary traumatic stress were rated as moderate-to-high among participants.[27] In addition, nurses from the West Bank and Malaysia were found to exhibit moderate levels of CS, burnout, and secondary traumatic stress.[22,28] These findings may be attributed to the demanding environment of critical care units, the nature of clinical tasks, prolonged exposure to patients' chronic suffering, emotional exhaustion, and high expectations from patients and families, all of which substantially contribute to CF and burnout among nurses.[2,13] The reported results suggest that CCNs are at risk of CF, or already experience it, due to exposure to traumatic situations, high emotional burden,[27] and restricted access to psychological support services.[4]

The findings of the present study may be explained by suboptimal working conditions that adversely impact nurses' psychosocial health and well-being. These conditions include heavy workloads, limited resources, inadequate managerial support, staff shortages, insufficient educational opportunities, and dynamic working circumstances.[29] Continuous exposure to these working conditions and associated emotional strain may gradually elevate the risk of CF. Variations in working conditions, workload, cultural contexts across countries, and individual nursing attributes may explain divergences between the present findings and previous research, as the psychological strain in critical care units tends to be more pronounced than in other hospital units.[27]

In this study, the findings revealed that nurses aged 21–30 years demonstrated higher CF levels and lower CS levels than those aged 31 years and older. This suggests that older nurses may have developed more effective coping strategies and that depersonalization may decrease with age. Researchers have reported similar findings in other studies.[15,22,25,26,30] These findings may account for the early turnover observed among younger nurses.[2,23] Kelly *et al*.[3] demonstrated a relationship between turnover and retention challenges among young nurses and unresolved CF experiences early in their careers, which resulted in shorter employment durations in the profession.[3] Conversely, some studies have reported that younger nurses exhibit higher CS than their older peers.[31] This discrepancy may be associated with the fact that younger nurses often have fewer financial and social responsibilities than older nurses, who may be married with children and face additional family-related obligations. Furthermore, some studies have reported no significant differences in CF or CS scores based on age.[16,32]

Female nurses exhibited lower CS and higher burnout and secondary traumatic stress scores, aligning with previously published studies.[22,33] Globally, nurses are predominantly female, and they often express optimism in their professional role of helping others. In Saudi Arabia, cultural factors place additional domestic responsibilities on female

nurses, particularly in child-rearing and family care, thereby elevating stress and workload.[33] Conversely, some studies have demonstrated that female nurses exhibit higher CS than their male peers.[34] However, other studies revealed that male nurses perform better than female nurses with respect to secondary traumatic stress and burnout scores.[17,30]

Nurses with less experience demonstrated lower CS than their more experienced counterparts, making them more vulnerable to burnout. These findings align with previous research.[22,23,28] CS appears to increase with experience, but not secondary traumatic stress and burnout.[17,22,26] This phenomenon may be explained by the cumulative effects of experience over time and the professional values that develop with it.[30] Experienced professionals perceive a higher sense of control over their work,[28] and tend to adapt more readily to unit procedures. In contrast, less experienced nurses may experience feelings of inadequacy and helplessness, together with difficulties in building a peer support network.[26] Conversely, some studies have demonstrated that experienced nurses are at risk of developing CF due to prolonged exposure to stressors throughout their careers.[31,33]

In this study, nurses with baccalaureate or master's degrees had lower CF and burnout levels, aligning with findings from previous research.[2] Nurses with master's degrees also had higher CS scores.[22] In addition, nurses with advanced educational qualifications exhibited greater expertise and capabilities, thereby equipping them with competencies essential for their professional roles within the healthcare system. However, other studies have suggested that education impacts only CS, not burnout or secondary traumatic stress.[16] In contrast, another study revealed no association between educational level and secondary traumatic stress scores.[32]

5. IMPLICATIONS AND RECOMMENDATIONS

This study provides valuable insights and guidance for prospective studies, highlighting the importance of organizational and management support in mitigating the psychological consequences experienced by nurses. In addition, it highlights the urgent need for systemic changes in working conditions within critical care units. Addressing CF within organizations can provide nurses with opportunities to reconnect and rejuvenate. Nurse managers in high-pressure and high-risk units, such as critical care units, should develop culturally driven strategies to prevent, reduce, and mitigate the adverse consequences of CF and to improve CS. These strategies may include mentoring, mindfulness practices, and emotional, social, and peer support programs, all of which can help reduce job burnout, stress, anxiety, and depression while promoting empathy, compassion, and adaptability.[16] Continuing education programs focusing on stress management, wellness decision-making, emotional resilience, and coping skills should be integrated into clinical settings.[22,34]

CF is recognized as a personal experience influenced by both environmental and individual factors. Consequently, nurse managers are tasked with developing well-structured, supportive, and healthy work environments that acknowledge nurses' contributions and provide positive feedback, thereby enhancing their quality of work life. Implementing evidence-based programs and on-the-job training focused on resilience-building and coping strategies, alongside establishing appropriate workplace policies, flexible schedules, and a motivational atmosphere, is essential.[28,32]

Moreover, managers should reallocate human resources, offer shorter working hours, and facilitate childcare facilities.[35] The implementation of emotional freedom technique programs and dedicated psychological services has been shown to effectively reduce stress among healthcare workers. Nurse managers should create opportunities for professional growth and advancement, promoting courage, vision, and empathetic communication with the nursing staff.[36] Furthermore, nurses must prioritize self-compassion and self-care. Thus, nurses' health and well-being can be strengthened through the adoption of physical fitness initiatives, including gym access within hospital rehabilitation facilities, group exercise sessions supervised by rehabilitation staff, and additional health benefits such as free screenings and health insurance coverage.[28]

Nurse managers are responsible for supporting the successful transition of junior nurses into senior roles by developing peer support networks.[2] In addition, nurse managers and healthcare organizations must attend to junior nurses to mitigate turnover rates by improving working conditions, addressing ethical dilemmas, and providing training in competencies specific to critical care units. Therefore, organizations should prioritize the recruitment of highly educated nurses for critical care units and promote academic advancement among those with less formal education. Furthermore, the nursing curriculum should be reevaluated to incorporate strategies for compassionate care, equipping nursing students with the competencies needed at graduation to address the emotional challenges of the field. Accordingly, developing interpersonal communication skills, such as attentive listening, empathetic language, and conflict resolution, is pivotal.[28] Ultimately, fostering a positive work environment can improve outcomes for both patients and nurses.

6. LIMITATIONS

Although this study provides valuable insights, several limitations must be acknowledged. Notably, the sample size was smaller than that reported in previous studies. In addition, the study relied on self-reported measures, which are prone to social desirability bias. Furthermore, the cross-sectional design limits the ability to establish causal relationships, and the ProQoL-5 instrument has limited sensitivity in detecting CF among nursing professionals. Finally, the use of convenience sampling in this study may reduce generalizability.

Prospective studies should explore the financial impact of CF on healthcare organizations and involve larger sample sizes to enhance the generalizability of these findings. Future research should also incorporate instruments that capture all aspects associated with the phenomenon. To this end, longitudinal studies are recommended to evaluate changes over time and determine whether improvements in the work environment can directly improve ProQoL scores. Finally, qualitative studies should be designed to explore the lived experiences of CCNs and provide deeper insights into CF and CS.

7. CONCLUSION

The present study demonstrates that CF levels among nurses were higher than those reported in previous research, although CS remained relatively stable. It is essential to implement stress-reduction techniques, debriefing activities,

resilience-building interventions, and emotional, social, and peer support programs, together with appropriate workplace policies, flexible schedules, a motivational atmosphere, and the cultivation of positive workplace relationships. Given the inverse relationship between CF and CS, addressing this issue requires prioritization by both management and nursing leaders to ensure effective implementation.

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CONFLICT OF INTEREST

The authors have no competing interests to declare that are relevant to the content of this article.

AUTHOR CONTRIBUTIONS

Conceptualization: All authors
Data curation: All authors
Formal Analysis: Waddah Mohammad D'emeh, Mohammed Ibrahim Yacoub
Investigation: Mohammad D'emeh, Ahmad Rajeh Saifan
Methodology: All authors
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Writing–review & editing: Waddah Mohammad D'emeh, Mohammed Ibrahim Yacoub

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was performed in accordance with the principles of the Declaration of Helsinki. Ethics approval was granted by the Ethics Committee of AlFarabi College for Dentistry and Nursing. Informed consent was obtained via a checkbox from all participants at the very beginning of the online questionnaire.

CONSENT FOR PUBLICATION

Informed consent for publication was obtained from all participants included in the study.

DATA AVAILABILITY STATEMENT

The data supporting the findings of this study are not publicly available due to privacy, ethical, and sensitivity restrictions.

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APPENDIX

PROFESSIONAL QUALITY OF LIFE SCALE V-5

When you help people, you have direct contact with their lives. As you may have noticed, your compassion for those you help can affect you in both positive and negative ways. Below are some questions about your experiences, both positive and negative, as a helper. Consider each of the following questions about you and your current work situation. Tick the option that honestly reflects how frequently you have experienced these situations in the last 30 days.

Items	Never	Rarely	Sometimes	Often	Very often
I am happy					
I am preoccupied with more than one person I help					
I feel connected to others					
I jump or am startled by unexpected sounds					
I find it difficult to separate my personal life from my life as a helper					
I am not as productive at work because I am losing sleep over the traumatic experiences of a person I help					
I think that I might have been affected by the traumatic stress of those I help					
I feel trapped by my job as a helper					
Because of my helping, I have felt "on edge" about various things					
I feel depressed because of the traumatic experiences of the people I help					
I feel as though I am experiencing the trauma of someone I have helped					
I have beliefs that sustain me					
I am the person I always wanted to be					
I feel worn out because of my work as a helper					
I feel overwhelmed because my case (work) load seems endless					
I avoid certain activities or situations because they remind me of the frightening experiences of the people I help					
As a result of my [helping], I have intrusive, frightening thoughts.					
I feel "bogged down" by the system					
I can't recall important parts of my work with trauma victims					
I am a very caring person					