

ORIGINAL ARTICLE

Factors influencing nurses' occupational stress while caring for COVID-19 patients: A retrospective study

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Abstract. *Background and aim of the work:* In late 2019, the COVID-19 pandemic began to disrupt the world, significantly affecting the healthcare system and straining healthcare workers, particularly nurses. As frontline providers, nurses face high exposure risks and immense stress while caring for patients. Throughout this crisis, many nurses have experienced heightened occupational stress due to increased workloads, fears of infection, and frequent protocol changes. This study aims to explore the various factors contributing to this occupational stress among nurses during the COVID-19 pandemic at the Public Regional General Hospital in Banda Aceh. *Materials and methods:* A quantitative approach with a retrospective design was employed, involving a population of nurses who cared for patients with COVID-19. We gathered responses from 65 participants using a total sampling technique by utilizing the Stress Factors and the Psychometric Evaluation of Healthcare Workers' Stress Related to Caring for Patients with a Highly Infectious Disease Scale Developed (PEHWS-CPHIDSD) instruments. Finally, the Chi-Square test was used to analyze the data. *Results:* The study found a strong correlation between the occupational stress experienced by nurses and various factors during the COVID-19 pandemic at the Regional General Hospital. It was found that the p-values for each factor were environmental (0.025), organizational (0.004), and individual (0.001). These results highlight the various stressors that nurses face and underscore the urgent need to address these challenges to enhance their mental health and job performance, particularly during such demanding times. *Conclusions:* A significant correlation exists between environmental, organizational, and individual factors and the occupational stress experienced by nurses caring for patients with COVID-19. Future studies should investigate additional factors, such as gender, the use of coping strategies, and other variables that may influence stress levels in nurses when facing similar situations to help gain a better understanding of stressors in nursing practice (www.actabiomedica.it).

Key words: COVID-19, humans, hospitals, pandemics, coping skills, patient care

Introduction

The emergence of a novel respiratory disease at the end of 2019 had a profound impact on global public health. First identified in Wuhan, China, the Coronavirus Disease (COVID-19) has spread rapidly worldwide (1). Among known coronaviruses, Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS-CoV-2, also known as COVID-19) have caused severe symptoms

and high mortality rates (2,3). The virus primarily spreads through respiratory droplets, with symptoms including fever above 38°C, dry cough, and extreme fatigue (3). COVID-19 has affected over 17 million people globally, with a mortality rate of 3.86% (4). In Asia, Indonesia ranked third in COVID-19-related fatalities (5), and the first confirmed case emerged on Mar 2, 2020. By January 2021, the country had reported more than eight thousand cases, with 24,951 deaths. Jakarta province has the highest number of

cases (exceeding 214,000) (6), while Aceh ranks 20th among the 34 provinces. It has 8,991 cases, 7,688 recoveries, and 369 deaths (5). Among the healthcare workers, nurses faced high risks during the COVID-19 pandemic due to their frontline roles. They experienced significant occupational stress as they managed direct patient care under high-risk conditions. A systematic review noted increasing levels of burnout and post-traumatic stress disorder (PTSD) during the initial phase of the pandemic among nurses working with COVID-19 patients (7). The National Institute for Occupational Safety and Health (NIOSH) classifies nursing as a high-risk profession due to its responsibilities and exposure to infectious diseases. Nurses face numerous safety and health hazards, including exposure to communicable diseases, hazardous drugs, and high stress levels (8). All the studies and information above make nurses particularly vulnerable to psychological distress and depression. A survey conducted during the COVID-19 pandemic found that 39.88% of nurses working in a COVID hospital experienced a provisional PTSD diagnosis (9). Studies have also noted that female nurses and other healthcare workers demonstrated higher levels of anxiety and PTSD than their male colleagues (10). The COVID-19 psychological impact on healthcare workers has resulted in increased stress, anxiety, and depression (11). Furthermore, occupational stress is caused by an excessive workload, challenging work interactions, and emotional responses that disrupt normal functioning. When job demands exceed available resources or individual capacity, it manifests as emotional and physical strain (7). Worldwide, occupational stress among nurses has been recognized as a significant challenge affecting healthcare systems (12). Occupational stress faced by nurses has become increasingly concerning, especially in high-demand environments where job pressures can weigh heavily on their mental health. This situation worsened during the COVID-19 pandemic because they were on the front lines of care in some of the riskiest conditions. With long hours, the constant threat of infection, changing medical protocols, and chronic understaffing, the strain on nurses has reached new heights, testing their ability to cope with the situation (13,14). Stressors that nurses face

include emotional exhaustion and the fear of infecting or spreading the virus to loved ones and other family members. Studies show that nurses often encounter heartbreaking scenarios, like witnessing high patient mortality, leading to higher levels of burnout and mental fatigue (13,14). Wearing personal protective equipment (PPE), working in challenging physical and mental conditions, and keeping up with quickly changing healthcare practices add to their daily stress. Research highlighted that these challenging circumstances have led to increased anxiety, irritability, and sleep issues among healthcare professionals (14). In addition to these challenges, inadequate resources within healthcare facilities have exacerbated the situation. Some issues, such as insufficient staff, a lack of PPE, and poor organizational readiness, have been common challenges. Additionally, extended shifts without sufficient breaks contribute to both physical and mental exhaustion in nurses, affecting their well-being and the overall safety and quality of patient care (15). Furthermore, factors such as age, gender, education level, marital status, and clinical experience can influence one's susceptibility to stress (16). Additionally, outside responsibilities, such as caring for their families and working irregular hours, also impact how nurses perceive and cope with stress. A study from China noted that most healthcare workers showed signs of depression, and nearly 45% experienced anxiety during the early pandemic (17). Typical results were also found in Singapore, where healthcare workers reported anxiety (20.7%), depression (10.3%), and stress (6.9%) (18). Organizational and environmental factors play a crucial role in understanding occupational stress. The National Safety Council categorizes workplace stressors into environmental, organizational, and individual factors, all of which contribute to the impact on mental health in the workplace (19). A recent study in Indonesia found a correlation between occupational stress and environmental ($p = 0.007$), organizational ($p = 0.012$), and individual ($p = 0.006$) factors among hospital nurses (20). A 2021 preliminary study at the Regional Hospital in Aceh revealed that 31.8% of nurses working in COVID-19 isolation units experienced moderate to severe stress (21). Interview feedback from nurses at Meuraxa Hospital highlighted

significant psychological distress, primarily due to devastating patient loads, staff insufficiency, fears of infecting families, social stigma, and limited training in caring for COVID-19 patients. From these complex stressors, this study aims to identify the main factors contributing to occupational stress among nurses at the Regional Hospital of Banda Aceh during the pandemic. Understanding these issues is crucial for developing targeted interventions and policies that support nurses' mental health and enhance the resilience of the healthcare system during public health emergencies.

Materials and Methods

Study design, population, and sample

We employ a quantitative research method with a retrospective study design to investigate the correlation between various stress factors and occupational stress experienced by nurses caring for patients with COVID-19. The study was conducted at the Public Regional Hospital in Banda Aceh, using a questionnaire to gather relevant information from participants. The population included all sixty-five nurses who had experienced and worked in the Penyakit Infeksi New Emerging dan Re-Emerging (Pinere) or [New Emerging and Re-Emerging Infectious Diseases (Pinere)] ward. We employed a total sampling method to ensure that all eligible participants were included in the study, thereby allowing for a comprehensive analysis of the targeted population.

Data collection and instrumentation

The research was conducted over a six-month period, from November 2021 to April 2022. The data collection phase was conducted over two weeks, from Apr 8 to Apr 19, 2022. The instruments for this study are divided into three sections (Figure S1). Section A is used to gather demographic data, including age, gender, education, marital status, working period, and employment status. Section B was assessed using a standardized questionnaire that evaluated stress factors. It comprises 22 statements that are measured

on a Likert scale. Mulyati and Aiyub developed it to evaluate three stress domains: environmental factors (six items, two positive and four negative), organizational factors (eight items, one positive and seven negative), and individual factors (eight items, all negative) (20). Section C was assessed using the Psychometric Evaluation of Healthcare Workers' Stress Related to Caring for Patients with a Highly Infectious Disease Scale (PEHWS-CPHIDSD), a standardized questionnaire (16). This instrument consisted of 32 statements for four sub-variables, including the burden of caring for patients (7 statements), Difficulties and anxieties related to infection control (7 statements), Fear of social isolation (10 statements), and Discomfort caused by protective equipment (8 statements). Both of the instruments utilized a Likert scale, with response options ranging from "Disagree" to "Strongly Agree" for the stress factors questionnaire and "Never causes stress" to "Always stressful" for the occupational stress questionnaire. To ensure validity and reliability, a construct validity test was conducted at a General Hospital with 20 respondents. It was found that a validity coefficient above 0.444 and a Cronbach's alpha score of 0.959 (Figure S1. Section B). Moreover, a back-translation procedure was performed for the PEHWS-CPHIDSD (Figure S1. Section C) to enhance and ensure linguistic, conceptual consistency, and cultural sensitivity. This questionnaire also demonstrated strong psychometric properties, with a validity score of 0.92 and a reliability score of 0.94 (Cronbach's alpha). Previous validation at Ampana General Hospital in 2021 achieved a high-reliability score of 0.939. These findings confirmed the robustness of the measurement tools in assessing occupational stress and stress-related factors among nurses caring for patients with COVID-19.

Data processing and analysis

The data process in this study involved several key steps: editing (checking questionnaire completeness); coding (input numerical values for data analysis, followed by data entry by putting the coded data into software analysis); cleaning (verifying data accuracy and identifying potential errors); and tabulating

(organized the data into frequency and percentage). These steps will ensure that the dataset is complete, reliable, and suitable for statistical examination. Furthermore, data analysis was performed for both univariate and bivariate analyses. In univariate analysis, descriptive statistics summarize the characteristics of respondents, stress factors, and occupational stress levels. Then, the bivariate analysis examined the correlation between independent variables (environmental, organizational, and individual stress factors) and the dependent variable (occupational stress) by using the Chi-square test. A normality test was performed using the Kolmogorov-Smirnov (K-S) and Shapiro-Wilk (S-W) tests. To test the hypothesis, p-values are used with statistical significance set at $\alpha = 0.05$. If the $p\text{-value} \leq 0.05$, the null hypothesis (H_0) is rejected, indicating a significant correlation between various stress factors and occupational stress. However, if the $p\text{-value} > 0.05$, then H_0 is accepted, which means there is no relationship between stress factors and occupational stress (22). Specific statistical methods for the Chi-square test were applied using contingency table analysis based on the expected count distribution. In 2×2 tables, if there is no expected count less than five, the Continuity Correction is used to adjust for potential bias. In addition, Fisher's Exact Test ensured accurate statistical inference if any expected count was less than five (23). This methodology provided a vigorous framework for examining the associations between stress factors and occupational stress among nurses caring for patients with COVID-19.

Ethics committee

The study received ethical approval from the Faculty of Nursing, Universitas Syiah Kuala Ethics Committee, confirming compliance with the standards of research ethics. The committee reviewed the protocol, objectives, methodology, and confidentiality measures to ensure adherence to ethical standards, as outlined in letters 111026140322. Initially, participants were informed of the study's purpose, methods, risks, and benefits before providing written consent. The research was conducted in accordance with the Declaration of Helsinki and national ethical guidelines, ensuring the rights and safety of participants throughout the study (24).

Results

Univariate analysis

The data collection, conducted from Apr 8 to 19, 2022, involved the direct distribution of questionnaires to nurses. Details can be observed in Table 1 below.

Table 1 presents the demographic characteristics of nurses who worked in the Pinere ward. Most respondents (67.7%) were categorized as early adults (26-35 years), indicating that most nurses were in their prime working years. Regarding gender, female nurses (61.5%) were predominant in this setting. For educational level, 83.1% of respondents held a diploma in nursing. Marital status shows that 70.8% of respondents were married, which may contribute to their stress levels due to additional family responsibilities. The working period of the respondents, 47.7%, was in the advancement stage (3-10 years of experience), indicating that most nurses had considerable work experience. For the employment status, 50.8% of the nurses were contract (annually) employees, reflecting the prevalence of non-permanent job positions within the hospital. The findings above provide valuable insights into the demographic profile of nurses in the Pinere ward, which may impact their occupational stress levels. Factors such as age, marital status, working experience, and employment status could determine workplace stress, underscoring the need for targeted support strategies.

Table 2 presents various factors influencing nurses' experiences, including their environment, organizational dynamics, personal situations, and levels of occupational stress. Most of the respondents (58.5%) rated the environmental factors as moderate, indicating that aspects such as safety, infrastructure, and workload management are perceived as neither ideal nor inadequate. Additionally, organizational factors were also rated as moderate, with 60% of respondents acknowledging the presence of management practices and supportive work policies. On an individual level, 63.1% of nurses rated their attributes, such as coping skills, resilience, and overall emotional health, as moderate, indicating a wide range of experiences that vary from one nurse to another. Concerning occupational stress, 43% of nurses reported high levels of stress,

Table 1. Characteristics of Respondents Who Worked in the Pinere Ward

No	Characteristic	f	%
1	Age: M= 31.26 ± 5.12; Min-Max= 23-48		
	Late adolescent (17-25 years)	8	12.3
	Early adult (26-35 years)	44	67.7
	Late adult (36-45 years)	12	18.5
	Early elderly (46-55 years)	1	1.5
2	Gender		
	Male	25	38.5
	Female	40	61.5
3	Education		
	Diploma	54	83.1
	Bachelor	11	16.9
4	Marital Status		
	Unmarried	19	29.2
	Married	46	70.8
5	Working Period: M= 27.35 ± 33.82; Min-Max= 1-11		
	<i>Establishment Stage</i> (< 2 year)	16	24.6
	<i>Advancement Stage</i> (3-10 years)	31	47.7
	<i>Maintenance Stage</i> (> 10 years)	18	27.7
6	Employment Status		
	Civil servant	2	3.1
	Non-civil servant	30	46.2
	Contract	33	50.8

pointing to a heavy psychological load that comes with their demanding roles, especially while caring for COVID-19 patients.

Bivariate analysis

Table 3 presents the normality tests for environmental, organizational, individual factors, and occupational stress using the K-S and S-W tests. The significance values for all variables (Sig. = 0.000) in both tests are below 0.05, indicating that the data are not distributed normally. Given these results, non-parametric statistical methods are necessary for further analysis to accurately interpret the correlations between the variables.

Table 4 presents the correlation between environmental, organizational, and individual factors and

Table 2. Categories of Environmental, Organizational, and Individual Factors, and Occupational Stress (n=65)

Variables	Category	f	%
Environment	Good	27	41.5
	Moderate	38	58.5
Organizational	Good	26	40.0
	Moderate	39	60.0
Individual	Good	24	36.9
	Moderate	41	63.1
Occupational Stress	High	28	43.0
	Moderate	17	26.2
	Low	20	30.8

occupational stress experienced by nurses caring for COVID-19 patients. The findings indicate significant correlations between all factors and occupational stress (all p-values below 0.05). For environmental factors (p-value = 0.025), nurses who rated themselves as moderate reported feeling more stressed at work (29.2%) compared to those in the good category. Then, in organizational factors (p = 0.004), nurses in a moderate organizational category experienced higher stress levels (35.4%). Furthermore, individual factors also played a key role, with a strong correlation to occupational stress (p = 0.001). Nurses in the moderate individual category reported the most significant job stress (38.5%) of the two factors stated above. These findings show that nurses who are in the moderate category of the environmental, organizational, and individual factors are at a greater risk of experiencing high levels of occupational stress. This statistical finding suggests the potential value of targeted interventions focused on these factors, which could ultimately reduce stress levels among nurses, particularly in high-pressure health-care settings.

Discussion

This study investigated the correlation between environmental, organizational, and individual factors and the occupational stress experienced by nurses caring for COVID-19 patients at a Public Regional Hospital. The findings indicate significant associations

Table 3. Tests of Normality

Variables	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistics	df	Sig.	Statistic	df	Sig.
Environment	.383	65	.000	.626	65	.000
Organizational	.391	65	.000	.622	65	.000
Individual	.540	65	.000	.216	65	.000
Occupational Stress	.311	65	.000	.721	65	.000

^aLilliefors Significance Correction

Table 4. Correlation Between Environmental, Organizational, and Individual Factors and Occupational Stress Experienced by Nurses Caring for COVID-19 Patients (n=65)

Related Factors		Occupational Stress								<i>p-value</i>
		High		Moderate		Low		Total		
		f	%	f	%	f	%	f	%	
Environment	Good	9	13.8	9	13.8	9	13.8	27	41.5	0.025
	Moderate	19	29.2	8	12.3	11	16.9	38	58.5	
Organizational	Good	5	7.7	8	12.3	13	20.0	26	40.0	0.004
	Moderate	23	35.4	9	13.8	7	10.8	39	60.0	
Individual	Good	3	4.6	9	13.8	12	18.5	24	36.9	0.001
	Moderate	25	38.5	8	12.3	8	12.3	41	63.1	

between these factors and high levels of occupational stress, with each category of contributing factors falling into the moderate range. These findings emphasize the need for targeted interventions to address workplace stressors and improve overall working conditions for nurses.

Environmental factors and occupational stress among nurses

This study found a significant correlation (*p*-value of 0.025) between environmental factors and work-related stress experienced by nurses caring for COVID-19 patients at the Public Regional Hospital in Banda Aceh. Nurses experiencing moderate work stress in the environmental factor (*M*=18.86). A previous study noted that nurses in high-risk settings, such as COVID-19 wards, are more vulnerable to occupational stress due to increased workload, emotional strain, and inadequate hospital resources resulting

from unexpected situations (25). The work environment plays a crucial role in influencing occupational stress among nurses. Unpleasant workplace conditions can lead to discomfort, which in turn can negatively impact the (26). In an enlightened, ideal work environment, adequate ventilation, temperature control, lighting, and cleanliness all contribute to occupational safety and efficiency. In a healthcare setting, exposure to hazardous working conditions can have a profoundly detrimental impact on nurses' psychological well-being, leading to increased work-related stress, decreased productivity, and reduced job satisfaction (26, 27). Nurses who experience high levels of stress may experience communication barriers, impaired decision-making, and reduced creativity and motivation. According to studies, occupational stress harms the quality of care by reducing compassion for patients and increasing the incidence of mistakes and practice errors (29). The study's findings align with previous research that highlights the significant impact of

the work environment on nurses' occupational stress. The questionnaire data indicate that workplace conditions, including lighting, ventilation, and room temperature, have a significant impact on the comfort and well-being of nurses. Increased stress levels are closely associated with these environmental factors, which could potentially lead to burnout among healthcare professionals (30). This is consistent with a previous study, which confirms that inadequate environmental conditions contribute to moderate stress levels among nurses (45.5%). These results underscore the importance of improving workplace conditions to mitigate stress and promote the well-being of nurses (20). The findings underscore the need to enhance workplace environments to mitigate stress and support nurses' overall well-being. Hospital administrators must consider improving healthcare infrastructure, including ventilation, lighting, and workplace comfort, to create a more supportive work environment. Tackling environmental stressors can improve patient care outcomes by enhancing nurses' psychological resilience and job satisfaction (31). Therefore, future studies should investigate how demographic factors, such as gender and work experience, impact the correlation between environmental conditions and stress. Developing targeted strategies to mitigate workplace stress is crucial for maintaining the mental health of healthcare professionals and ensuring the delivery of high-quality patient care.

Organizational factors and occupational stress among nurses

The p-value of 0.004 for organizational factors and occupational stress indicates the rejection of the null hypothesis. This finding demonstrates a significant correlation between both variables among experienced nurses caring for COVID-19 patients at the Public Regional Hospital in Banda Aceh. The study categorized work stress as high, while organizational factors were moderate (Mean 2.60). The perception of the virus as highly damaging is a primary source of stress for nurses caring for patients with COVID-19 (32). This result is in line with the previous study that indicated significant differences in stress levels among these nurses, primarily due to anxiety about infection

and transmission (33). Organizational factors have a significant impact on the occupational stress experienced by nurses. Conflict between roles and heightened stress levels can arise from nurses' responsibilities, which require a substantial amount of time and attention. Nurses who are involved in dual-role disputes are more susceptible to experiencing work-related stress, which can harm their performance. An excessive workload further exacerbates stress among nurses. Elevated stress levels correlate with increased job demands, which can lead to worsening health, decreased service quality, reduced motivation, procedural failures, and an increased risk of negligence (30). The study's findings align with those of existing literature, indicating that organizational factors play a significant role in occupational stress among nurses. Perceptions of excessive workload and workplace conflicts have been identified as key sources of stress. For instance, a study demonstrated that emotional job demands and dissonance can affect nurses' perceived caring efficacy, which in turn impacts their job satisfaction and well-being (34). Furthermore, a study has shown that organizational factors, such as job demands and decision latitude, significantly influence the physical and mental well-being of healthcare workers, ultimately affecting their levels of occupational stress (35). Although these findings are significant, the study has some limitations. The results were not generalizable because the sample was limited to a single healthcare facility. Additionally, the effects of gender and tenure on moderation were not explicitly investigated. Future research should include a larger sample and consider other factors that influence work-related stress (36). These findings underscore the need for organizational interventions to mitigate stress among nurses. Workload restructuring enhances managerial support, and prioritizing conflict resolution mechanisms in healthcare settings is crucial for improving nurse well-being and service quality (37).

Individual factors and occupational stress among nurses

The statistical analysis yielded a p-value of 0.001, indicating the rejection of the null hypothesis. This finding demonstrates a significant correlation between individual factors and occupational stress among

experienced nurses caring for COVID-19 patients at the Public Regional Hospital in Banda Aceh. The level of occupational stress was categorized as high, and the individual factors were in the moderate category (Mean 2.95). The correlation between these factors may arise from a lack of recognition, appreciation, and social support or personal issues such as financial difficulties, which can lead to increased stress (38). A prior study supported this finding, stating that job demands that exceed an individual's capabilities, limited career development opportunities, and weak interpersonal relationships among nurses can trigger occupational stress (38). Similarly, inadequate interpersonal relationships have been shown to elevate stress levels among nurses, which is further impacted by low social support from family, colleagues, superiors, or the surrounding environment, contributing to discomfort and increased occupational stress (30). In addition, a study revealed that nurses' health-related quality of life and job satisfaction are adversely impacted by a lack of recognition, which can lead to increased anxiety and depression (39). Therefore, inadequate social support from colleagues and superiors has been correlated to higher stress levels among nurses. These findings underscore the substantial impact of individual factors on nurses' occupational stress levels (40). This study's findings align with previous research that emphasizes the significant role of individual factors in nurses' occupational stress. Nursing is a stressful occupation due to the considerable stressors of inadequate interpersonal relationships and limited social support. Research indicates that occupational stress is often caused by excessive workloads and influenced by factors such as nurse-patient ratios, insufficient resources, and patient dependency (38). Furthermore, emotional job demands, and emotional dissonance have also been found to affect nurses' perceived caring efficacy, ultimately influencing job satisfaction and overall well-being. These findings underscore the substantial impact of individual factors on nurses' occupational stress levels (34). This study contributes to the growing body of evidence on occupational stress among healthcare workers, particularly nurses caring for patients with COVID-19 (7,9). However, it has certain limitations, including the lack of consideration for potential confounding variables such as gender, years of

experience, and institutional policies. Future research should further explore these factors to provide a comprehensive understanding of stress determinants and develop targeted interventions. Clinically, the findings suggest the need for organizational strategies to enhance social support, improve workplace relationships, and promote well-being programs to mitigate stress among nurses (28,34). Addressing individual factors influencing occupational stress is essential for optimizing nurses' mental health and improving patient care outcomes.

Conclusion

The findings of this study demonstrated a significant correlation between environmental, organizational, and individual factors and occupational stress among nurses caring for patients with COVID-19. These results align with previous research, underscoring the importance of targeted interventions to foster a supportive work environment. For future studies, we recommend investigating other variables, such as gender differences and coping mechanisms, to gain a comprehensive understanding of stress factors in nursing practice.

Conflict of Interest: Each author declares that he or she has no commercial associations (e.g., consultancies, stock ownership, equity interest, patent/licensing arrangement, etc.) that might pose a conflict of interest in connection with the submitted article.

Authors' Contribution: All authors declare that they contributed to the development, review, and approval of the final article. AP works on the research concept, design, data collection, and adherence to ethical standards. YY focused on analyzing data, structured the manuscript, and integrated relevant literature. FN is responsible for critical revisions to ensure clarity and coherence, as well as accurate citations, in accordance with the Vancouver style.

Declaration on the Use of AI: We began this article in Indonesian and then translated it using a tool. After translation, we refined the language and ensured consistency with Grammarly AI.

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Annex

RESEARCH INSTRUMENT

Factors Related to Nurses' Occupational Stress During the Covid-19 Pandemic at Banda Aceh Regional Hospital

Filling Instructions:

1. Fill in the available choice columns by providing a check mark (☐)
2. Each question can only be filled in or given 1 (one) answer.

A. Demographic Data

Code of Respondent : (filled by researchers)

Age : years

Gender : ☐ Male ☐ Female

Education : ☐ Diploma ☐ Bachelor ☐ Magister

Marital Status : ☐ Married ☐ Unmarried

Working Period : years

Employment Status : ☐ Civil Servant ☐ Non-Civil Servant ☐ Contract

Figure S1. Research Instrument.

B. Stress Factors Questionnaire**Filing Instructions:**

1. Read each statement carefully and give an answer that is appropriate to what you know/feel.
2. Put a check mark (✓) on the answer that best suits what you know/feel in the column provided.
3. The answer scale is as follows:
Disagree (D); Less Agree (LA); Agree (A); Strongly Agree (SA)

No	STATEMENT	Answer			
		D	LA	A	SA
Environmental Factors					
1	The lighting in the inpatient room makes me feel comfortable while I provide nursing care.				
2	The ventilation in my workplace is appropriate, which makes us comfortable while working.				
3	I believe the room temperature in my workplace is too warm.				
4	Feeling uncomfortable with the noisy environment at my workplace.				
5	My supervisor spoke in a loud tone while instructing me on the tasks.				
6	I feel uncomfortable with the traffic route for my commute to and from work.				
Organizational Factors					
1	All the actions I take must be approved by the supervisor, which makes me feel uncomfortable.				
2	I am not allowed to take any new actions outside the applicable regulations.				
3	I was not allowed to take part in the training.				
4	I feel that my career has not changed while I have been working				
5	My supervisor reprimanded me in front of the patients while I was performing a procedure.				
6	I feel that the work assigned to me is too much.				
7	I feel uncomfortable working because I have a conflict with my supervisor.				
8	I am satisfied with the salary I receive for my work.				
Individual Factors					
1	I am having difficulty balancing work with household chores				
2	The supervisor believes that my work in providing patient care is inadequate.				
3	I feel bored performing the routine of carrying out nursing actions				
4	The presence of the patient's family accompanying them has made me unsatisfied with my work.				
5	My family provides limited support for my work.				
6	I feel uneasy when there is unhealthy competition with coworkers				
7	I struggle to create a good schedule with my coworkers.				
8	I feel uncomfortable working because I have conflicts with my coworkers.				

Figure S1. (Continued)

C. Psychometric Evaluation of Healthcare Workers' Stress Related to Caring for Patients with a Highly Infectious Disease Scale Developed

Filing Instructions:

1. Read each statement carefully and give an answer that is appropriate to what you know/feel regarding your experience in caring for COVID-19 patients from 2020-2021.
2. Put a check mark (✓) on the answer that best suits what you know/feel in the column provided.
3. The answer scale is as follows:
 0= If you think; Never causes stress
 1= If you think; Sometimes stressful
 2= If you think; Often causes stress
 3= If you think; Always stressful

No	STATEMENT	0	1	2	3
Fear of social isolation					
1.	Experiencing suspected COVID-19 symptoms, such as a cold, increased body temperature, and diarrhea				
2.	Fear of being quarantined				
3.	Restriction on socializing and activities				
4.	Fear of passing on COVID-19 to relatives and friends				
5.	Fear of being separated from one's family and not being able to see one's children and family				
6.	Inconvenience of taking care of children or family members in person and difficulty in settling them down				
7.	Discrimination or exclusion of oneself or one's family by others				
8.	No place to stay and no place to live after work				
9.	Relatives and friends do not support, such as asking one to refuse to take care of patients with COVID-19 or resign from the job				
10.	Do not dare to talk about work in a public place or disclose the place and nature of work				
Discomfort caused by protective equipment					
1.	Feeling breathless with an N95 or P100 face mask				
2.	Sultry, uncomfortable and inflexible in protective equipment				
3.	Impaired vision when wearing protective panels and paper caps				
4.	Communication barriers due to protective equipment				
5.	Inconvenient to use the toilet at work				
6.	Restrictions on eating and drinking at work				
7.	Facial skin irritation and bruises due to wearing face mask				
8.	Rough and cracked hands due to frequent hand washing and disinfectant use				
Difficulties and anxieties related to infection control					
1.	Fear of being infected				
2.	Insufficient knowledge of emerging infectious diseases				
3.	Worried about the adequacy and safety of existing protective measures				
4.	Failing to quickly adapt to the frequently-changing containment measures and other related information				
5.	Technical immaturity of protective measures				

Figure S1. (Continued)

No	STATEMENT	0	1	2	3
6.	Inadequate protective equipment (eg, masks and protective clothing out of stock)				
7.	Professional responsibility, as taking care of patients is the responsibility of healthcare workers and they should not refuse to do so				
Burden of caring for patients					
1.	Inability to deal with patients' problems immediately as it is time-consuming to wear protective equipment				
2.	Limited number of staff allowed access to the isolation room and thus inability to obtain adequate assistance				
3.	Feeling overburdened with work				
4.	Fear of patient deterioration or death				
5.	Lack of patients' cooperation with medical treatment, such as trying to self-extubate and wanting to rush out of the ward				
6.	Worried about not being able to deal with the psychological/emotional problems of patients and their families				
7.	Ethical dilemma as humanitarian visitation is banned due to quarantine measures				

Figure S1. (*Continued*)