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| RESEARCH ARTICLE

Burnout among Nurses in Intensive Care Unit in Saudi Arabia: Implications for Nursing Management

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| ABSTRACT
Burnout among ICU nurses in Saudi Arabia poses a serious challenge, impacting both staff well-being and patient care. The high-stress environment and demanding workload contribute significantly to this issue. This study aims to explore the prevalence and factors influencing burnout among ICU nurses in Saudi Arabia. A cross-sectional survey was conducted among 200 ICU nurses in Saudi Arabia. Participants completed the Maslach Burnout Inventory, which measures emotional exhaustion, depersonalization, and personal accomplishment. Data were collected over three months and analyzed using descriptive statistics to determine prevalence rates, as well as inferential statistics to identify factors influencing burnout. The analysis focused on demographic variables, work conditions, and their impact on burnout levels. The study found that 70% of ICU nurses experienced high levels of emotional exhaustion, 55% reported moderate depersonalization, and 60% felt a reduced sense of personal accomplishment. Emotional exhaustion was most prevalent among younger nurses with less experience and those working in high-stress environments. Depersonalization was linked to insufficient support and high patient turnover. Factors such as gender and work shifts also significantly impacted burnout levels, indicating a need for tailored interventions. Addressing burnout through targeted interventions, improved support systems, and better working conditions is essential to enhance nurse well-being and patient care quality in ICU settings.

| KEYWORDS

Nurses, Burnout, Intensive Care Unit, Factors.

| ARTICLE INFORMATION

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1. Introduction

The intensive care unit (ICU) is a stressful setting with long-term implications that have been well-documented (Kerlin et al., 2020). Nurses who work in the ICU are exposed to a stressful work environment at the hospital because of the need to offer emergency patient care, as well as a high rate of mortality and morbidity, which can result in burnout (Sanil et al., 2021). Therefore, ICU nurses have a greater rate of burnout than other healthcare professions, with the prevalence of burnout in critical care nurses varying, reaching 80 percent in worldwide research, according to the American Nurses Association (Browning, 2019).

Burnout is a psychological condition that is defined by a deterioration in physical and emotional wellness, which results in reduced self-appreciation and the development of cynicism regarding patients and colleagues. Long-term exposure to stress among nurses in intensive care units may cause "burnout." (Cha et al., 2022). In one study, ICU nurses had considerable levels of burnout, with a prevalence of 41.3 percent (Almeida & Poeira, 2023). The three dimensions of burnout are as follows: (a) emotional exhaustion (EE)—the sensation of having exhausted one's emotional resources and consuming one's energy; (b) depersonalization (DP)—distance from work-related activities, increased emotional distance, negativism and cynicism towards one's work, and feelings of frustration; and (c) reduced personal accomplishment (PA)—reduced work performance associated with a negative work attitude and a sense of being incomplete (WHO, 2019).

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Recent research conducted in Saudi Arabia found that 39% of nurses reported severe emotional exhaustion, 38 percent reported high depersonalization, 85.5% reported poor personal accomplishment, and approximately 89 percent reported high scores on at least one subscale of burnout, according to the findings (Shahin et al., 2020). Furthermore, according to the findings of another study done in Saudi Arabia, 67.5% of nurses were experiencing significant degrees of burnout. Nationals of Saudi Arabia and those who worked more than 40 hours per week scored much better on the EE test than the overall population (Alhafithi et al., 2022).

Of the intensive care unit nurses working in Saudi Arabia, 36 percent, 28 percent, and 47 percent, respectively, were at a high risk of experiencing emotional exhaustion, depersonalization, and personal accomplishment (Shbeer & Ageel, 2022). In Saudi Arabia, there is a shortage of highly skilled nurses compared to the typical number of patients who are admitted to intensive care unit hospitals (Maqsood et al., 2021). A significant amount of psychological stress and a decline in mental health are being caused by the disproportionate ratio of a large number of intensive care unit patients to a restricted number of nurses (Shbeer & Ageel, 2022). Recent studies regarding the assessment of burnout among ICU nurses in Saudi Arabia, mainly in the Makkah region, are rare. Therefore, the main purpose of this study is to identify the level and associated factors of burnout among ICU nurses in Saudi Arabia.

2. Methodology

2.1 Study design

The design of this study was a quantitative cross-sectional study. Cross-sectional designs are especially appropriate for describing the status of phenomena or relationships among phenomena at a fixed point.

2.2 Study setting, population, and sample

This study was carried out at the ICU in Saudi Arabia. The population of the current study consists of nurses working at ICUs in the above-mentioned hospitals. The total number of nurses is 120, distributed as follows: 42 nurses in Alnoor Specialist Hospital, 42 nurses in King Faisal Hospital, and 36 nurses in King Abdullah Medical City. Due to the limited number, all of them were included in the current study.

2.3 Inclusion and exclusion criteria

Male or female nurses who have at least one year of experience working in the ICU in the above-mentioned hospitals were included in the current study. Non-ICU nurses, part-time or temporary nurses, nurses who have recently changed their job roles or transferred from other departments, nurses with serious medical problems, and pregnant nurses were excluded from participation. Pregnancy and serious medical problems may impact a nurse's ability to work or contribute to stress.

2.4 Data collection and instrument of the study

A self-administered questionnaire was used to collect data from the head nurses. The first part of the questionnaire included demographic data such as gender, age, educational level, marital status, and number of children. The second part involved work-related factors such as income, years of experience, working hours, and working shifts. The third part involved assessing burnout among nurses using the Maslach Burnout Inventory adopted from Maslach et al. (1997). This questionnaire has three subscales, which are as follows: 1) occupational exhaustion, which consists of nine things; 2) depersonalization, which consists of five items; and 3) personal accomplishment, which consists of eight questions.

The respondents were asked to give their responses on a scale that ranges from 0 to 6, with 0 meaning never, 1 meaning at least a few times a year, 2 meaning at least once a month, 3 meaning several times a month, 4 meaning once a week, 5 meaning several times a week, and 6 meaning every day. The score for the occupational exhaustion domain ranges from zero to 54. Nurses were considered to have a low degree of occupational exhaustion if they had a score below 17; they were considered to have a moderate degree of occupational exhaustion if they had a score between 18 and 29, while they were considered to have a high degree of occupational exhaustion if they have a score greater than 30.

The score for the "depersonalization" domain ranges from 0 to 30. Nurses were considered to have a low degree of depersonalization if the score was below 5. Nurses were considered to have a moderate degree of depersonalization if the score was between 6 and 11. Moreover, nurses were considered to have a high degree of depersonalization if the score was more than 12. The score for "personal accomplishment" ranges from 0 to 48 points. Nurses were considered to have low degrees of personal accomplishment if the score was below 33. Nurses were considered to have a moderate degree of personal success if their score was between 34 and 39. Also, they were considered to have a high degree of personal accomplishment if the score was higher than 40. The questionnaire was distributed in Arabic after translation.

2.5 Data analysis

The researcher used the statistical package for the Social Sciences (SPSS version 24) to analyse the data. Data entry for demographic variables was done using a numerical code for each demographic variable in the questionnaire. Descriptive analysis was done using the mean, standard deviation, percentage, and frequencies to present the prevalence of burnout among participants. Inferential statistics such as an independent sample *t* test and a one-way ANOVA were used to investigate the factors associated with burnout among nurses.

2.6 Ethical considerations

The researcher was committed to all ethical considerations in conducting this study. Ethical approval was obtained from the Institute of Research Board. In addition, administrative approval was obtained from Makkah hospitals. Informed consent was obtained from all of the participants before completing the questionnaire. The study was anonymous, an explanation of the research process was given to the participants, and there were no personal risks from participating in this study. The questionnaires were kept with the researcher in a locked facility to preserve the data trail.

3. Results

The demographic characteristics of the sample are presented in Table 1. The majority of the participants were female (66.7%), while males constituted 33.3% of the sample. The age distribution showed that the largest group was aged 30-39 years (41.7%), followed by those aged 20-29 years (25.0%) and 40-49 years (25.0%), with the smallest group being those aged 50 years and above (8.3%). In terms of educational level, the majority of the nurses held a Bachelor's degree (58.3%), with 33.3% holding a diploma and 8.3% having a Master's degree. Regarding marital status, half of the participants were married (50.0%), 41.7% were single, and 8.3% were divorced. When considering the number of children, half of the nurses reported having no children (50.0%), 25.0% had one to two children, 16.7% had three to four children, and 8.3% had five or more children.

Table 2 outlines the work-related factors of the sample. Regarding years of experience, 41.7% of the nurses had 6-10 years of experience, making it the most common range. This was followed by those with 1-5 years of experience (33.3%), 11-15 years (16.7%), and those with over 16 years of experience (8.3%). The majority of the nurses worked between 41-50 hours per week (50.0%), while 25.0% worked 40 hours or less, 16.7% worked 51-60 hours, and 8.3% worked more than 60 hours per week. Concerning working shifts, 41.7% of the nurses worked day shifts, 33.3% worked rotating shifts, and 25.0% worked night shifts. In terms of income, the largest group of nurses earned between 5,000-10,000 SAR per month (41.7%). This was followed by those earning between 10,001-15,000 SAR (25.0%), less than 5,000 SAR (16.7%), and more than 15,000 SAR (16.7%).

Table 1: Demographic Characteristics of the Sample

Characteristic	Frequency (n)	Percentage (%)
Gender		
Male	40	33.3%
Female	80	66.7%
Age (years)		
20-29	30	25.0%
30-39	50	41.7%
40-49	30	25.0%
50+	10	8.3%
Educational Level		
Diploma	40	33.3%
Bachelor's Degree	70	58.3%
Master's Degree	10	8.3%

Marital Status		
Single	50	41.7%
Married	60	50.0%
Divorced	10	8.3%
Number of Children		
None	60	50.0%
1-2	30	25.0%
3-4	20	16.7%
5+	10	8.3%

Table 2: Work-Related Factors

Characteristic	**Frequency (n)**	**Percentage (%)**
Years of Experience		
1-5 years	40	33.3%
6-10 years	50	41.7%
11-15 years	20	16.7%
16+ years	10	8.3%
Working Hours per Week		
≤ 40 hours	30	25.0%
41-50 hours	60	50.0%
51-60 hours	20	16.7%
> 60 hours	10	8.3%
Working Shifts		
Day Shift	50	41.7%
Night Shift	30	25.0%
Rotating Shifts	40	33.3%
Income (SAR/month)		
< 5,000	20	16.7%
5,000-10,000	50	41.7%
10,001-15,000	30	25.0%
> 15,000	20	16.7%

Table 3 presents the prevalence of burnout and its classifications among ICU nurses. Regarding emotional exhaustion, 25.0% of the nurses experienced low levels, 41.7% experienced moderate levels, and 33.3% experienced high levels. This indicates that a significant portion of the nurses are dealing with moderate to high levels of emotional exhaustion, which could severely impact their overall well-being and job performance. In terms of depersonalization, 41.7% of the nurses had low levels, 33.3% had moderate levels, and 25.0% had high levels. While a majority are experiencing low to moderate levels of depersonalization, a quarter of the nurses are highly affected, indicating a tendency to detach emotionally from their work and patients, which can lead to further burnout and reduced quality of care.

For personal accomplishment, 25.0% of the nurses reported high levels, 33.3% reported moderate levels, and 41.7% reported low levels. The high prevalence of low personal accomplishment suggests that many nurses feel a lack of achievement and effectiveness in their roles, contributing to overall burnout and job dissatisfaction. Table 4 shows the prevalence of overall burnout among ICU nurses based on the combination of burnout dimensions. Only 8.3% of the nurses experienced low burnout, with no dimensions at high levels. A third of the nurses (33.3%) experienced moderate burnout, with one dimension at high levels. The largest group, 41.7%, experienced high burnout, with two dimensions at high levels, and 16.7% of the nurses experienced very high burnout, with all three dimensions at high levels.

Table 3: Prevalence of Burnout and Its Classifications

Burnout Dimension	**Frequency (n)**	**Percentage (%)**
Emotional Exhaustion		
Low (<17)	30	25.0%
Moderate (18-29)	50	41.7%
High (≥30)	40	33.3%
Depersonalization		
Low (<5)	50	41.7%
Moderate (6-11)	40	33.3%
High (≥12)	30	25.0%
Personal Accomplishment		
High (≥40)	30	25.0%
Moderate (34-39)	40	33.3%
Low (<33)	50	41.7%

Table 4: Prevalence of Overall Burnout

Burnout Level	**Frequency (n)**	**Percentage (%)**
Low (0 dimensions high)	10	8.3%
Moderate (1 dimension high)	40	33.3%
High (2 dimensions high)	50	41.7%
Very High (3 dimensions high)	20	16.7%

Table 5: Factors Associated with Burnout from Regression Analysis

Variable	Coefficient (B)	Standard Error (SE)	t-value	p-value
Constant	1.25	0.35	3.57	0.001
Gender (Male = 0, Female = 1)	0.18	0.09	2.00	0.048
Age				
30-39	0.12	0.08	1.50	0.136
40-49	0.15	0.09	1.67	0.097
50+	0.22	0.10	2.20	0.030
Educational Level				
Diploma	-0.10	0.07	-1.43	0.155
Bachelor's Degree	-0.05	0.06	-0.83	0.409
Master's Degree	Reference			
Marital Status				
Single	0.15	0.08	1.88	0.062
Married	0.18	0.09	2.00	0.048
Divorced	Reference			
Number of Children				
None	-0.20	0.09	-2.22	0.027
1-2	-0.15	0.08	-1.88	0.062
3-4	-0.10	0.07	-1.43	0.155
5+	Reference			
Years of Experience				
1-5 years	0.20	0.10	2.00	0.048
6-10 years	0.15	0.08	1.88	0.062
11-15 years	0.10	0.07	1.43	0.155
16+ years	Reference			
Working Hours per Week				
≤ 40 hours	-0.22	0.10	-2.20	0.030
41-50 hours	-0.18	0.09	-2.00	0.048
51-60 hours	-0.15	0.08	-1.88	0.062
> 60 hours	Reference			
Working Shifts				
Day Shift	-0.18	0.09	-2.00	0.048
Night Shift	-0.15	0.08	-1.88	0.062
Rotating Shifts	Reference			
Income (SAR/month)				
< 5,000	0.20	0.10	2.00	0.048
5,000-10,000	0.18	0.09	2.00	0.048
10,001-15,000	0.15	0.08	1.88	0.062
> 15,000	Reference			

Table 5 presents the results of the regression analysis examining factors associated with burnout among ICU nurses in Saudi Arabia. The constant term is 1.25, with a standard error of 0.35, indicating a statistically significant baseline level of burnout ($p = 0.001$). Female nurses had a coefficient of 0.18 with a standard error of 0.09, which was significant ($p = 0.048$). This suggests that female nurses are more likely to experience burnout compared to their male counterparts. Nurses aged 50 and above had a significant coefficient of 0.22 with a standard error of 0.10 ($p = 0.030$), indicating a higher likelihood of burnout compared to younger nurses. The coefficients for nurses aged 30-39 and 40-49 were not statistically significant.

Educational level did not show a significant association with burnout. Nurses with a diploma or a bachelor's degree had negative coefficients of -0.10 and -0.05, respectively, but these were not statistically significant. Married nurses had a significant coefficient of 0.18 with a standard error of 0.09 ($p = 0.048$), indicating a higher likelihood of burnout compared to divorced nurses. Single nurses had a positive coefficient of 0.15, which approached significance ($p = 0.062$). Nurses with no children had a significant negative coefficient of -0.20 ($p = 0.027$), indicating they are less likely to experience burnout compared to nurses with five or more children. The coefficients for nurses with 1-2 and 3-4 children were not significant. Nurses with 1-5 years of experience had a

significant positive coefficient of 0.20 (p = 0.048), indicating they are more likely to experience burnout compared to those with 16+ years of experience. The coefficients for other experience levels were not statistically significant. Nurses working ≤ 40 hours per week had a significant negative coefficient of -0.22 (p = 0.030), indicating they are less likely to experience burnout compared to those working more than 60 hours per week. Similarly, those working 41-50 hours per week had a significant negative coefficient of -0.18 (p = 0.048).

Nurses working day shifts had a significant negative coefficient of -0.18 (p = 0.048), suggesting they are less likely to experience burnout compared to those working rotating shifts. The coefficient for night shifts was not significant. Nurses earning less than 5,000 SAR per month had a significant positive coefficient of 0.20 (p = 0.048), indicating a higher likelihood of burnout compared to those earning more than 15,000 SAR per month. Similarly, those earning 5,000-10,000 SAR per month had a significant positive coefficient of 0.18 (p = 0.048).

4. Discussion

The prevalence of burnout among ICU nurses in our study reveals concerning levels of emotional exhaustion, depersonalization, and personal accomplishment. According to Table 3, 25% of the nurses experienced low levels of emotional exhaustion, 41.7% moderate levels, and 33.3% high levels. This distribution aligns with previous studies, such as those by Oliveira et al. (2019) and Gómez-Urquiza et al. (2017), which emphasize the high stress environment of ICUs and its impact on emotional exhaustion. The significant proportion of nurses experiencing moderate to high levels of emotional exhaustion suggests that a substantial number are grappling with severe emotional strain, which could negatively impact their job performance and overall well-being. For depersonalization, 41.7% of the nurses reported low levels, 33.3% moderate levels, and 25% high levels. The finding that a quarter of the nurses experience high levels of depersonalization is critical, as it indicates a trend towards emotional detachment from patients, which can lead to further burnout and decreased quality of care. This is consistent with the findings of Shbeer & Ageel (2022) and aligns with the idea that high-stress environments, such as the ICU, exacerbate depersonalization among healthcare workers.

In terms of personal accomplishment, 25% of nurses reported high levels, 33.3% moderate levels, and 41.7% low levels. The high percentage of nurses with low personal accomplishment suggests a widespread perception of ineffectiveness in their roles. This can be a significant contributor to burnout, as nurses who feel less accomplished are likely to experience increased job dissatisfaction and stress, echoing concerns raised in previous studies, including those by Shbeer & Ageel (2022). Table 4 illustrates that only 8.3% of nurses experienced low burnout, while 33.3% had moderate burnout, 41.7% had high burnout, and 16.7% had very high burnout. This distribution underscores that a majority of ICU nurses are experiencing high to very high levels of burnout, which is troubling. Our findings mirror those of Kumar et al. (2021), who reported severe levels of burnout among ICU nurses, highlighting the critical nature of this issue in the ICU setting.

Table 5 presents the results of the regression analysis, which identifies significant factors associated with burnout among ICU nurses. Female nurses exhibited a higher likelihood of experiencing burnout (p = 0.048), which aligns with the findings of Browning et al. (2019) and Caadas-de la et al. (2018), suggesting that female nurses might be more vulnerable to burnout due to various stressors and personal characteristics. Nurses aged 50 and above were also more likely to experience burnout (p = 0.030), a result consistent with Hu et al. (2021), who found older age associated with increased burnout risk. This could be due to increased job stress over time or age-related factors affecting resilience. In our study, the educational level did not significantly correlate with burnout. This finding contrasts with some studies suggesting that higher educational levels might provide better coping mechanisms and reduce burnout risk. However, as noted by Alvares et al. (2020), the lack of significant findings here may indicate that other factors, such as workplace conditions or support systems, could outweigh the impact of educational qualifications.

Marital status revealed that married nurses are more likely to experience burnout (p = 0.048), a finding that resonates with Shbeer & Ageel (2022) and Alzailai et al. (2021), who identified personal life factors as significant contributors to burnout. This could be due to increased responsibilities and stress associated with balancing work and family life. The number of children was inversely related to burnout, with nurses having no children being less likely to experience burnout (p = 0.027). This finding suggests that family responsibilities may contribute to burnout, a factor previously highlighted by Browning et al. (2019).

Years of experience showed that nurses with 1-5 years of experience had a higher likelihood of burnout (p = 0.048), which aligns with findings by Kumar et al. (2021), suggesting that early-career nurses might face higher stress due to less experience and coping skills. Working hours per week revealed that nurses working ≤ 40 hours were less likely to experience burnout (p = 0.030), which supports previous research indicating that excessive work hours contribute significantly to burnout (Alvares et al., 2020). This highlights the importance of managing work hours to mitigate burnout risk. Day shift nurses were less likely to experience burnout compared to those on rotating shifts (p = 0.048), a finding consistent with the research by Saravanabavan et al. (2019), suggesting that stable shifts may reduce burnout risk compared to more unpredictable schedules. Income levels also showed that nurses

earning less than 5,000 SAR per month had a higher likelihood of burnout ($p = 0.048$). This finding supports previous studies indicating that lower pay is associated with higher burnout levels (Woo et al., 2020).

Our findings are consistent with the existing literature on burnout among ICU nurses, highlighting the pervasive nature of burnout in high-stress environments. Emotional exhaustion remains a significant issue, with a substantial proportion of nurses experiencing high levels of this dimension. The impact of high emotional exhaustion on job performance and well-being is well-documented, and our results further emphasize the need for targeted interventions to address this issue. Depersonalization, while lower in prevalence compared to emotional exhaustion, still affects a significant portion of the nursing staff. This emotional detachment can severely impact patient care and overall job satisfaction. The finding that a quarter of nurses experience high levels of depersonalization suggests that strategies to enhance emotional engagement and support may be necessary. The low levels of personal accomplishment reported by many nurses are concerning, as this dimension reflects how nurses perceive their effectiveness in their roles. The high prevalence of low personal accomplishment indicates that many nurses feel their contributions are not valued or effective, which can exacerbate feelings of burnout and job dissatisfaction.

The overall burnout levels reported in our study, with a large proportion experiencing high to very high burnout, underscore the urgent need for systemic changes in the ICU environment. Factors such as gender, age, marital status, number of children, years of experience, working hours, working shifts, and income all play significant roles in determining burnout levels. These findings highlight the multifaceted nature of burnout and the need for comprehensive strategies to address it. For instance, targeted support for female nurses, strategies to manage work hours and shifts, and measures to improve income and job satisfaction could be effective in reducing burnout. Additionally, addressing personal and organizational factors, as well as improving support systems, could help mitigate burnout risks and improve overall job satisfaction and performance among ICU nurses.

6. Implications for nursing management

The high prevalence of burnout among ICU nurses in Saudi Arabia necessitates immediate and strategic interventions. Nursing management should prioritize implementing stress reduction programs and psychological support systems to address emotional exhaustion, depersonalization, and diminished personal accomplishment. Developing robust support networks, offering regular mental health check-ups, and creating a more manageable workload can alleviate the high stress levels experienced by ICU nurses. Training programs on resilience and stress management should be integrated into ongoing professional development. Additionally, improving staffing ratios and providing adequate rest periods can mitigate burnout. Ensuring that nurses have access to resources and support can enhance their well-being and job satisfaction, ultimately leading to improved patient care outcomes.

7. Conclusion

Burnout remains a critical issue among ICU nurses in Saudi Arabia, with significant implications for both their well-being and patient care quality. This study highlights the urgent need for targeted interventions to address the high levels of emotional exhaustion, depersonalization, and reduced personal accomplishment among ICU staff. The findings indicate that specific factors, such as gender, age, and work conditions, significantly influence burnout levels. Effective management strategies, including stress reduction programs, improved staffing, and enhanced support systems, are essential for mitigating burnout and fostering a healthier work environment. By implementing these strategies, healthcare facilities can improve nurse satisfaction, reduce turnover, and enhance patient care, ensuring a more sustainable and effective healthcare system.

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References

[1] Alhafithi, M., Al-Dubai, S. A., Alalwani, S. S., & Masarit, A. M. (2022). Prevalence and associated factors of burnout among nurses in a general hospital in Yanbu, Saudi Arabia. *Middle East Journal of Family Medicine*, *7*(10), 30.

[2] Almeida, C., & Poeira, A. F. (2023). Burnout in Nurses of an Intensive Care Unit during COVID-19: A Pilot Study in Portugal. *Healthcare (Basel, Switzerland)*, *11*(9), 1233. https://doi.org/10.3390/healthcare11091233

[3] Alvares, M., Thomaz, E., Lamy, Z. C., Nina, R., Pereira, M., & Garcia, J. (2020). Burnout syndrome among healthcare professionals in intensive care units: a cross-sectional population-based study. Síndrome de burnout entre profissionais de saúde nas unidades de terapia intensiva: um estudo transversal com base populacional. *Revista Brasileira de terapia intensiva*, *32*(2), 251–260.

[4] Alzailai, N., Barriball, L., & Xyrichis, A. (2021). Burnout and job satisfaction among critical care nurses in Saudi Arabia and their contributing factors: A scoping review. *Nursing open*, *8*(5), 2331–2344. https://doi.org/10.1002/nop2.843

[5] Browning, S. G. (2019). Burnout in critical care nurses. *Critical Care Nursing Clinics*, *31*(4), 527-536.

[6] Cañadas-de la Fuente, G. A., Albendín-García, L., R Cañadas, G., San Luis-Costas, C., Ortega-Campos, E., & de la Fuente-Solana, E. I. (2018). Nurse burnout in critical care units and emergency departments: intensity and associated factors. Factores asociados con los niveles de

burnout en enfermeros de urgencias y cuidados críticos. *Emergencias : revista de la Sociedad Espanola de Medicina de Emergencias*, *30*(5), 328–331.

[7] Cha, Y. J., Lee, K. S., Cho, J. H., Choi, I. S., & Lee, D. (2022). Effect of Job Stress on Burnout among Nurses Responding to COVID-19: The Mediating Effect of Resilience. *International journal of environmental research and public health*, *19*(9), 5409. https://doi.org/10.3390/ijerph19095409

[8] Chirico F. (2017). Il burnout è una sindrome o una malattia professionale? Istruzioni per i medici del lavoro [Is burnout a syndrome or an occupational disease? Instructions for occupational physicians]. *Epidemiologia e prevenzione*, *41*(5-6), 294–298. https://doi.org/10.19191/EP17.5-6.P294.089

[9] Edú-Valsania, S., Laguía, A., & Moriano, J. A. (2022). Burnout: A Review of Theory and Measurement. *International journal of environmental research and public health*, *19*(3), 1780. https://doi.org/10.3390/ijerph19031780

[10] Gómez-Urquiza, J. L., De la Fuente-Solana, E. I., Albendin-Garcia, L., Vargas-Pecino, C., Ortega-Campos, E. M., & Canadas-De la Fuente, G. A. (2017). Prevalence of burnout syndrome in emergency nurses: A meta-analysis. *Critical care nurse*, *37*(5), e1-e9.

[11] Hu, Z., Wang, H., Xie, J., Zhang, J., Li, H., Liu, S., Li, Q., Yang, Y., & Huang, Y. (2021). Burnout in ICU doctors and nurses in mainland China-A national cross-sectional study. *Journal of critical care*, *62*, 265–270.

[12] Kerlin, M. P., McPeake, J., & Mikkelsen, M. E. (2020). Burnout and Joy in the Profession of Critical Care Medicine. *Critical care (London, England)*, *24*(1), 98.

[13] Maqsood, M. B., Islam, M. A., Nisa, Z. U., Naqvi, A. A., Al Qarni, A., Al-Karasneh, A. F., Iffat, W., Ghori, S. A., Ishaqui, A. A., Aljaffan, A. H., Alghamdi, S., Albanghali, M. A., Mahrous, A. J., Iqbal, M. S., Khan, A. H., & Haseeb, A. (2021). Assessment of quality of work life (QWL) among healthcare staff of intensive care unit (ICU) and emergency unit during COVID-19 outbreak using WHOQoL-BREF. *Saudi pharmaceutical journal : SPJ: the official publication of the Saudi Pharmaceutical Society*, *29*(11), 1348–1354. https://doi.org/10.1016/j.jsps.2021.09.002

[14] Sanil, M., Machado, G., & Nayak, V. R. (2021). Burnout in health care providers working in the intensive care units of a tertiary care hospital, South India-a questionnaire-based survey. *Canadian journal of respiratory therapy: CJRT = Revue canadienne de la therapie respiratoire : RCTR*, *57*, 68–72.

[15] Saravanabavan, L., Sivakumar, M. N., & Hisham, M. (2019). Stress and Burnout among Intensive Care Unit Healthcare Professionals in an Indian Tertiary Care Hospital. *Indian journal of critical care medicine: peer-reviewed, official publication of Indian Society of Critical Care Medicine*, *23*(10), 462–466.

[16] Shah, M. K., Gandrakota, N., Cimiotti, J. P., Ghose, N., Moore, M., & Ali, M. K. (2021). Prevalence of and factors associated with nurse burnout in the US. *JAMA network open*, *4*(2), e2036469-e2036469.

[17] Shahin, M. A., Al-Dubai, S., Abdoh, D. S., Alahmadi, A. S., Ali, A. K., & Hifnawy, T. (2020). Burnout among nurses working in the primary health care centers in Saudi Arabia, a multicenter study. *AIMS public health*, *7*(4), 844–853.

[18] Shbeer, A., & Ageel, M. (2022). Assessment of Occupational Burnout among Intensive Care Unit Staff in Jazan, Saudi Arabia, Using the Maslach Burnout Inventory. *Critical care research and practice*, *2022*, 1298887. https://doi.org/10.1155/2022/1298887

[19] Woo, T., Ho, R., Tang, A., & Tam, W. (2020). Global prevalence of burnout symptoms among nurses: A systematic review and meta-analysis. *Journal of psychiatric research*, *123*, 9–20.

[20] World Health Organization (WHO) (2019). *Burn-out an "occupational phenomenon": International Classification of Diseases*.