FACTORS ASSOCIATED WITH BURNOUT AMONG HEALTHCARE WORKERS IN THE INPATIENT DEPARTMENT OF IMANUEL HOSPITAL, BANDAR LAMPUNG

(Thesis)

By

SINTA NURMALASARI

FACULTY OF MEDICINE
UNIVERSITAS LAMPUNG
BANDAR LAMPUNG
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I hereby declare that this thesis is **my own original work**. If it is later proven that there is plagiarism or fraud in this thesis, I am willing to accept the consequences.

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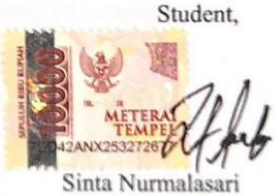

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BIOGRAPHY

The author, Sinta Nurmalasari, was born in Ciamis on November 2, 2002. The author is female and comes from Banjar, West Java Province. The author can be contacted via email at sntanrml02@gmail.com.

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“A humble offering to my beloved Father, Mother, Sibling, and Extended Family”

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The author acknowledges that there are still many imperfections in this thesis. Therefore, the author welcomes constructive criticism and suggestions. The author hopes that this thesis may be of benefit to its readers.

Bandar Lampung, January 6, 2026
The Author

SINTA NURMALASARI

ABSTRACT

FACTORS ASSOCIATED WITH BURNOUT AMONG HEALTHCARE WORKERS IN THE INPATIENT DEPARTMENT OF IMANUEL HOSPITAL, BANDAR LAMPUNG

By

SINTA NURMALASARI

Background: Burnout is an occupational health problem that can affect the mental health of healthcare workers and the quality of healthcare services. Various individual characteristics and work-related factors are presumed to be associated with burnout; however, previous studies have reported inconsistent findings. This study aimed to analyze factors associated with burnout among inpatient nurses in a private hospital.
Methods: A cross-sectional design with a total sampling technique was used, involving 119 nurses at Imanuel Hospital, Bandar Lampung. Burnout was measured using the Indonesian version of the 22-item Maslach Burnout Inventory–Human Services Survey (MBI-HSS), work-related stress was assessed using the Perceived Stress Scale (PSS-10), and workload was measured using a questionnaire. Total burnout was categorized based on the median value. Bivariate analysis was conducted using the Chi-square test, and multivariate analysis was performed using multiple binary logistic regressions with a significance level of $\alpha = 0.05$.
Results: The burnout rate among inpatient nurses was relatively high (51.3%). Bivariate analysis showed significant associations between burnout and marital status ($p = 0.025$), Length of service ($p = 0.021$), and work-related stress ($p = 0.032$). Age, sex, educational level, workload, and work shift were not significantly associated with burnout ($p > 0.05$). Multiple binary logistic regression analyses revealed that none of the variables were significantly associated with burnout when all variables were analyzed simultaneously.
Conclusions: Burnout was found to be relatively high among inpatient nurses at the study site; however, no factors were significantly associated with burnout after multivariate analysis.

Keywords: burnout, nurse, shift, workload, work-related stress

ABSTRAK

FAKTOR-FAKTOR YANG BERHUBUNGAN DENGAN BURNOUT PADA TENAGA KESEHATAN DI INSTALASI RAWAP INAP RUMAH SAKIT IMANUEL BANDAR LAMPUNG

Oleh

SINTA NURMALASARI

Latar Belakang: *Burnout merupakan masalah kesehatan kerja yang dapat memengaruhi kesehatan mental tenaga kesehatan dan kualitas pelayanan. Berbagai karakteristik individu dan faktor pekerjaan diduga berhubungan dengan burnout, namun hasil penelitian sebelumnya masih bervariasi. Penelitian ini bertujuan menganalisis faktor-faktor yang berhubungan dengan burnout pada perawat di instalasi rawat inap rumah sakit swasta.*
Metode: *Penelitian ini menggunakan desain* cross-sectional *dengan teknik total sampling terhadap 119 perawat di Rumah Sakit Imanuel Bandar Lampung. Burnout diukur menggunakan Maslach Burnout Inventory (MBI-HSS) versi Indonesia 22 item, stres kerja menggunakan Perceived Stress Scale (PSS-10), dan beban kerja menggunakan kuesioner. Burnout total dikategorikan berdasarkan nilai median. Analisis bivariat menggunakan uji Chi-Square dan analisis multivariat menggunakan regresi logistik biner berganda dengan* $\alpha = 0,05$.
Hasil: *Proporsi burnout pada perawat rawat inap ditemukan tinggi (51,3%). Analisis bivariat menunjukkan hubungan signifikan antara burnout dengan status perkawinan (*$p = 0,025$*), masa kerja (*$p = 0,021$*), dan stres kerja (*$p = 0,032$*). Usia, jenis kelamin, tingkat pendidikan, beban kerja, dan shift kerja tidak berhubungan signifikan (*$p > 0,05$*). Analisis regresi logistik biner berganda menunjukkan tidak terdapat faktor yang berhubungan signifikan dengan burnout secara simultan.*
Kesimpulan: *Burnout ditemukan dengan proporsi yang relatif tinggi pada perawat rawat inap di lokasi penelitian, namun tidak terdapat faktor yang berhubungan dengan burnout setelah analisis multivariat.*

Kata Kunci: *beban kerja, burnout, perawat, shift kerja, stres kerja*

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CHAPTER I
INTRODUCTION

1.1 Background

Hospitals are health care institutions that provide comprehensive health services, including inpatient, outpatient, and emergency care (Kementrian Kesehatan RI, 2020). Hospitals are supported by various health workers who work collaboratively, including doctors, nurses, midwives, pharmacists, laboratory analysts, radiographers, and physiotherapists, as well as nutritionists, who provide comprehensive health services to patients. Nurses are the largest group of health workers in hospitals, followed by other health workers. Based on data from the Kementerian Kesehatan RI 2023 and the Badan Pusat Statistik (BPS) 2023, nurses make up the largest share of the hospital healthcare workforce, totaling 582,023 people. This situation makes nurses the frontline personnel involved in almost all forms of healthcare services, so the condition of nurses directly affects the quality of hospital services. Nurses have a significant responsibility in providing continuous care for individuals who are sick, injured, disabled, or in the final stages of their lives. In addition, nurses also play a role in improving the health of individuals, families, and communities. (Cahya et al., 2023).

Nurses play a vital role in maintaining the continuity of healthcare services in hospitals, especially in inpatient facilities. Inpatient facilities are service units that provide intensive, continuous care for patients who require medical supervision for a specified period. Nurses working in these units are responsible for monitoring patients' conditions 24 hours a day, ensuring that patients' medical and non-medical needs are met, and providing care in accordance with nursing standards. This condition also shows that nurses spend the most time interacting with patients compared to other healthcare workers

(Ezdha & Hamid, 2020; Dewi et al., 2024). The shift work system, high intensity of interaction with patients and their families, and the nurse-to-patient ratio that is still not in accordance with WHO standards, namely one nurse for four patients, are factors that increase the workload of nurses. These conditions make inpatient nurses more prone to work stress and burnout (Pinarsih et al., 2023).

Burnout is a response to work stress that is continuous and long-term, so that it can develop into a chronic condition that negatively impacts the physical and mental health of the individual experiencing it (Edú-valsania et al., 2022). Burnout affects various aspects, including cognitive, emotional, and attitudes towards work. This condition often leads to negative behavior toward work, colleagues, service users, and professional roles (Wan et al., 2022). Burnout is not merely an individual issue but a result of various factors in the work environment that can cause physical, emotional, and mental exhaustion, thereby reducing motivation and the quality of nursing care (Edú-Valsania et al., 2022).

A systematic review by Li et al. (2024) involving 288,581 nurses from 32 countries, found that burnout prevalence ranged from 11% to 56%, with a higher increase during the COVID-19 pandemic. The increase in burnout among nurses was driven by high patient volume in hospitals, a shortage of health workers, and worsening working conditions. In Indonesia, the prevalence of burnout among nurses was 33.5%, with the highest rate on the island of Java at 38.4%. Health workers employed in hospitals also showed a significant level of burnout, at 28.6% (Syafira, 2024). Research conducted at Dr. A. Dadi Tjokrodipo Regional General Hospital in Bandar Lampung showed that 21.2% of inpatient nurses experienced high levels of burnout (Pinarsih et al., 2023). The study also showed that 80.8% of nurses working in the COVID-19 patient isolation ward at a tertiary referral hospital in Lampung experienced burnout in the depersonalization dimension (Pramesona et al., 2021).

Based on research conducted by Ezdha & Hamid (2020) on the relationship between workload and burnout among nurses at the Pekanbaru Medical Center Hospital, it was found that workload and burnout were significantly related. Similar findings were reported by Pinarsih et al. (2023), who found that 71 nurses (68.3%) experienced work overload, and this condition was significantly associated with burnout. A meta-analysis of 16 studies involving 18,935 nurses, found that increased workload is one of the main factors associated with an increased risk of burnout (Galanis et al., 2021).

Research by Ananda (2023) also found a relationship between work shifts and burnout among production employees at PT Medifarma. Research on 225 pediatric nurses in Jordan also showed that work shifts have a significant relationship with burnout and are a moderating factor in the relationship between burnout and nurses' health conditions, so a balance between night and day shifts is needed to minimize the impact of burnout on health (Khatatbeh et al., 2022). Another study found a significant relationship between work stress and burnout among nurses in the Inpatient Department of Embung Fatimah Regional General Hospital in Batam City in 2019 (Wardhani et al., 2020). A study of 705 frontline nurses during the COVID-19 pandemic also showed that high levels of work-related stress were associated with increased burnout, especially among younger nurses, those with less work experience, and those who felt less capable of providing nursing care (Murat et al., 2021).

Various demographic and workplace factors also Influence burnout among ICU nurses. Based on a meta-analysis of 1,986 ICU nurses, the prevalence of emotional exhaustion was found to be 31%, depersonalization 18%, and low personal accomplishment 46%, with a higher risk of burnout among younger, unmarried nurses with less work experience due to immature coping skills and lack of social support (Ramírez-Elvira et al., 2021). Demographic factors such as age, gender, years of service, and education are also associated with burnout among nurses. A meta-analysis of 85 studies involving 288,581 nurses from 32 countries showed that the average age of respondents was 33.9 years, 82.7% were female, and nurses with college education were more prone to burnout,

with a prevalence of 30.7% (Li et al., 2024). These findings indicate that factors such as age, gender, education level, marital status, length of service, workload, work shifts, and work stress are associated with burnout among healthcare workers and employees in other sectors.

In line with these conditions, Imanuel Hospital is the only Type B General Hospital in Bandar Lampung that serves as a referral hospital, providing comprehensive services, including outpatient, inpatient, and emergency care, which run simultaneously (Budi & Kusumapradja, 2022). The high intensity of these services can cause nurses, especially those in the inpatient department, to face heavy workloads and potentially experience burnout. However, no research has specifically examined the incidence of burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung. Therefore, this study is important for providing an overview of burnout among nurses and for identifying the factors associated with burnout in the inpatient department at Imanuel Hospital, Bandar Lampung. The results of this study are expected to serve as a reference for providing recommendations to the hospital to improve the mental health of nursing staff and maintain optimal quality of healthcare services.

1.2 Problem Statement

Based on the above background, the research question in this study is: What factors are associated with burnout among nurses in the Inpatient Department at Imanuel Hospital, Bandar Lampung?

1.3 Research Objectives

1.3.1 General Objective

In general, this study aims to identify the factors associated with burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.

1.3.2 Specific Objectives

1. To determine the distribution of age, gender, education level, marital status, length of service, workload, work shifts, and work stress among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
2. To determine the distribution of burnout based on the dimensions of emotional exhaustion, depersonalization, and personal accomplishment.
3. To determine the relationship between nurse characteristics (age, gender, education level, marital status, and length of service) and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
4. To determine the relationship between workload and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
5. To determine the relationship between work shifts and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
6. To determine the relationship between work stress and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
7. To determine the dominant factors associated with burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.

1.4 Research Benefits

1.4.1 Benefits for Researchers

1. Increasing knowledge and understanding of the factors associated with burnout among nurses in the inpatient department.
2. Developing skills in conducting scientific research, data analysis, and academic report writing.

3. Developing the researcher's ability to communicate and coordinate with the hospital during the research process.

1.4.2 Benefits for Nurses

1. Providing an understanding of factors that may be associated with burnout, enabling greater awareness in managing work-related stress.
2. Motivating nurses to participate in stress management training or build a social support system.

1.4.3 Benefits for Hospital Management

1. Providing data-driven information on factors related to burnout among nurses, which can be used as a basis for improving human resource management policies.
2. Supporting efforts to improve nurses' mental health and the quality of healthcare services through more optimal burnout management, thereby contributing to patient safety.

1.4.4 Benefits for Future Researchers

Serving as a reference for developing research related to nurse burnout with a broader scope or a more in-depth approach.

1.4.5 Benefits for Academics and Institutions

Serves as a reference for students, lecturers, and health management in understanding factors related to burnout in nurses.

CHAPTER II
LITERATURE REVIEW

2.1 Burnout

2.1.1 Definition of Burnout

Burnout is a condition of emotional, physical, and mental exhaustion that occurs as a result of continuous exposure to work stress. According to Abdillah (2022), burnout occurs when individuals experience prolonged emotional and stress at work. Burnout is also known as a psychological state resulting from an individual's inability to cope with work stress, characterized by emotional, physical, and mental exhaustion, as well as low self-esteem (Twistidanayani et al., 2022).

Sabrina et al. (2022) note that burnout is a psychological condition characterized by physical and mental exhaustion due to work pressure, especially among healthcare workers. Burnout also has a psychobiological aspect, where psychological pressure can cause physical disorders such as headaches, difficulty concentrating, and decreased immunity (Oktaviani et al., 2023).

Maslach & Leiter (2013) define burnout as a crisis in the relationship between an individual and their work. They emphasize that burnout stems from professions that demand high levels of interpersonal interaction, such as nursing, where nurses must provide continuous emotional support to patients.

2.1.2 Pathophysiology of Burnout

Burnout is a syndrome resulting from chronic, unmanaged work stress, characterized by three main dimensions: emotional exhaustion,

depersonalization, and reduced personal accomplishment. At the biological level, burnout is not only a psychological phenomenon but also involves changes in neuroendocrine, immunological, and brain function. One of the main mechanisms involved is the activation of the hypothalamic–pituitary–adrenal (HPA) axis, which regulates the body's response to stress (Jonsdottir & Dahlman, 2019).

Exposure to work stressors triggers the hypothalamus to release Corticotropin-Releasing Hormone (CRH), which stimulates the anterior pituitary to produce Adrenocorticotropic Hormone (ACTH). ACTH then stimulates the adrenal cortex to release cortisol, the primary hormone in the stress response that helps regulate metabolism, the immune system, and alertness. In acute stress conditions, HPA activation is adaptive. However, in chronic stress, prolonged HPA activation can dysregulate harmful feedback mechanisms, characterized by changes in cortisol secretion patterns, including hypercortisolism or a reduced cortisol response, as well as disruption of the circadian rhythm (Jonsdottir & Dahlman, 2019; Khammissa et al., 2022).

This HPA dysregulation also affects the immune system. Imbalanced cortisol regulation can trigger a low-grade systemic inflammatory response, characterized by increased proinflammatory cytokines such as interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF-α). Several studies have shown that individuals with burnout tend to have increased inflammatory markers, which contribute to physical symptoms such as chronic fatigue, muscle pain, and decreased immunity, and may increase the risk of chronic diseases (Adebayo et al., 2023).

Chronic stress also affects brain structure and function, particularly in areas involved in emotion regulation, memory, and executive function, such as the prefrontal cortex, anterior cingulate cortex, amygdala, and hippocampus (Chmiel & Kurpas, 2025). Under normal conditions, the prefrontal cortex inhibits amygdala activity, keeping emotional responses under control. However, chronic stress exposure can disrupt

neurotransmitter balance and alter synaptic plasticity, reducing the prefrontal cortex's ability to regulate amygdala activity (Abe et al., 2022).

Neuroimaging studies show structural and functional changes in the brains of individuals with burnout, including reduced gray matter volume in the prefrontal cortex and hippocampus, as well as increased amygdala reactivity to emotional stimuli. These changes make individuals more sensitive to stressors and more difficult to control emotional responses, thereby reinforcing a cycle of ongoing stress (Liu et al., 2025; Savic, 2015).

Overall, chronic work stress triggers excessive HPA activation and dysregulation of the stress response, which in turn triggers systemic inflammation and changes in brain function and structure. This condition weakens the prefrontal cortex's control over the amygdala, increases negative emotional responses, and exacerbates burnout symptoms, including emotional exhaustion, depersonalization, and reduced personal accomplishment (Khammissa et al., 2022).

2.1.3 Dimensions of Burnout

According to Edú-Valsania et al. (2022), the dimensions of burnout consist of:

a. Emotional Exhaustion

This dimension manifests as feelings and sensations of fatigue resulting from psychological efforts at work. This dimension is also described in terms of exhaustion, fatigue, and weakness. Subjects who manifest such feelings have difficulty adapting to the work environment because they lack sufficient emotional energy to cope with work tasks.

b. Depersonalization

This dimension is the interpersonal component of burnout. Cynicism is defined as a response of detachment and indifference towards the work being done and/or the people receiving it. This dimension

manifests as harmful or inappropriate attitudes and behaviors, irritability, loss of idealism, and interpersonal avoidance, often directed towards service users, patients, and/or clients.

c. Personal Accomplishment

This dimension is reflected in negative self-assessment of one's professional abilities, doubt about one's ability to perform effectively, and a greater tendency to evaluate results negatively. This dimension also impacts productivity, competence, morale, and problem-solving skills.

2.1.4 Causes of Burnout

Based on a literature review, various internal and external factors can cause burnout among nurses (Fuady, Dewi & Susanti, 2022; Sabrina, Tusrini & Tamara, 2022; Qtait, Alia & Jaradat, 2025). These factors affect both the individual and the nursing work environment. These factors are as follows:

1. Internal factors:
   a. Age

      Age affects perceptions of workload and physical and emotional resilience in coping with stress. Younger nurses tend to have higher energy levels but less experience in managing work pressure. Meanwhile, older nurses may be more experienced but may experience a decline in physical stamina, which also contributes to the risk of burnout (Sabrina, Tusrini & Tamara, 2022).

   b. Education

      A nurse's level of education is directly related to the knowledge and skills they possess in dealing with work pressure. Nurses with higher levels of education tend to use better coping strategies and have a deeper understanding of the importance of mental health in the workplace, enabling them to manage stress more effectively (Lutfi et al., 2021).

c. Gender

Gender also plays a role in burnout. In women, the hormone estrogen increases the release of Corticotropin-Releasing Hormone (CRH) and Adrenocorticotropic Hormone (ACTH), which, in turn, triggers increased cortisol production. This hormonal response makes stress more substantial and more prolonged. In the late follicular phase of the menstrual cycle, when estrogen levels are high, HPA axis activation increases, making women more prone to emotional exhaustion and psychological symptoms of burnout. Progesterone, which is dominant in the luteal phase, has a calming effect through increased GABA neurotransmitter activity, but in chronic stress, this protective effect is reduced, weakening stress control.

In men, testosterone suppresses HPA axis activity, resulting in a more stable stress response. However, chronic stress can lower testosterone levels, disrupting stress control mechanisms. This condition increases the risk of burnout, with dominant symptoms including physical fatigue and sleep disturbances. Thus, hormonal differences make women more susceptible to emotional burnout, particularly during the menstrual phase, while men tend to exhibit burnout symptoms in physical form (Heriyanto et al., 2022).

d. Marital status

Marital status affects the balance between personal life and work. Married nurses may receive emotional support from their partners, but they also face dual responsibilities that can increase stress. Unmarried nurses may be more focused on work, but they are at risk of loneliness or lack of social support (Purnomo & Rihtianti, 2024).

e. Work experience

Longer tenure in the nursing profession can enhance experience, adaptation, and resilience to work-related stress. However, monotonous routines or excessive workloads can also lead to burnout and increased risk of burnout. Conversely, nurses with

shorter tenure are more prone to stress as they are still in the adjustment phase (Oktaviani et al., 2023).

f. Personality

Personality is a psychological factor that influences how individuals adapt to stress. Certain personality types are at higher risk of burnout, especially those who are perfectionists, have high neuroticism, or find it challenging to manage their emotions. Individuals with high neuroticism are more prone to anxiety and have a negative perception of work demands, so they tend to use maladaptive coping mechanisms such as avoidance or withdrawal. This condition reinforces perceptions of stress and intensifies HPA activation, thereby increasing the risk of burnout (Khammissa et al., 2022).

g. Motivation

Work motivation affects the extent to which a person perseveres in the face of high job demands. Individuals with strong motivation, especially intrinsic motivation, tend to have a positive perception of their work and feel it is meaningful. Intrinsic motivation increases the release of positive neurotransmitters such as dopamine and serotonin, which help maintain emotional balance and stabilize prefrontal cortex function. This motivation allows for more effective HPA regulation, thereby reducing the risk of burnout (Khammissa et al., 2022).

Conversely, low motivation or motivation driven solely by extrinsic factors such as external pressure or fear of punishment can increase psychological stress. This condition makes individuals more prone to emotional exhaustion and depersonalization because they feel that their work is meaningless or beyond their control. At the biological level, a lack of motivation reinforces negative perceptions of stressors and increases amygdala hyperactivity, ultimately triggering excessive HPA activation and accelerating burnout (Jonsdottir & Dahlman, 2019).

2. External factors:
    a. Workload

        High workloads, whether from the number of patients to be treated or administrative demands, can cause physical and mental fatigue. An imbalance between workload and individual capacity increases the risk of burnout, especially if there is insufficient organizational support or adequate rest time (Widayati, 2020).

    b. Work stress

        Work stress is a key connecting mechanism in the pathophysiology of burnout. Continuous psychosocial stress increases the release of neurotransmitters such as glutamate and norepinephrine in the amygdala. This activity reinforces amygdala hyperactivity and triggers the hypothalamus to release CRH, which, in turn, increases ACTH and cortisol production. Chronic cortisol elevation causes structural damage to the hippocampus and prefrontal cortex, while the amygdala undergoes hypertrophy and hyperactivity. This condition leads to impaired emotional control, decreased working memory, and difficulty in decision-making. This condition creates a vicious cycle in which the increasingly hyperactive amygdala continues to reinforce stress perception, exacerbate emotional responses, and ultimately accelerate burnout (Chmiel & Kurpas, 2025; Liu et al., 2025). If not appropriately managed, prolonged stress can disrupt service quality (Laili & Susilawati, 2023).

    c. Work shifts

        Work shifts affect the body's physiological balance by disrupting the circadian rhythm. The circadian rhythm is a natural mechanism that regulates sleep and wake cycles, hormone release, body temperature, and metabolic functions in response to the transition between day and night. For night shift workers, changes in sleep patterns and exposure to light that are out of sync with the body's natural rhythm can disrupt physiological system (Cheng et al., 2023).

Circadian rhythm disorders affect the activity of the Hypothalamic-Pituitary-Adrenal (HPA) axis and the autonomic nervous system. In night-shift workers, melatonin production, which should increase at night, is inhibited by exposure to light. Meanwhile, cortisol production remains high even though it should decrease. This condition triggers excessive activation of the HPA axis, resulting in sustained elevated cortisol levels. Continuous increases in cortisol can lead to burnout (Khatatbeh et al., 2022).

d. Social Support

Social support is an important protective factor in preventing burnout among nurses. Support from colleagues, supervisors, family, and friends can help nurses feel valued and not face work pressure alone. Nurses who receive adequate social support tend to have better mental resilience and are able to manage work stress more effectively (Riana et al., 2022).

e. Leadership

The leadership style implemented in hospitals affects nurses' stress levels. Supportive and open leadership can reduce work stress and improve nurses' well-being. Conversely, authoritarian or unsupportive leadership can worsen burnout. Leaders who provide clear direction and support their team's well-being can help nurses cope with stress and improve their performance (Hidayat et al., 2022).

2.1.5 Impact of Burnout

Burnout is a condition of chronic work fatigue that has a broad impact on individual health and the healthcare system. Burnout is associated with chronic fatigue, sleep disorders, somatic complaints, and decreased immunity, which can continuously interfere with the work capacity of healthcare workers (Amalia, 2023; Wijanarti & Anisyah, 2022). Psychologically and emotionally, burnout is associated with increased psychological stress, anxiety, depressive symptoms, and feelings of

cynicism (Bannon et al., 2022; Juniarsi et al., 2023). Burnout is also characterized by decreased self-efficacy and a sense of professional achievement, which can affect the motivation and job satisfaction of healthcare workers (Albieri et al., 2017; Lutfi et al., 2021).

In addition to affecting individuals, burnout also affects the quality of healthcare services. Nurses experiencing burnout tend to show a decrease in empathy, emotional involvement, and communication quality with patients (Lastari et al., 2025; Oktaviani et al., 2023). This condition can lead to decreased patient satisfaction, reduced quality of nursing care, and increased risks of patient safety issues (Ananta & Dirdjo, 2021; Sukmawati & Hermana, 2024).

In an organizational context, burnout among nurses is also associated with increased turnover intention, absenteeism, and decreased work productivity (Byrne et al., 2023; Wright et al., 2022). The accumulation of these impacts has the potential to reduce the efficiency of the healthcare system and increase the workload of other healthcare workers (Ezdha & Hamid, 2020; Gumelar et al., 2021).

2.1.6 Burnout Measurement

Burnout is generally measured using the *Maslach* Burnout *Inventory-Human Services Survey* (MBI-HSS) developed by Maslach & Jackson. The MBI-HSS is the most commonly used measurement tool in burnout-related research, particularly in service-oriented work environments such as nursing. This instrument measures three main dimensions of burnout, namely emotional exhaustion, depersonalization, and reduced *personal* accomplishment (Widhianingtanti & Luijtelaar, 2022).

Respondents were asked to rate statements based on the frequency of their experience of burnout symptoms, ranging from "never" (0) to "every day" (6) (Bianchi et al., 2024). The scores from these three dimensions were then interpreted separately to determine the individual's level of burnout.

The use of the MBI-HSS is important for obtaining objective and scientifically comparable data, especially when assessing the psychological condition of nurses in a high-pressure work environment (Iridiastadi et al., 2020)

2.2 Nurses

2.2.1 Definition of Nurses

A nurse is a healthcare professional who has the knowledge, skills, and authority to provide nursing care to individuals, families, and communities (Nisa, 2020). According to Law Number 17 of 2023 concerning Health, a nurse is a healthcare worker who provides nursing services in accordance with their competence. This definition emphasizes that nurses are not only responsible for clinical care but also for health promotion, disease prevention, and patient rehabilitation (Kementrian Kesehatan RI, 2023).

In practice, nurses are responsible for providing comprehensive nursing care that encompasses biological, psychological, social, and spiritual aspects (Helga, 2020). They work independently and collaboratively with other health professionals to ensure optimal service quality (Boskma et al., 2023). Clinical nurses, especially those working in hospitals, play a vital role in monitoring patient conditions, administering therapy, providing health education, and coordinating interdisciplinary care (Nisa, 2020). Demanding work contexts, such as shift work, high workloads, and emotional pressure, make nurses particularly vulnerable to stress and burnout (Li et al., 2022).

Nurses come in various types, such as community nurses, pediatric nurses, geriatric nurses, mental health nurses, and clinical nurses (Subu et al., 2021). However, this study focuses primarily on clinical nurses, especially inpatient nurses in hospitals, who directly provide nursing care to patients 24 hours a day, with a shift work system and relatively high workloads compared to other nursing roles (Ilahi et al., 2023).

2.2.2 Duties and Responsibilities of Nurses

Nurses' duties and responsibilities encompass a range of activities to provide comprehensive nursing care. As healthcare professionals, nurses are responsible not only for patients' physical condition but also for their psychological, social, and spiritual well-being (Helga, 2020). The following are some of the primary duties of nurses:

1. Providing Nursing Care
2. Developing a Nursing Care Plan
3. Patient Education and Counseling
4. Coordinating Care with the Healthcare Team
5. Monitoring and Supervision
6. Crisis Management and Emergency Response

2.3 Workload

2.3.1 Understanding Workload

Workload is the amount of work that must be done within a given period, including the volume and complexity of tasks assigned to nurses (Quigley et al., 2023). In healthcare, nurses' workload encompasses a range of responsibilities, from providing direct patient care to documenting medical histories to coordinating with other medical teams. This workload will vary depending on the type of healthcare facility, the number of patients, and the hospital's policies (Hidayat et al., 2022).

An optimal workload will ensure that nurses can work effectively and efficiently without experiencing excessive fatigue or stress (Sukmawati & Hermana, 2024). However, if the workload is too heavy and disproportionate to the number of staff available, nurses are at risk of decreased performance and well-being, which in turn can affect the quality of health services (Pujiyanto & Hapsari, 2021).

2.3.2 Types of Workload

According to Yuliani et al. (2021), nursing workload can be categorized into several interconnected types. Broadly speaking, these types of workload can be grouped into:

a. Physical Workload: The workload required when performing physical activities, which places a burden on the body and causes changes in organ function due to the body's adaptive mechanisms, such as heart rate, oxygen consumption, changes in blood chemistry, and changes in body temperature, where one of the influencing factors is the intensity of the workload.
b. Mental Workload: In addition to performing physical activities, workers will also perform mental activities simultaneously, as both are always done at the same time. Every mental activity involves perception, interpretation, and the processing of information received by the sensory organs to make decisions or recall past information. The problem for humans is the ability to recall or remember stored information. Excessive mental activity can cause fatigue in the brain and affect a person's physical response.

2.3.3 Factors Affecting Workload

The main factor affecting nurses' workload is the number of patients they must care for. The more patients who need treatment, the greater the workload nurses must bear. In addition, the severity of the patient's condition also affects the workload. Patients with more serious medical conditions or who require intensive care certainly require more attention and time from nurses (Detroja et al., 2025).

Apart from patient factors, another factor that affects workload is the number of nurses available. In hospitals with a limited number of nurses, each nurse will have a heavier workload (Pujiyanto & Hapsari,2021). Other factors include technological and medical facility support, hospital management policies, and the shift scheduling system implemented

(Wildan & Hariyati, 2024). An unbalanced shift system or an unfair work schedule can worsen nurses' workload, leading to higher fatigue and stress (Pinarsih et al., 2023).

2.3.4 Impact of Workload on Nurses

High workloads trigger physiological stress responses that activate the central nervous system, the neuroendocrine system, and the immune system. When work demands continuously exceed the body's adaptive capacity, the Hypothalamic-Pituitary-Adrenal (HPA) axis becomes overactivated. Repeated stress causes the release of Corticotropin-Releasing Hormone (CRH) from the hypothalamus, which stimulates the anterior pituitary to release Adrenocorticotropic Hormone (ACTH). ACTH then triggers the adrenal cortex to produce high levels of cortisol. Chronically elevated cortisol affects the body's metabolism, central nervous system, and immune system, triggering physical and psychological disorders associated with burnout (Abe et al., 2022; Chmiel & Kurpas, 2025). Some of the common effects include:

a. Physical fatigue: Heavy workloads trigger continuous activation of the sympathetic nervous system. This activation increases heart rate, blood pressure, and tissue oxygen demand. Chronically elevated cortisol accelerates protein and glycogen catabolism, depleting the body's energy reserves quickly. At the same time, skeletal muscle hyperactivity occurs, causing lactic acid buildup, triggering muscle tension and musculoskeletal pain, especially in the back and neck. When this process persists, the energy recovery mechanism through sleep becomes disrupted. As a result, sleep disturbances affect growth hormone (GH) secretion and slow tissue regeneration, leading to chronic fatigue and increased susceptibility to musculoskeletal injuries (Abe et al., 2022).
b. Psychological stress: Excessive workloads can trigger hyperactivity in the amygdala, the brain's emotional control center. Continuous activation of the amygdala increases excitatory signals by releasing

glutamate and norepinephrine, thereby strengthening HPA axis activity. Long-term high cortisol levels decrease the activity of the prefrontal cortex, the area of the brain that controls emotions, decision-making, and higher cognitive functions. The decline in prefrontal cortex function leads to a loss of inhibitory control over the amygdala. As a result, the stress cycle becomes maladaptive, characterized by increased anxiety, irritability, and emotional exhaustion. If this process continues, individuals experience structural changes in the brain, such as a decrease in gray matter volume in the prefrontal cortex and anterior cingulate cortex, which are characteristic of burnout at the neurobiological level (Chmiel & Kurpas, 2025).

c. Decline in service quality: Chronic physical and psychological fatigue affects brain executive functions, including attention, working memory, and decision-making. High cortisol levels disrupt neurotransmission in the hippocampus and prefrontal cortex, which play a crucial role in information processing and concentration. These disruptions increase the risk of medical errors by reducing alertness and the ability to respond to critical situations. Clinically, this triggers a decline in nursing service quality, an increased risk of adverse events, and directly impacts patient safety (Jonsdottir & Dahlman, 2019).

2.3.5 Workload Measurement

Measuring nurses' workload is crucial to understanding the extent of the burden they face in performing their daily tasks (Ahmad et al., 2020). One commonly used method for measuring workload is through questionnaires, which can provide a more objective picture of nurses' perceptions of their workload (Gumelar et al., 2021). These questionnaires typically cover various aspects, such as the number of patients treated, the level of task difficulty, the duration of work, and other factors related to physical and mental workload (Kusumaningsih et al., 2020).

The questionnaire method offers convenience in collecting data from a large number of respondents in a relatively short time. The questionnaire commonly used to measure workload is an instrument developed by Nursalam (2015) to assess nurses' workload in health services. This questionnaire consists of 13 items, each rated on a 4-point Likert scale from "never" to "always." This instrument allows identification of workload as directly perceived by nurses, making it useful as a basis for developing more effective, contextually relevant workload management strategies in the field (Pratiwi, 2023).

2.4 Work Shift

2.4.1 Definition of Work Shifts

A work shift is a scheduling system that divides working hours into several rotating periods throughout the day, ensuring operations can continue without interruption. This system is commonly used in healthcare facilities, such as hospitals, which require medical personnel around the clock. In the context of nursing, work shifts allow for more flexible working hours, so that each nurse can work according to a predetermined schedule, whether it is a morning, afternoon, or night shift (Hangkoso et al., 2023).

Research by Yulia Annisya and Yunashastuti Radha in 2024 found that shift work is associated with burnout among nurses due to circadian rhythm disruption. Nurses who work in a shift system must also be prepared to face unpredictable workloads. Sometimes, they must manage different patient conditions at each work shift. For example, during the night shift, nurses may encounter fewer patients, but maintaining alertness and concentration can be more challenging due to fatigue (Nurliasari et al., 2023).

2.4.2 Types of Work Shifts

According to Hangkoso et al. (2023), hospital work shifts are generally divided into several types based on when they are carried out, each with its own characteristics and demands. The commonly used shift divisions are as follows:

a. Morning Shift: This shift starts around 7:00 a.m. to 2:00 p.m. During this shift, nurses usually handle routine patient care needs, medication administration, observation, and significant medical activities that occur during regular hospital operating hours.
b. Afternoon Shift: This shift runs from 2:00 p.m. to 9:00 p.m. Nurses on this shift continue care from the morning shift and care for new patients who arrive in the afternoon. In addition, this shift often focuses on stabilizing patients' conditions before nightfall.
c. Night Shift: Starts around 9:00 p.m. until 7:00 a.m. the next day. This shift requires heightened alertness despite the quieter atmosphere, as changes in patient condition often occur at night and the number of nurses is typically limited.

2.4.3 Factors Affecting Shift Scheduling

Hospital work shift scheduling is influenced by various factors that must be considered to ensure that medical personnel's needs are adequately met. One of the main factors is the number of patients. Hospitals with high patient volumes will need more nurses per shift, especially during busy hours or when patient numbers increase (Amalia, 2023). Another influencing factor is the availability of nurses themselves. If the number of nurses is limited, they must work more shifts (Purnomo & Rihtianti, 2024). Nurses must have sufficient time to rest and maintain their physical and mental health. Hospitals that prioritize nurse well-being will strive to avoid overly dense or unbalanced shift schedules, which can increase the risk of fatigue or stress (Pinarsih et al., 2023).

2.4.4 Impact of Work Shifts

Irregular work shifts can significantly impact nurses' well-being (Dall'Ora et al., 2020). One of the most common effects is physical and mental fatigue (Widayati, 2020). Nurses who work night or rotating shifts often experience sleep disturbances, which in turn affect their sleep quality. These sleep disturbances can lead to decreased concentration, increased medical errors, and decreased motivation at work (Amalia, 2023). However, despite the adverse effects, regular and well-managed work shifts can also provide benefits, such as flexibility for nurses to pursue their personal lives, as long as they get enough rest.

2.4.5 Work Shift Measurement

Shift work measurement in this study was based on the primary work schedules followed by nurses, namely morning, afternoon, and night shifts. This classification refers to the 24-hour rotating work schedule system in hospital nursing services (Hangkoso et al., 2023).

Work shift types are categorized as follows:

1. Morning shift (approximately 7:00 a.m.–2:00 p.m.)
2. Afternoon shift (approximately 2:00 PM–9:00 PM)
3. Night shift (approximately 9:00 PM–7:00 AM)

Work shift data were collected through closed-ended questions in an online questionnaire via Google Forms, completed directly by respondents. The work shift measurement used a nominal scale and did not require validity or reliability tests because it was based on factual data.

2.5 Work Stress

2.5.1 Definition

Work stress refers to a condition in which an individual feels pressured or overwhelmed by work demands that exceed their abilities or resources (Widayati, 2020). In the healthcare profession, stress is often caused by various factors, ranging from high workloads and emotional interactions with patients to pressure from superiors and colleagues (Sukmawati & Hermana, 2024). Work-related stress can be temporary, but if not managed

properly, it can develop into long-term issues that affect nurses' health and performance (Pujiyanto & Hapsari, 2021).

2.5.2 Causes of Work-Related Stress

Some causes of work-related stress for nurses are as follows:

1. High Workload: Nurses often face high workloads, both in terms of the number of patients to be cared for and the complexity of the tasks to be completed. Workloads that are not balanced with nurses' physical and mental capacity can increase stress (Sukmawati & Hermana, 2024).
2. Interpersonal Conflict: Interactions with colleagues or superiors that are less than harmonious can add to emotional pressure. Unresolved conflicts can create tension in the workplace, exacerbating stress (Hidayat et al., 2022).
3. Emotional Demands: Dealing with sick patients, those in critical condition, or even those who have passed away, is an emotionally challenging task for nurses. If not managed properly, these emotional demands can lead to prolonged stress (Iridiastadi et al., 2020).
4. Physical Conditions and Work Environment: The crowded hospital environment, inadequate facilities, and long work shifts can increase work-related stress (Andana & Mustopa, 2023).

2.5.3 Impact of Work Stress on Nurses

Prolonged work stress can have profound impacts on nurses' physical and mental health (Ilahi et al., 2023). Physically, nurses may experience decreased immunity, sleep disorders, and various stress-related illnesses such as hypertension (Wijanarti & Anisyah, 2022). Psychologically, stress can cause anxiety disorders, depression, and emotional exhaustion that impact nurses' mental well-being (Sukmawati & Hermana, 2024). Additionally, prolonged stress can reduce performance and increase absenteeism, which affects the quality of healthcare provided to patients (Pujiyanto & Hapsari, 2021).

2.5.4 Work Stress Measurement

Work stress among nurses can be measured using various methods, including questionnaires. Questionnaires are an effective tool for assessing workplace stress among nurses, as they can systematically and efficiently collect data from large numbers of respondents (Riana et al., 2022).

One of the questionnaires often used to measure work stress is the Perceived Stress Scale (PSS), which assesses the extent to which a person feels their life is full of pressure and tension (Purnami & Sawitri, 2019). This questionnaire includes questions about feelings of anxiety, lack of control, and difficulty in coping with daily problems related to work (Murat et al., 2021). The questionnaire enables a more specific evaluation of work stress, focusing on leading causes such as excessive workload, interpersonal conflicts, and communication problems (Riana et al., 2022).

2.6 Previous Research

Table 2.1 Previous Research

No	Researcher (Year)	Research Title	Method	Main Results
1.	Wan et al. (2020)	*Factors associated with burnout among Chinese nurses during* the *COVID-19 epidemic*	Cross-sectional	High levels of burnout, associated factors: work stress, workload, social support
2.	Edú-Valsania, S. (2022)	*Burnout: A Review* of Theo*ry and Measurement*	Literature review	Review of burnout theory and burnout measurement using instruments such as the MBI-HSS
3.	Murat et al. (2021)	*Determination* of stress, *depression, and burnout levels among nurses*	Cross-sectional	Stress and depression are positively correlated with burnout
4.	Chen et al. (2021)	*A large-scale survey on trauma, burnout, and posttraumatic growth*	Large-scale survey	Many nurses experience burnout and trauma symptoms
5.	Cheng et al. (2023)	Shift *work disorder, mental health, and burnout among nurses*	Cross-sectional	Irregular shift work is correlated with mental health disorders and burnout
6.	Blytt et al. (2022)	Shift *work disorder and turnover intention among nurses*	Cross-sectional	Disrupted work shifts → burnout → desire to change jobs
7.	Bruyneel et al. (2021)	*Prevalence* of *burnout risk and factors associated with burnout risk among ICU nurses during* the *COVID-19 outbreak*	Cross-sectional	High workload and long working hours = high burnout
8.	Galanis et al. (2021)	*Nurses' burnout during COVID-19: A systematic review*	Systematic review and meta-analysis	Burnout risk factors: work stress, workload, lack of social support
9.	Shah et al. (2021)	*Prevalence* of *and Factors Associated With Nurse* Burnout *in* the *US*	cross-sectional	Reported respondent demographics (age, gender, region, working hours) and found ~31.5% to be burned out
10.	Li et al. (2024)	*Nurse Burnout and Patient Safety, Satisfaction, and Quality* of *Care*	Systematic review & meta-analysis	Demographic correlations: younger age, male gender, and single status are often associated with burnout.

2.7 Theoretical Framework

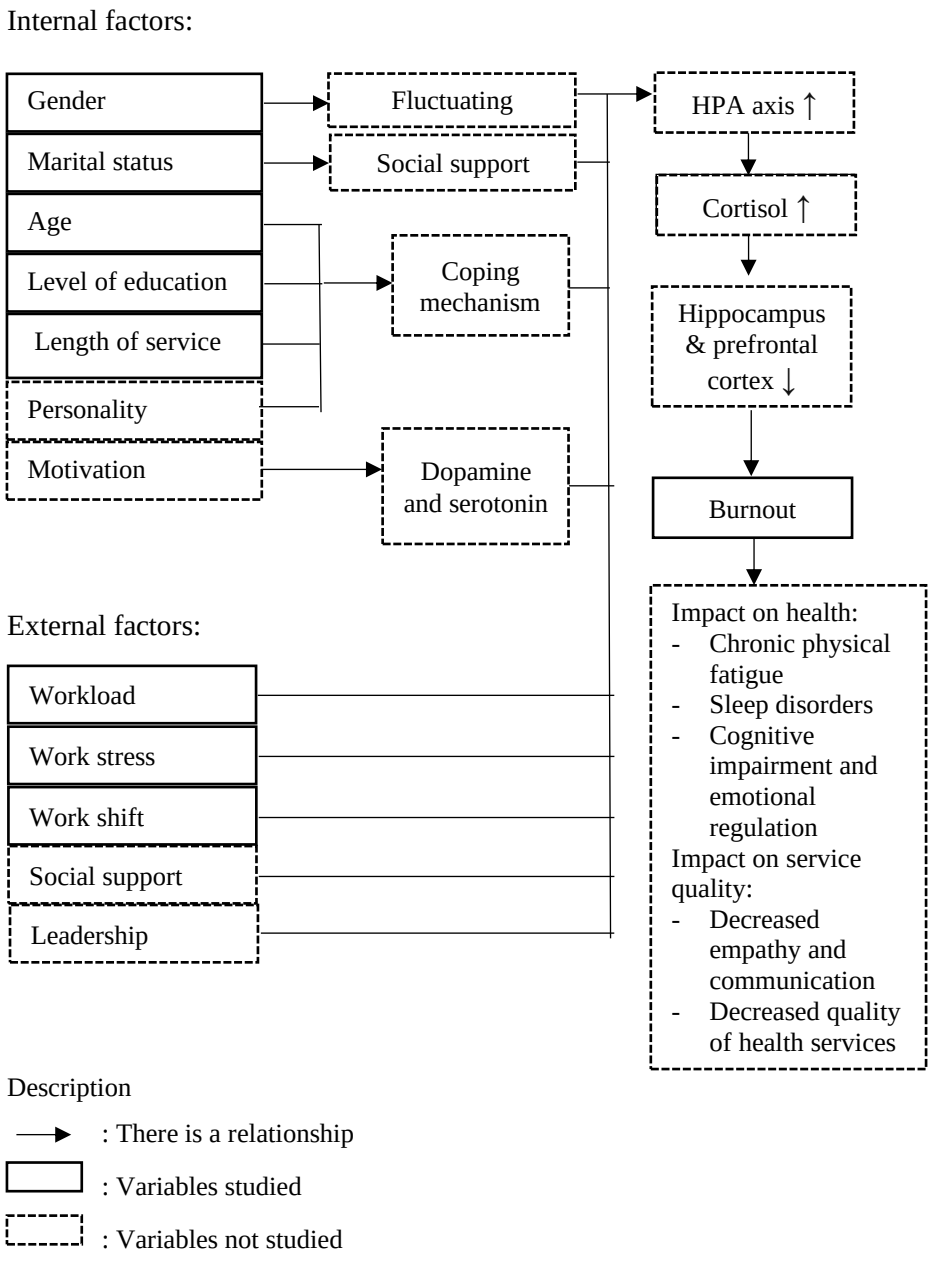

Figure 2.1 Theoretical Framework

(Fuady, Dewi & Susanti, 2022; Sabrina, Tusrini & Tamara, 2022; Qtait, Alia & Jaradat, 2025)

2.8 Conceptual Framework

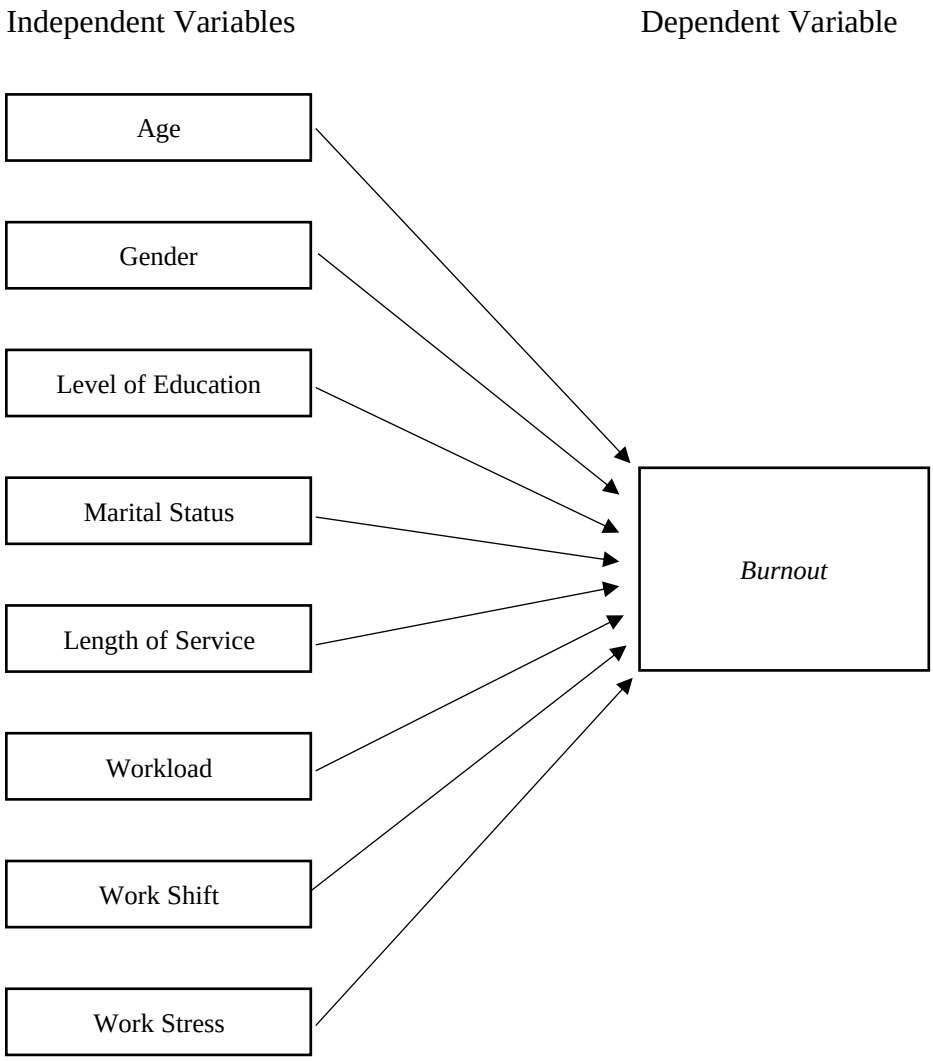

Figure 2.2 Conceptual Framework

2.9 Hypothesis

The hypothesis in this study was formulated to determine the relationships among age, gender, education level, marital status, length of service, workload, work shift, and work stress and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung. The hypothesis proposed is as follows:

1. H_0 : There is no relationship between age and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.

H_a : There is a relationship between age and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.

2. H_0 : There is no relationship between gender and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
   H_a : There is a relationship between gender and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
3. H_0 : There is no relationship between education level and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
   H_a : There is a relationship between education level and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
4. H_0 : There is no relationship between marital status and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
   H_a: There is a relationship between marital status and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
5. H_0 : There is no relationship between length of service and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
   H_a: There is a relationship between length of service and burnout among nurses at the Inpatient Department of Imanuel Hospital, Bandar Lampung.
6. H_0 : There is no relationship between workload and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
   H_a : There is a relationship between workload and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
7. H_0 : There is no relationship between work shifts and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
   H_a : There is a relationship between work shifts and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
8. H_0 : There is no relationship between work stress and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
   H_a : There is a relationship between work stress and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.

CHAPTER III
RESEARCH METHOD

3.1 Research Design

This study used a quantitative, correlational, cross-sectional design. The purpose of this design was to determine the relationships among age, gender, education level, marital status, length of service, workload, work shift, and work stress and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.

3.2 Research Location and Time

This study was conducted in the Inpatient Department of Imanuel Hospital, Bandar Lampung, which consists of the Anggrek, Lavender, Mawar, Narwastu, Onycha, Perinatology, and Tulip wards. The selection of Imanuel Hospital as the research location was based on methodological considerations, namely the characteristics of a private hospital with high service quality demands, which could affect nurses' workload and psychosocial conditions (Sturm et al., 2019). The Inpatient department was chosen as the research location because nurses in this unit have high patient contact, a continuous shift-based work system, and relatively more complex workloads than in non-Inpatient departments (Ezdha & Hamid, 2020). The research was conducted in October–November 2025.

3.3 Population, Sample, and Sampling Technique

3.3.1 Population

The population in this study comprises all inpatient nurses at Imanuel Hospital, Bandar Lampung, totaling 127 individuals. The distribution of

the number of nurses per ward in the Inpatient Department of Imanuel Hospital, Bandar Lampung, is presented in Table 3.1 below.

Table 3.1 Distribution of population size (n=127)

Ward	Number
Anggrek	15
Lavender	32
Rose	25
Narcissus	10
Onycha	23
Perina	14
Tulip	8

3.3.2 Sample

The minimum number of samples studied in this Research used the *Lameshow* formula for a known population with *a margin* of *error* of 5% (Lemeshow, 1997):

$$n = \frac{N \times Z^2_{1-\frac{\alpha}{2}} \times p \times q}{d^2(N-1) + Z^2_{1-\frac{\alpha}{2}} \times p \times q}$$

Description

n = number of samples required

p = estimated proportion (0.5)

q = 1-p

d = health tolerance limit (0.05)

$Z^2_{1-\frac{\alpha}{2}}$ = Z-statistic (Z = 1.96)

N = population size

Sample size calculation:

$$n = \frac{N \times Z^2_{1-\frac{\alpha}{2}} \times p \times q}{d^2(N-1) + Z^2_{1-\frac{\alpha}{2}} \times p \times q}$$

$$n = \frac{127 \times 3{,}8416 \times 0{,}25}{0{,}0025(126) + 3{,}8416 \times 0{,}25}$$

$$n = \frac{121,97}{0,315 + 0,9604}$$

$$n = \frac{121,97}{1,2754}$$

$$n = 95,67$$

$$n = 96$$

Based on the calculation results, the minimum sample size for the study is 96 respondents. To anticipate data loss during the data collection process, the sample size is increased by 10% of the total sample size, with the following calculation:

$n = n + 10\% \times n$
$n = 96 + 9,6$
$n = 106$

Thus, the minimum total sample size for this study is 106 respondents. This study uses the entire population (*Total Sampling*) that meets the Research criteria. The entire population was selected as the sample because the population is relatively small and allows for comprehensive Research (Sugiyono, 2019). Therefore, this study is expected to provide an accurate and representative picture. The initial sample size planned was 100% (127 people). However, during the Research, 8 respondents were excluded (dropouts) due to maternity leave or transfer to another facility, leaving a final sample size of 93.7% (119 people).

3.3.3 Sampling Technique

The sampling technique used in this study was *Total Sampling*, involving all members of the population who met the Research criteria. The following are some of the inclusion and exclusion criteria to ensure the suitability of respondents for the Research objectives:

A. Inclusion criteria:

1. Nurses working in the Inpatient Facility at Imanuel Hospital, Bandar Lampung.

2. Have worked for at least 6 months at the Inpatient Department of Imanuel Hospital, Bandar Lampung.
3. Willing to participate as a respondent by reading and completing the questionnaire independently (via a Google Forms link).

B. Exclusion criteria:

1. Nurses who are on leave (maternity, sick, or other leave) during the data collection period.
2. Nurses experiencing physical or mental health issues that may affect their ability to complete the questionnaire independently.
3. Nurses who have been transferred to other departments (Emergency Room, ICU, Outpatient Clinic, Laboratory, Rehabilitation).
4. Nurses who leave their jobs (resign) before completing the questionnaire.

3.4 Research variables

1. The independent variables in this study are age, gender, educational level, marital status, length of service, workload, work shift, and work stress.
2. The dependent variable in this study is nurse burnout.

3.5 Operational Definition

Table 3.2 Operational Definition

Variable	Operational Definition	Measure	Measurement Method	Measurement Results	Measurement Scale
Age	Respondents' age in years based on date of birth.	Respondent characteristics questionnaire	Respondents fill in their age in years	0 = ≥35 years 1 = <35 years	Nominal
Gender	Respondents' biological gender identity.	Respondent characteristics questionnaire	Respondents choose: "Male" or "Female".	0 = Male 1 = Female (Heriyanto et al., 2022).	Nominal
Education Level	The highest level of education completed by the respondent.	Respondent characteristics questionnaire	Respondents selected the last level of education they had completed.	0 = Nursing/Bachelor's Degree 1 = D3 Nursing (Lastari et al., 2025).	Nominal
Marital Status	Respondents' current marital status.	Respondent characteristics questionnaire	Respondents choose one of the following: "Not Married" or "Married"	0 = Not Married 1 = Married (Lastari et al., 2025).	Nominal
Length of Service	The length of time the respondent has worked as a nurse.	Respondent characteristics questionnaire	Respondents filled in how many years they had been working	0 = ≥11 years 1 = <11 years	Nominal
Workload	Nurses' perceptions of physical, mental, and temporal workload while working.	Nursalam 2015 workload questionnaire	Workload assessment using a Likert scale was then summed up and categorized into workload categories.	0 = 39-52 = light workload 1 = 26-38 = moderate workload 2 = 13-25 = heavy workload (Nursalam, 2015).	Ordinal
Work Shift	The type of work schedule followed by nurses is based on the time allocation system: morning, afternoon, or night.	Closed questions in the characteristics questionnaire: "What type of work shift *do* you currently have?"	Respondents select the shift type they usually work: morning, afternoon, or night.	0 = Morning shift (± 7:00 a.m.–2:00 p.m.) 1 = Afternoon shift (approximately 2:00 p.m.–9:00 p.m.) 2 = Night shift (± 9:00 p.m.–7:00 a.m.) (Hangkoso et al., 2023).	Nominal

Table 3.3 Operational Definitions (continued)

Variable	Operational Definition	Measurement Tool	Measurement Method	Measurement Results	Measurement Scale
Work Stress	Psychological response resulting from perceived work pressure that exceeds one's abilities or resources.	PSS-10 Questionnaire (*Perceived Stress Scale*) (10 items)	Assessment of statements using a Likert scale (0: Never to 4: Very often).	Score: 0 = Low (0–13) 1 = Moderate (14–26) 2 = High (27–40) (Cohen & Williamson, 1988).	Ordinal
Dimensions of Burnout	A state of emotional exhaustion, depersonalization, and reduced personal accomplishment due to chronic, ongoing work stress.	*Maslach* Burnout *Inventory* (MBI-HSS)	Respondents answer 22 items using the MBI-HSS frequency scale (0 = Never, 6 = Every day).	- EE 0 = ≤18 = Low 1 = 19–26 = Moderate 2 = ≥27 = High - DP 0 = ≤5 = Low 1 = 6–9 = Moderate 2 = ≥10 = High - PA 0 = ≥39 = Low 1 = 32–38 = Moderate 2 = ≤31 = High (Maslach, Jackson, and Leither, 1996).	Ordinal
Burnout	A condition of emotional exhaustion, depersonalization, and reduced personal accomplishment due to chronic, ongoing work stress.	*Maslach* Burnout *Inventory* (MBI-HSS)	Respondents answered 22 items using the MBI-HSS frequency scale (0 = Never, 6 = Every day).	0 = <11 = Low 1 = ≥11 = High	Ordinal

3.6 Research Instrument

The instrument used in this study was a closed questionnaire distributed directly to respondents *online* via Google Forms. The questionnaire was compiled based on the research variables, namely characteristic data (age,

gender, education level, marital status, length of service), workload, work shifts, work stress, and burnout. All instruments were adapted from standard questionnaires or adapted from previous studies that had been tested for validity and reliability.

1. Respondent Characteristics

   This section present demographic data on the nurses who participated in the study, including age, gender, highest level of education, marital status, length of service, and work shifts at Imanuel Hospital, Bandar Lampung. The purpose is to describe the general profile of the respondents and to provide a basis for further data analysis.

2. Workload Questionnaire

   The instrument used to measure the workload variable in this study was the nurse workload questionnaire from Nursalam (2015). This questionnaire consisted of 13 statements that measured respondents' perceptions of their workload during daily nursing activities. Each statement had four answer choices with the following Likert scale:

   1 = Never

   2 = Rarely

   3 = Often

   4 = Always

   The total score from all items will be summed up and then categorized into three levels of workload:

Table 3.4 Workload Categories

Score Interval	Workload Category
13	Heavy workload
26	Moderate workload
39	Light workload

Source: (Nursalam, 2015)

3. Work Shift Questionnaire

   The work shift instrument in this study was compiled based on the main types of working hours reported by respondents and did not measure subjective perceptions or the impacts of work shifts. Work shifts were

categorized into three groups: morning, afternoon, and night. Measurements were taken using closed questions in a questionnaire with the following categories:

1. Morning shift (± 7:00 a.m.–2:00 p.m.)
2. Afternoon shift (approximately 2:00 PM–9:00 PM)
3. Night shift (approximately 9:00 PM–7:00 AM)

These shift types were then used to group respondents in the analysis of the relationship with burnout levels. Since the collected data were factual and categorical, no Likert scale or validity and reliability tests were required for this instrument.

4. Work Stress Questionnaire

Work stress in this study was measured using the Perceived Stress Scale (PSS) developed by Cohen (1988). The PSS is a standard measurement tool designed to assess the extent to which individuals feel stress in their daily lives, including at work. This questionnaire consists of 10 items that measure individuals' perceptions of situations they considered uncontrollable, unexpected, or stressful in the past month. The scale used is Likert 0–4, with the following interpretation:

0 = Never
1 = Rarely (1-2 times)
2 = Sometimes (3-4 times)
3 = Quite often (5-6 times)
4 = Very often (more than 6 times)

The scores will be totaled and then interpreted according to the following table:

Table 3.5 Stress Category

Score Interval	Stress Level
0-13	Low
14-26	Moderate
27-40	High

Source: (Cohen, 1988)

5. Burnout Questionnaire

To measure burnout levels, the *Maslach* Burnout *Inventory-Human Services Survey* (MBI-HSS) questionnaire was used. It consists of 22 items divided into three dimensions:

1. Emotional Exhaustion (EE) – 9 items
2. Depersonalization (DP) – 5 items
3. Personal Accomplishment (PA) – 8 items

Respondents answered using a 0-6 Likert scale:

0 = Never
1 = Several times a year or less
2 = Once a month
3 = Several times a month
4 = Once a week
5 = Several times a week
6 = Every day

Burnout assessment is conducted by summing the scores for each dimension according to the *cut*-off categories determined by the MBI-HSS, as shown in the following table:

Table 3.6 Burnout Dimension Categories

Dimension	Number of Items	Low Category	Moderate Category	High Category
Emotional Exhaustion (EE)	9	≤18	19-26	≥27
Depersonalization (DP)	5	≤5	6-9	≥13
Personal Accomplishment (PA)	8	≥39	32	≤33

Source: (Maslach et al., 1996)

Each dimension of burnout in the Maslach Burnout Inventory (MBI-HSS) questionnaire is measured using specific items. The Emotional Exhaustion (EE) dimension is measured using items 1, 2, 3, 4, 5, 6, 7, 8, and 9. The Depersonalization (DP) dimension is measured using items 10, 11, 12, 13, and 14. Meanwhile, the Personal Accomplishment (PA) dimension is measured using items 15, 16, 17, 18, 19, 20, 21, and 22.

Note:
The higher the EE and DP scores → the higher the burnout level.
The lower the PA score → the higher the level of burnout.

The final burnout scores were divided into two groups based on the median. This categorization is based on the results of the Kolmogorov–Smirnov test, which shows that the distribution of burnout scores does not meet the assumption of normality (Sugiyono, 2019). There is no universally agreed-upon cut-off point for assessing overall burnout levels, so a median-based approach is considered most appropriate for analysis (Astuti et al., 2022; Maslach et al., 1996).

Table 3.7 Burnout Categories

Variable	Low	High
Burnout (*Median* ± *IQR* = 19 ± 11)	<11	≥11

3.7 Validity and Reliability Test

The instruments used in this study were adapted from standard questionnaires and those used in previous studies, for which validity and reliability had been established. Therefore, in this study, no retesting of validity and reliability was conducted; instead, reference was made to the test results from previous relevant studies with similar populations. The details of the validity and reliability of each instrument are as follows:

1. Workload Questionnaire: The researcher used Nursalam's (2015) workload questionnaire to measure nurses' workload, with validity test results indicating a value of 0.420-0.833, which exceeds 0.361; the questionnaire was deemed valid. The reliability test yielded a Cronbach's Alpha of 0.834 (>0.6), indicating the questionnaire was reliable.
2. Work Stress Questionnaire (PSS-10): The researcher used the Indonesian version of the PSS-10 questionnaire by Purnami & Sawitri (2019), with validity coefficients ranging from 0.69 to 0.82, indicating the questionnaire was valid. The reliability test yielded a Cronbach's Alpha of 0.8, which exceeds 0.6, indicating that the questionnaire is reliable.

3. Burnout Questionnaire (MBI-HSS): The researcher used the Indonesian version of the MBI-HSS questionnaire, which showed a validity test result (r count > r table) of 0.361 and a Cronbach's Alpha value of 0.941, indicating validity and reliability (Hardi, 2021).

Thus, all questionnaires used in this study were deemed valid, reliable and suitable for use without retesting, as they were appropriate for the context and characteristics of similar populations.

3.8 Data Collection

Data collection in this study used primary data obtained directly from respondents through the distribution of questionnaires via Google Forms, compiled based on the research variables: respondent characteristics, workload, work shifts, work stress, and burnout. These questionnaires were given to inpatient nurses at Imanuel Hospital, Bandar Lampung, who met the inclusion criteria and were willing to participate in the study.

All data were collected using the self-report method, in which respondents independently completed the questionnaire via Google Forms based on their perceptions and experiences of the working conditions they faced. Before filling out the questionnaire, respondents were first explained the research objectives, data confidentiality, and respondent rights, and were asked to voluntarily provide informed consent, which was available on Google Forms.

3.9 Data Processing

Data processing in this study was carried out in several stages to ensure the questionnaire data could be interpreted accurately. Each stage was carried out systematically to ensure that the data used was valid and ready for further analysis. The data processing stages included:

1. Data editing

   The first step is editing, which involves checking the collected questionnaires to ensure the completeness and consistency of the answers.

Incomplete questionnaires or those with duplicate entries will be separated to determine whether they can still be used or need to be eliminated.

2. Data transformation (Coding)

   After the data has been edited, the next step is coding. Qualitative responses from the questionnaire will be assigned numerical codes for entry into a computer system. For example, in a Likert scale, responses such as "Always" are coded 4, and so on, with "Never" coded 1.

3. Data Processing and Analysis

   The collected data then goes through data processing and analysis. The initial stage of data processing involves data entry, entering coded data into statistical software to facilitate digital processing. After all data has been entered, a data cleaning process is performed to ensure data quality, including checking for input errors, duplicate entries, and inappropriate values. The cleaned data is then tabulated to compile frequency distributions, mean values, and characteristics of each variable as a basis for statistical analysis.

   Next, the data were analyzed in accordance with the research objectives. Univariate analysis was performed to describe the distribution and characteristics of the respondents and research variables. Bivariate analysis was used to examine the relationship between independent and dependent variables, while multivariate analysis was used to identify the most dominant factors associated with burnout.

3.10 Research Flow

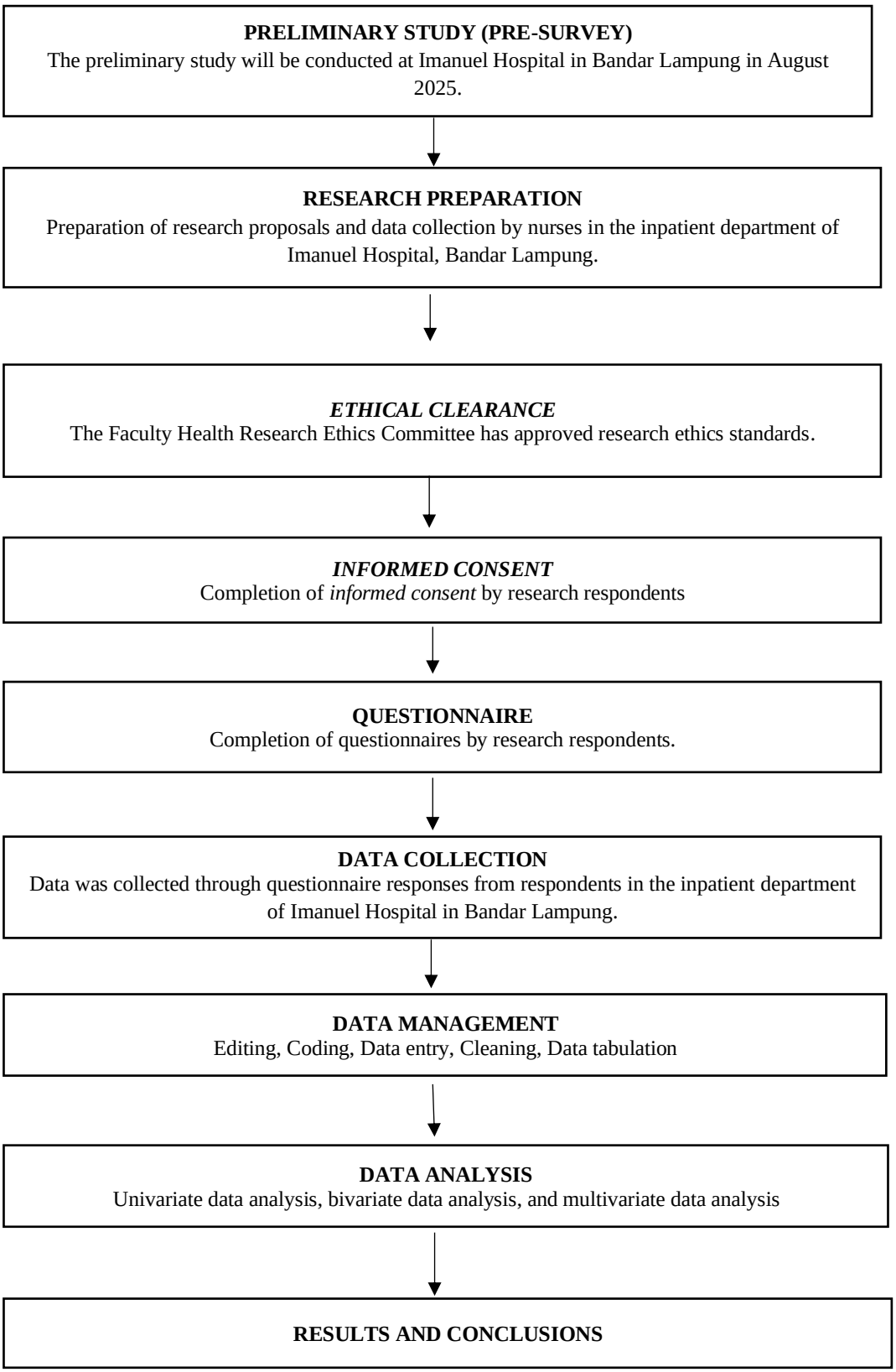

Figure 3.1 Research Flow

3.11 Research Data Analysis

Data analysis was conducted to answer the research questions and test the established hypotheses. This study used a quantitative approach with statistical data analysis techniques through several stages, namely:

1. Univariate analysis

   Used to describe the characteristics of respondents and the frequency distribution of each research variable, both independent variables (age, gender, education level, marital status, length of service, workload, work shift, work stress) and dependent variables (burnout). Data will be presented in the form of frequency distribution tables and percentages.

2. Bivariate Analysis

   The bivariate analysis in this study aims to determine the relationship between each independent variable (age, gender, education level, marital status, length of service, workload, work shift, and work stress) and the dependent variable (burnout) individually. All variables in this study are categorical (nominal or ordinal data that have been categorized), so the statistical test used is the Chi-square test. The Chi-square test is used to assess the relationship between two categorical variables at the $p < 0.05$ significance level. If any cells in the contingency table have an expected count < 5, the categorization will be simplified. The results of the bivariate analysis are presented in a frequency distribution table along with the *p-value*; the relationship is considered statistically significant if $p < 0.05$.

3. Multivariate Analysis

   Multivariate analysis is used to determine the simultaneous relationships between independent variables (age, marital status, length of service, work shift, and work stress) and the dependent variable (burnout). The burnout variable is dichotomized into low and high levels, so the statistical test used is a multiple binary logistic regression. The analysis results are presented in the form of regression coefficients (β), odds ratios (OR), 95% confidence intervals (CI), and *p-value*s. The relationship is considered significant if the *p-value* is < 0.05.

3.12 Research Ethics

Ethical approval was obtained from the Ethics Committee of Imanuel Hospital, Bandar Lampung, with registration number 1819/SDM/RSIM/IX/2025. Before data collection, respondents were informed about the research-informed consent.

CHAPTER V
CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Based on the results of research on factors related to burnout among healthcare workers in the Inpatient Department of Imanuel Hospital, Bandar Lampung, the following conclusions were drawn:

1. Most nurses at the Inpatient Department of Imanuel Hospital, Bandar Lampung, are aged ≥ 35 years, female, have a bachelor's degree, are married, have worked for ≥ 11 years, have a heavy workload, work morning and afternoon shifts, and have low levels of work stress.
2. Most nurses have low levels of burnout in all dimensions, namely emotional exhaustion, Depersonalization, and personal accomplishment.
3. There is no relationship between age, gender, education level, or length of service with burnout. However, there is a relationship between marital status and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
4. There is no relationship between workload and burnout among nurses at the Inpatient Department of Imanuel Hospital, Bandar Lampung.
5. There was no relationship between work shifts and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
6. There is a relationship between work stress and burnout among nurses in the Inpatient Department of Imanuel Hospital, Bandar Lampung.
7. Based on the multivariate analysis, no variables are associated with burnout when tested simultaneously.

5.2 Recommendations

5.2.1 For Nurses

Nurses are advised to maintain and develop healthy coping strategies to manage work demands in the Inpatient department, such as making optimal use of break times, engaging in enjoyable activities or hobbies outside working hours, and maintaining a balance between work and personal life. These efforts can help nurses manage work pressure sustainably and maintain psychological well-being. Nurses are encouraged to continueimprovinge their sense of Personal Accomplishment through competency development and active involvement in professional activities, so that motivation and job satisfaction are maintained even in high-workload environments.

5.2.2 For Hospital Management

The management of Imanuel Hospital, Bandar Lampung, is advised to maintain the work system and organizational environment that has supported low levels of nurse burnout across burnout dimensions. Efforts to monitor work stress and burnout can be carried out periodically as a preventive measure, especially given that some nurses fall into the high-burnout category based on the median total score. In addition, management can continue to optimize workload arrangements, shift systems proportionally, and strengthen support from superiors and teamwork to prevent future increase in burnout in the future.

5.2.1 For Future Researchers

Further research is recommended using a comparative research design to compare burnout levels across dimensions and total scores between groups of nurses. In addition, longitudinal research with a cohort design can be conducted to observe changes in burnout levels over time. Further research could also include organizational and psychosocial variables, such as organizational support, job satisfaction, and coping strategies, to obtain a more comprehensive picture of the factors associated with burnout in nurses.

5.2.1 For Academics and Educational Institutions

Academics and educational institutions are expected to use the results of this study as a reference in developing learning on occupational health and mental health for health workers. Emphasis on understanding burnout as a gradual condition with mild to severe symptoms needs to be strengthened during the education period. In addition, institutions are expected to encourage research and academic activities that focus on the prevention and maintenance of nurses' mental health in the work environment.

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