Problems Causing Work-Related Stress and Strategies for Coping with Stress Suggested by Nurses During Covid-19 Pandemic

L. LINNIK, J. SEPP
Tallinn Health Care College,
Kannu 69, Tallinn, 13418,
ESTONIA

Abstract: - Nurses play a pivotal role in the battle against COVID-19. Investigation of the stressful circumstances nurses have encountered provides an opportunity to identify potential strategies for relieving occupational stress among nurses during a crisis. Research on nurses' occupational stress in Estonia has been limited, so our understanding of what causes stress is incomplete. This study uses Karasek's JDC model to explore the factors that can lead to occupational stress for nurses.

The purpose of this research is to investigate the stressful circumstances encountered by nurses during the COVID-19 pandemic and to identify potential strategies for reducing occupational stress among nurses in Estonia. Using Karasek's JDC model, this study seeks to explore the factors that contribute to nurses' occupational stress and develop effective strategies to address these stressors.

Content analysis was used to analyze the data and identify themes and patterns. The themes were related to the topics of the study, such as nurses' experiences working on a COVID-19 ward, the challenges they faced, and the strategies they used to deal with these challenges.

The results of the study will be used to improve the quality of care provided to COVID-19 patients in the hospital. Nurses' main issues were linked to high work demands and low discretion regarding decisions. The problems concerning work demands were mainly associated with a lack of management, interpersonal relations, and a heavy workload. Insufficient management support, unclear instructions, inadequate knowledge about how to use PPE, and nurses' differing understandings of work organization were reported as existing problems. Heavy workloads and insufficient rest periods resulted in physical and mental health problems among nurses. Low discretion was caused by unexpected situations necessitating quick and ethical decision-making.

The findings of this study indicate that nurses in hospitals are facing several issues related to high work demands and a lack of discretion in decision-making. Strategies proposed by nurses to address these issues include offering additional training and classes, increasing the number of nurses, improving communication, and enhancing access to professional mental health support. These findings can be used to improve the quality of care provided to COVID-19 patients in hospitals.

Key-Words: - COVID-19 pandemic, COVID-19 ward, Occupational stress, Nurses

Received: February 16, 2023. Revised: June 13, 2023. Accepted: June 24, 2023. Published: July 7, 2023.

1 Introduction

The coronavirus pandemic (COVID-19), whose onset occurred in China in December 2019 and spread globally, has led to a multitude of problems and challenges in health care. The pandemic has demonstrated that no country – not even the most advanced – was ready for a pandemic of such magnitude, [1], [2]. The exposure of gaps in national preparedness due to the emergence of the SARS-CoV-2 virus has revealed deficits in global leadership. The European Centre for Disease Prevention and Control (ECDC) and the Centers for Disease Control and Prevention (CDC) concur that the virus is unlikely to disappear soon. Various

scenarios have been discussed, ranging from mild to severe, including the potential for a new pandemic. It is prudent to be prepared for all possible contingencies, [3]. Nurses experience occupational stress due to the high societal expectations and rapidly changing conditions associated with treating COVID-19 patients, [4], [5]. Prolonged stress can be a precipitating factor in the development of depression, which can have detrimental consequences for cognitive, affective, and behavioral functioning, [5]. The presence of heightened tension in work environments, which is often the result of high psychological demand and

limited discretion in decision-making, can have deleterious effects on health outcomes, [6].

The WHO Model of a Healthy Workplace, [7], [8], identifies the four components of a thriving work atmosphere: physical and psychosocial conditions; individual well-being; and the involvement of the organizational community. Organizations should focus on the prevention of mental health issues by evaluating potential risks from the beginning, rather than providing stress management, pressure management education, or counselling for stressed employees, [9]. Occupational stress as a hazard in the workplace has been cited since the middle of the 1950s. Burnout is a potential consequence of chronic occupational stress, [10]. The World Health Organization declared burnout an occupational phenomenon during the COVID-19 pandemic (WHO 2020). Despite the relevance of the topic, few studies provide recommendations for healthcare professionals to establish the necessary changes in times of crisis, [11]. It is important to examine nurses' experiences and well-being in times of crisis; an understanding of nurses' well-being is essential to ensuring a high-quality workforce, [12].

This research is underpinned by Robert Karasek's Job-Demand-Control (JDC) model, [13], which has been widely utilized to investigate work-related stress. Substantial empirical evidence has been amassed in support of the JDC model from numerous studies conducted by psychosocial and work-related stress researchers, [13], [14], [15]. This model provides a comprehensive understanding of the sources of stress in the workplace by assessing both the demands of the job and the employee's control over their work environment. It can be used to identify areas of potential risk and to develop strategies for improving job satisfaction and reducing stress. Moreover, the JDC model can be utilized to better understand the psychological consequences of job stress and provide a framework for developing effective interventions. The study, [14], examined the efficacy of the JDC model in predicting work-related stress among nursing professionals. Similarly, a review by [15], found that the JDC model had significant predictive value in evaluating job demands and levels of stress in the workplace. Therefore, Karasek's JDC model is a powerful and comprehensive tool for exploring the relationship between job demands, control, and employee stress, and for developing strategies to reduce job stress and improve job satisfaction.

2 Problem Formulation

2.1 Occupational Stressors Faced by Nurses during COVID-19

Nurses are a vital component of the healthcare system, providing essential care to patients in various healthcare settings. However, the nature of their job comes with numerous psychosocial risk factors that can negatively impact their well-being and work performance. In literature, the heavy workload of nurses, the emotional stress caused by observing patients in a critical condition, and the lack of resources and social life have been identified as the main psychosocial risk factors, [11], [16], [17].

In addition, the COVID-19 pandemic has further increased the burden on nurses, with the uncertainty surrounding treatment policies affecting nursing quality and causing staff members to quit, [18], [19]. The departure of staff members has resulted in increased stress for the remaining employees, leading to burnout among nurses, [20]. In [11], the authors identified conflicts arising between people, with a lack of emotional intelligence, personal characteristics, unclear roles, and poor communication seen among the main causes. The study, [16], found that the use of personal protective equipment (PPE) caused physical problems for nurses, such as fatigue and psychological stress. Communication and vision were also affected, with fogging of protective glasses reported, [21].

Estonian nurses working with COVID-19 patients experienced a significant increase in workload and tension, as reported by [22]. The provision of support in managing tensions derived from the COVID-19 situation was found to be adequate, but nurses relied mainly on support from family and friends, with less perceived support from their organization. The study, [23], analyzed psychosocial risk factors in Estonian care homes and found a correlation between these factors and burnout, stress, sleep problems, and cognitive, depressive, and somatic symptoms. Heavy workload, quick pace, and uneven working patterns caused difficulty focusing and memory problems and hindered clear thinking and decision-making among employees. In [24], the authors reported that the meaning of the job, clear roles, social relations, and mutual trust among employees were important factors for Estonian nurses. Work-related psychosocial risk factors such as workload, emotional requirements, work pace, and role conflicts were positively correlated with the

occurrence of stress and burnout. Occupational stress and burnout were found to have the highest average scores among mental health problems. In, [25], the authors found that work-related psychosocial risk factors, particularly quantitative and emotional requirements, work pace, low justice and respect in the workplace, and role conflicts, had a significant influence on the occurrence of musculoskeletal pain among nurses.

In conclusion, the nursing profession is associated with numerous psychosocial risk factors that have implications for the well-being and work performance of nurses. The COVID-19 pandemic has further increased the burden on nurses, making it crucial to address psychosocial risk factors and support the well-being of healthcare workers in general. It is recommended that healthcare organizations provide adequate resources and support systems to help nurses manage their workload, improve communication and the organizational culture and provide adequate training. Overall, the literature highlights the importance of addressing psychosocial risk factors in the nursing profession, particularly in relation to the COVID-19 pandemic, to promote the well-being of nurses and ensure high-quality patient care. As the COVID-19 pandemic continues to challenge the nursing profession, understanding the coping strategies used by nurses to manage stress is crucial for promoting their well-being and ensuring high-quality patient care.

2.2 Stress Coping Strategies used by Nurses during the COVID-19 Pandemic

According to, [26], stress arises from the interaction between the person and their environment; effective stress management requires consideration of both parties. The stress management model proposes that individuals use either problem-centered or emotion-based coping strategies based on their evaluation of the situation and their coping resources, which can be physical, social, psychological, or material. Coping serves two main functions: regulating emotions or stressors derived from stressful situations; and managing the cause of stress by changing elements of stress directly.

In, [27], the authors observed that people tend to use problem-based coping strategies when the situation is assessed as changeable and emotion-based strategies when the situation is assessed as less changeable or unchangeable. In, [28], [29], the authors found that nurses tend to focus on

problem-centered strategies rather than emotion-based ones.

Studies conducted during the COVID-19 pandemic show that nurses have sufficient resources to implement constructive management strategies, [30]. In [31], the authors found that nurses working with SARS-CoV-2 patients used coping strategies focused on both problems and emotions, whereas nurses working with patients without COVID-19 primarily used problem-centered coping strategies. The use of psychoactive substances to alleviate unpleasant emotions was rare among nurses.

In, [32], the authors found that younger nurses working with COVID-19 patients tended to use instrumental social support. Only a few nurses resorted to drug use. Nurses in leadership positions preferred planning as a coping strategy. The authors of the study concluded that special attention should be paid to younger and less experienced nurses. Monitoring the working hours and health status of nurses is essential. Outpatient healthcare institutions need more attention, support, and information, with managers playing a critical role in improving nurses' mental health.

The study, [22], concluded that Estonian nurses expected support measures from hospitals, including higher salaries, more rest time, flexible work schedules, recognition, and psychological support. In, [23], the authors emphasized that a healthy work environment results from good communication, teamwork, a sufficient number of employees, recognition, trust management, and the decision-making skills of colleagues and managers alike. Work organization and the provision of support from managers are crucial to maintaining employees' mental health stability, ensuring patient safety, and improving work outcomes. The authors recommend training managers and employees in positive conflict resolution, supporting one another in routine work situations, and providing constructive feedback.

3 Problem Solution

The purpose of this research is to investigate the stressful circumstances that nurses have encountered during the COVID-19 pandemic and to identify potential strategies for reducing occupational stress among nurses in Estonia. Using Karasek's JDC model, this study seeks to explore the factors that contribute to nurses' occupational stress and develop effective strategies for addressing these stressors. To address this purpose, two research questions were formulated:

(1) What occupational stressors have nurses in Estonia faced during the COVID-19 pandemic?
(2) What strategies can be implemented to reduce occupational stress among nurses in Estonia?

3.1 Study Design

This research is a qualitative study based on semi-structured interviews. The authors of this study have selected the qualitative research method because it encompasses the personal experiences of the subjects during COVID-19, which are needed to achieve the aim of this study. The qualitative content analysis described by, [33], was employed to analyze the data. This method of analysis is useful for revealing conflicting opinions or unresolved issues concerning the significance and application of concepts, strategies, and interpretation. It offers an important perspective on the main concepts related to qualitative content analysis, [34].

Karasek's model was employed as the theoretical framework of the study. The model for checking work demands, [13], consists of two main terms: job decision latitude, which demonstrates to what extent the worker has their say about what to do at work and how; and job demands, which involve workload, support, resources and information from the organization, management, and colleagues, as well as time pressure. Employees with high demands and high discretion regarding decisions are active, and those with high demands and low discretion regarding decisions are strained, [13], [35], [23], [11]. Job demands refer to the physical, social, and organizational elements of a job that may lead to stress or health issues, [36]. A qualitative study was conducted in the COVID-19 wards of Central Hospital after gaining permission from the Ethics Committee of the Estonian National Institute for Health Development. The phenomenological approach was used with the aim of describing the phenomenon's "pure experience", [37]. Data were collected by open semi-structured interviews, which according to, [38], is used of subtopics of the interview are known and the questions may be formed before but it is the researcher that decides when it is appropriate to ask these. The interview included open questions, which allowed the nurses to express their detailed experiences as well as their understanding of the problems causing their occupational stress, the consequences of their occupational stress, and the solutions they employ to alleviate their stress. The authors used the following questions in the interviews: "What were the most stressful situations you encountered while working during the COVID-19 pandemic?", "What kind of problems arose?", "How were they resolved?", "How could you avoid this situation in the future?", "What was the aftermath of this situation?", "What were the reasons for the problem?", "Is there anything else you would like to add about your experience?" The authors recorded the answers of the subjects and later documented them manually on paper.

3.2 Sample Selection

The subjects of this research are nurses who worked or are working on the COVID-19 ward during the pandemic and who have described their subjective experiences. These descriptions provide a comprehensive picture of how stressful the situations and problems were for nurses during the crisis.

Nurses working in the COVID-19 ward at an Estonian hospital formed the sample. The aim of the research and its necessity, importance, and plan of conduct was explained to the management board of the COVID-19 ward after which permission to conduct the research was granted. Since March 2020, COVID-19 patients have been treated in the infectious disease clinic as well as in COVID-19, COVID-2, and COVID-3 wards. The credibility of the research was ensured by the fact that data were collected from various COVID-19 wards. Inclusion criteria for nurses were as follows: (1) the participant had a nursing diploma; (2) the participant had worked on the COVID-19 ward full-time for at least three months; (3) the participant agreed and was ready to take part in the study. Data were collected from subjects who provided their written permission. Informed consent was obtained both in written form and orally before the beginning of the interview. The sample size was determined by data saturation, [39]. Interviewees participated in the research voluntarily, and their data is anonymous. The subjects received an explanation of the aim and process of this research.

3.3 Collection of Data

The main research method in qualitative research is an interview, [39]. A semi-structured interview was aimed at nurses who work in the COVID-19 ward. The authors of this research accept the nurses' experiences as they are. Data were collected from 2 June 2021 until saturation. Under this condition, data were collected until 30 September 2021. A total of 16 nurses were interviewed. Invitations were sent to the nurses before the interview. The invitation included the following: the title of the research; a description of the aim and methodology; and information on the importance of nurses' work in

the COVID-19 ward. All volunteers were contacted separately, and the date of the interview was agreed on individually.

The authors do not change the subjective experiences of the respondents but display them as they are, leaving aside the researchers' original assumptions and preconceived opinions, [39], [40]. A voice recorder was used to record the interviews. Simultaneously, as many terms and background details (atmosphere, body language, facial expressions) as possible were written down. A maximum of two interviews were held during the day. For best results, the authors asked more detailed questions. Detailed questions ensured that both the interviewer and interviewee stayed focused on the topic and aided in describing the phenomenon expansively (Table 1).

Table 1. Problems causing occupational stress among nurses and solutions. Categories determined based on 16 interviews

Category	Number of respondents
Inadequate management	16
Insufficient support	16
Ethical dilemmas	10
Social support from management	16

Source: Author's work

3.4 Qualitative Content Analysis of Interview Texts

Recorded audio interviews were transcribed. The transcribed texts were divided into two main themes based on the research questions. Interviews were coded according to the order of the interviews. During the coding of the text, it was divided into parts that were later analyzed (Table 3). The aim of the analysis was to identify the meaning hidden in the data, [41]. Based on the results obtained, four main categories were generated, which resulted in a concise and organized system. The categories aid in concluding the phenomenon of the research, [40]. During categorization, subcategories were created for each main category (Table 2).

Categories were deeply analyzed to correspond to the aim of this research and the interview content. Analysis should be precise and address the content of the interview fully, [42].

The authors requested that nurses provide possible solutions to the problems they face. The solutions were analyzed using a similar principle (Table 4). According to [43], coping with work stress involves an individual's effort in meeting the demands of their job. Coping with stress mainly focuses on problem-solving or the healthy

expression of emotions, [27]. During their interviews, COVID-19 ward nurses suggested only problem-centered coping strategies for solving psychosocial problems.

3.5 Ethical Aspects

To conduct the research, a written agreement was concluded with the Hospital's representative. An application for a permit from the Research Ethics Committee of the Institute of Health Development was submitted. Decision 774 on Research No. 2258 of the Research Ethics Committee of the Institute of Health Development was released on 2 June 2021. The subjects remained anonymous, and their name, gender, and work experience were not noted. The codes of the interviews are unique and are comprised of the word 'interview' using the abbreviation (I) and the corresponding order number of the interview (for example I1). Before the interview, the aim and process of the research paper were explained to the subjects, and they were reminded that participation was voluntary. The demands of confidentiality were considered when retaining data. The interviews had to depict the experiences of the subjects, not the thoughts and interpretations of the authors, [40].

Table 2. Overview of Categories and Subcategories

Category	Subcategories
Inadequate management	Poor work organisation regarding rest breaks
	Inadequate preparation for working on COVID-19 wards
	Authoritarian attitudes from managers and doctors
	Lack of personal protective equipment and work tools
	Lack of workload regulation
	Physical and mental ailments from overload
Insufficient support	Lack of feedback and recognition
	Poor communication among colleagues
	Lack of training
Ethical dilemmas	Balancing duty of care with personal safety
	Dealing with COVID-19 deniers
Social support from management	Improving team collaboration
	Regulating work processes and mentoring new nurses
	Workload regulation
	Improving Nurses' awareness and preparedness

Source: Author's work

4 Results

The results of this research describe experiences of work-related stress among nurses on COVID-19 wards. All interviews were conducted at the Central Hospital from June 2021 to September 2021. The analysis revealed that the central theme was the workload of the nurses. This study aimed to explore the job demands experienced by nurses working on COVID-19 wards. Analysis of interviews revealed three categories of job demands: inadequate management, insufficient support, and ethical dilemmas regarding COVID-19 deniers. The following sections present each category and its subthemes, along with quotes from the interviews.

4.1 Inadequate Management

Nurses described inadequate management as poor work organization regarding their rest breaks, lack of preparation for working on COVID-19 wards, authoritarian attitudes from managers and doctors, lack of personal protective equipment, poor workload regulation, and physical and mental ailments from overload.

Table 3. Examples of problems causing occupational stress among nurses working on COVID-19 wards

Meaning units	Condensed meaning	Codes	Subcategories	Categories	Theme
"There was too little resting time, or we did not have it at all, we ate and drank too little (some fainted in the hall or on the ward)."	There was not enough time for rest, eating, and drinking	Lack of rest time for eating and drinking	Poor work organization regarding rest breaks	Inadequate management	Perceived job demands
"The lack of personnel is a very big problem; as a result, the workload of one nurse is insane, they cannot complete their work in a timely and physically possible manner. The quality of work decreases."	Due to excessive workload, nurses are unable to perform their tasks as quality work in a timely or a physical manner	Excessive workload	Lack of workload regulation		
"If you think about the patients in the department, then I guess you could deem a situation stressful when you see a patient walk on their own two feet, able to manage their actions, and suddenly it started changing within minutes."	Quick decisions due to changes in the patient's health condition	Lack of control due to the pace of work			
"Unfamiliar ward, other working principles, new people, colleagues – you have not got used to the new place and work."	A foreign department, different working principles, new people, and colleagues who are not used to a new workplace	Inadequate teamwork related to a foreign environment and new colleagues	Poor communication among colleagues	Insufficient support	Job decision latitude
"The patient was in complete denial about the disease, masks, and the vaccine. They refused a mask and treatment."	Ethical dilemmas on performing nursing care on a patient denying the COVID-19 virus, the necessity of wearing masks or being immunized	Ethical dilemmas on performing nursing care on a patient denying COVID-19	Dealing with COVID-19 deniers	Ethical dilemmas	

Source: Author's work

Subtheme (1): Poor work organization regarding rest breaks.

Nurses reported insufficient recovery time, causing tension within the team. Nurses had to work in their own wards and in the COVID-19 wards, leaving no free days for rest. There was no time to eat or drink during their shifts, which led to dehydration and fainting. Insufficient rest led to sleep disorders and waking up at night in fear of being late for work.

One nurse stated, "There *was little time for breaks, if any at all, and not a lot of eating and drinking.*"

Subtheme (2): Inadequate preparation for working on COVID-19 wards.

Nurses expressed uncertainty and a lack of knowledge about working with severely ill COVID-19 patients. Some patients were uncomfortable wearing CPAP masks and wanted to remove them, but nurses lacked the knowledge to respond appropriately. One nurse mentioned, "*Lack of preparedness was the cause of the stress; nurses' inadequacy in working together in this situation. Especially nurses who usually do not come into contact with patients like these.*"

Subtheme (3): Authoritarian attitudes from managers and doctors.

Nurses felt that the authoritarian attitudes of hospital management affected their self-esteem and increased stress levels. One nurse said, "*Stress and nervous strain from a huge workload and from the fear that I can't complete everything on time. This led to more problems – the doctors' dissatisfaction with the nursing personnel. There was no support from nursing directors.*"

Subtheme (4): Lack of personal protective equipment and work tools.

Interviews revealed inadequate work tools, such as a lack of slide sheets or insufficient PPE, which made the job harder and increased stress levels. One nurse mentioned, "*There were no slide sheets, these were ordered later.*"

Table 4. Examples of solutions suggested by nurses to solve problems causing occupational stress

Meaning units	Condensed meaning	Codes	Subcategories	Categories	Theme
"*Teamwork must be better. If there are difficult situations, you need to work operationally.*"	Better teamwork is needed for working in difficult situations	Improved teamwork for coping with difficult situations	Improving team collaboration	Social support from management	Problem-oriented coping
"*Need more personnel. Observing takes a lot more time, especially when everything can change in a patient's state in 30 minutes.*"	The need for more personnel to monitor the rapidly changing health conditions of patients	Need for more staff to monitor patients with rapidly changing health conditions	Workload regulation		
"*The solution would be more nurses with complete training on topics, such as how to use medical devices and how to perform activities on an isolated ward.*"	More nurses with completed training and competence for working in an isolation unit	To increase the number of trained nurses competent to work in isolation units	Improving Nurses' awareness and preparedness		
"*I feel more of a need for the hospital management to listen to the nurses more, not just demand that they do this and that. To raise nurses' confidence in themselves.*"	The nurses feel the hospital management should listen to them more and boost their confidence, not just demand everything	Nurses need the hospital management to listen to them more and boost their self-confidence instead of only giving orders	Attention from the management about work pressure and the mental state of nurses		

Source: Author's work.

Subtheme (5): Lack of workload regulation.

The nurses considered workload to be the most important source of work-related stress. They had to work in a situation where staff shortages were a constant problem. One nurse was responsible for several COVID-19 patients in critical condition at the same time, requiring more time for care/supervision than usual.

The interviews revealed a consistent decrease in work quality due to workload: "*The lack of personnel is a very big problem; as a result, the workload of one nurse is insane, they cannot complete their work in a timely and physically possible manner. The quality of work decreases.*"

Subtheme (6): Physical and mental ailments from overload.

One of the major problems discovered during the interviews was the large workload that caused both mental and physical health issues. Many nurses mentioned various physical problems: "*There was a lot of turning because there were too many bed-ridden patients. All this reactivated back issues, constant back pain.*"

4.2 Insufficient Support

Nurses described insufficient support as a lack of feedback and recognition, poor communication among colleagues, inadequate psychological support, and a lack of training.

Subtheme (1): Lack of feedback and recognition.

Nurses felt that their work was not appreciated, and they lacked feedback from colleagues and superiors. This lack of recognition contributed to their stress levels. One nurse stated, "*We feel that we are not appreciated by the management. Nobody asks us how we are doing.*"

Subtheme (2): Poor communication among colleagues.

Interviews revealed poor communication among colleagues, which hindered teamwork and increased stress levels. Nurses felt that they were not part of a team and that communication was limited. One nurse mentioned, "*There was no real teamwork in the beginning. People didn't talk to each other; we were not working as a team.*"

Subtheme (3): Lack of training.

Nurses reported a lack of training in dealing with COVID-19 patients, which increased their stress levels and sense of inadequacy. They felt unprepared for the challenges that came with working on COVID-19 wards. One nurse mentioned, "*We were not given any training before we started working with COVID patients. It was like throwing us into the deep end without knowing how to swim.*"

4.3 Ethical Dilemmas Regarding COVID-19 Deniers

Nurses described ethical dilemmas regarding COVID-19 deniers as difficult situations that required them to balance their duty of care to patients against their safety and that of their families. Some patients denied the existence of COVID-19 or refused to comply with hospital regulations.

Subtheme (1): Balancing duty of care with personal safety.

Nurses felt conflicted between their duty of care to patients and their safety and that of their families. They were concerned about bringing the virus home and potentially infecting their loved ones. One nurse mentioned, "*It's not just a question of your own health, but you are also responsible for your family.*"

Subtheme (2): Dealing with COVID-19 deniers.

Nurses reported dealing with patients who refused to believe in the existence of COVID-19 or refused to comply with hospital regulations. They felt frustrated and unsupported in these situations. One nurse stated, "*I had a patient who refused to wear a mask, and when I asked her to do so, she called me a liar and said COVID was a hoax.*"

Overall, the analysis of the interviews revealed that nurses working in COVID-19 wards face various job demands related to inadequate management, insufficient support, and ethical dilemmas regarding COVID-19 deniers. These findings suggest the need for improved support, training, and resources for nurses working on COVID-19 wards to help mitigate these job demands and promote their well-being.

4.4 Solutions Offered by Nurses for Solving Work Stress-Causing Problems

In their interviews, nurses working with COVID-19 patients suggested coping strategies for reducing work stress focused only on addressing the problems. The coping strategy, describing the upper-level theory of Social Support Management, was formed by four subthemes: improving team collaboration; regulating work processes and mentoring new nurses; workload regulation; and improving nurses' awareness and preparedness.

Subtheme (1): Improving team collaboration.
During the analysis of the nurses' interviews, it became apparent that the main problems were due to the lack of social support. As a result, the solutions offered by the nurses were primarily focused on improving social support. Nurses mentioned that better teamwork was needed in complex and unpredictable situations: "*Teamwork must be better. If there are difficult situations, you need to work operationally.*"

Subtheme (2): Regulating work processes and mentoring new nurses.
Nurses stated that there was insufficient support from management and that new nurses starting to work on the COVID-19 ward did not receive sufficient instruction. As a solution, a mentor for new employees was suggested to help them adapt to the environment and ensure a pleasant work environment and more effective nursing care: "*A mentor for new workers from the get-go. It is possible to organize work in a way that reduces sources of stress. For that, you mainly need a good and well-working team and understanding superiors who regulate the effectiveness of the work process and work on behalf of their personnel's well-being. The nursing care service would be better because of that.*"

Subtheme (3): Workload regulation.
It became apparent in the interviews that increasing the workforce's resources was necessary to solve problems related to workload. Having a sufficient number of nurses and being better prepared for crises would help reduce the burden: "*We need more personnel. Observing takes a lot more time, especially when everything can change in 30 minutes in a patient's state.*"

Subtheme (4): Improving nurses' awareness and preparedness.
Nurses reported in interviews that a problem arose in putting nurses from different wards together; their preparedness was not always sufficient. Various pieces of medical equipment were used in the COVID-19 ward, such as ventilators (CPAP, etc.), drip infusions, and perfusors. Not all nurses were familiar with these in their daily jobs, and training was needed before starting work. Nurses should receive more training, including on the proper use of PPE: "*A solution would be if there were more trained nurses who knew how to use medical equipment, how to do things on an isolated ward.*"

5 Discussion

The COVID-19 pandemic has revealed the occupational stressors that nurses face in Estonia. The purpose of this research was to investigate the stressful circumstances that nurses have encountered during the COVID-19 pandemic and to identify potential strategies for reducing occupational stress among nurses in Estonia using Karasek's JDC model.

5.1 Main Problems Causing Occupational Stress Among Nurses in the COVID-19 Unit

The progress made in nursing in Estonia toward creating a healthy and successful workplace is commendable. By focusing on improving nurses' well-being, they are not only benefiting the nurses themselves but also enhancing the quality of patient treatment. Karasek's model, [13], offers valuable insights into the relationship between job demands, decision-making discretion, and employee motivation. Creating a working environment with high demands and high discretion allows nurses to be active and highly motivated, while environments with high demands and low discretion can lead to excessive strain and occupational stress.

By creating a working environment that aligns with the principles of Karasek's model, organizations can foster a culture of empowerment and autonomy among nurses. High demands coupled with high discretion provide nurses with the opportunity to actively engage in their work, make decisions, and take ownership of their roles. This, in turn, can enhance their motivation, job satisfaction, and overall well-being.

Conversely, when nurses face high demands but have limited discretion in decision-making, it can lead to a sense of powerlessness and increased stress levels. Such situations may result in feelings of being overwhelmed, inadequate, and unable to cope effectively. This can negatively impact not only the nurses' mental and physical health but also their performance and the quality of patient care.

The findings of the study discussed in the text shed light on the challenges faced by nurses working on COVID-19 wards in Estonia. Inadequate management, lack of support, and ethical dilemmas related to COVID-19 deniers were significant job demands that affected nurses' work and well-being. Inadequate management manifested in poor work organization, insufficient preparation, authoritarian attitudes, and a lack of necessary equipment and tools. Insufficient support was characterized by a lack of feedback, recognition, and poor communication among colleagues.

Therefore, it is essential for healthcare organizations to recognize the significance of Karasek's model and strive to create work environments that promote high discretion alongside appropriate levels of job demands. This can be achieved through measures such as providing opportunities for nurses to participate in decision-making processes, offering support and resources to enhance their skills and competencies, and fostering a culture of open communication and collaboration.

The results of this study shed light on the potential benefits of incorporating the principles of Karasek's model into the design and management of nursing workplaces. By doing so, organizations have the opportunity to reduce occupational stress and create a work environment that promotes the well-being of nurses. This is crucial because nurses play a vital role in delivering high-quality patient care. The results of this study are in line with previous results and showed that when nurses experience high levels of occupational stress, it can have detrimental effects on their physical and mental health, job satisfaction, and overall performance. It can lead to burnout, decreased motivation, and increased turnover rates, which can negatively impact the continuity and quality of patient care.

Other Estonian researchers have found similar results. Role conflicts, workload, the rapid pace at work, and uneven work patterns have been described as the main factors causing occupational stress, resulting in difficulties in focusing and decision-making as well as memory problems, [22], [23], [25]. Studies conducted elsewhere have highlighted the main factors causing occupational stress as heavy workload, insecure treatment policies, and lack of resources and social life, [16], [11], [17]. By aligning with Karasek's model, organizations can foster a work environment that empowers nurses, provides them with decision-making discretion, and supports their autonomy. This can contribute to a sense of control and ownership over their work, enhancing their motivation and job satisfaction. As a result, nurses are more likely to be engaged, resilient, and committed to providing the best possible care to their patients.

Furthermore, when nurses are working in a healthy and thriving environment, the quality of patient care naturally improves. Nurses are better equipped to handle the demands of their roles, make informed decisions, and effectively communicate with patients and other healthcare professionals. This ultimately leads to better patient outcomes, increased patient satisfaction, and a more effective healthcare system as a whole.

Therefore, healthcare organizations must recognize the significance of incorporating Karasek's model into their approach to designing and managing nursing workplaces. By prioritizing the well-being of nurses and creating a supportive work environment, organizations can simultaneously reduce occupational stress and enhance the quality of patient care. This holistic approach benefits not only the nurses but also the patients and the overall effectiveness of the healthcare system.

Conflicts between Estonian nurses, lack of team spirit, and insufficient support from management were also identified as existing problems. Insufficient support from the management for Estonian nurses has been described by [22], who claims that the main support came from family and friends. The establishment of COVID-19 wards with nurses selected from different hospitals and wards resulted in strain due to differences in work habits and experience. The lack of preparation for working with patients with COVID-19, including the use of CPAP ventilators, also caused problems. Interpersonal conflicts mainly caused by a lack of emotional intelligence, personal characteristics, workplace-related aspects, unclear roles at work, and poor communication were reported [11].

Overall, these findings highlight the importance of addressing job demands and providing appropriate support and resources for nurses working on COVID-19 wards to ensure their well-being and the quality of patient care.

According to the authors of this research, insufficient rest periods and a heavy workload were major causes of physical problems among nurses in Estonia during the COVID-19 pandemic. These physical problems included backaches and headaches due to turning patients as well as rash and worsening of allergic dermatitis caused by PPE. Nurses also faced limited options for consuming fluids and food regularly. The literature mentions several other physical problems caused by PPE, including the onset of headaches, discomfort, anxiety, nausea, dizziness, physical exhaustion, reduction of speed in completing assignments, and excessive sweating, which itself caused skin irritation and skin issues, [21], [44], [16].

It can be concluded that physical, psychological, social, and organizational factors result in negative consequences and the development of occupational stress during the COVID-19 pandemic at nurses' workplaces.

To address the challenges identified and alleviate the occupational stress experienced by nurses, it is crucial to explore the solutions

suggested by nurses themselves. The next sub-chapter delves into the valuable insights provided by nurses, offering potential strategies to mitigate the physical, psychological, social, and organizational factors contributing to their stress levels. By incorporating the perspectives of those directly affected, a more comprehensive and effective approach to enhancing nurses' well-being and the quality of patient care can be developed.

5.2 Solutions Suggested by Nurses to Solve Problems Causing Occupational Stress

The research conducted in Estonia during the COVID-19 pandemic identified several potential strategies that could help reduce the burden of occupational stress among nurses. One key recommendation is to provide nurses with adequate rest periods and reduce their workload. By ensuring sufficient time for rest and recovery, nurses can better cope with the physical demands of their work and minimize the risk of physical problems such as backaches and headaches. Additionally, improving management practices, communication, and teamwork can contribute to a more supportive work environment and reduce stress levels. Proper preparation and training for nurses working with COVID-19 patients, including education on the use of CPAP ventilators, can enhance their confidence and competence, thereby reducing stress.

Additionally, implementing emotional intelligence training and improving workplace-related aspects, such as role clarity, could help reduce interpersonal conflicts among nurses. The literature also suggests providing psychological support for nurses to help reduce mental stress and burnout, [16], [21], [44]. Overall, addressing these stressors and implementing these strategies could help reduce occupational stress among nurses in Estonia during the COVID-19 pandemic.

The COVID-19 pandemic has highlighted the need for effective stress management strategies among nurses. Estonian nurses reported difficulties in making decisions due to a lack of information and clear instruction, especially in rapidly changing situations. They also faced ethical dilemmas regarding patients who refused to wear protective masks or receive the COVID-19 vaccine. In interviews, nurses suggested various solutions to improve their discretion, such as improved teamwork, efficient communication, mentorship, and training. In [45], [17], have suggested individual and/or group-based psychological interventions to improve nurses' mental health and well-being, while [46], suggested rotation among nurses to increase their skills and experience in working in a multidisciplinary team. Overall, effective communication, adequate workload management, mentorship, training, and psychological support are crucial for managing occupational stress among nurses. Healthcare organizations need to invest in the mental health and well-being of their nurses to ensure a safe and productive working environment.

The findings of this study are consistent with previous research, which has highlighted the importance of addressing job demands and providing appropriate support and resources for nurses to ensure their well-being and the quality of patient care. Karasek's JDC model suggests that working regarding decision-making allows employees to be active and highly motivated, whereas high demands and low discretion result in excessive strain and occupational stress. Therefore, providing nurses with the necessary information and resources to make informed decisions can help reduce occupational stress.

5.3 Ensuring the Credibility of this Research

The description of the studied phenomenon, the analysis, and trustworthy results were the focus of this research to ensure its credibility. Robert Karasek's Job-Demand-Control (JDC), [13], [26], stress management models were used as a background against which to determine the characteristics of the researched phenomenon, as well as for the analysis of said characteristics. The credibility of these models has been confirmed in several studies, [13], [14], [15]. The models have not been used previously to describe occupational stress among Estonian nurses during the COVID-19 pandemic. Thus, this research has theoretical and practical value. The framework for the content analysis of the interviews consists of Graneheim and Lundman's qualitative content analysis principles, [33]. Since the credibility of the results is ensured by an appropriate sample size, data collection, and analysis were conducted as a parallel process during the research. It was confirmed during the sixteenth interview that no new data were being obtained. This was the basis for deciding against further data collection.

This research paper has some limitations. The group of participants works in the same central hospital; therefore, the results cannot be generalized to all Estonian nurses working in COVID-19 units. While limitations exist, the findings of this study provide valuable insights that can serve as a springboard for further exploration of occupational stress among Estonian nurses during the COVID-19 pandemic.

In conclusion, this research has taken careful steps to ensure its credibility by drawing on well-established theoretical frameworks, adhering to rigorous analysis principles, and reaching data saturation. While limitations exist, the findings of this study provide valuable insights that can serve as a springboard for further exploration of occupational stress among Estonian nurses during the COVID-19 pandemic.

6 Conclusion

In conclusion, this study provides significant insight into the occupational stressors experienced by nurses in Estonia during the COVID-19 pandemic. The findings highlight the detrimental impact of heavy workloads, insufficient rest periods, and inadequate management on nurses' physical and psychological well-being. These challenges, such as backaches, headaches, and burnout, necessitate immediate attention and the implementation of strategies to alleviate occupational stress among nurses.

This study proposes several practical strategies for addressing these challenges, including providing adequate rest periods, reducing workload, improving management, communication, and teamwork, and providing better preparation training for nurses working with COVID-19 patients. This study also highlights the importance of effective stress management strategies, such as individual and/or group-based psychological interventions, mentorship, training, and psychological support in managing occupational stress among nurses.

Overall, the study emphasizes the need for healthcare organizations to invest in the mental health and well-being of their nurses to ensure a safe and productive working environment. This requires a multifaceted approach that addresses the root causes of occupational stress, such as inadequate staffing and management practices, while also providing resources and support for nurses to manage the stressors they face.

In conclusion, this study offers valuable insights into the occupational stressors faced by nurses in Estonia during the COVID-19 pandemic and proposes practical strategies to alleviate this stress. Implementing these strategies is crucial to safeguarding the well-being of nurses and upholding the quality of patient care. However, further research is warranted to evaluate the effectiveness of these strategies and explore additional measures for addressing occupational stress among nurses in Estonia and beyond.

7 Recommendations

Based on the findings of this study, several recommendations can be made to address occupational stress and promote the well-being of nurses in Estonia.

Development of Estimating Frameworks: Organizations should invest in the development and implementation of estimating frameworks that allow for the prediction of potential problems and evaluate the impact of improvement activities. These frameworks can provide valuable insights into the factors contributing to occupational stress and help inform proactive strategies to mitigate its effects. By adopting a systematic approach, organizations can identify stressors in advance and take appropriate measures to prevent occupational stress among nurses.

Expanded Research Scope: While this study focused on nurses, it is important to acknowledge that occupational stress affects individuals across various levels of the healthcare system. Future research should explore the experiences of middle and top managers in nursing, members of management boards of clinics, and care assistants. By examining the perspectives of individuals in different roles, a more comprehensive understanding of occupational stress can be achieved, leading to tailored interventions and support systems for all healthcare professionals.

Implement Preventive Measures: Organizations should prioritize the implementation of preventive measures to address occupational stress. This includes providing training and resources to enhance stress management skills, promoting work-life balance through effective scheduling and workload distribution, and fostering a supportive and inclusive work environment. By proactively addressing the underlying causes of occupational stress, organizations can create a culture that prioritizes employee well-being and reduces the negative impact of stress on nurses.

Collaboration and Knowledge Exchange: Collaboration between healthcare organizations, professional associations, and research institutions is essential for sharing best practices, innovative approaches, and research findings related to occupational stress. Establishing platforms for knowledge exchange and collaboration can facilitate the implementation of effective strategies to manage and prevent occupational stress. This collective effort can contribute to the overall well-being of nurses and the improvement of patient care.

Long-term Monitoring and Evaluation: It is crucial to establish long-term monitoring and evaluation mechanisms to assess the effectiveness of

implemented interventions and measure the impact on nurses' well-being. Regular feedback loops and continuous improvement processes should be integrated to ensure that strategies are continuously refined based on emerging needs and feedback from nurses. This iterative approach will enable organizations to adapt and optimize their efforts in reducing occupational stress over time.

These recommendations aim to address the occupational stress faced by nurses in Estonia and promote their well-being. By implementing these measures, healthcare organizations can create a healthier and more supportive work environment for nurses, ultimately improving patient care.

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