

Occupational Health and Safety among Nurses: Assessing the Level of Stress in Nurses in Infectious Resuscitation during the Period of COVID-19 _____

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Abstract

Background: Nurses working in infectious disease units during the COVID-19 pandemic experienced increased occupational hazards, emotional strain, and physical exhaustion. Understanding the level and sources of stress is essential for developing targeted interventions and fostering a safer working environment.

Objective: This study investigates stress levels among nurses working in infectious resuscitation during the COVID-19 pandemic in Albania. It aims to identify contributing factors such as workload, infection exposure, and demographic variables, and assess their impact on nurses' mental health and care quality.

Methods: A descriptive study was conducted at the Infectious Hospital in Tirana between September and December 2021. Twenty nurses who had provided care for COVID-19 patients completed a structured survey and participated in open-ended discussions. Multiple linear regression analysis was used to evaluate the relationship between stress levels and variables including age, workload, and infection frequency.

Results: Fifty percent of nurses reported high levels of stress, while 40% reported very high stress during the pandemic. Infection rates and increased workload were positively associated with higher stress levels. Age did not significantly impact stress. Frequent infections and demanding work conditions were key stressors affecting both physical and psychological health.

Conclusion: Workload and repeated infections were major contributors to elevated stress levels among infectious disease nurses during the COVID-19 pandemic. These findings underline the need for targeted occupational health interventions and mental health support for frontline healthcare workers.

Keywords: occupational health, nursing, COVID-19, stress, infectious resuscitation, workplace safety

Introduction

Safety and health at work has to do with guaranteeing safety and protecting the health of employees through the prevention of occupational hazards, the elimination of factors that constitute danger and accidents, as well as the information, consultation and proper training of employees in accordance with the relevant legislation. [1-2].

Nursing is a demanding and high-stress profession. Beyond monitoring vital signs and administering medications, nurses take on a wide range of responsibilities. These include providing direct patient care, supporting medical procedures, maintaining accurate documentation, and often serving in leadership positions within hospitals, healthcare systems, and other organizations [3-4].

Safety and health at work in the nursing service is very important. It is very important that all health workers have the necessary protective equipment and respect safety protocols. There are many factors that affect this aspect, such as protective equipment, security protocols and risk management. Effective nurse leaders embrace safety protocols that ensure their organization provides a safe, protective environment that prioritizes patients and nursing care. An important aspect is the use of protective measures such as masks, gloves and appropriate

clothing. Security protocols also play a key role in minimizing risks and acting effectively in emergencies. However, challenges arising at the organizational, state, and national levels have significantly hindered nurses' ability to perform their duties effectively. To address these issues successfully, it is crucial to first identify and comprehend the full range of obstacles nurses encounter, enabling the development of effective strategies to overcome them. [5, 6].

Clear communication between the healthcare teams is essential. When nurses, physicians, and support staff work together in delivering patient care, they can establish clear roles and responsibilities, reducing the risk of errors or miscommunication. Effective teamwork and communication are particularly vital during shift handovers. Ultimately, fostering a culture of safety within healthcare settings is crucial to ensuring the well-being of patients, staff, and the organization [7,8].

Hospitals and clinics can be dangerous places for nurses. Learn how to minimize risks and stay safe at work. Understand the risks associated with exposure to chemicals, including cleaning products and pharmaceuticals. Proper ergonomics and postural awareness can reduce strain, musculoskeletal pain and injury. Nurses are exposed to various occupational hazards in their work environment. These risks can lead to a range of injuries and illnesses that not only impact on their physical and emotional well-being but also have the potential to compromise the quality of patient care. [9-11].

Risks faced by the nursing staff in the workplace

Physical Injury

Nurses frequently suffer from musculoskeletal disorders due to patient lifting, transferring, or repositioning. These tasks increase the risk of back and joint injuries, especially in hospital and home care settings.

Stress and Mental Well-Being

Irregular hours and demanding work environments contribute to chronic stress among nurses, affecting both their mental and physical health, and impairing concentration and resilience on the job [12].

Infections

Nurses are routinely exposed to infectious agents like influenza, hepatitis, and tuberculosis. Personal protective equipment and vaccinations are essential to reduce infection risks and related absenteeism [13].

Chemical Hazards

Contact with sterilizing agents such as formaldehyde and ethylene oxide can cause nausea, reproductive issues, or cancer. Safe handling practices are critical to minimizing exposure [14].

Radiation Exposure

Nurses in emergency or radiology departments face increased radiation exposure during imaging procedures. Adherence to safety protocols is essential [15].

Burnout

Long shifts, emotional labor, and terminal care duties can lead to burnout—causing exhaustion, absenteeism, and higher error rates in clinical practice [16].

Impact of workplace hazards on patient care

Workplace hazards can greatly affect the quality of patient care. When nurses suffer from injuries or illness, their ability to deliver care is compromised. In settings already facing nursing shortages, this can lead to difficulties in maintaining timely and adequate patient care. Moreover, remaining staff may experience heightened stress due to increased workloads and responsibilities, placing them at greater risk of burnout. Addressing and minimizing workplace hazards is essential to safeguarding nurses' physical and emotional well-being, which in turn supports the delivery of safe and effective patient care. [17]

Nurses play a critical role in ensuring patient safety and preventing harm across both short-term and long-term care settings. Their responsibilities include following organizational protocols to identify potential risks and harms through comprehensive patient assessment, care planning, monitoring and surveillance, double-checking procedures, providing support, and maintaining effective communication with the healthcare team. To successfully prevent practice-related errors and build safer, more sustainable healthcare systems, it is essential not only to have clear policies, leadership, evidence-based safety initiatives, staff training, and patient involvement, but also strong nurse commitment to patient safety principles. [17-18]

The role of the nursing staff in preventing these risks

Nurses can lower their risk of workplace injuries or illnesses by adhering to safety protocols established by the Occupational Safety and Health Administration (OSHA). These guidelines include measures to prevent exposure to infectious pathogens, safe patient handling practices to avoid physical injuries, and the careful management of hazardous chemicals. Additionally, nursing departments can implement strategies to reduce burnout among staff. On a personal level, nurses can also manage stress by engaging in relaxation techniques and self-care practices to support their overall well-being [17-18].

Covid-19 was a disease that was caused by SARS-CoV-2 and was associated with acute respiratory syndrome, becoming a global pandemic at a high speed. Being a known infectious disease not only in humans but also in animals, it made it possible for scientists to understand more quickly the pathogenesis of the virus and this consequently helped in the rapid development of SARS-CoV-2 vaccines, which enabled immunization of all the people who were infected and prevented in this way the high number of deaths that could have occurred if people had not been immunized.

A very high and humanitarian responsibility for providing medical aid was that of the medical and nursing staff. Doctors and nurses, as well as all the rest of the staff, being on the front line of the fight against the pandemic that involved the whole world in 2019-2021, proved to be quite capable of managing stress to enable the preservation of their physical well-being and psychological in the face of many stressful factors that they faced during the pandemic. The study conducted aims to explore the challenges, strategies and outcomes of stress management in nurses who face and contribute to the care of patients with COVID-19. Also, the pandemic not only had negative impacts on the lives of people and the medical and nursing staff, but also served as a big plus for every health profession, as it gave them great experience in treating patients, thus helping not only patients, pores and the professional life of every health professional (doctor, nurse, physiotherapist, imager, etc.) [19-21].

Aims

The purpose of the study is to investigate and analyze the impact of the COVID-19 disease on infectious resuscitation nurses during the pandemic to identify the factors that can increase the level of stress and anxiety in the workplace and to develop effective strategies for the management the stress.

Hypothesis

Being on the front line of the fight against the virus, at risk of getting an infection, and increasing the workload has caused infectious resuscitation nurses to experience a higher level of stress during the pandemic.

Research question

How did age, high volume of work and getting an infection affect the increase in the level of stress among infectious resuscitation nurses during the pandemic?

Methods

The study is based on a descriptive work that was carried out in the Infectious Resuscitation (Infectious Hospital) in the period September-December 2021. Twenty nurses, who take care of patients with Covid-19, were selected as a sample. One of the methods used for the study was the survey to assess the level of stress that they had during the pandemic period. Another method that has been used for this study was the observations made through open conversations with infectious resuscitation nurses. To carry out the survey, the nurses had to fulfill these criteria, which were: have a bachelor's degree in nursing, have at least six months of full-time work experience as a clinical nurse have at least 2 months of professional experience in caring for COVID-19 patients and willingness to share experiences with others.

Results

Among the 20 nurses surveyed in the Infectious Resuscitation Unit, 9 (45%) reported experiencing a high workload, while 10 (55%) described their workload as very heavy during the COVID-19 pandemic. Regarding infection frequency, 8 nurses (40%) indicated they were infected three times during the pandemic, 7 nurses (35%) reported four infections, 4 nurses (20%) experienced five infections, and 1 nurse (5%) reported being infected twice.

Stress levels were notably elevated: 10 nurses (50%) reported a high level of stress, 8 (40%) described it as very high, and 2 (10%) stated they experienced a moderate level of stress during the pandemic.

Multiple linear regression analysis was conducted to examine the relationship between stress level (dependent variable) and three independent variables: age, workload, and infection rate. The analysis revealed no significant association between age and stress level. However, a positive and statistically meaningful relationship was observed between both workload and infection frequency with the reported levels of stress. Nurses who reported heavier workloads and more frequent infections also exhibited higher stress levels, indicating that these factors had a compounding impact on their psychological well-being during the pandemic.

TABLE 1. Infection Frequency Among Nurses During the COVID-19 Pandemic

Infection Frequency	Number of Nurses	Percentage (%)
2 times	1	5
3 times	8	40
4 times	7	35
5 times	4	20

FIGURE 1. Workload among Nurses during the COVID-19 Pandemic

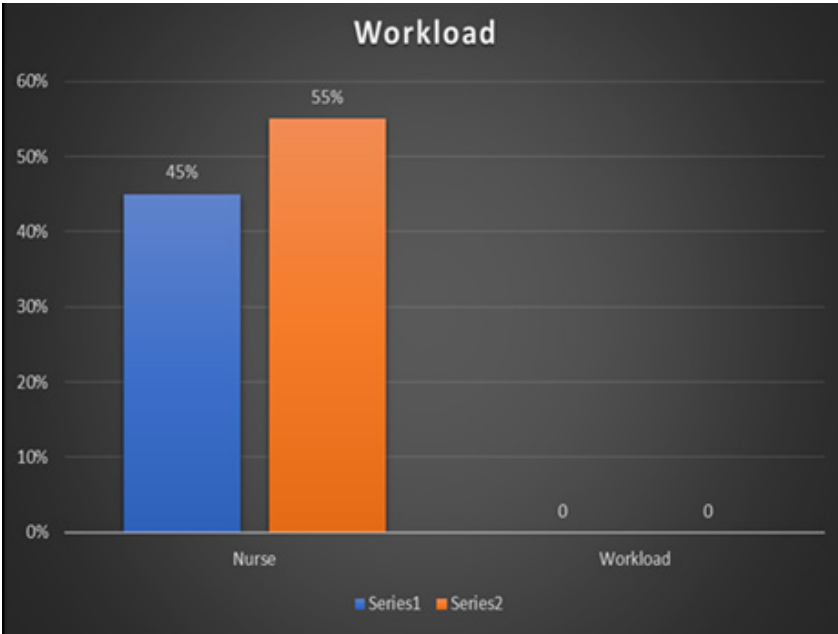


FIGURE 2. Infections among Nurses during the COVID-19 Pandemic

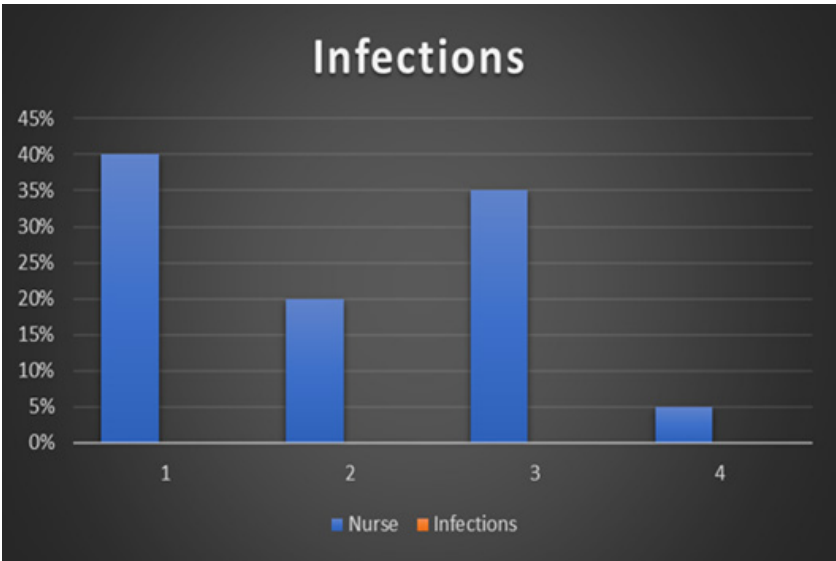
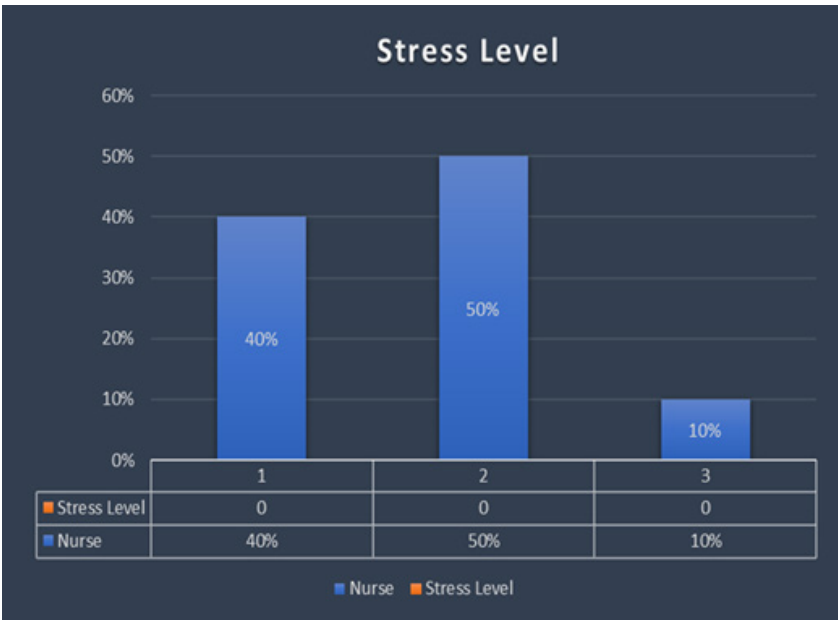


FIGURE 3. Stress level among Nurses during the COVID-19 Pandemic



Discussion

This study highlights the critical occupational health challenges faced by nurses in infectious resuscitation during the COVID-19 pandemic. A significant majority reported high or very high workloads, frequent SARS-CoV-2 infections, and elevated stress levels, illustrating the heavy physical and psychological burden borne by frontline healthcare workers.

The observed stress levels align with previous research showing that nurses globally reported severe psychological strain during the pandemic. Dall’Ora et al. (2020) identified excessive workload and prolonged exposure to crisis conditions as key contributors to emotional exhaustion and burnout among nurses [16]. Similarly, a systematic review by Labrague and De Los Santos (2020) confirmed that nurses experienced high levels of stress, burnout, and anxiety due to increased work demands, infection fear, and lack of rest [19].

Frequent infection among respondents—some up to five times—mirrors the findings of Al Maqbali et al. (2021), who noted a correlation between high infection exposure and worsening mental health outcomes among healthcare staff [20]. In our study, infection frequency was also positively correlated with increased stress levels, reinforcing this link.

Our regression analysis confirmed that while age did not significantly influence stress levels, workload and infection frequency had a strong and direct association. This is consistent with studies by Sagherian et al. (2020), which found that job demands and physical exhaustion were major predictors of mental distress among nurses [21-22].

In light of these findings, there is an urgent need for targeted interventions. Evidence-based strategies include maintaining optimal nurse-to-patient ratios, enforcing infection prevention protocols, and promoting mental health services in hospitals (Lai et al., 2020) [23-24].

Limitations of this study include the small sample size and single-site design, which may limit generalizability. Future research should incorporate larger, multi-institutional samples and explore protective factors such as resilience and coping strategies.

Conclusions

This study provides important insights into the occupational health challenges faced by nurses working in infectious resuscitation during the COVID-19 pandemic. The findings demonstrate that excessive workloads and repeated

COVID-19 infections significantly contributed to elevated stress levels among frontline nurses, while age had no substantial influence on stress outcomes.

The strong correlation between infection frequency, workload intensity, and psychological distress underscores the urgent need for structural and organizational interventions to protect the well-being of healthcare workers. Measures such as improved staffing ratios, regular mental health support, access to personal protective equipment, and infection prevention protocols are essential for safeguarding nurses' physical and emotional health—particularly in high-risk care settings.

While limited in scope due to its small sample size and single-institution design, this study reinforces global research on occupational hazards in healthcare during pandemics. Future investigations should aim for broader, multi-center approaches and explore factors that enhance resilience and reduce burnout among nurses in crisis conditions.

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