RESEARCH
www.commprac.com
ISSN 1462 2815

IN THE LINE OF FIRE: A SYSTEMATIC REVIEW AND META ANALYSIS OF JOB BURNOUT AMONG NURSES

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DOI: 10.5281/zenodo.10279714

Abstract

The purpose of this study is to conduct a systematic review and meta-analysis to investigate the impact of the COVID-19 pandemic on job burnout prevalence among nurses. By following the PRISMA 2020 guidelines for reviewing healthcare articles, we aim to identify the key aspects of burnout experienced by nurses during the pandemic and explore the contributing factors. The search for relevant sources was performed on three open-access databases, namely, PubMed, ScienceDirect, and Google Scholar, during the COVID-19 pandemic period. The inclusion criteria for studies were those that utilized the Maslach Burnout questionnaire to measure job burnout in nurses, focusing on emotional burnout, personal failure, and depersonalization dimensions. Two independent reviewers screened abstracts and full-text, extracted data, and assessed the risk of bias. The analysis revealed a job burnout prevalence of 2.75% among nurses during the COVID-19 pandemic, with reported rates ranging from 1.87% to 7.75%, and a 95% confidence interval. These findings emphasize the urgent need for interventions to address the impact of the pandemic on job burnout among nurses with the aim of promoting the well-being of healthcare providers and ensure the provision of high-quality healthcare services. Developing optimal strategies requires considering individual, organizational, and contextual factors contributing to burnout among healthcare workers. Future research should focus on identifying effective interventions to reduce burnout in nurses and other healthcare professionals during pandemics and high-stress situations.

Keywords: Job Burnout, Nurses, COVID-19 Pandemic, Systematic Review and Meta-Analysis.

INTRODUCTION

Burnout syndrome poses a significant global challenge in the realm of human resource management (Rusca Putra & Setyowati, 2019; Etemadi et al., 2022). It arises from prolonged exposure to work-related stress and is characterized by a decline in performance and functionality due to overwhelming psychological demands within the workplace (Panagioti et al., 2018). Healthcare service providers, including doctors, nurses, and medical staff, are particularly susceptible to burnout (Friganoviü et al., 2019; Jahanshahi et al., 2020; Chen et al., 2021; Zhang et al., 2020). Nurses, in particular, play a critical role on the front lines in combating illnesses (Zare et al., 2021), and they experience the highest incidence of burnout (Woo et al., 2020; Hakkak et al., 2022; Khaksar et al., 2010a), estimated at a staggering 54% probability (Rezaei et al., 2018a). The burnout syndrome encompasses a constellation of physical, mental, and emotional disorders that manifest as pessimism and a decline in the performance of healthcare professionals (Gómez Urquiza et al., 2017). Importantly, this deterioration in performance has far-reaching consequences, adversely affecting the quality of patient care and contributing to increased job turnover (Shajiei et al., 2020; Hailay et al., 2020). Of significant concern is the current global issue of nurse shortages,

primarily driven by high attrition rates (Liu et al., 2018). This problem has been further exacerbated in the context of the COVID-19 pandemic (KILIÇ et al., 2021), with a distressing 31.9% mortality rate among nurses as of September 16, 20 (Galanis et al., 2020). Consequently, this situation presents a grave crisis for health policy makers (Azari et al., 2021). Hence, it is imperative for healthcare system managers to prioritize the issue of burnout syndrome for two fundamental reasons. Firstly, it is crucial in upholding the patient's rights charter and ensuring the provision of high-quality services while safeguarding patients' rights (Gilavandi et al., 2019). Secondly, it is essential to support the diverse skills of healthcare professionals, particularly nurses, given the multitude of responsibilities they shoulder within medical facilities (Gilavandi et al., 2019).

The advent of the COVID-19 pandemic has not only impacted the attention, understanding, and decision-making abilities of nurses but has also had chronic and ongoing repercussions on their physical, mental, and social well-being (Kang et al., 2020). Consequently, this has the potential to directly and indirectly diminish the quality and productivity of work environments, leading to a higher prevalence of burnout and attrition among nurses (Kang et al., 2020). Therefore, it is necessary for healthcare managers to identify the most important dimensions of job burnout in order to effectively address this area (Zare et al., 2021) as well as to implement strategies to prevent and reduce this negative organizational phenomenon. The causes and prevalence of burnout among nurses and medical staff have been widely investigated (López-López et al., 2019; Zeng et al., 2020; Khammar et al., 2018; Gómez-Urquiza et al., 2017; Hailay et al., 2020; Membrive-Jiménez et al., 2020; and Martos et al., 2020), but few studies have examined the factors of this organizational phenomenon in non-crisis situations in healthcare settings, as well as how the COVID-19 pandemic affects the prevalence, consequences, and symptoms of burnout among nurses. Therefore, identifying the most important dimensions of job burnout during the COVID-19 pandemic through a systematic review seems necessary.

LITRATURE REVIEW

Job burnout is a reduction in a person's ability to cope with stressful factors, which manifests as physical and emotional exhaustion, negative self-image, negative attitude towards work, and reduced social interaction with other employees (Huang et al., 2022; Hakkak et al., 2023; Jahanshahi et al., 2019; Dehkordy et la., 2013; Nawaser et al., 2023). Some of the symptoms of job burnout syndrome include lack of concentration, difficulty in retaining information, frequent headaches, insomnia, fatigue, helplessness, low motivation, and self-doubt (Shoaib et al., 2017; Taherinia et al., 2021; Hakkak et al., 2016; Khaksar et al., 2010b; Moezzi et al., 2012). It has been widely demonstrated that burnout is a significant problem for healthcare professionals, especially nurses (Rana & Soodan, 2019; Gong et al., 2021). Consequently, nurses may exhibit maladaptive behaviors caused by job burnout, which can result in severe or chronic psychological stress with long-term consequences (Li et al., 2018), as well as negative impacts on their family, social, personal, and organizational lives.

Some of the most important consequences of job burnout among nurses are absenteeism, turnover, frequent delays, various psychological complaints, conflicts, job dissatisfaction, reduced quality of patient care, and interpersonal problems with colleagues (Rudman et al., 2020; Sepahvand et al., 2015; Vesal et al., 2013). Studies

have reported a 33.3% prevalence of burnout among nurses, ranging from 30 to 80% depending on the hospital department (Saeidi et al., 2020). Nurses who work in rotating shifts also experience higher levels of burnout. Work-related stressors such as coping with unhealthy work conditions and/or interacting with patients are among the challenges that nurses face (Jiang et al., 2017). Studies on the burnout related to the COVID-19 pandemic among healthcare workers have shown that there is a positive and significant relationship between stress and burnout (Morgantini et al., 2020). A study on the association between burnout, anxiety, and stress disorders during the COVID-19 pandemic showed that doctors and nurses experience high levels of mental issues including burnout (Sung et al., 2020). Bradley and Chahar (2020) emphasized the importance of mental health of healthcare professionals during a pandemic to increase productivity and reduce the burnout caused by stress and uncertainty. However, due to the unprecedented nature of the COVID-19 pandemic, the level and factors of burnout among nurses have not yet been fully understood, especially regarding different aspects of work environment and psychological responses (Wan et al., 2022; Shamsaddini et al., 2015; Sepahvand et al., 2023).

METHODOLOGY

This study followed the method of systematic review and meta-analysis, based on the PRISMA2020 guidelines for review articles in healthcare. The search strategy consisted of the following steps:

1. Three databases were searched: PubMed, ScienceDirect, and Google Scholar.
2. The keywords used were: prevalence, burnout, nurses, and Maslach.
3. The search period covered the duration of the COVID-19 pandemic, from December 2019 to November 2021.
4. The initial search included reports on the prevalence of job burnout among nurses during the pandemic outbreak in both English and Farsi languages (indexed in the relevant databases). In the second step, only the open access studies that used the Maslach Burnout Questionnaire (which measures burnout in three dimensions: emotional exhaustion, personal failure, and depersonalization) were selected for inclusion. The MBI questionnaire was chosen because it is the most common questionnaire for assessing the prevalence of job burnout, and because it has good validity and reliability (Pisanti et al., 2013). It is important to note that using other questionnaires to assess job burnout would introduce more uncertainty in the synthesis and analysis of results (Barbara et al., 2014). The studies that did not provide sufficient quantitative information in the text or tables were also excluded from the systematic review and meta-analysis.
5. To make the final selection, two team members independently and concurrently searched and reviewed the articles. Articles were selected for inclusion based on three stages: title, abstract, and full-text review; in case of disagreement, an arbitrator resolved it. The steps of removing articles can be seen in Figure 1.

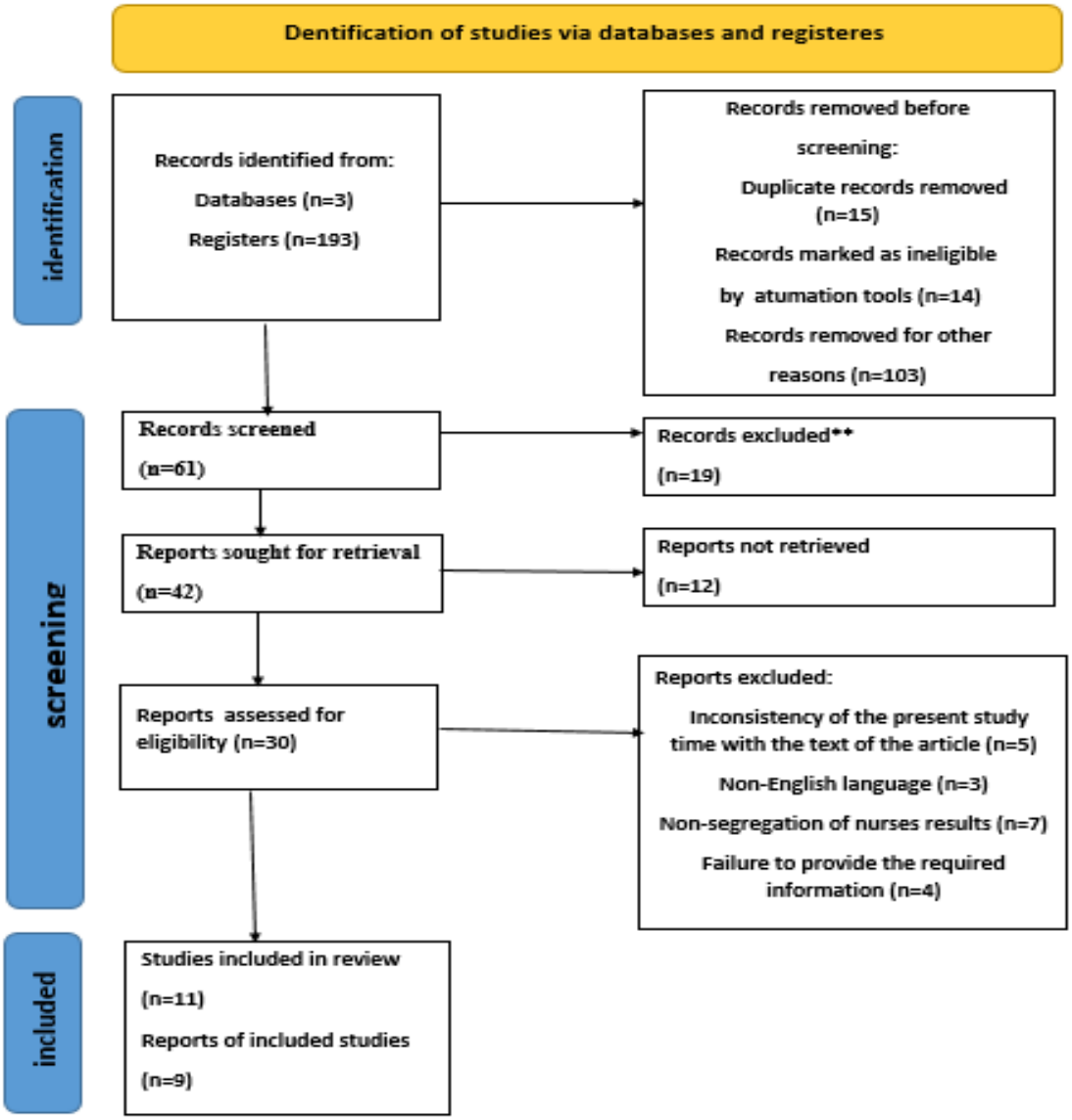

Figure 1: The flowchart of the preferred items in the report of systematic review and meta-analysis of articles

Quality Evaluation

Out of the 193 articles initially retrieved, 61 articles were duplicates and were removed. In the second screening stage, 31 studies were excluded from the review process for various reasons. In the third screening stage, 19 studies were excluded due to mismatch of the study period, use of non-English languages, and lack of separation between the results of nurses and other employees. Finally, 14 articles that met the inclusion criteria were selected for the meta-analysis. All the final studies, except for one from China, were from developing countries. All studies used Maslach's job burnout questionnaire to measure the dimensions of job burnout. Nine articles were ultimately included in our study. The characteristics of these nine articles are summarized in Table 1.

Table 1: Characteristics of the nine articles included in the analysis process

Title	Authors (year)	Source	Study Type	Occupation Category	Type Work
1. Burnout in ICU doctors and nurses in mainland China–A national	Hu et al. (2021)	Journal of Critical Care	cross-sectional study	Nurses	ICUs
2. Burnout Syndrome and Associated Factors in Intensive Care Unit Nurses	NSC Aragão et al. (2021)	Psychiatric Nursing And Mental Health	cross-sectional study	Nurses	ICU
3. Burnout Syndrome in Paediatric Nurses	D la Fuente-Solana et al. (2021)	Environmental Research and Public Health	cross-sectional study	Nurses	Pediatric
4. Burnout and its relationship to self-reported quality of patient care and adverse events during COVID-19	Kakemam et al. (2021)	Nurs Manag	cross-sectional study	Nurses	General
5. Burnout levels and sleep quality of COVID-19 heroes	Sayılan et al. (2021)	Perspect Psychiatr Care	cross-sectional study	Nurses	General
6. Burnout In The Clinical Personnel Of Puerto Rico During The Covid-19 Pandemic	Cortina-Rodríguez et al. (2020)	preprints	cross-sectional study	Nurses	General
7. Burnout among healthcare professionals during COVID-19 pandemic	Jalili et al. (2021)	Nature Publishing Group	cross-sectional study	Nurses	General
8. Burnout in nurses during the COVID-19 pandemic	Zhang et al. (2021)	BioScience Trends	cross-sectional study	Nurses	General
9. Burnout and health status differences among primary healthcare professionals	Ferreira et al. (2021)	BMC Family Practice	cross-sectional study	Nurses	General

FINDINGS

As shown in Table 2, the prevalence of burnout among nurses ranged from 57.7% to 87.1%, with a 95% confidence interval (p = 0.007). The overall prevalence of burnout was 75.2%. The results indicated that all studies except for study number 2 (p = 0.462) were statistically significant and relevant.

Table 2: Prevalence, significance, and standard error of the nine studies included in the analysis

Model	Study name	Cumulative statistics					Cumulative event rate (95% CI)
		Point	Lower limit	Upper limit	Z-Value	p-Value	-1.00 -0.50 0.00 0.50 1.00
	1.000	0.683	0.658	0.708	12.855	0.000	
	2.000	0.584	0.363	0.776	0.736	0.462	
	3.000	0.754	0.502	0.903	1.973	0.049	
	4.000	0.881	0.666	0.965	2.997	0.003	
	5.000	0.931	0.781	0.981	3.820	0.000	
	6.000	0.940	0.815	0.983	4.234	0.000	
	7.000	0.813	0.708	0.886	4.926	0.000	
	8.000	0.797	0.617	0.906	3.003	0.003	
	9.000	0.752	0.577	0.871	2.717	0.007	
Random		0.752	0.577	0.871	2.717	0.007	

In the chart number 2, the prevalence of job burnout among nurses has been investigated in the selected 9 studies.

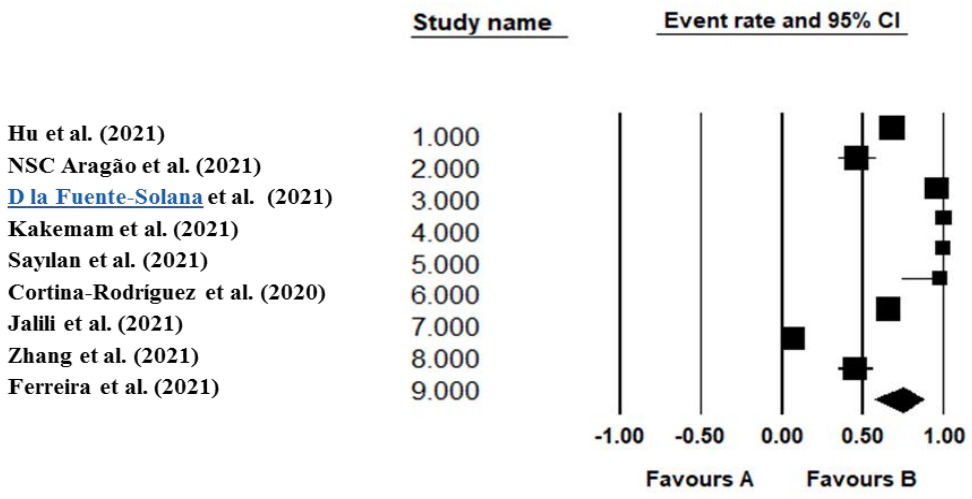

Figure 2: The prevalence of job burnout among nurses in the selected 9 studies

According to Table 2 and Figure 2, the line segments show the confidence interval of the prevalence of burnout in each study; the middle point of each line segment estimates the prevalence of job burnout in each study; and the diamond symbol shows the prevalence of job burnout for the entire study. The lowest prevalence of occupational depression was in the second study (NSC Aragão et al., 2021); the highest prevalence of job burnout among nurses was also in the sixth study (Cortina-Rodríguez et al., 2020). The total prevalence was 75.2%, which is a significant number. The seventh study related to Iran had respectively the low and high prevalence rates of burnout of about 0.708 and 0.886.

Figure 3 illustrates the funnel plot related to the prevalence of job burnout in the selected 9 studies, being based on Egger Regression test. As seen, the symmetrical funnel plot is an indication of the absence of publication bias, and therefore, no evidence of publication bias was observed in the present study ($p > 0.05$ for Egger's weighted regression analysis).

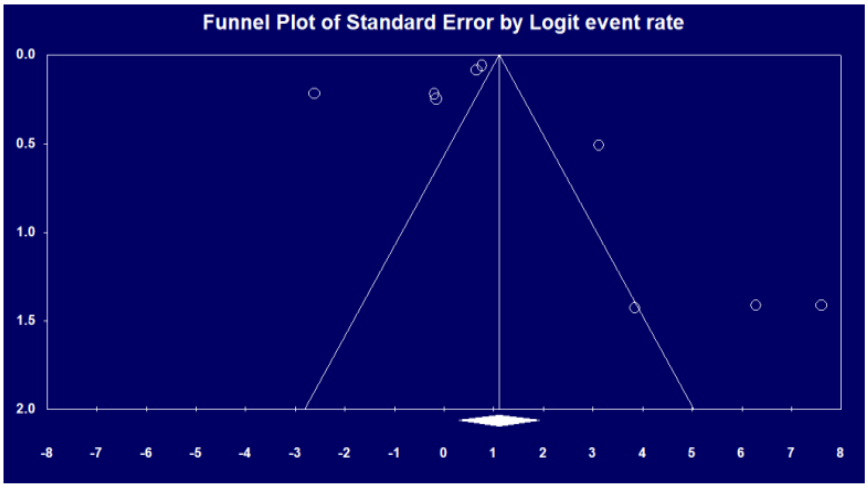

Figure 3: Funnel chart related to the spread of job burnout prevalence in the 9 studies based on Egger's regression test

DISCUSSION AND CONCLUSION

Systematic review and meta-analysis can facilitate changes in clinical practice, knowledge advancement, and better management in the field of health and disease. The main objective of this study was to enhance the knowledge on the prevalence of job burnout among nurses during the COVID-19 pandemic. The results revealed that the nurses experienced high levels of job burnout due to the pandemic. Several factors, such as social, cultural, and occupational aspects, influenced the burnout levels. The COVID-19 pandemic has been a major challenge for nurses and healthcare managers worldwide, and learning from the experiences gained during the multiple waves of the pandemic in different countries can be essential to devise better strategies for the future waves. Reducing burnout among nurses through implementing interventions may be an effective strategy to improve the quality of patient care and to lower the burnout rates, especially in public health centers (Staines et al., 2020). In this regard, nursing managers are urgently required to create a supportive work environment that fosters the professional development of nurses.

To minimize burnout, primary approaches are needed, such as access to psychosocial support, web-based services, psychological first aid, psychological support hotlines, and self-care techniques. Quality improvement and patient safety teams can also help healthcare workers to cope with the pandemic (Gurses et al., 2020). Therefore, several measures are recommended, such as mental health screening and early support interventions for high-risk nurses, immediate access to health care services, designated rest periods, social support through hospital support groups to reduce depression, and adequate personal protective equipment for all. Since the next waves of the pandemic are likely to occur, it is necessary to restore the mental health of health professionals to prevent the collapse of the health systems. Governments, healthcare organizations, and policy makers should take steps to control the current situation and to prepare healthcare systems, workers, and nurses to better respond to the COVID-19 pandemic.

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