Burnout and Perceived Nursing Competence in the COVID-19 Situation: An Analysis for Developing Preventive Strategies toward Sustainable Development

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Abstract

This descriptive study aimed to examine burnout among professional nurses, assess their perceived competence in nursing practice during the COVID-19 pandemic, and identify strategies for prevention and sustainable workforce development. (SDG 3, SDG 8). The study sample comprised 180 registered nurses working in tertiary government hospitals in Health Region 8 (Udon Thani, Sakon Nakhon, and Nong Bua Lamphu provinces), selected purposively according to predefined criteria. Data were collected between March and May 2025 using a six-part researcher-developed questionnaire covering demographic information, health status, work conditions, mental health, burnout, perceived competence, (SDG 4) and preventive approaches. The instruments demonstrated strong psychometric properties, with a content validity index of 0.86 and a reliability coefficient of 0.95. Data were analyzed using descriptive statistics and qualitative content analysis.

Findings revealed that most nurses experienced low overall burnout (54.83%), while 32.32% reported high levels and 12.97% moderate levels. Emotional exhaustion and depersonalization were predominantly low, whereas reduced personal accomplishment was considerably high (78.89%, M = 19.40, SD = 12.59). Key contributing factors included heavy workload, long working hours, risk of infection, and family responsibilities. Conversely, access to protective equipment, adequate staffing, and supportive supervision were identified as protective factors mitigating burnout severity.

The study highlights the importance of systemic and organizational interventions to safeguard nurses' well-being. (SDG 3)Recommended strategies include flexible shift scheduling, improved welfare benefits, and sustained mental health support programs. (SDG 8)Additionally, enhancing peer support, strengthening managerial leadership, and reducing non-essential administrative tasks are critical measures to promote resilience and professional commitment.

These findings provide valuable evidence for health policy makers and administrators to design effective workforce strategies, ensure nurse retention, and sustain quality care during crises. By implementing preventive approaches that address both individual and organizational factors, healthcare systems can mitigate burnout, strengthen resilience, and promote sustainable nursing practice. (SDG 3, SDG 8).

Keywords: Nurse burnout, Perceived competence, COVID-19, Sustainable development

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Background and Significance of the Problem

The outbreak of SARS-CoV-2 (COVID-19) began in late December 2019 in Wuhan, China.The spread of this infectious disease has been rapid and widespread, resulting in a high number of cumulative infections and deaths worldwide. It is a severe public health crisis affecting human security (Cucinotta & Vanelli, 2020). Mental health problems occur among medical personnel and the general public Gunawan, Juthamanee, & Aungsuroch (2020). Although the infection and death rates in Thailand and globally have decreased compared to the pandemic period, continued

vigilance and adherence to preventative measures to prevent the spread of the virus remain necessary (Sitthikarnkha, Niamsanit, Techasatian, Saengnipanthkul & Uppala, 2025). The new normal is a behavioral shift that aligns with sustainable coexistence with emerging diseases, including wearing face masks, proper handwashing, avoiding touching one's face, and maintaining social distancing. Including telemedicine systems (Kantrowitz-Gordon, 2021). These are important and will become a standard of life or may be a behavior that must be done forever (Isara Panyawon et al., 2022). Currently, many disease prevention and control measures are in place and a COVID-19 vaccine is being urgently developed in the initial phase and continuously developed (Charuwan Kaonakai et al., 2024). The management of medical resources to respond to policies and measures to prevent the spread of infection remains an important and challenging issue. Nurses are the main force of the health system during the COVID-19 situation. They not only perform their normal nursing duties but also have to adapt to new roles arising from the health crisis, such as screening infected persons, providing disease prevention advice, caring for critically ill patients, and providing mental health support to patients and their families (Galanis, Vraka, Fragkou, Bilali & Kaitelidou, 2021). It can be seen that the increased workload of nurses is a direct impact of the COVID-19 pandemic. The World Health Organization (WHO) has identified nurses as frontline workers in close contact with COVID-19 (Bianchi R, Schonfeld IS, 2023). The global nursing shortage during this pandemic highlights the urgent need to promote, support, and care for nurses' well-being so they can continue to perform their jobs effectively and sustainably.

Burnout is a psychological condition caused by chronic work-related stress. It is characterized by three main symptoms: 1) a loss of energy or exhaustion; 2) a feeling of resistance and a negative view of one's work, along with a lack of will to succeed (WHO, 2019). Burnout is a common problem among healthcare professionals, particularly nurses, who face stress and pressure from working in high-risk environments (Galanis, Vraka, Fragkou, Bilali & Kaitelidou, 2021). Several studies during the COVID-19 pandemic have found a significant increase in nurses' burnout, despite burnout being a common problem among nurses under normal circumstances. This is already at a moderate to high level (Sullivan, Sullivan, Weatherspoon, & Frazer, 2022). The main causes of burnout during the COVID-19 situation stem from working under uncertain circumstances and the high risk of COVID-19 infection (Nitya Pensirinpa, 2021). This causes nurses to worry about their own health and family safety, fatigue from working continuously for long periods of time, lack of infection prevention resources or poor-quality equipment, and the loss of life in some patients with severe symptoms (Dyrbye, Shanafelt & Sinsky, 2020). These situations create cumulative stress that leads to increased work-related burnout, which directly impacts nurses' burnout and quality of life (Dall'Ora, Ball, Reinius & Griffiths, 2020).

Furthermore, burnout also impacts nurses' job satisfaction and work commitment, potentially leading to nurses resigning or transferring work locations. This results in staff shortages and increased workloads for those who remain employed (Maslach & Leiter, 2016). This can lead to mental health problems or psychiatric illnesses among nurses, especially in large hospitals. The environment, which is crowded with patients and poses a high risk of COVID-19 infection, often contributes to higher levels of burnout (Khatatbeh et al., 2022). Burnout is a significant problem in working nurses, and it should be addressed and prevented. This study was conducted to examine nurse burnout and assess the perceived competence of nursing practice during the COVID-19 pandemic in tertiary government hospitals in Health Region 8 (Upper Northeastern Provinces). Previous studies have provided limited data. Therefore, this study will serve as input for analyzing nurse burnout during COVID-19 and providing guidelines for interventions or prevention of burnout in nursing practice, enhancing morale, enabling individuals to cope with life challenges, and developing policy development plans to reduce professional nurse turnover and effectively manage personnel within organizations in the future.

Research Objectives

1. To study burnout in working of nurses.
2. To assess the perceived competence of nursing practice during COVID-19.
3. To identify strategies to address or prevent burnout in working of nurses for the Sustainable Development Goals.

Research Questions

1. Do nurses experience burnout in working? How?
2. How is the perception of nursing practice competence in the COVID-19 situation?
3. How are the approaches to addressing or preventing burnout in working of nurses for the Sustainable Development Goals?

Research conceptual framework

Independent variables		**Dependent Variables**
- Personal information and health status - Mental health status - Nursing practice data	→	1. Nurses' Burnout 2. Nurses' Perceptions of Competence

Figure 1. Research conceptual framework

Research Methodology

This descriptive research aimed to study nurses' burnout, assess nurses' perceived competence in working nurses practice during the COVID-19 situation, and find ways to help or prevent nurses' burnout in working. The sample consisted of professional nurses working in nursing groups in tertiary government hospitals in Health Region 8 (Upper Northeastern Provinces), consisting of three provinces: Udon Thani province, Sakon Nakhon province, and Nong Bua Lamphu province. Data were collected using a researcher-developed questionnaire from March to May 2025, using a Purposive Sampling method, totaling 180 participants.

Population and sample

The population consisted of registered nurses working in nursing departments at tertiary-level government hospitals.

The sample consisted of registered nurses working in nursing departments at tertiary-level government hospitals in Health Region 8 (Upper Northeastern Provinces): Udon Thani province , Sakon Nakhon province , and Nong Bua Lamphu province.

Sample size calculation. The sample size was determined using the G * Power 3 program [15] (Faul, Erdfelder, Buchner, & Lang, 2009). For the Chi-Square test, the moderate effect size was set at .30 [16] (Piyawadi Sumalai, 2021). The power of the test was .80 at the statistical significance level of .05 and the degrees of freedom (df) was 4. Therefore, the sample group in this study was 180 people. The sample was selected purposively by specifying the following qualifications (Inclusion criteria): (1) working related to patients suspected of or infected with COVID-19 and having experience working during the COVID-19 outbreak; (2) not on full-time maternity leave or study leave; (3) having the period of working more than a year; (4) consenting to provide research information by answering a questionnaire; and (5) able to communicate in Thai without any communication problems.

Research Instruments

The data collection tool for this study consisted of a questionnaire developed by the research team from a study of relevant documents, textbooks, and research. The questionnaire was divided into five sections as follows:

Section 1: Personal Information and Health Status Questionnaire, including gender, age, marital status, education level, presence of children, family obligations, economic status, underlying diseases, psychiatric illnesses, smoking history, alcohol consumption history, and physical activity.

Part 2: Questionnaire on nursing performance data, including the period of nurses working, duration of work in the agency, job position, work characteristics, average working time period, hours of sleep, relationship problems with people in the workplace, persons to consult when problems arise, satisfaction with the nursing profession, COVID-19 protective equipment, information received during work and self-protection during the COVID-19 outbreak, and compensation benefits for working related to COVID-19.

Part 3: The 21-item mental health assessment form is the Thai version of the Depression Anxiety Stress Scale (DASS-21) developed by Sukanya Sawang et al. [17] (Oei TP, Sawang S, Goh YW, Mukhtar, 2013). It consists of 21 questions used to screen for depression, anxiety, and stress. The scoring criteria for each question is between 0-3 points, divided into (1) Depression, consisting of questions 3, 5, 10, 13, 16, 17, 21; (2) Anxiety, consisting of questions 2, 4, 7, 9, 15, 19, 20; and (3) Stress, consisting of questions 1, 6, 8, 11, 12, 14, 18. The interpretation criteria for this time used the original scoring criteria set by the developers.

Part 4: Assessment of burnout in working nurses during the COVID-19 situation, 22 items (Nanthawadee Worawasuwat, Manasapong Mala, and Kulisara Phisanlek, 2017) was composed of 3 dimensions: emotional exhaustion (9 items), depersonalization (5 items), and personal accomplishment (8 items). It was a 7-level rating scale (between 0 and 6 points). The negative questions on emotional exhaustion and depersonalization were scored from 0 to 6, meaning they felt that way every day. The interpretation of burnout levels was divided into 3 levels as follows: high burnout, meaning high scores on emotional exhaustion and depersonalization but low scores on personal accomplishment; moderate burnout, meaning moderate scores on all 3 dimensions; and low burnout, meaning low scores on emotional exhaustion and depersonalization but high scores on personal accomplishment.

Chapter 5 Assessment of nursing practice competence in the COVID-19 situation. It consists of screening and classifying patients with 2 competency items: 1) screening patients suspected of infection to prevent the spread of infection; and 2) assessing the severity of COVID-19 infection from the new emerging disease prevention, control, and surveillance of COVID-19 includes 5 competency items: 1) nursing practice according to the principles of prevention and control of COVID-19 infection from the new emerging disease; 2) use of personal protective equipment; 3) environmental health management within the ward; 4) surveillance of hospital-acquired infections; and 5) patient transport and care during transfers during the COVID-19 outbreak. In nursing and family practice includes 10 competency items. 1) Able to provide nursing care to patients with respiratory infection from the new emerging disease COVID-19 who have complex health problems. 2) Nursing care for patients with respiratory failure. 3) Able to assess symptoms indicating critical conditions, life-threatening conditions in patients infected with the new emerging disease COVID-19. 6) Collect specimens and report laboratory results. 7) Teaching and counseling patients

and families. 8) Searching for up-to-date evidence-based information for nursing care. 9) Using advanced medical equipment and technology for nursing care and infection prevention and control for nursing personnel. and 10) Discharge planning for patients infected with the new emerging infectious disease COVID-19.

Chapter 6: Guidelines for helping or preventing burnout in working nurses, which is an open-ended questionnaire.

Quality Control of Instruments

The research instruments used in this study included the Depression Anxiety Stress Scale (DASS-21), the Nurse Burnout Assessment Scale during COVID-19, and the Nursing Practice Perception Assessment during COVID-19. The content validity index (CVI) of the DASS-21 was 0.86. For the reliability of the research tool (Cronbach's alpha coefficient), the Depression Anxiety Stress Scale (DASS-21) was 0.82 for depression, 0.78 for anxiety, and 0.69 for stress.

Protecting the Rights of the Sample groups

This study received ethical approval from the Research Ethics Committee of Nong Bua Lamphu Hospital, No. 004/2568, and Sakon Nakhon Hospital, No. COA/1 No. 008/2568. The researchers proceeded with data collection after receiving approval. The researchers protected the rights of the sample from the beginning of data collection until the presentation of the results. This adhered to ethical principles for human research, including a complete explanation of the objectives, research procedures, and expected benefits. They also respected the right to voluntary research participation. However, this study collected data through questionnaires, which may make participants feel uncomfortable or uneasy. Some questions may offend the sample. The sample can choose not to answer a question or withdraw from the study at any time, without any consequences. The data collected from the questionnaires will be kept confidential and will not be made public. The researchers will report the overall results and use the data solely for the purposes of this study.

Data Collection

After receiving approval from the Human Research Ethics Committee of the Udon Thani Government Hospital, which had received permission to collect research data, the researchers proceeded as follows:

Sample group Selection. Inclusion criteria for the project included: (1) being both civil servants and temporary employees; (2) not on full-time maternity leave or study leave; (3) having worked for more than one year; (4) consenting to provide research data by completing a questionnaire; (5) being able to communicate in Thai without any communication difficulties; and (6) working with patients suspected or infected with COVID-19 and having experience working during the COVID-19 outbreak.

The researcher explained the purpose, benefits, and risks of this research to the sample group so that they understood and signed consent to participate in the research.

The researcher collected data by distributing questionnaires and asking questions in person every time. There were 5 parts of the questionnaire: Part 1, Personal Information and Health Status Questionnaire, Part 2, Nursing Performance Data Questionnaire, Part 3, Mental Health Assessment Form, 21 items, Part 4, Nurse Burnout Assessment Form in the COVID-19 Situation, Part 5, Nurse Competency Assessment Form in the COVID-19 Situation, with multiple choice questions, and Part 6, Guidelines for Helping and Caring for Nurses to Prevent Burnout in the COVID-19 Situation, an open-ended questionnaire. It took approximately 20-30 minutes to complete the questionnaire.

The researcher checked the accuracy and completeness of the data from all five parts of the questionnaire and then analyzed the data further.

Data Analysis

The researchers used quantitative data analysis by:

1) Analyzing personal data and health status, nursing performance data, mental health status, nurses' burnout during COVID-19 Situation, and their perceptions of nursing performance during COVID-19 Situation. Descriptive statistics included frequency, percentage, mean, and standard deviation.

2) Conducting content analysis on guidelines for assisting or preventing burnout in nursing practice during COVID-19 Situation, using an open-ended questionnaire.

Research results

1. Personal Data and Health Status of Nurses in the Nursing Group of Tertiary Government Hospitals in Health Region 8 (Upper Northeastern Provinces) in three provinces: Udon Thani Hospital, Sakon Nakhon Hospital, and Nong Bua Lamphu Hospital. The study included 180 nurses. The majority were female (95.60%). The mean age was 37.29 years (SD = 9.63). (33.33%) were less than or equal to 30 years. The majority were single (46.10%). The majority had a bachelor's degree (97.80%). The majority had no children (50.60%). The families have burdened the most (76.70%), and the families' burdens were high (27.80%). The economic status was also high. Average monthly income was 35,730 baht. The highest percentage of the sample group had sufficient income but no savings (60.60%). Some of the sample group had chronic diseases (16.10%), the highest percentage did not have psychiatric illnesses (98.30%), the highest percentage of the sample group had never smoked (98.90%), the highest percentage had no history of alcohol consumption (96.70%), and the highest percentage had occasional physical activity (44.40%).

2. Nursing practice data revealed that most nurses had been working as nurses for 1-10 years (43.90%) and had been working in the organization for 1-10 years (43.90%). Most of the nurses held positions as practitioners (80.00%). Their work style was rotating shifts (morning, afternoon, and night shifts) (77.80%). The average working time was more than 8 hours per day (72.80%). They had insufficient sleep (75.00%). They had no relationship problems with people in the workplace (98.30%). They had sufficient counselors when problems arose (99.40%). They were satisfied with the nursing profession (96.10%). They had sufficient COVID-19 protective equipment (82.80%). They received sufficient information on work and self-protection during the COVID-19 outbreak (84.40%). They received adequate compensation and benefits for work related to COVID-19 (55.60%).

3. Mental health data revealed that the majority of nurses reported no stress (58.30%), no anxiety (70.60%), and no depression (88.90%) (Table 1).

Table 1: Number, percentage, mean, and standard deviation of mental health data (n = 180).

Mental health	**Number**	**Percentage**
Stress		
	$\bar{x}$ = 4.24	(SD = 3.76)
No Stress	105	58.30
Mild Stress	26	14.40
Moderate Stress	40	22.20
High-level Stres	5	2.80
Severe Stress	4	2.20
Anxiety		
	$\bar{x}$ = 2.82	(SD = 3.41)
No Anxiety	127	70.60
Mild Anxiety	16	8.90
Moderate Anxiety	17	9.40
High-level Anxiety	12	6.70
Severe Anxiety	8	4.40
Depression		
	x = 3.07	(SD = 3.58)
No Depressio	160	88.90
Mild Depression	10	5.60
Moderate Depression	8	4.40
High-level Depression	1	0.60
Severe depression	1	0.60

4. Burnout among nurses during the COVID-19 situation was found to be predominantly at a low level (54.83%), followed by a high level (32.32%) and a moderate level (12.97%). Considering each dimension: 1) Emotional Exhaustion Most nurses reported a low level of emotional exhaustion, followed by moderate and high levels (76.10%, 13.90%, and 10.00%, respectively). 2) The mean score for emotional exhaustion was 11.00 (S.D. = 9.63). 3) Depersonalization: Most nurses demonstrated low levels of depersonalization, followed by moderate and high levels (80.60%, 11.70%, and 7.80%, respectively).
The mean score for depersonalization was 3.77 (S.D. = 4.73). 4) Reduced Personal Accomplishment: Most nurses showed a high level of reduced personal accomplishment, followed by moderate and low levels (78.89%, 13.33%, and 7.78%, respectively).
The mean score for reduced personal accomplishment was 19.40 (S.D. = 12.59). (Table 2)

Table 2. Number, percentage, mean, standard deviation, and level of burnout in working nurses (n = 180).

Burnout In working nurses	**Burnout in working nurses' level n (%)**			**M**	**SD**	**Level**
	low	**Moderate**	**High**			
Emotional fatigue	137 (76.10)	25 (13.90)	18 (10.00)	11.00	9.63	Low
Depersonalization	145 (80.60)	21 (11.70)	14 (7.80)	3.77	4.73	Low
Personal achievement	14 (7.78)	24 (13.33)	142 (78.89)	19.40	12.59	High

Discussion of Results

The results demonstrate that systemic support and multisectoral engagement play a crucial role in reducing burnout and fostering sustainability in the nursing profession. Interdisciplinary management and community engagement enhance health system resilience in dealing with the COVID-19 crisis. [18] (Tongvichean et al., 2025).

1. Burnout in working Nurses

From a study on burnout in working nurses during the COVID-19 pandemic situation, found that the sample group experienced low levels of burnout. The majority experienced emotional exhaustion, with low levels of emotional exhaustion and depersonalization. This aligns with a study on burnout in working nurses at the Bamrasnaradura Institute [16] (Piyawadi Sumalai, 2021). The majority of the sample groups were younger than or equal to 30 years old, with length of nursing experience and tenure in the organization ranging from 1 to 10 years. These factors are associated with burnout due to work experience. Those with more work experience have accumulated knowledge and skills over their working years, enabling them to adapt to change, effectively confront, and solve problems [29] (Teoh te et al., 2022). Although younger and less experienced personnel tend to have lower stress adaptability and are more susceptible to burnout, receiving good support from the organization, both directly and indirectly, can boost their confidence in their work. This may be due to the feeling of having someone to consult and support, and receiving encouragement from coworkers, which can reduce work-related stress. As a result, emotional fatigue can be reduced.

[19] (Nattanan Ritsamret, 2020) which is consistent with this study where most of the sample group did not have relationship problems with people in the workplace and had enough people ready to give advice when problems occurred. And in the COVID-19 outbreak situation, most nurses received sufficient and appropriate information on how to practice and protect themselves from the epidemic, both in terms of protective equipment and compensation benefits, which are factors related to the state of burnout in working nurses in the COVID-19 situation.

However, the study found that most nurses experienced high levels of personal achievement burnout, consistent with previous studies. Their work characteristics matched their abilities and experience, leading to a desire for further work development [20] (Jiraporn Limnitsakul, 2023). Furthermore, the sample group's mental health also reflected their ability to manage and solve problems under pressure and at risk of COVID-19 infection. Although COVID-19 is a new infection, the COVID-19 outbreak has become endemic. It remains necessary to control the severity of the infection by strictly implementing public health measures in accordance with standard care guidelines [1] (Cucinotta & Vanelli, 2020) and appropriate guidelines for the operation and management of the COVID-19 outbreak within the appropriate organization. These can reduce work-related stress associated with exposure to COVID-19 infection and are also a factor influencing burnout in working [21] (Simaporn Promsan, Piyanat Promsan, and Kanokwan Rattanasaenglert, 2021).

2. Perception of Nursing Competence in the COVID-19 Situation

Perception of Nursing Competence in the COVID-19 Situation. From the self-assessment, it was found that the overall average score of nursing competence perception in the COVID-19 situation was at a moderate level. Screening patients suspected of being infected to prevent the spread of COVID-19 and assessing the severity of COVID-19 infection

The sample group demonstrated knowledge and competence in performing tasks related to COVID-19 infection, including history taking, symptom assessment, and severity classification. They were also able to teach and provide self-care advice, a foundational skill for independent nursing practice [20] (Jiraporn Limnitsakul, 2023). In terms of infection prevention and control and COVID-19 surveillance, the group was able to perform nursing care according to the principles of COVID-19 infection prevention and control at a moderate level. This may be due to the management of a more complex work system. [22] (Wiyada Luengdansakul, Yutthaphong Phuttaraksa, Inthiporn Kosittanurit, and Nitra Kittirawutwong, 2023). Although there are standard guidelines for COVID-19 infection, in actual practice, nurses need time to become familiar with the work system. Majority of the sample group were practitioners who needed experience or supervision from experienced practitioners in the practice, which is related to their ability to make decisions on appropriate nursing interventions. [20] (Jiraporn Limnitsakul, 2023). When considering the use of personal protective equipment by item, it can be seen that the majority of the sample group reported that COVID-19 protection equipment is sufficient for use, including high levels of knowledge in selecting protective equipment and how to wear and remove personal protective equipment (PPE). This reflects expertise in preventing and spreading infection, which is the first nursing practice that nurses must perform to reduce the risk of COVID-19 infection [1] (Cucinotta & Vanelli, 2020).

The overall nursing and family performance was at a moderate level, possibly due to limitations in nursing practice that may arise from related factors. The majority of the sample group had a rotating work schedule (morning, afternoon, and night shifts), an average working time of more than 8 hours/day, insufficient sleep, moderate to high family caregiving burden, and some of the sample group received insufficient compensation for COVID-19-related work compared to the increased workload. These factors contribute to nurses' burnout in working during the COVID-19 pandemic. This is consistent with previous studies that found that nurses working during the COVID-19 outbreak face work-related stress and fatigue, which impacts the quality of nursing care and effective care delivery under stressful conditions. Providing care for patients during the COVID-19 crisis also requires the ability and experience to assess rapidly changing patient conditions, coordinate with the health team, provide clear information, and manage

health crises according to family expectations [23] (Zhang et al., 2020) [30] (Tee et al., 2022)

3. Guidelines for Assisting or Preventing Burnout in Working of Nursing

Nurses and nursing professionals provide healthcare to patients. Their work involves high responsibilities and is subject to stress from multiple factors, which directly impact burnout in working nurses. The COVID-19 pandemic. This has had a significant impact on the work of nurses, including increased workloads, work pressure under social and public expectations, changes in work methods, and increased risk of infection.

Therefore, it is important to manage the organization and work environment in order to remain productive, including reducing continuous working hours and arranging flexible shifts. Working for nurses longer than 8 hours per day, especially during night shifts or rotating shifts, results in both physical and mental fatigue. Therefore, organizational and work environment management is crucial to maintain effective performance, including reducing continuous work hours and arranging flexible shift schedules. Working longer than eight hours per day, especially during night shifts or rotating shifts, can lead to physical and mental exhaustion, a key factor leading to burnout syndrome. Previous studies have found that nurses working longer than 12 hours per day are more likely to experience fatigue, job dissatisfaction, and a significant decrease in the quality of nursing care [24] (Stimpfel, Sloane, & Aiken, 2012), which can impact patient safety and well-being. This also increases the rate of burnout in working of nurses [12] (Dall'Ora, Ejebu, Ball, & Griffiths, 2023). For flexible shift management guidelines, the World Health Organization (WHO) and the International Council of Nurses (ICN) have proposed guidelines for adjusting nurses' working hours to be in line with work hygiene principles to maintain the quality of patient care and the health of nurses themselves, such as short shifts or split shifts, planned rotation, and rest day after night shift. These methods can help reduce fatigue and burnout in working nurses by increasing the flexibility for nurses to choose the time or duration of working that suits their personal needs. This promotes work-life balance and reducing the impact on circadian rhythms, which are 24-hour biological characteristics of individuals to control normal body functions. In particular, working night shifts (00.00-8.00) should not be continuous for more than 2 nights, allowing the body time to recover, promoting work readiness, and directly affecting in working nurses, ability, job satisfaction, and quality of life. This is an important foundation to support good mental health and reduce burnout in working nurses [25] (Zink, Pischke, Wendsche, et al., 2024).

Improving the work environment of nurses during the COVID-19 pandemic plays an important role in addressing burnout in working nurses and increasing the sustainability and retention rate of personnel in the health system. Promoting a nurse's working environment that is conducive to effective work can be done by restructuring work or work systems, reducing unnecessary workloads or reducing workloads that are not directly related to patient care, such as reducing redundant paperwork and introducing technology and robots to support in working [26] (Strudwick, Jeffs, Kemp, et al., 2022). Providing adequate personal protective equipment, improving the physical environment appropriated, and promoting workplace safety. 27] (Godderis, Lerouge, Samant, et al., 2023). In addition, promoting leadership roles and giving the opportunity to nurses to participate in decision-making about their working can increase nurses' sense of value, belonging, and reduce burnout in nurses working [28] (Nanthaphan Chinlamprasert, 2023).

1. Burnout in working Nurses

From a study on burnout in working nurses during the COVID-19 pandemic situation, found that the sample group experienced low levels of burnout. The majority experienced emotional exhaustion, with low levels of emotional exhaustion and depersonalization. This aligns with a study on burnout in working nurses at the Bamrasnaradura Institute [16] (Piyawadi Sumalai, 2021). The majority of the sample groups were younger than or equal to 30 years old, with length of nursing experience and tenure in the organization ranging from 1 to 10 years. These factors are associated with burnout due to work experience. Those with more work experience have accumulated knowledge and skills over their working years, enabling them to adapt to change, effectively confront, and solve problems [29] (Teoh te et al., 2022). Although younger and less experienced personnel tend to have lower stress adaptability and are more susceptible to burnout, receiving good support from the organization, both directly and indirectly, can boost their confidence in their work. This may be due to the feeling of having someone to consult and support, and receiving encouragement from coworkers, which can reduce work-related stress. As a result, emotional fatigue can be reduced.

[19] (Nattanan Ritsamret, 2020) which is consistent with this study where most of the sample group did not have relationship problems with people in the workplace and had enough people ready to give advice when problems occurred. And in the COVID-19 outbreak situation, most nurses received sufficient and appropriate information on how to practice and protect themselves from the epidemic, both in terms of protective equipment and compensation benefits, which are factors related to the state of burnout in working nurses in the COVID-19 situation.

However, the study found that most nurses experienced high levels of personal achievement burnout, consistent with previous studies. Their work characteristics matched their abilities and experience,

leading to a desire for further work development [20] (Jiraporn Limnitsakul, 2023). Furthermore, the sample group's mental health also reflected their ability to manage and solve problems under pressure and at risk of COVID-19 infection. Although COVID-19 is a new infection, the COVID-19 outbreak has become endemic. It remains necessary to control the severity of the infection by strictly implementing public health measures in accordance with standard care guidelines [1] (Cucinotta & Vanelli, 2020) and appropriate guidelines for the operation and management of the COVID-19 outbreak within the appropriate organization. These can reduce work-related stress associated with exposure to COVID-19 infection and are also a factor influencing burnout in working [21] (Simaporn Promsan, Piyanat Promsan, and Kanokwan Rattanasaenglert, 2021).

2. Perception of Nursing Competence in the COVID-19 Situation

Perception of Nursing Competence in the COVID-19 Situation. From the self-assessment, it was found that the overall average score of nursing competence perception in the COVID-19 situation was at a moderate level. Screening patients suspected of being infected to prevent the spread of COVID-19 and assessing the severity of COVID-19 infection

The sample group demonstrated knowledge and competence in performing tasks related to COVID-19 infection, including history taking, symptom assessment, and severity classification. They were also able to teach and provide self-care advice, a foundational skill for independent nursing practice [20] (Jiraporn Limnitsakul, 2023). In terms of infection prevention and control and COVID-19 surveillance, the group was able to perform nursing care according to the principles of COVID-19 infection prevention and control at a moderate level. This may be due to the management of a more complex work system. [22] (Wiyada Luengdansakul, Yutthaphong Phuttaraksa, Inthiporn Kosittanurit, and Nitra Kittirawutwong, 2023). Although there are standard guidelines for COVID-19 infection, in actual practice, nurses need time to become familiar with the work system. Majority of the sample group were practitioners who needed experience or supervision from experienced practitioners in the practice, which is related to their ability to make decisions on appropriate nursing interventions. [20] (Jiraporn Limnitsakul, 2023). When considering the use of personal protective equipment by item, it can be seen that the majority of the sample group reported that COVID-19 protection equipment is sufficient for use, including high levels of knowledge in selecting protective equipment and how to wear and remove personal protective equipment (PPE). This reflects expertise in preventing and spreading infection, which is the first nursing practice that nurses must perform to reduce the risk of COVID-19 infection [1] (Cucinotta & Vanelli, 2020).

The overall nursing and family performance was at a moderate level, possibly due to limitations in nursing practice that may arise from related factors. The majority of the sample group had a rotating work schedule (morning, afternoon, and night shifts), an average working time of more than 8 hours/day, insufficient sleep, moderate to high family caregiving burden, and some of the sample group received insufficient compensation for COVID-19-related work compared to the increased workload. These factors contribute to nurses' burnout in working during the COVID-19 pandemic. This is consistent with previous studies that found that nurses working during the COVID-19 outbreak face work-related stress and fatigue, which impacts the quality of nursing care and effective care delivery under stressful conditions. Providing care for patients during the COVID-19 crisis also requires the ability and experience to assess rapidly changing patient conditions, coordinate with the health team, provide clear information, and manage health crises according to family expectations [23] (Zhang et al., 2020) [30] (Tee et al., 2022)

3. Guidelines for Assisting or Preventing Burnout in Working of Nursing

Nurses and nursing professionals provide healthcare to patients. Their work involves high responsibilities and is subject to stress from multiple factors, which directly impact burnout in working nurses. The COVID-19 pandemic. This has had a significant impact on the work of nurses, including increased workloads, work pressure under social and public expectations, changes in work methods, and increased risk of infection.

Therefore, it is important to manage the organization and work environment in order to remain productive, including reducing continuous working hours and arranging flexible shifts. Working for nurses longer than 8 hours per day, especially during night shifts or rotating shifts, results in both physical and mental fatigue. Therefore, organizational and work environment management is crucial to maintain effective performance, including reducing continuous work hours and arranging flexible shift schedules. Working longer than eight hours per day, especially during night shifts or rotating shifts, can lead to physical and mental exhaustion, a key factor leading to burnout syndrome. Previous studies have found that nurses working longer than 12 hours per day are more likely to experience fatigue, job dissatisfaction, and a significant decrease in the quality of nursing care [24] (Stimpfel, Sloane, & Aiken, 2012), which can impact patient safety and well-being. This also increases the rate of burnout in working of nurses [12] (Dall'Ora, Ejebu, Ball, & Griffiths, 2023). For flexible shift management guidelines, the World Health Organization (WHO) and the International Council of Nurses (ICN) have proposed guidelines for adjusting nurses' working hours to be in line with work hygiene principles to maintain the quality of patient care and the health of nurses themselves, such as short shifts or split

shifts, planned rotation, and rest day after night shift. These methods can help reduce fatigue and burnout in working nurses by increasing the flexibility for nurses to choose the time or duration of working that suits their personal needs. This promotes work-life balance and reducing the impact on circadian rhythms, which are 24-hour biological characteristics of individuals to control normal body functions. In particular, working night shifts (00.00-8.00) should not be continuous for more than 2 nights, allowing the body time to recover, promoting work readiness, and directly affecting in working nurses, ability, job satisfaction, and quality of life. This is an important foundation to support good mental health and reduce burnout in working nurses [25] (Zink, Pischke, Wendsche, et al., 2024).

Improving the work environment of nurses during the COVID-19 pandemic plays an important role in addressing burnout in working nurses and increasing the sustainability and retention rate of personnel in the health system. Promoting a nurse's working environment that is conducive to effective work can be done by restructuring work or work systems, reducing unnecessary workloads or reducing workloads that are not directly related to patient care, such as reducing redundant paperwork and introducing technology and robots to support in working [26] (Strudwick, Jeffs, Kemp, et al., 2022). Providing adequate personal protective equipment, improving the physical environment appropriated, and promoting workplace safety. 27] (Godderis, Lerouge, Samant, et al., 2023). In addition, promoting leadership roles and giving the opportunity to nurses to participate in decision-making about their working can increase nurses' sense of value, belonging, and reduce burnout in nurses working [28] (Nanthaphan Chinlamprasert, 2023).

Suggestions for applying research results.

A study on burnout in working nurses during the COVID-19 pandemic found that nurses face physical and mental exhaustion, increased workload, increased risk of infection, and patient and social expectations, all of which impact mental health and motivation. Therefore, relevant agencies should utilize this study to promote nurses' quality of life and increase efficiency in nursing services. At the policy level, this research should be used as data to support health workforce planning and policy formulation that is consistent with reality. This should prioritize nurses' well-being, promote nursing leadership, participate in decision-making within the organization, and determine appropriate compensation or welfare to boost the morale of nursing personnel in future crisis situations.

The Suggestion for the future research:

1. Future research should consider using mixed methods such as in-depth interviews or focus group discussions to comprehensively understand the context, feelings, and in-depth factors that influence burnout in working nurses with all aspects.

2. This study focused on a specific sample group within tertiary public hospitals in the upper northeastern region only. This may not include nurses in other health care facilities, such as private hospitals, primary health care centers, or community service units. Therefore, future research should expand more various sample groups.

3. There should be more in-depth studies of causal factors or analysis, such as predictive research or experimental research, to examine the guideline or methods that can concretely reduce burnout in working nurses.

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