

Research Progress on Current Status and Influencing Factors of Occupational Burnout Among ICU Nurses

Shaoyan Yuan, Fang Xu*

Fuzhou Medical College, Fuzhou 35000, Jiangxi, China

**Author to whom correspondence should be addressed.*

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Abstract: Nurses working in intensive care units face highly stressful working conditions, critically ill patients and persistent emotional engagement, rendering them a high-risk group for occupational burnout. Occupational burnout not only seriously damages nurses' physical and mental health and reduces job satisfaction and retention rate, but also poses a significant threat to nursing quality and medical safety of patients. This paper reviews the concept, epidemiological status and influencing factors of occupational burnout among ICU nurses, so as to provide references for optimizing ICU nurse management, improving nursing quality and safeguarding the occupational health of ICU nurses.

Keywords: ICU nurses; Occupational burnout; Influencing factors; Research progress

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1. Introduction

As the core area for treating critically ill patients in hospitals, intensive care units (ICU) are characterized by high enclosure, intensive technology, frequent decision-making and heavy emotional burden. Therefore, compared with nurses in other departments, ICU nurses are required to master complex monitoring technologies and emergency skills. Meanwhile, they are constantly confronted with various emergencies, interpersonal conflicts, excessive workload and emotional exhaustion, as well as psychological impacts arising from caring for terminally ill patients. Such high-intensity and high-pressure working modes put ICU nurses at high risk of occupational burnout^[1,2]. Studies have indicated that severe occupational burnout is correlated with lower nurses' intention to stay, declined quality of care, and increased medical errors^[3,4]. Accordingly, an in-depth understanding of the current status and influencing factors of occupational burnout among ICU nurses is of great significance for ensuring patient safety and promoting the physical and mental health of ICU nurses. This paper therefore reviews the epidemiological status and influencing factors of

occupational burnout among ICU nurses.

2. Concept of occupational burnout

The World Health Organization defines occupational burnout as “a syndrome resulting from chronic workplace stress that has not been successfully managed”. Academics generally adopt the three-dimensional theoretical framework proposed by Maslach et al., including emotional exhaustion, depersonalization, and reduced personal accomplishment^[1,5]. These three dimensions reflect different aspects of occupational burnout: emotional exhaustion represents the individual stress dimension of burnout, manifested as excessive consumption of emotional resources, fatigue and loss of energy, and is regarded as the core component of burnout; depersonalization reflects the interpersonal context dimension, manifested as alienation, indifference and negative attitudes toward service recipients, colleagues and even work itself; reduced personal accomplishment corresponds to the self-evaluation dimension, which means individuals tend to negatively evaluate the significance and value of their work, feel incompetent and inefficient, and believe they are unable to fulfill their job responsibilities^[5].

3. Epidemiological status of occupational burnout among ICU nurses

3.1. Global overall prevalence

Multiple large-sample studies indicate that occupational burnout among ICU nurses is a serious concern. One pooled study of 6 232 ICU nurses found that nearly half of them suffered from severe occupational burnout (44 %) ^[6]. Another umbrella review estimated the global prevalence among nurses: 33.45 % for emotional exhaustion, 25.0% for depersonalization, and 33.49 % for reduced personal accomplishment^[7].

Among these dimensions, emotional exhaustion is more prominent in ICU nurses, which is strongly associated with sustained high-intensity emotional engagement required by ICU work. Existing literature has reported that the prevalence of occupational burnout among all ICU practitioners ranges from 6% to 47 %^[8]. Considerable discrepancies can be observed across studies on ICU-nurse burnout. This may partly stem from differences in measurement instruments, and partly reflect substantial variations across regions and healthcare-system characteristics.

3.2. Epidemiological characteristics under specific contexts

The impact of the COVID-19 pandemic on occupational burnout among ICU nurses deserves particular attention. Studies have shown that the incidence of emotional exhaustion among nurses rose significantly to 39.23 % during the pandemic, much higher than the overall level for all nurses^[7]. Papazian et al. likewise reported a higher prevalence of severe occupational burnout among ICU nurses during the COVID-19 pandemic compared with the pre-pandemic period (61% versus 37%)^[6]. During the peak of the pandemic, ICU nurses were exposed to multiple stressors including surging patient numbers, shortages of personal protective equipment, risk of infection and ethical dilemmas, leading to a marked deterioration in burnout levels^[9,10]. A survey involving 1 150 ICU nurses across six European countries revealed that occupational burnout still stood at 27.1% even in the post-peak phase of the pandemic, indicating that the pandemic exerted long-lasting adverse effects on nurses' mental health^[11].

There are also inter-departmental differences in the manifestations of occupational burnout among

nurses. According to one study, reduced personal accomplishment was the most prominent dimension among ICU nurses, with a detection rate of 46.02 %, which was considerably higher than emotional exhaustion (33.45%) and depersonalization (25.0%)^[7]. Most ICU patients are critically ill with highly uncertain disease prognosis. Nurses rarely receive direct positive feedback from clinical practice, which may gradually trigger self-doubt regarding their professional value. By comparison, depersonalization is more prevalent among oncology nurses, with a detection rate of 42%. This may be explained by frequent exposure to terminally-ill patients in oncology departments; nurses tend to adopt subconscious psychological self-protection and gradually develop emotional numbing.

3.3. Regional differences and international comparisons

Considerable variations exist in the prevalence of occupational burnout among ICU nurses across different countries and regions. Data from earlier studies show that 61% of ICU nurses in the United States suffered from emotional exhaustion, 44 % exhibited depersonalization, and 51% reported reduced personal accomplishment. By contrast, domestic studies have presented different results: the overall three-dimensional prevalence of occupational burnout among Chinese ICU nurses was 16%, while the detection rate for each single dimension ranged from 26.1% to 43.2%^[8]. Salimi et al. conducted a questionnaire-based survey involving 400 ICU nurses from multiple hospitals in Iran and found that 42% of participants were at high risk of occupational burnout^[12]. A study by Turkish scholar Karadağ et al. investigated 304 ICU nurses, revealing that 53.3% suffered from occupational burnout, among whom 27.0 % reached a level requiring intervention^[13]. In Hail, Saudi Arabia, the prevalence of occupational burnout among ICU nurses was as high as 73.2%, whereas a Dutch study reported a burnout rate of only 22.7% among ICU healthcare workers^[14,15]. Evidently, the status of occupational burnout among ICU nurses differs markedly worldwide, and the underlying influencing factors deserve further in-depth exploration. Disparities in healthcare resource allocation, nurse-to-bed ratios, department management patterns, social support systems, and public recognition of the nursing profession may all contribute to cross-national variations in burnout risk. Notably, Bruyneel et al. observed that the burnout rate of ICU nurses was 27.1%, which was lower than the 30.3% for general-ward nurses; their rate of missed nursing care was also 9.9% lower^[11]. This finding suggests that the high-pressure working environment in ICUs tends to retain nurses with stronger psychological resilience. Meanwhile, ICUs are generally equipped with sufficient nursing manpower and favorable working conditions, which can partially mitigate the adverse effects of occupational burnout. Nevertheless, this does not mean that burnout among ICU nurses can be overlooked. On the contrary, it indicates that a favorable working environment and adequate resources constitute critical factors for reducing burnout risk.

4. Influencing factors of occupational burnout among ICU nurses

4.1. Work-related factors

The work of ICU nurses involves not only emergency treatment and care for critically ill patients, but also basic nursing work, including sputum suction, secretion clearance, and invasive procedures. Their tasks are heavy and complicated. Galván et al. found that NICU nurses with weekly working hours exceeding 36 hours faced an increased risk of occupational burnout^[16]. A study by Chen Na et al. demonstrated that heavier workload exerted greater impacts on nurses' occupational burnout during the pandemic^[17]. It indicates that excessive workload and prolonged working hours are vital risk factors contributing to occupational

burnout among ICU nurses ^[18]. In addition, unreasonable nurse-patient ratios and shortages of nursing human resources can aggravate occupational burnout ^[19]. Zhang Qian et al. found that lower job satisfaction corresponded to higher levels of occupational burnout, which may be attributed to insufficient staffing and suboptimal allocation of human resources in hospitals ^[20].

Besides, night shift work constitutes another important influencing factor. Efa et al. discovered that nurses working night shifts suffered from more severe burnout ^[21]. Another study pointed out that night shifts under the two-shift system were more likely to trigger occupational burnout compared with the three-shift system ^[20]. Night shifts disrupt nurses' biological rhythms, resulting in sleep disorders, endocrine disorders, and limited social life. Meanwhile, night work mainly focuses on patient condition monitoring and therapeutic operations, leaving little room to improve personal accomplishment ^[19].

4.2. Socio-demographic factors

Among socio-demographic factors, age and working experience exert complex effects on occupational burnout. Previous studies have demonstrated a negative correlation between age and occupational burnout among nursing staff. Young nurses are regarded as a high-risk group. Owing to insufficient experience in intensive-care-unit settings, they are less competent in handling medical emergencies and managing interpersonal relationships, making them more vulnerable to compassion fatigue and occupational burnout ^[22,23]. Other studies have reported higher burnout scores among nurses aged 26–35 years ^[24]. This may stem from heavy pressure for career advancement as well as difficulties in balancing professional obligations with family-rearing responsibilities, which often leave them overwhelmed and susceptible to burnout. Zou Tongxue pointed out that nurses with 10–19 years of service tend to develop burnout under long-term fixed work routines ^[25]. ICU nurses with different working years differ substantially in sources of occupational stress. Junior nurses mainly suffer from insufficient clinical competence and poor role adaptation, which constitute major stressors. By contrast, senior experienced nurses possess solid professional skills; nevertheless, prolonged exposure to high-intensity ICU work may give rise to persistent physical and mental cumulative fatigue. Existing studies indicate that occupational burnout is negatively correlated with working years: longer service corresponds to lower burnout levels. With accumulated clinical experience, nurses improve their emergency-response and stress-coping capacities, deal with clinical challenges more calmly, and achieve a stronger sense of professional accomplishment ^[26,27].

Females constitute the overwhelming majority of the nursing workforce. Evidence suggests that female nurses experience higher rates of occupational burnout ^[1]. This phenomenon is not merely attributable to the gender structure of the nursing profession. Women bear dual burdens of professional duties and family-care obligations. Unresolved work-family conflicts easily lead to psychological depletion and exacerbate burnout. Compared with males, females tend to be emotionally more sensitive and more prone to mood fluctuations induced by work-related stress ^[28]. However, domestic research has yielded inconsistent findings. Some scholars found that female gender may reduce burnout risk among ICU nurses, which could be explained by the generally low professional identity among male nurses in China ^[29].

4.3. Organizational environmental factors

Social support refers to the assistance available to individuals under stress, which can provide protection and sustain positive personal experience during stressful situations ^[30]. A growing body of studies has proven that

social support contributes to alleviating occupational burnout. Research indicates that supervisor support and colleague support are major factors influencing emotional exhaustion among ICU nurses ^[23]. When ICU nurses perceive team cohesion and organizational care, their psychological resilience is enhanced, enabling them to cope with work pressure more effectively. Meanwhile, family support helps relieve mental stress and reduce occupational burnout ^[28]. On the contrary, insufficient managerial support, poor leadership, adverse team relationships, and low job satisfaction can exacerbate occupational burnout among nurses ^[31].

4.4. Other factors

Mental health problems such as depression and anxiety are important influencing factors of occupational burnout. A study investigating the prevalence of occupational burnout among ICU physicians and nurses after the COVID-19 pandemic revealed that severe occupational burnout was significantly correlated with severe depression in both physicians and nurses ^[29]. Vasconcelos et al. found that 14.29% of nurses suffered from occupational burnout and 10.98% had depressive symptoms ^[32]. The detection rate of occupational burnout was higher among nurses with depressive symptoms than those without. The impact of ethical climate on occupational burnout has also attracted extensive research attention. Studies have demonstrated that caring ethical climate among clinical nurses exerts a significant effect on occupational burnout. Specifically, clinical nursing managers providing more supportive measures for nurses corresponds to lower levels of occupational burnout ^[33]. Wang et al. also verified this conclusion ^[34]. Clinically, factors including staffing establishment type, professional title, educational background, working environment, and monthly income also affect occupational burnout among ICU nurses ^[35,36]. The ICU features a depressing working environment and high occupational pressure. In addition, disparities in welfare brought by staffing establishment, difficulties in professional title promotion, and gaps between career expectations and real work among nurses with higher educational levels, coupled with income failing to match heavy workload, make nurses see limited room for development and feel their efforts are not duly rewarded. Over time, they tend to experience physical and mental exhaustion and develop occupational burnout.

5. Conclusion

Occupational burnout among ICU nurses constitutes a major public health issue that endangers patient safety and the stability of the nursing workforce. The emergence of occupational burnout results from the interaction of multiple factors, including workload, organizational systems, sociodemographic characteristics, psychological stress, and social support. Accordingly, comprehensive multi-level strategies are required to address this problem. This paper analyzes the epidemiological status and influencing factors of occupational burnout among ICU nurses, so as to provide references for ICU nurses and nursing managers to mitigate burnout and formulate corresponding interventions. Future research should carry out large-sample, multicenter prospective studies. Personalized intervention programs can be developed according to the characteristics of hospitals at different levels and diverse nursing groups. Such efforts aim to improve the working environment and occupational health of ICU nurses, guarantee nursing quality, safeguard nurses' mental health, and realize the sustainable development of healthcare systems.

Disclosure statement

The authors declare no conflict of interest.

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