

BURNOUT LEVEL AND PREDICTORS FOR
BIOPSYCHOSOCIAL, SPIRITUAL AND
OCCUPATIONAL FACTORS AMONG CRITICAL CARE
NURSES AT A TERTIARY HOSPITAL IN
JOHOR BAHRU

BY

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A dissertation submitted in fulfilment of the requirement for
the degree of Master of Nursing Science.

Kulliyyah of Nursing
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ABSTRACT

Burnout has been getting a lot of national and global interest recently as it is a condition that affects workers in a wide variety of professions, including nurses in the healthcare sector. Critical care nurses are considered vulnerable to burnout compared to nurses in other areas. Burnout is a threat to them and can be related to many factors. Therefore, this study aims to determine the burnout level and the predictors of burnout among critical care nurses. A quantitative, cross-sectional study was conducted among 152 critical care nurses in a tertiary hospital in Johor Bahru. A set of questionnaires containing biopsychosocial characteristics, spiritual characteristics, occupational characteristics, and the Maslach Burnout Inventory was used to identify the level of burnout and the associated factors. Data analysis was done through the Chi-square test for bivariate analysis to identify the associated factors and it was further extended to multiple logistic regression to determine the factors that could predict the burnout level. The findings showed that 25.7% of the critical care nurses had a high level of emotional exhaustion, 16.4% had a high level of depersonalization, and 34.9% had a low level of personal accomplishment. The biopsychosocial characteristics, which consisted of the amount of stress in life, anxiety disorder, supervisor support, sense of belonging to the workplace, and the number of children, were significantly associated with the level of burnout. For spiritual characteristics, it was found that attending religious activity and incorporating religion into other dealings in life were associated with the level of burnout. Occupational characteristics of nurse-to-patient ratio, frequency of overtime per week, and self-rated job satisfaction were associated with the level of burnout. The predictors contributing to emotional exhaustion of burnout among critical care nurses were determined as follows: experiencing a stressful life (OR=4.231, 95% CI=0.702-2.182; $p<0.001$), working in ED (OR=0.001; 95% CI=18.185-15.616; $p<0.001$), nurse-to-patient ratio of 1:1 (OR=0.001; 95% CI=20.075-13.849; $p<0.001$) and nurse-to-patient ratio 1:2 (OR=0.001; 95% CI=19.866-14.041; $p<0.001$), and unsatisfied with the job (OR=11.372; 95% CI=0.974-3.889; $p<0.001$). Meanwhile, the predictor factor of personal accomplishment is having a strong sense of belonging in the workplace (OR=0.244; 95% CI=2.563-0.257; $p<0.017$) and the predictor factors for depersonalization are working less than 5 hours of overtime per week (OR=0.046; 95% CI=5.251-0.913; $p<0.005$) and unsatisfied with the job (OR=3.226; 95% CI=2.230-0.113; $p<0.030$). The critical care nurses experienced average to high levels of burnout. Unlike biopsychosocial and occupational characteristics, this study demonstrated that no spiritual characteristics were found to be a predictor. Promoting a healthy workplace requires preventive measures and intervention programs by the administrator to continually improve the nurses' health, safety, and well-being, ultimately leading to patients' safety.

Keywords: burnout, emotional exhaustion, depersonalization, personal accomplishment, critical care nurse.

ملخص البحث

لقد حظي الاحتراق النفسي باهتمام كبير على المستوى الوطني والعالمي مؤخرًا حيث إنه يؤثر على الموظفين في مجموعة متنوعة من العمل، بما يتضمن الممرضين في قطاع الرعاية الصحية. ومن بين هؤلاء، يعتبر ممرضو الرعاية الحرجة عرضة للاحتراق النفسي مقارنة بالممرضين في المجالات الأخرى. ويشكل الاحتراق النفسي تهديدًا لهم ويمكن أن يكون مرتبطًا بالعديد من العوامل. لذلك، يهدف هذا البحث إلى تحديد مستوى الاحتراق النفسي لدى ممرضي الرعاية الحرجة والأسباب المحتملة لهذا الاضطراب. أُجريت هذه الدراسة بطريقة كمية ومقطعية بين 152 ممرضًا وممرضة في قطاع رعاية الحرجة عبر المستشفيات الواقعة بجوهور باهرو. وتم استخدام مجموعة من الاستبيانات التي تحتوي على الخصائص البيولوجية النفسية الاجتماعية، والخصائص الروحية، والخصائص المهنية، ومقياس الاحتراق النفسي عند Maslach وذلك من أجل تحديد الاحتراق النفسي والعوامل المرتبطة به. وقد تم تحليل البيانات من خلال اختبار مربع كاي للتحليل ثنائي المتغير لتحديد العوامل المرتبطة بالاحتراق النفسي وتحليل الانحدار اللوجستي متعدد الاستجابة لتعيين العوامل التي يمكن أن تكون سببًا رئيسيًا في ارتفاع مستوى الاحتراق النفسي. أظهرت النتائج في هذه الدراسة بأن 25.7% من ممرضي الرعاية الحرجة يعانون من مستوى عالٍ من الإرهاق العاطفي، و16.4% لديهم مستوى عالٍ من تبدد الشخصية، و34.9% لديهم مستوى منخفض من الإنجاز الشخصي. وارتبطت الخصائص البيولوجية النفسية الاجتماعية التي تتمثل في مقدار التوتر في الحياة، واضطراب القلق، ودعم المشرف، والشعور بالانتماء إلى مكان العمل، وعدد الأطفال ارتباطًا كبيرًا بمستوى الاحتراق النفسي. أما بالنسبة للخصائص الروحية، فقد تبينَت الدراسة بأن هناك علاقة بين العامل الديني والمشاركة في الأنشطة الدينية وبين مستوى الاحتراق النفسي. وارتبطت الخصائص المهنية بنسبة الممرضين على المرضى، وساعات العمل الإضافي في الأسبوع، والرضا الوظيفي المقدر ذاتيًا بمستوى الاحتراق النفسي. وتم تحديد الأسباب التي أدت إلى الإرهاق العاطفي لدى ممرضي الرعاية الحرجة على النحو الآتي: ضغوط الحياة (OR = 4.231، 95% CI = 0.702-2.182؛ $p < 0.001$)، والعمل في قسم الطوارئ (OR = 0.001، 95% CI = 15.616-18.185؛ $p < 0.001$)، ونسبة الممرضين المرضى 1:1 (OR=0.001، 95% CI=20.075-13.849؛ $p < 0.001$) ونسبة الممرضين على المرضى 1:2 (OR= 0.001، 95% CI = 19.866-14.041؛ $P < 0.001$)، وعدم الرضى بالوظيفة (OR = 11.372، 95% CI = 0.974-3.889؛ $P < 0.001$). أما السبب الذي يتعلق بعامل الإنجاز الشخصي فهو الشعور بالانتماء إلى مكان العمل (OR=0.244؛ $p < 0.017$ ، 95% CI=2.563-0.257؛ $p < 0.017$)، أما الأسباب المتعلقة بعامل تبدد الشخصية فهي

ساعات العمل الإضافي التي أقل من 5 ساعات في الأسبوع ($OR = 0.046$ ؛ $CI = 95\%$)
 $OR = 3.226$ ؛ $CI = 95\%$ ($P < 0.005$)، وعدم الرضى بالوظيفة ($OR = 3.226$ ؛ $CI = 95\%$)
 $OR = 2.230$ ؛ $CI = 95\%$ ($P < 0.030$). فقد عان ممرضو الرعاية الحرجة من مستوى متوسط إلى مستوى عال من الاحتراق النفسي. وأظهرت النتائج بأنّ الخصائص الروحية لم تكن من الأسباب المؤدية إلى الاحتراق النفسي بالمقارنة إلى العوامل البيولوجية النفسية الاجتماعية والعوامل المهنية. لذلك، فإن تعزيز بيئة عملية صحية تتطلب إلى إجراءات وقائية وبرامج التدخل من قبل المسؤولين، وذلك من أجل التحسين المستمر لصحة الممرضين وسلامتهم ورفاهيتهم مما يؤدي إلى سلامة المرضى.

الكلمات المفتاحية: الاحتراق النفسي، الإرهاق العاطفي، تبدد الشخصية، الإنجاز الشخصي، ممرضة الرعاية الحرجة.



APPROVAL PAGE

I certify that I have supervised and read this study and that in my opinion, it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Master of Nursing Science.



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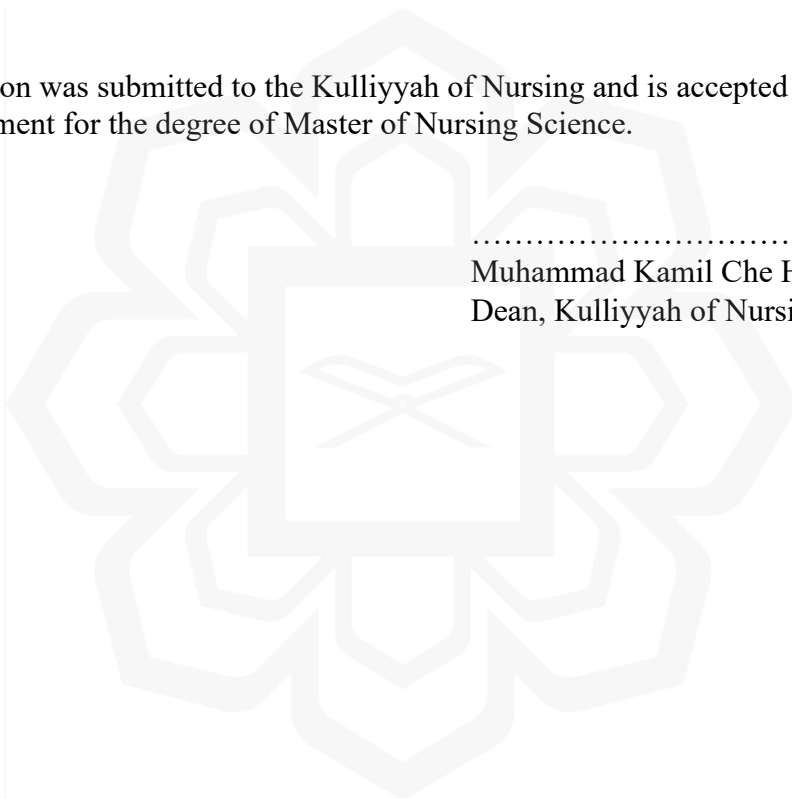
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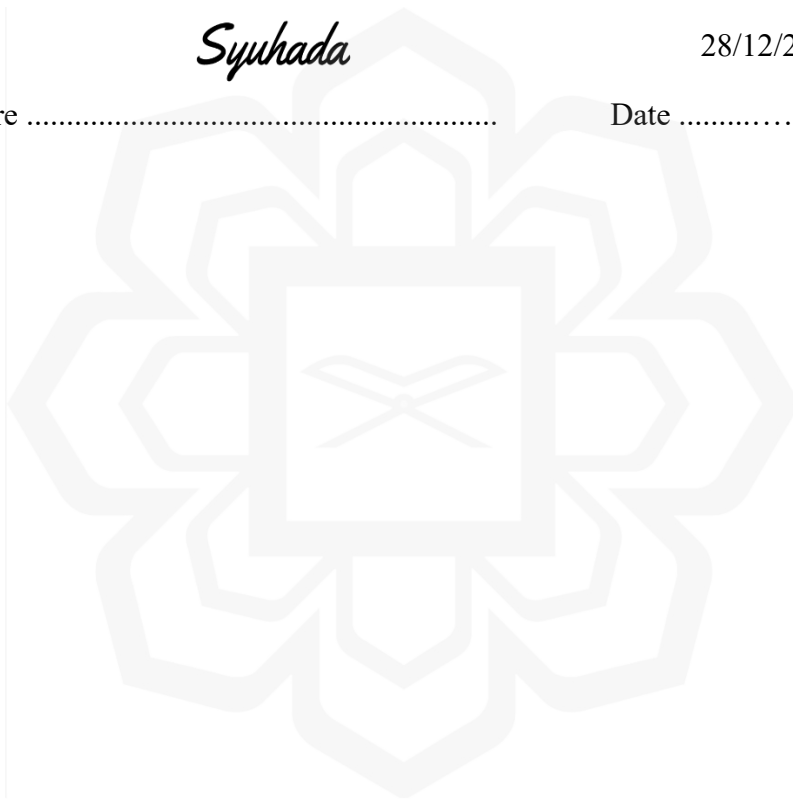


DECLARATION

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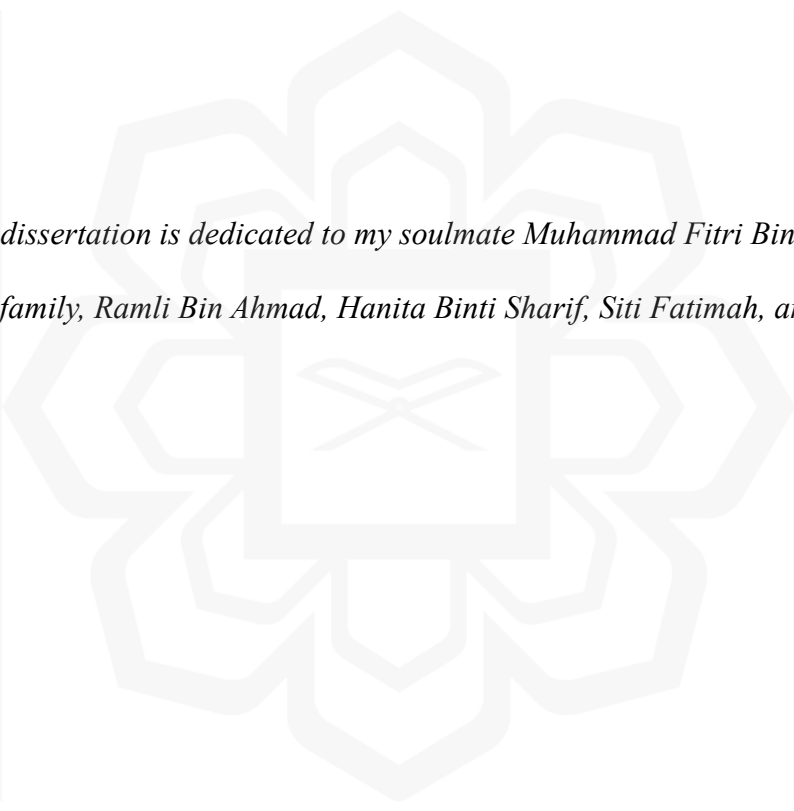
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This dissertation is dedicated to my soulmate Muhammad Fitri Bin Kosnan, my beloved family, Ramli Bin Ahmad, Hanita Binti Sharif, Siti Fatimah, and Mohd Iqram.

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ABBREVIATIONS AND DEFINITIONS

CCU	Coronary Care Unit
CRC	Clinical Research Centre
DP	Depersonalization
DUREL	The Duke University Religion Index
ED	Emergency Department
EE	Emotional Exhaustion
HDU	High Dependency Unit
HSA	Hospital Sultanah Aminah
HSI	Hospital Sultan Ismail
ICD	International Classification of Diseases
ICU	Intensive Care Unit
IREC	International Islamic University Malaysia Research Ethics Committee
KNPGRC	Kulliyah of the Nursing Postgraduate and Research Committee
MCO	Movement Control Order
MOH	Ministry of Health
MBI-HSS	Maslach Burnout Inventory-Human Service Survey
MREC	Medical Research & Ethics Committee, MOH
NICU	Neonatal Intensive Care Unit
NIOSH	National Institute of Occupational Safety and Health
NMRR	National Medical Research Register
PA	Personal Accomplishment
PICU	Paediatric Intensive Care Units
ProQOL R-IV	Professional Quality of Life Scale
SPSS	Statistical Package for Social Science
WHO	World Health Organization
$\bar{X}$	Mean

CHAPTER ONE

INTRODUCTION

1.0 INTRODUCTION

This chapter presents a broad overview of the study on burnout levels among critical care nurses and its contributing components. It also outlines the research background, problem statement, research questions, research aims, research hypotheses, and the importance of the study.

1.1 BACKGROUND OF THE STUDY

A healthy workplace is one in which employees and managers work together to continuously enhance everyone's health, safety, and well-being while maintaining the company's productivity (World Health Organisation, 2010). A worker's physical, mental, and spiritual conditions are part of their health and safety. According to several studies, a favourable opinion of the working environment is linked to professional commitment and work engagement, whereas a negative perception is linked to burnout, which is a state of resource exhaustion (Ahola et al., 2009; Rasool et al., 2021).

The Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) does not list burnout as a disorder (American Psychiatric Association, 2013). While many nations do not explicitly recognise mental tiredness or burnout as a medical disease, Sweden has accepted the 10th Edition of the International Classification of Diseases (ICD-10) as a valid diagnosis for sick leave since 2003 (Friberg, 2009). According to the World Health Organisation (2019), burnout is included in the 11th Revision of the International Classification Diseases (ICD-11) and is seen as an occupational phenomenon rather than a disease that develops due to ill-managed persistent working stress.

Occupational stress disorder must be addressed due to its profound organisational impact in Malaysia. Writing in the early history of burnout, Freudenberg (1974) described it as a state of mental and physical tiredness caused by one's professional life. The term "burnout" was first used in the 1970s to describe and discuss persons who work in human services, such as healthcare, social work, psychotherapy, legal services, and law enforcement (Schaufeli et al., 2009). The National Institute of Occupational Safety and Health (NIOSH) Malaysia estimated that the nation spent RM43.6 trillion on mental illnesses, including burnout, in 2010 and that the cost will increase to RM99.9 billion in 2030 due to a threefold increase in mental health issues among Malaysians over the past 20 years (Tangarasan, 2019).

Burnout is a psychiatric illness developed as a protracted reaction to ongoing interpersonal pressures at work. Its three main manifestations are extreme weariness (emotional exhaustion), cynicism and disengagement from one's work (depersonalization), and a sense of inefficiency and lack of accomplishment (reduced personal accomplishment) (Maslach & Leiter, 2016a). Burnout typically manifests more mentally than physically. Emotional exhaustion is the central quality and the most obvious manifestation of burnout, which refers to the feeling of being overextended and depleted of one's emotional and physical resources (Maslach et al., 2001). Depersonalization is a negative, callous, or excessively detached response to various aspects of the job (Maslach et al., 2001). Meanwhile, reduced personal accomplishment is a decline in one's feeling of competence and successful achievement in one's work with people (Maslach et al., 2001). The feeling of helplessness, hopelessness, emotional tiredness, detachment, loneliness, irritation, aggravation, trapped, failure, despair, cynicism, and indifference can all be part of burnout (Circenis & Millere, 2011).

Burnout has been a problem that affects people working in a wide range of occupations, including healthcare, and is currently receiving a lot of attention on national and international levels. In the healthcare system, dealing with difficult, complex situations is frequent which puts many specialists under stress (Teixeira et al., 2013). Similarly, in a hospital context, dealing with people increases the risk of burnout, especially for nurses and other critical care professionals. Intensive care units (ICUs), emergency departments (EDs), high dependency units (HDUs), neonatal intensive care units (NICUs), paediatric intensive care units (PICUs), and coronary care units (CCUs) are typical locations for critical care areas in most tertiary hospitals.

Critical care nurses are thought to have a higher level of stress and burnout than other units in a hospital (Guntupalli et al., 2014). Burnout among critical care nurses is linked to various circumstances and it has been the subject of wide research. Among the contributing factors include physical factors, social life, and workplace atmosphere. Excessive workload and overtime are commonly reported by professionals who work in healthcare systems (Chuang et al., 2016). However, Manzano-García and Ayala (2017) believe that burnout is not exclusively caused by issues relating to the workplace. Lifestyle choices and personality qualities may also contribute to the development of burnout. Meanwhile, personality characteristics may also be predictive of burnout because personality traits may be associated with problem-solving and coping strategies that relate to how well an individual reacts to stressful situations in his or her workplace (Adriaenssens et al., 2015).

It is common knowledge that critical care nurses treat patients who are critically ill or face life-threatening situations and need immediate attention. Burnout can develop while caring for seriously ill patients and end-of-life ethical decision-making impacts its prevalence (Teixeira et al., 2013). Additionally, Favrod et al. (2018) found that one of the reasons critical care nurses are thought to be particularly vulnerable to burnout compared to healthcare professionals in other areas is that they frequently deal with ethical dilemmas regarding patient care management, are frequently confronted with patients dying, and are afraid of medical errors that can have serious consequences.

The chronicity of burnout can eventually provoke deep emotional reactions that, without intervention or guidance aimed at its prevention, can cause damage to the physical and psychological integrity of health workers (Chuang et al., 2016; Díaz Tobajas et al., 2017). Furthermore, individuals experiencing severe burnout were also reported to exhibit an elevated level of turnover intention (Hamdan & Hamra, 2017). Since burnout has been classified as an occupational phenomenon, thus, prevention and implementation of coping strategies are important. Therefore, it will be interesting to review burnout in the critical care area.

1.2 PROBLEM STATEMENT

Critical care nurses are trained to deal with patients who are critically sick or sustain injuries that require immediate, continuous, and close observation. Conversely, they must adjust to a hectic and demanding setting. Burnout may result from the consistently rising number and percentage of patients in high-workload crucial regions, hence aggravating the condition.

According to the Malaysian National Clinical Research Centre (2015), there were 789,727 and 793,079 emergency visits in 2012 and 2013, respectively. Direct admissions to ICU from ED also increased almost three-fold over the past ten years from 10% in 2005 to 33% in 2015, with 75% of patients receiving invasive ventilation with an average duration of 4.7 days. A statistical report by Tai et al. (2018) further revealed that there were only 0.6 ICU beds for every 1,000 people across the 56 hospitals under the Ministry of Health (MOH) of Malaysia as of 31 December 2018.

According to a study conducted in Iran's Alzahra Hospital in Isfahan by Azizkhani et al. (2014), higher workload and stress in the critical area led to a higher percentage of occupational burnout among nurses working in the emergency department and intensive care unit than those in normal wards. On the other hand, a study by Lin et al. (2009) in a public teaching hospital in Beijing found no significant differences in nurse burnout across clinical working areas. While Harkin and Melby (2014) indicated that burnout was common among the sampled nurses from a regional general hospital in the Republic of Ireland, no statistically significant variations were found between the working areas in terms of the degrees of burnout.

Meanwhile, various studies conducted in Malaysia have shown that the nursing profession also experienced a high burnout rate. Results from a study on burnout among nurses in the maternity and medical wards of hospitals in Malaysia's northern region revealed that 25.2% of nurses suffered from occupational burnout linked to role and workload overload (Jasmani & Abdul Jumaat, 2015a). Meanwhile, Zaidah and Gim (2015), in their study of 40 nurses at Hospital Raja Perempuan Zainab II Kota Bharu, Kelantan, found that while burnout did occur among nurses, the prevalence was still low. This is presumably because the researcher only included staff nurses who had been employed for more than two years and only 40 nurses were selected, which may have resulted in a limited number of findings.

A recent study by Permarupan et al. (2020) involved 432 nurses from Selangor and Kuala Lumpur to establish a link between burnout and work-life balance. While the study reported no data on the occurrence of burnout, it was found that nurses experiencing burnout had linked it to factors like fair and adequate pay, workplace structure, safe and healthy working conditions, social integration within the workplace, and the social relevance of work-life. A latter study among nurses caring for children in Hospital Universiti Sains Malaysia showed a burnout prevalence of 28.7% (Fatimah et al., 2022).

According to a systematic study by Chuang et al. (2016), critical care nurses in 18 countries showed a high level of burnout, with prevalence rates ranging from 6% to 47% with sociodemographic characteristics (age, sex, marital status, and personality traits) and occupational characteristics were listed as the risk factors (work experience, work environment, workload and shift work, ethical issues, and end-of-life decision-making). However, recent studies in Malaysia indicated that occupational and psychological characteristics of nurses were the only risk factors for burnout rather than sociodemographic traits (Jasmani & Abdul Jumaat, 2015; Zaidah & Gim, 2015; Huda & Siti Hajar, 2018).

The incidence of burnout among nurses in Malaysia may be influenced by the fact that the level of burnout by working area and its risk variables were not precisely characterised and may also be a factor in the findings reported by other studies. Previous research has not focused on studying critical care nurses or comparing burnout level among critical care nurses according to the working environment. Since the intensive care unit, paediatric intensive care unit, coronary care unit, and emergency department are all under the purview of critical care disciplines, this study aimed to examine the burnout level of critical care nurses in Malaysia and compare it between the four units/departments.

1.3 RESEARCH QUESTIONS

The research questions are as follows:

- 1) What is the level of burnout among critical care nurses?
- 2) What are the associated biopsychosocial, spiritual, and occupational burnout factors among critical care nurses?
- 3) What are the biopsychosocial, spiritual, and occupational predictor factors of burnout among critical care nurses?

1.4 OBJECTIVES OF THE STUDY

1.4.1 General Objective

To determine the level of burnout among critical care nurses in tertiary hospitals in Johor Bahru and its predicting factors.

1.4.2 Specific Objectives

- 1) To identify the level of burnout among critical area nurses.
- 2) To determine the association between biopsychosocial, spiritual, and occupational factors with burnout among critical care nurses.
- 3) To investigate the biopsychosocial, spiritual, and occupational predictors of burnout among critical care nurses.

1.5 HYPOTHESIS

1.5.1 Null Hypothesis, H_0 :

- 1) There is no significant difference in the level of burnout among critical care nurses.
- 2) There is no significant association between biopsychosocial and spiritual characteristics with the level of burnout.

- 3) There is no significant association between occupational characteristics with the level of burnout.

1.5.2 Alternative Hypothesis, H_A:

- 1) There is a significant difference in the level of burnout among critical care nurses.
- 2) There is a significant association between biopsychosocial and spiritual characteristics with the level of burnout.
- 3) There is a significant association between occupational characteristics with the level of burnout.

1.6 SIGNIFICANCE OF THE STUDY

Burnout is known to have an impact on a nurse's physical and emotional health (Laschinger & Grau, 2012), job satisfaction (Huda & Siti Hajar, 2018), patient care, and healthcare services (Padilha et al., 2017). Nurses are frequently exposed to emotional situations in a critical care setting as they work mainly with sick and ill patients. According to the literature, it is unclear whether burnout is a big issue for nurses, particularly in the Malaysian healthcare system.

There are limited studies on factors influencing nurses' burnout or comparing burnout across different workplaces, particularly in critical fields in Malaysia. This study was motivated by the need to investigate the contributing factors to critical care nurses' exhaustion and to emphasise the effects of their biopsychosocial, spiritual, focus, and occupational characteristics on burnout. The results can highlight important discussions that portray a truthful picture of the current situation. This can empower healthcare administrators and provide a thorough understanding of occupational health issues related to the workplace, such as burnout among critical care nurses, to improve the standard of care provided to patients.

1.7 OPERATIONAL DEFINITIONS

Burnout. State of emotional, physical, and mental exhaustion caused by excessive and prolonged stress. In this study, burnout was measured using the Maslach Burnout Inventory - Human Service Survey (MBI-HSS) developed by Maslach and Jackson (1981), which is a 22-item scale with three subscales: emotional exhaustion, depersonalization, and personal accomplishment (Maslach & Leiter, 2016a).

Biological factors. Individual health-related information includes genetic, medical problems, disease, and history of physical trauma or infection (Glenn, 2019). In this study, biological factors included age, gender, race, medical illness, physical activity status, and health status level.

Psychological factors. Psychological is a component of mental and personality well-being such as emotion, thoughts, or behaviours (Koenig, 2018). In this study, psychological factors were determined by feelings of stress in day-to-day life, mood disorder, anxiety disorder, and mental health status.

Social factors. Social and environmental information related to relationships, interactions, culture, and economic status that shape the conditions of daily life (Honjo, 2004). In this study, social factors included education level, marital status, number of children, sense of belonging to workplace status, and supervisor support status.

Spiritual factor. Expression of searching for ultimate meaning, purpose, and significance from formal religions or traditional faiths (Koenig, 2009). In this study, spiritual factors were measured using the Duke University Religion Index (DUREL) developed by Koenig and Büssing (2010), which contained 5 items to evaluate the religious aspects of an individual.

Occupational factors. Assessment of a specific physical job activity and working environment (Huang et al., 2002). In this study, occupational factors included working unit, working experience, current nursing position, working schedule, nurse-to-patient ratio, working hours per week, number of overtime per week, and self-declared job satisfaction.

Critical care units. The specialised areas in the healthcare setting where nurses care for patients with life-threatening situations who require acute, comprehensive care and constant monitoring (Wunsch et al., 2008). These areas are the emergency department

(ED), intensive care unit (ICU), coronary care unit (CCU), neonatal intensive care unit (NICU), paediatric intensive care unit (PICU), and operation theatre (OT). In this study, critical care units referred to ED, ICU, NICU, and CCU.



CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

Burnout does not happen overnight. Maslach et al. (2001) stated that burnout is a protracted response to persistent emotional and interpersonal pressures at work (PA). It is defined by three elements - emotional exhaustion (EE), depersonalization (DP), and lower personal accomplishment. The exhaustion element of burnout comprises feeling worn out, losing energy, depleted, debilitated, and fatigued. In the meantime, cynicism, originally known as depersonalization, is defined as having a poor or unsuitable attitude towards clients, being irritable, losing one's idealistic outlook, and withdrawing. Lastly, the inefficacy element, referred to as lower personal accomplishment, constitutes diminished productivity or capability, low morale, and an inability to cope (Maslach & Leiter, 2016a).

Burnout can also be identified when a worker experiences a significant disconnect between their input and expected output, between their efforts and rewards, and eventually a sense of insignificance (Farber, 1990). Furthermore, Demerouti et al. (2001) identified two mechanisms that lead to the emergence of burnout. The first process relates to job demands, resulting in exhaustion due to constant overexertion. A shortage of employment resources resulted in the second process, which further promotes disengagement from work. Even though individual factors are less important in explaining the development of burnout than occupational characteristics, they do play a role (Korunka et al., 2010).

Burnout is inevitable regardless of occupation or employment level. In this light, everyone is susceptible to it, even those who show no signs of burnout. Consequently, this chapter will help readers to better comprehend this study by examining earlier research on burnout, contrasting it with the most recent findings on its characteristics, and determining its predictors. It includes search techniques, a summary of the findings, and a literature review on nursing burnout prevalence and risk factors.

2.1 SEARCH STRATEGIES AND PROCESS

The search strategy's objectives were to locate published and unpublished research and keep looking for studies that concentrated on the targeted topic. Literature review was utilised in this study to find studies that give evidence about nurse burnout, particularly among critical care nurses.

There were limits applied during the search process:

1. Free-text English language articles published between 2010 and 2022.
2. Database/Search engines: Newcastle University Databases, Science Direct, Wiley Online Library, PubMed, and Google Scholar.
3. Respondents of the articles must be critical care nurses.
4. Must have burnout and associated factors related to burnout as the outcome.

Finding keywords from the topic's generated research question was the first step in exploring the literature. The researcher discovered a few keywords and synonyms using the SPICE (Setting, Perspective, Interest/Intervention, Comparison, and Evaluation) framework (Table 2.1). The results for each category were combined using the Boolean terms "AND" or "OR" to narrow the search results.

Table 2.1: SPICE framework

KEYWORDS	DEFINITION	MAIN KEYWORD	ALTERNATIVE KEYWORDS
SETTING	In which context are you addressing the question?	Critical care unit	Intensive care Unit / ICU / Emergency / ED / Coronary Care Unit / CCU / Neonatal ICU / NICU / Paediatric ICU / PICU
PERSPECTIVE	Who are the respondents?	Nurse	Nurses / Nursing / ICU Nurse / Emergency nurse / Critical care nurse
INTEREST / INTERVENTION	What is being done to/for them?	Burnout	Occupational burnout / professional burnout
COMPARISON	What is your alternative?	None	Nil
EVALUATION	How will you measure whether the intervention has succeeded?	Factor	Predictor

2.2 OVERVIEW OF THE FINDINGS

The earlier identified keywords were used to search the literature, and the results will be further explored in the next section. The literary works were divided into two categories:

- 1) identifying extant literature
- 2) seeking additional input when the data collection begins

The essential elements that contributed to identifying nurse burnout, particularly among critical care nurses, and its associated factors were found through the literature search for this study. A total of 348 complete texts were found from the Newcastle University Databases, Science Direct, Wiley Online Library, PubMed, and Google Scholar. Thirty-one (31) studies met the inclusion criteria after duplicate articles were checked and the initial review was completed. Texts with "no burnout" as the outcome and no associated circumstances were those in which no critical care area nurses participated. Figure 2.1 describes the review procedure.

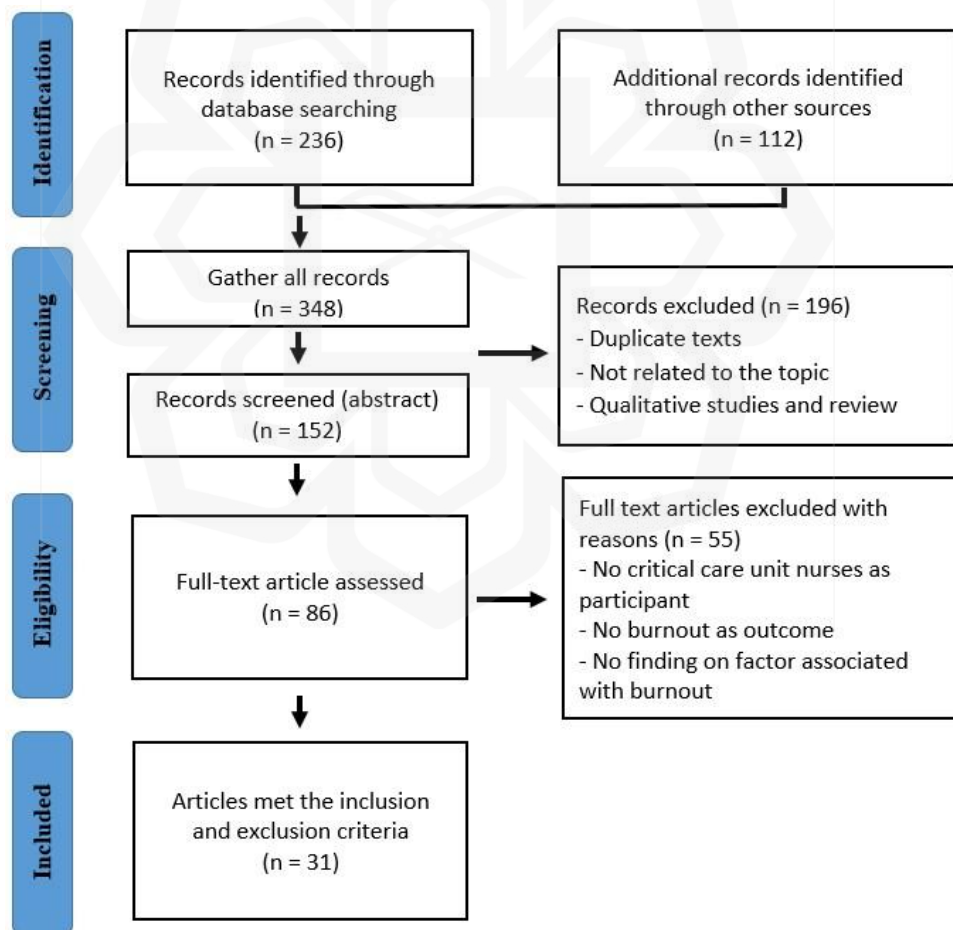


Figure 2.1: Prisma Chart

2.3 CHARACTERISTICS OF SELECTED LITERATURE

A literature search yielded thirty-one (31) complete texts that met the inclusion requirements. Studies must contain findings on burnout and the relationships between any risk factors in the critical care setting to be included in this literature analysis. Table 2.2 lists the features of the chosen publications, including the author, year of study, nation, location, measurement of burnout, sample size (participation rate), prevalence of burnout, and risk factors for burnout. The researcher independently extracted the data.



Table 2.2: Characteristics of 31 selected studies

Study	Country	Setting	Burnout measurement	Sample size	Prevalence of burnout	Risk factor
1. Hooper et al. (2010)	United State	ED, ICU, Nephrology & Oncology.	The Professional Quality of Life: Compassion Satisfaction and Fatigue Subscales R-IV	114	ED – 36.7% ICU – 50.0%	Gender - Female
2. Merlani et al. (2011)	Switzerland	74 ICUs in Switzerland	Maslach Burnout Inventory	2996	ICU Nurse – 28.0%	Gender - male, having no children and age under 40 years old.
3. Klopper et al. (2012)	South Africa	Critical care units from 55 private hospitals and seven national referral hospitals	Maslach Burnout Inventory	935	NA	Dissatisfaction with wages, lack of opportunities for advancement, study leave and a practice environment with inadequate staffing and resources and lack of nurse participation in hospital affairs.
4. Teixeira et al. (2013)	Portugal	ICU professional in the north of Portugal	Maslach Burnout Inventory	267 (60.0%)	32.0%	Gender, professional working experience, workload, colleague conflict and patient

Study	Country	Setting	Burnout measurement	Sample size	Prevalence of burnout	Risk factor
						withdrawal treatments, and ethical decision.
5. Ozden et al. (2013)	Turkey	ICU of 3 teaching hospitals in a city located in Central Anatolia in Turkey	Maslach Burnout Inventory	138 (67.0%)	NA	Education level, working experience, shift schedule, ethic training, and job satisfaction.
6. Azizkhani et al. (2014)	Iran	ED, Orthopaedics, Dialysis & ICU in Isfahan's Alzahra Hospital	Maslach Burnout Inventory	100	ICU – 8.7% ED – 17.0%	Gender - women and working unit
7. Guntupalli et al. (2014)	United State	The ICUs of the Harris County Hospital District Houston	Maslach Burnout Inventory	213	EE 54.3% DP 40.1% PA 40.6%	Work schedule - night shift and education level
8. Zhang et al. (2014)	China	Seventeen ICUs from 10 tertiary-level hospitals in Liaoning, China	Maslach Burnout Inventory	426 (87.7%)	16% EE 43.2% DP 26.1 PA 41.2	Working experience and education level
9. Harkin & Melby (2014)	Ireland	ED & Medical Department of General Hospital in the Republic of Ireland	Maslach Burnout Inventory	48 (78.6%)	ED Nurses EE 38.4% DP 46% PA 15%	Gender - Female, age, marital status, and weekly working hours.

Study	Country	Setting	Burnout measurement	Sample size	Prevalence of burnout	Risk factor
10. Dantas et al. (2014)	Brazil	EDs from 6 public hospitals in Paraiba	Maslach Burnout Inventory	110	82.7% EE 28.2% DP 29.1% PA 23.6%	Gender, age, marital status, number of children, working experience, and weekly working hours.
11. Alharbi et al. (2016)	Saudi Arabia	Critical care department from 3 government hospitals in Hail, Saudi Arabia.	Maslach Burnout Inventory	150	EE 84% DP 77% PA 42%	Job satisfaction and working area
12. Manzano-García & Ayala (2017)	Peru	Acute and critical care departments of Hospital Central de la Fuerza Aérea del Perú	Maslach Burnout Inventory	93 (84.5%)	NA	EE – Having children and working experience in the current department. DP - Age, marital status and working unit. PA - Having children
13. Kim & Yeom (2017)	South Korea	ICU from 3 University Hospitals	Burnout Measure-Short Form	318	3.15 out of 5	Age, education level, marital status, religiosity, working experience, working area and previous end-of-life care experience.
14. Padilha et al. (2017)	Brazil	2 Trauma ICUs in the city of São Paulo	Maslach Burnout Inventory	53	17%	Job satisfaction, working environmental characteristics and nursing workload.

Study	Country	Setting	Burnout measurement	Sample size	Prevalence of burnout	Risk factor
15. Hamdan & Hamra (2017)	Palestine	14 EDs from the West Bank and Gaza Strip (Physician, Nurse, support staff)	Maslach Burnout Inventory	444	Nurses EE 64.8% DP 38.1% PA 34.6%	Age, exposure to physical violence and workers' intention to leave the department.
16. Jiang et al. (2017)	China	ED from 30 hospitals in Shanghai	Maslach Burnout Inventory	976 (86.9%)	NA	Job satisfaction, salary, nurse-patient relationships, nurse staffing and work environment.
17. Huda & Siti Hajar (2018)	Malaysia	ED & General ward, Hospital Serdang	Copenhagen Burnout Inventory	509	24%	Working experience, working area, work-related stress, work schedule and job satisfaction.
18. See et al. (2018)	Singapore	159 ICUs in 16 Asian countries and regions. (Physician & Nurse)	Maslach Burnout Inventory	4092	Nurses - 52.0% Among countries - 34.6 to 61.5%	Education level, religiosity, and better work-life balance.
19. Vasconcelos & Martino (2018)	Brazil	Critical care unit of Teaching hospital in the city of São Paulo	Maslach Burnout Inventory	91	14.3% EE 47.2% DP 34.1% PA 34.1%	Age, marital status, number of children, physical activity, salary, working hours per week and working experiences.

Study	Country	Setting	Burnout measurement	Sample size	Prevalence of burnout	Risk factor
20. Elshaer et al (2018)	Egypt	Surgical ED & ICU at Alexandria University Hospital	Maslach Burnout Inventory	82 (80.4%)	NA	Job satisfaction and responsibility for peoples' lives were associated with PA.
21. Choi et al (2018)	South Korea	ICU, ER, general ward and outpatient unit of Soonchunhyang University Hospital	Maslach Burnout Inventory	386	NA	Gender, marital status and psychological characteristics.
22. Torre et al (2019)	Argentina	ICU in Argentina	Maslach Burnout Inventory	486 (48.35%)	84.4% EE 46.7 DP 63.5 PA 77.1%	High nurse-to-patient ratio
23. Alfuhaha et al (2019)	Jordan	2 public and 4 private hospitals (General wards, ICU & ED)	Maslach Burnout Inventory	350	NA	Education level and type of hospital
24. Nobre et al (2019)	Portugal	Adult General Emergency Service in the region of Lisbon	Copenhagen Burnout Inventory	32 (71.1%)	59.4%	Age, year of working in an institution, working experience, and thinking about changing professions.

Study	Country	Setting	Burnout measurement	Sample size	Prevalence of burnout	Risk factor
25. Rodríguez-Rey et al (2019)	Spain	PICUs & -Paediatrics wards from 9 different Hospital in Spain - (Physicians, nurses, and nursing assistants)	Maslach Burnout Inventory	487	56% EE 36.2% DP 27.2% PA 20.1%	Post-traumatic stress disorder (PTSD) is related to the occurrence of the death of a patient, and conflicts with work, colleagues, or patients/families.
26. Elay et al (2019)	Turkey	Critical care unit in Turkey (Physicians and nurses)	Maslach Burnout Inventory	1161	NA	Gender, working schedule, and incidence of end-of-life care.
27. Welp et al (2019)	Switzerland	55 ICU (Physician & nurses)	Maslach Burnout Inventory	1496	11.8% EE 37.8% DP 35.8% PA 6.8%	Working schedule, working unit, and workload.
28. Kumar et al (2021)	India	ICU in the western part of Gujarat	Maslach Burnout Inventory	125 (83.3%)	EE 37.6%	Unmarried, lack of specialised ICU training, performing extra duty in last month, high physical symptoms in the last 12 months, and mid-level experience (1–5 years).
29. Hu et al (2021)	China	ICU doctors and nurses in Mainland China	Maslach Burnout Inventory	2411 ()	68.3% EE 56.7% DP 30.7	Having low frequency of exercise, having comorbidities, working in a high-quality hospital, having more years of work

Study	Country	Setting	Burnout measurement	Sample size	Prevalence of burnout	Risk factor
					PA 20.2%	experience, having more night shifts, and having fewer paid vacation days.
30. Bruyneel et al (2021)	Belgium	French-speaking ICU nurses in Belgium	Maslach Burnout Inventory	1135	68% EE 38% DP 29% PA 31%	Nurse-to-patient ratio, workload, shortage of personal protective equipment, and having symptoms of COVID-19 without being tested.
31. Yildiz (2021)	Turkey	ICU in Turgut Özal Medical Centre in Eastern Turkey	Maslach Burnout Inventory	164 (68%)	EE 61% DP 38% PA 13%	Individuals with secondary traumatic stress, severe depressive symptoms, and anxiety symptoms.

2.4 SUMMARY OF LITERATURE FINDINGS

The following data was taken from each burnout study: year of publication, nation of study, location, assessment instrument for measuring burnout, sample size, participation rate, prevalence of burnout, and risk variables.

Most studies used the Maslach Burnout Inventory (MBI) with 87.1% (n = 27), followed by the Copenhagen Burnout Inventory with 6.5% (n = 2), the Professional Quality of Life Scale (ProQOL R-IV) with 3.2% (n = 1), and the Burnout Measure - Short Form with 3.2% (n = 1). The majority of studies concluded that there was a high burnout level among their respondents, ranging from 8.7% to 84.4% (Azizkhani et al., 2014; Torre et al., 2019). Emotional exhaustion (EE) is the highest dimension of burnout followed by depersonalization (DP) with a range of 28.2% to 84.0% and 26.1% to 77.0%, respectively (Dantas et al., 2014; Zhang et al., 2014; Alharbi et al., 2016). Meanwhile, the reduced personal accomplishment (PA) ranges between 6.8% to 77.1% (Torre et al., 2019; Welp et al., 2019).

The main risk factors of burnout identified are sociodemographic, occupational characteristics, psychological, and spiritual factors. Common sociodemographic factors correlating with burnout include age, gender, marital status, having children, and education level. Meanwhile, the occupational variables associated with burnout include working in shift schedule, length of work experiences, working area, nurse-to-patient ratio, workload, job dissatisfaction, and workplace conflict. Finally, several studies also found that psychological variables like anxiety and depression, together with personal traits, may have contributed to the development of burnout. Further discussion on the literature review findings will be deliberated in the next subtopic.

2.5 PREVALENCE OF BURNOUT AMONG NURSES

The results of studies conducted worldwide demonstrate that nursing is one of the professions associated with greater rates of burnout. It is common to read reports of moderate to high levels of burnout among those working in the healthcare industry, and it is generally accepted that the risk of burnout in this industry is higher than that of the general working population (Maslach & Leiter, 2016a). The literature review showed that thousands of studies have been conducted worldwide and there has been an upward trend since 2000. Out of 31 studies retained for the analysis, 13 studies were conducted in Asia, followed by 10 in Europe, 5 in South America, 2 in North America, and 1 in Africa.

2.5.1 Globally

A burnout study conducted in Palestine found that the majority of the ED nurses had scores indicating they were experiencing burnt out; 66.4% of respondents reported having emotional exhaustion (EE), 38.1% reported depersonalization (DP), and 34.6% reported having lessened personal accomplishment (PA) (Hamdan & Hamra, 2017). The study indicated that most of the nurses there are physically and emotionally exhausted from their duties. Another study by Alharbi et al. (2016) was conducted in three general hospitals in Saudi Arabia and found that the majority of critical care nurses reported experiencing significant levels of burnout, with the majority of them having high levels of EE (84%), DP (77%), and PA (42%). Meanwhile, two studies conducted in China found that the incidence of job burnout among nurses was 16.0% and 68.3%, respectively (Hu et al., 2021; Zhang et al., 2014). In addition, a burnout study by See et al. (2018) examined 159 ICUs in 16 Asian nations and regions and discovered that 52% of the ICU nurses experienced significant levels of burnout.

On the other hand, a study conducted in Europe by Teixeira et al. (2013) found that out of 300 professionals from ten ICUs in Portugal, 32.0% of the nurses had a high level of burnout. Furthermore, a study conducted in Europe by Bruyneel et al. (2021) found that out of the 1135 ICU nurses in Belgium, 68.0% of them had a high level of burnout as well as EE (38.0%), DP (29.0%), and PA (31.0%). Then, a study conducted in Switzerland found that ICU nurses experienced emotional exhaustion (37.8%), depersonalization (35.8%), and a diminished sense of personal accomplishment (6.8%)

(Welp et al., 2019). In addition, Rodríguez-Rey et al. (2019) and Nobre et al. (2019) revealed a high prevalence of severe burnout among nurses in Spain, with prevalence rates of 56.0% and 59.4%, respectively.

On the other side of the world, a study of 53 nurses working in trauma ICUs in Brazil revealed that 17.0% of them had experienced burnout (Padilha et al., 2017). Another study conducted in Brazil by Dantas et al. (2014) found that 82.7% of Paraíba's emergency department nurses face burnout, with 59.1% experiencing moderate burnout and 23.6% experiencing severe burnout. Besides that, Vasconcelos and Martino (2018) found that 14.3% of critical care nurses in teaching hospitals in Sao Paulo, Brazil had high levels of burnout with 47.2% experiencing high emotional exhaustion, 34.1% facing high depersonalization, and 34.1% experiencing reduced personal accomplishment. Another study conducted in Argentina revealed that the majority of intensive care nurses (84.4%) reported moderate to high degrees of burnout (Torre et al., 2019).

Furthermore, past research also revealed that 82% of emergency nurses in the Southeast United States of America (USA) have moderate to high degrees of burnout (Hooper et al., 2010). Another study in North America revealed that the ICU staff at Harris County Hospital experience average level to high levels of burnout, with 54% of employees reporting EE, 41% reporting DP, and 40% reporting poor PA (Guntupalli et al., 2014).

Finally, in the African region, Klopper et al. (2012) found that the critical care nurses in South Africa recorded high scores on the EE and DP subscales and low scores on the PA subscale.

2.5.2 Malaysia

The literature search found only one burnout study done among critical care nurses in Malaysia, which can be attributed to the limited publication of studies in the country. Prior research was likely unpublished, which may have constrained the results. Most of the studies were done among the general population of nurses and not specifically on critical care nurses.

Huda and Siti Hajar (2018) conducted a study on burnout among 509 nurses at Hospital Serdang in Malaysia. According to the survey, burnout affected 24% of nurses, with 61.9% experiencing it personally, 30.8% experiencing it at work, and 11.2% experiencing it with patients.

2.6 JOB SATISFACTION AND BURNOUT

Nurses who reported feeling highly satisfied in their ability to help others have a more favourable perception of their work environment, which helps reduce burnout (Manzano-García & Ayala, 2017). Moreover, Klopper et al. (2012) discovered that most nurses were experiencing high job dissatisfaction regarding wages, opportunities for advancement, and study leave. Another Malaysian study found a substantial correlation between burnout and nurses' job satisfaction, with lower job satisfaction was associated with a higher burnout rate (Huda & Siti Hajar, 2018).

However, this contradicts a study by Alharbi et al. (2016) that discovered a negative relationship between job satisfaction levels and 84% emotional tiredness. The nurses reported feeling conflicted about their employment and unsatisfied with them, despite being content with their work. Moreover, even though burnout has been associated with decreased job satisfaction, most workers reported that they would not regret their career choices as healthcare workers (Kim et al., 2019).

2.7 FACTORS ASSOCIATED WITH BURNOUT AMONG CRITICAL CARE NURSES

Nurses working in critical care are seen as more vulnerable than other healthcare workers since they are exposed to more pressure. According to the literature, burnout among critical care nurses is attributed to many factors that could be caused by their environment at work or personal circumstances.

Nurses working in critical care are perceived as more vulnerable than other healthcare professionals since they are subject to additional stress. Therefore, burnout is common among them, which can be a result of their situations (Harkin & Melby,

2014; Portero & Vaquero, 2015; Kim & Yeom, 2017) or work environment (Elshaer et al., 2018; Alfuhaha et al., 2019; Welp et al., 2019). It can also be caused by lifestyle decisions and personality traits (See et al., 2018; Yildiz, 2021).

2.7.1 Biological Characteristics

Past studies also investigated the link between burnout among nurses and several biological parameters. Sabbah et al. (2012) found that age is one of the major factors contributing to burnout, whereby younger nurses are more prone to experience burnout (Dantas et al., 2014; Kim & Yeom, 2017; Nobre et al., 2019) while nurses aged between 30 and 40 are more vulnerable to burnout effects (Hooper et al., 2010; Merlani et al., 2011). Furthermore, some studies found women experience higher burnout than men (Merlani et al., 2011; Dantas et al., 2014; Nobre et al., 2019). On the contrary, a few studies also discovered that men experience higher burnout than women and that having more female nurses on the team was linked to a lower chance of experiencing high levels of individual burnout (Hooper et al., 2010; Teixeira et al., 2013; Elay et al., 2019).

A number of studies have also found a link between exercise and burnout. Physical exercise can psychologically transform burnout by promoting self-efficacy and mastery views, which can lessen the sensitivity to stressful stimuli (Salmon, 2001). Moreover, it can alter a person's physiological vulnerability to long-term stress, such as burnout (Forcier et al., 2006). It was found that people who exercise daily are less likely to experience burnout (Hu et al., 2021). Hence, the lack of exercise can considerably impact nurses' cynicism and emotional weariness (Guo et al., 2018). According to a study by Vasconcelos and Martino (2018), most critical care nurses working in a Sao Paulo teaching hospital were experiencing burnout and did not engage in physical activity.

2.7.2 Psychological Characteristics

According to Maslach and Jackson (1981), the main sign of burnout is increased emotional weariness, which is connected to the person's psychological traits. Workers believe they can no longer give of themselves psychologically as their emotional

resources become spent. Accordingly, the literature review revealed that several studies had linked burnout to psychological issues.

Choi et al. (2018) found a strong correlation between emotional tiredness and negative feelings, including sadness and anxiety. Furthermore, another study involving ICU nurses in the Ozal Medical Centre in Turkey discovered that nurses with a high level of secondary traumatic stress are more likely to experience EE and DP (Yildiz, 2021). Meanwhile, ICU nurses with severe depressive symptoms tend to experience a decrease in their PA while those with anxiety symptoms are more likely to experience both EE and reduced PA (Yildiz, 2021). Due to the skills needed by nurses, their tremendous workload, ineffective task distribution, and lack of resources, they may perceive the workplace as hostile and feel anxious, vulnerable, stressed, unreliable, and depressed, all of which heighten the feeling of burnout (Gomez-Urquiza et al., 2017).

In addition, a study from Spain indicated that emotional exhaustion (EE) is strongly related to post-traumatic stress disorder (PTSD), with burnout being reported by 56.0% of PICU personnel and PTSD being reported by 20.1% of staff (Rodriguez-Rey et al., 2019). Facing a child's death and/or having confrontations with patients, families, or co-workers will also lead to burnout and increased PTSD rates (Rodriguez-Rey et al., 2019). Besides that, Huda and Siti Hajar (2018) found that burnout was strongly correlated with workplace stress. Their study of nurses in Hospital Serdang revealed that work-related stress was viewed as nurses' individual response to a dangerous workplace whereby heavy workload, inadequate equipment, lack of staff, and shift work were among the contributory factors.

2.7.3 Social Characteristics

One of the variables in the biopsychosocial paradigm is social characteristics, which include the respondents' marital status, educational attainment, and social support.

Marital status

According to several studies, single or unmarried nurses are more prone to burnout than married nurses (Dantas et al., 2014; Harkin & Melby, 2014; Kim & Yeom, 2017; Kumar et al., 2021). Vasconcelos and Martino (2018) reported that 76.9% of the burnout nurses

in their study were single, thus suggesting their vulnerability to experience burnout than married nurses. However, according to a Peruvian study, DP scores were independently and negatively correlated with being divorced, separated, or widowed compared to being single (Merlani et al., 2011). Nevertheless, being a married nurse and having children were also linked to higher emotional weariness and burnout. Several studies also reported that having a spouse and children can lead to more duties and time demands, ultimately contributing to work-family conflicts and increasing the risk of weariness (Teixeira et al., 2013; Choi et al., 2018).

Educational level

One of the risk factors for burnout is educational level. In their research on critical care nurses, Ozden et al. (2013) found that those with college degrees had low personal achievement scores but high EE and DP scores. In addition, a study among ICU nurses in Asian countries showed that higher educational status is associated with worse burnout scores, probably because higher academic qualifications are often associated with greater work responsibility (See et al., 2018).

Social support

Earlier research found that nurses are less likely to experience burnout when they have supportive social environments and vice versa. Social support is the knowledge that makes a person feel valued, cared for, belong to a part of a network with obligations to others, and supported (Cobb, 1976). A study by Rodríguez-Rey et al. (2019) among PICU nurses in Spain revealed that high levels of emotional tiredness and depersonalization were linked to nurses who had conflicts with co-workers and patients the week before. Other studies also found that supportive supervisors and a productive work environment can help prevent burnout. Additionally, Teixeira et al. (2013) reported that ICU nurses in northern Portugal would have a higher risk of burnout if they encountered a conflict and severe argument with someone, especially with other professionals in the week before completing the questionnaire.

2.7.4 Spiritual Characteristics

It is important to consider spiritual aspects and other risk factors for burnout. Many people view spirituality as being more individualised, something they define for themselves, and mostly free of religious obligations and laws (Koenig, 2009b). The literature review found several studies that reported a connection between spirituality and job burnout.

Religious practices and beliefs could be valuable for coping with illness (Koenig, 2009). See et al. (2018) discovered that religiosity among ICU nurses in Asian countries can protect them against burnout by guiding individual-level and organisation-level interventions. Unlike the United States or Western Europe, Asia has a mix of high, middle, and low-income economies, and it is unclear if economic status and cultural/religious diversity influence burnout (See et al., 2018). Spirituality, in terms of a person's relationship with God and with others, may also play a role in and provide insight into nursing burnout.

In addition, an earlier study by Kim and Yeom (2017) found a strong correlation between burnout and spiritual well-being. It was hypothesised that spiritual well-being aids nurses in maintaining internal peace and psychological stability, which may buffer the impact of job-related stress on burnout, and that lower level of spiritual well-being is associated with higher level of burnout among South Korean ICU nurses.

2.7.5 Occupational Characteristics

Another prominent key factor of burnout is occupational features, which include a respondent's work history, working environment, working hours, schedule, and nurse-to-patient ratio. Nurses' burnout has been reported to be significantly influenced by their time spent working at the hospital; therefore, methods to avoid these difficulties must be developed (Azizkhani et al., 2014).

Work experience

Substantial evidence exists that advocates the correlation between working experience and burnout. Several studies have found that less experienced nurses are more susceptible to burnout in healthcare settings. Kim and Yeom (2017) in their study of critical care nurses revealed that South Korean nurses with less than five years of clinical experience were more likely to feel burnout. Meanwhile, the level of burnout among nurses in Hospital Serdang with less than ten years of experience was higher (Huda & Siti Hajar, 2018). These two studies showed that new nurses may still be adjusting to the nature of their jobs and are less adept at handling stressful situations.

This result is consistent with a study of critical care nurses in Brazil, which found that young nurses at the beginning of their careers are viewed as inexperienced, still learning the procedures, and lacking experience managing critically ill patients in emergency situations. As a result, they are more tense and vulnerable to occupational stress, which may result in burnout (Vasconcelos & Martino, 2018). Nurses with little experience or less expertise led to high levels of burnout compared to their counterparts with more years of professional experience as they would feel insecure about their responsibilities (Zarei et al., 2019).

Working area

Burnout is also a possibility among nurses who are caring for terminally ill patients. This claim is corroborated by Teixeira et al. (2013) who found that ethical judgements made in connection with end-of-life care impacted burnout. According to Azizkhani et al., (2014), the higher workload and stress levels in the emergency department (ED) and intensive care unit (ICU) contributed to the nurses working in these wards having a higher rate of occupational burnout than nurses working in other wards.

This is also consistent with research conducted among Saudi national critical care nurses in the paediatric intensive care unit (PICU), who reported higher levels of emotional weariness than those who worked in other critical units and emergency departments (Alharbi et al., 2016). The study also concurred that burnout might result from greater exposure to potentially fatal situations when working in critical units with a severe workload. Moreover, the study found that ICU nurses have greater rates of

burnout, probably due to their work caring for critically sick patients and being constantly exposed to the prospect of patients' death (Kim & Yeom, 2017).

On the other hand, a study involving nurses in South Korea found no discernible differences in emotional weariness between nurses working in the recovery room and those in the emergency department (ED) and intensive care unit (ICU) (Choi et al., 2018). These findings therefore denote the working environment of critical nurses as a possible factor that contributes to burnout.

Working hours

Working hours in the nursing industry vary depending on the country where the practices are located, the working location, the shift pattern, and the working grade. A typical week's labour is between 36 and 40 hours, with rest days or intervals between shifts (Padilha et al., 2017). Certain situations, such as a lack of staff, an emergency, or a high patient admittance rate, necessitate nurses working longer hours.

A study published by Vasconcelos and Martino (2018) discovered that nurses who work more than 30 hours per week are more likely to experience burnout. Moreover, Harkin and Melby (2014) also provided the same finding, showing that working more than 40 hours per week is associated with higher degrees of depersonalization and emotional weariness in the burnout measure. Furthermore, nurses who work long shifts and are expected to cover unplanned shifts tend to feel exhausted and apply for resignations to find other jobs that are more satisfying or to reduce their stress levels (Gutsan et al., 2018).

Work schedule

Most nurses are obligated to work according to the previously planned timetable. A nurse's work schedule includes shifts and days off, ensuring that all staff members' combinations of shifts and days off satisfy the manpower needs of each shift (Felici & Gentile, 2004). A study by Huda and Siti Hajar (2018) revealed a substantial link between nurses' work schedules and burnout in Hospital Serdang, with shift workers reporting higher levels of burnout.

In addition, Elay et al. (2019) conducted an investigation among critical care nurses in Turkey and found that working the night shift and its longer mean workday increase the risk of burnout compared to working a regular shift schedule. Furthermore, nurses working an alternate day shift system were 3.93 times more likely to experience burnout in the EE dimension and 2.22 times more likely to experience burnout in the DP dimension (Elay et al., 2019).

Nurse-to-patient ratio

The World Health Organization (WHO) recommends a nurse-to-patient ratio of 1:200; however, the actual scenario in Malaysia shows that the ratio is 1:302 with one nurse caring for four patients in the intensive care unit (Aris, 2019). A high nurse-to-patient ratio is a sign of inadequate nurses to care for patients in the hospital, and it may be related to excessive workloads for nurses. However, the pressures associated with work overload heavily emphasise time management and an abundance of paperwork, both of which seem to be connected to emotional weariness, depersonalization, and self-accomplishment (Jasmani & Abdul Jumaat, 2015a).

The number of patients under a nurse's care will impact the ability to devote time to each patient and deliver quality nursing care (Wang et al., 2019). According to a study by Torre et al. (2019), more than 80% of nurses in Argentina who care for critically ill patients exhibit moderate to high levels of burnout syndrome, which is substantially correlated with a high nurse-to-patient ratio. Moreover, a study among ICU nurses in Belgium showed that a nurse with a nurse-to-patient ratio greater than 1:2 and a perceived increased workload significantly increased the risk of EE and DP (Bruyneel et al., 2021).

The findings reported by previous research discussed above stand as the basis in formulating the variables of this study. While it can be concluded that Malaysian nurses are experiencing burnout, critical care nurses, who are more likely to experience burnout due to the nature of their work unit, were not particularly focused in earlier studies. The results produced by the Malaysian studies on burnout in the critical care field are also ambiguous. Subsequently, a literature review revealed that biopsychosocial and spiritual parameters, including sociodemographic and occupational traits, are linked to the risk factors for burnout among nurses globally.

According to earlier studies in Malaysia, the only factors significantly linked to nurse burnout are those related to their jobs. Hence, the degree of burnout and factors related to critical care nurses were evaluated in this study.

2.8 VARIABLES

2.8.1 Dependent variable

The dependent variable of this study was the level of burnout among critical care nurses at Hospital Sultan Ismail (HSI), Johor Bahru.

2.8.2 Independent Variables

The independent variables used in this study were biopsychosocial, spiritual, and occupational characteristics including age, gender, race, medical condition, exercise status, number of health professional visits, mental health issue, educational level, marital status, number of children, frequency of visiting prayer house per week, frequency of performing private religious or spiritual activities, frequency of reading religious text, frequency of attending religious activities, feeling of security with faith and satisfaction in private prayer working unit, work grade, working experiences, working schedule, working hours per week, nurse-to-patient ratio, frequency of overtime per week, job satisfaction, and sense of belonging to workplace.

2.9 THEORETICAL FRAMEWORK

This study aims to identify the elements that contribute to critical care nurses' levels of burnout by taking a broad view of the biopsychosocial, spiritual, and occupational models and their professional qualities. The biopsychosocial model was brought to medicine by George L. Engel, who asserted that the biological, psychological, and social levels should be considered in every aspect of health care to better understand and respond to patients' suffering (Engel, 1980). Meanwhile, spiritual means the search for ultimate meaning, purpose, and significance concerning oneself, family, others, community, nature, and the sacred, which is expressed through beliefs, values, traditions, and practices (Puchalski et al., 2014). However, this study expressed spiritual variables from formal religions or traditional faiths. Although religiosity and spirituality are distinct constructs, they have significant and consistent overlaps (Saad et al., 2017). The network of biopsychosocial and spiritual variables may have relevance in identifying the associated factors that lead to burnout among critical care nurses. The theoretical framework of biopsychosocial-spiritual and occupational characteristics is shown in Figure 2.2.

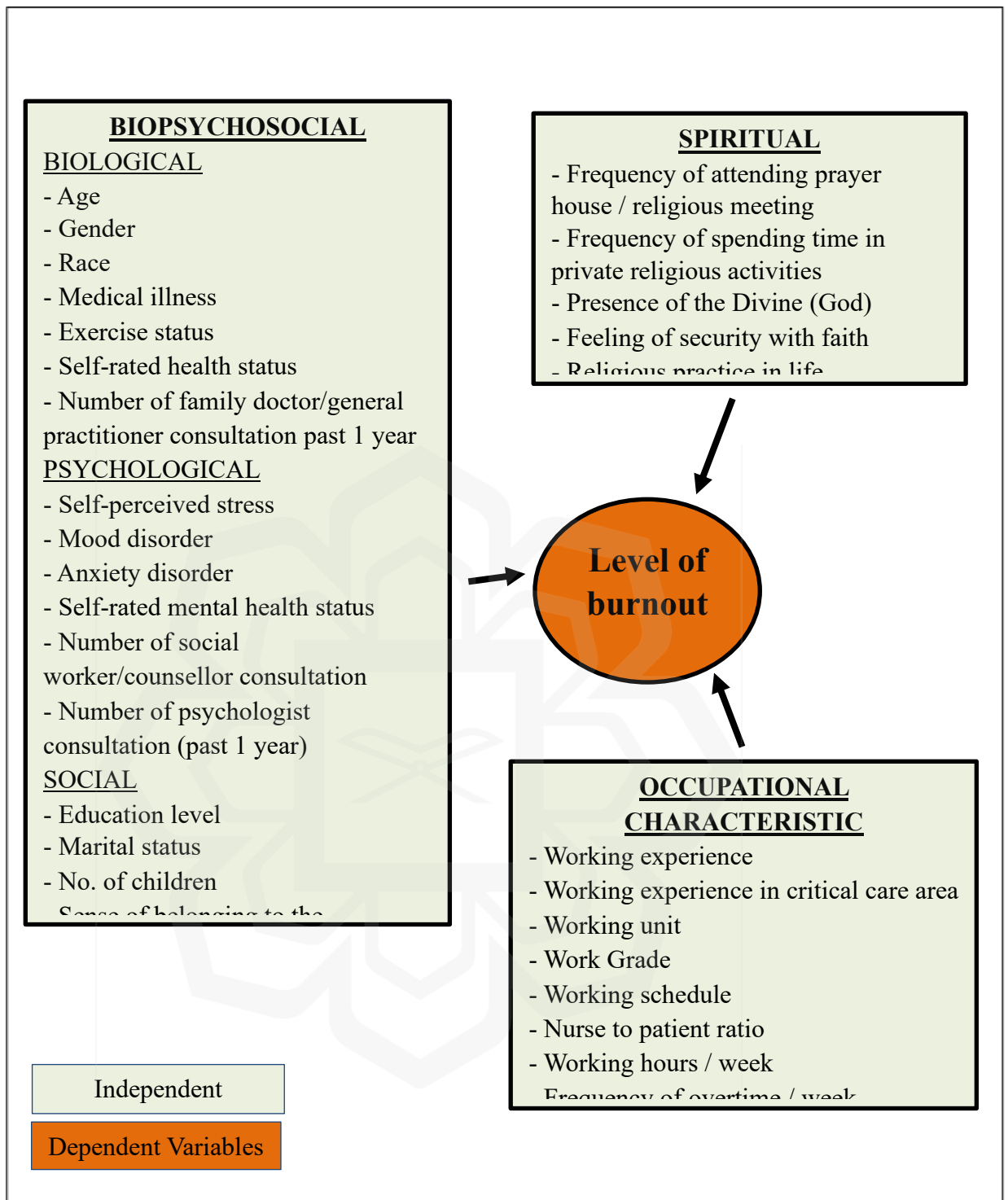


Figure 2.2: The biopsychosocial, spiritual, and occupational framework of factors associated with burnout

CHAPTER THREE

METHODS AND METHODOLOGY

3.0 INTRODUCTION

This chapter presents the methods and methodology used in this study. It covers the research design, setting, demographics, population and sampling method, sample size, ethical considerations, data collection tools, variables, reliability and validity results, and data analysis strategies.

3.1 RESEARCH DESIGN

This study applied a quantitative approach of cross-sectional study. Quantitative research is a data collection technique that can be numerically examined and reported. According to Goertzen (2017), quantitative research uses numbers to analyse information and the results can be estimated using statistical analysis, where it is possible for the researcher to summarise, generalise, and compare the outcomes. Quantitative research allows researchers to systematically measure variables and test hypotheses by using numbers to analyse the data (Goertzen, 2017).

This study aimed to determine the level of burnout among critical care nurses and its biopsychosocial, spiritual, and occupational predictor factors. Due to the nature of the study population and the goal of this study, the researcher decided to use a quantitative approach of a cross-sectional study design.

3.2 RESEARCH SETTING

This study was conducted in the emergency department (ED), intensive care unit (ICU), coronary care unit (CCU), and paediatric intensive care unit (PICU) of Hospital Sultan Ismail (HSI). It is one of the major tertiary hospitals in Johor Bahru with more than 700 beds and offers a variety of specialities. In the state of Johor, district hospitals like Hospital Mersing and Hospital Kota Tinggi as well as primary healthcare facilities frequently refer patients to tertiary hospitals.

3.3 POPULATION AND SAMPLING METHOD

3.3.1 Total Population

A total of 196 nurses were employed at the ED, ICU, CCU, and PICU of Hospital Sultan Ismail (HSI), Johor Bahru. The study population was selected among registered nurses working in the CCU of HSI irrespective of their grade levels (U29, U32, U36, U40, and U41). The study specifically targeted burnout as a general phenomenon, recognising that all registered nurses in critical care units may potentially experience work-related stress. This study encompassed nurses at different professional levels and the inclusion of all grades implied a comprehensive approach to understand burnout across the entire spectrum of registered nurses in the critical care unit. It also accounted for the diversity in roles and responsibilities, from clinical positions to management roles.

3.3.2 Inclusion and Exclusion Criteria

The selection of critical care nurses was done based on the inclusion and exclusion criteria illustrated in Table 3.1.

Table 3.1: Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Registered nurse, certified by the Malaysia Nursing Board.	Nurses who are non-residents; those who are temporarily being placed in this unit during the data collection.
At present, working for at least 6 months in the critical care unit (post mentoring system).	Those undergoing clinical attachment at their departments or another department.
	On study or maternity leave.

3.3.3 Sample Size

Figure 3.1 presents the calculation of sample size by using Raosoft.com. The population was obtained from the total number of nurses in the critical care unit. All nurses were included in this study since they fit the inclusion criteria. For this calculation, the researcher chose a 5% margin error and a 95% confidence interval. The response distribution was set at 50% which gave a larger sample size for this research. From a total number of 196 population sizes, Raosoft.com calculated that 131 sample sizes were required. The selection also permitted a 20% possible drop-out rate. Thus, 157 critical care nurses were required for this study.



Raosoft®

What margin of error can you accept? %
5% is a common choice

What confidence level do you need? %
Typical choices are 90%, 95%, or 99%

What is the population size?
If you don't know, use 20000

What is the response distribution? %
Leave this as 50%

Your recommended sample size is **131**

Figure 3.1: Sample size calculation by Raosoft.com

3.3.4 Sampling Method

The respondents of this study were selected via simple random sampling with an equal probability of nurses from each critical care unit to ensure fair representation. The researcher alphabetically listed the names of every nurse working in the four hospital areas and randomly picked the respondents from each unit using the Statistical Packages for the Social Sciences (SPSS) software. The sisters in charge acted as the gatekeepers of these areas who assisted in contacting the selected respondents. Their assistance was needed as the data collection process was done during the COVID-19 pandemic whereby the researcher had limited access to the hospital.

3.5 ETHICAL CONSIDERATION

Before conducting the study, the International Islamic University Malaysia Research Ethics Committee (IREC) was notified and the researcher sought approval from the Kulliyyah of Nursing Postgraduate and Research Committee (KNPGRC) (Refer Appendix A). The study was then registered with the National Medical Research Register (NMRR) and ethical approval was obtained from the Medical Research and Ethics Committee (MREC), Ministry of Health of Malaysia (NMRR-20-2347-54281) (Refer Appendix B). Permission letter to conduct the study was also obtained from the Head of Department of each critical care unit and Clinical Research Centre (CRC), Hospital Sultan Ismail (HSI) (Refer Appendix C).

The purpose of this study was explained to the respondents and a consent form was enclosed with the questionnaire. All respondents must read the respondent information sheet (Refer Appendix D) and sign the consent form (Refer Appendix E) as an agreement to participate in this study and their confidentiality was ensured by using pseudonyms on the information given in the questionnaire. The results were also reported based on the data gathered through the questionnaire only (Refer Appendix F). All data obtained in this study was strictly for academic purposes and used merely for this study.

All data obtained in this study was transferred into a computer that was password encrypted. It was later copied to compact discs and the data in the computer was erased. Compact discs and any related documents were stored in a locked cabinet accessible by the researcher only and it would be kept there for a minimum of five years after the completion of this study. The compact discs and data will be destroyed after that period of storage. The respondents were not allowed to view their personal studied data as the data had been consolidated into a database. However, they can gain access to the findings by writing to the researcher.

3.6 DATA COLLECTION

3.6.1 Instruments

Biopsychosocial data

The respondents' biological, psychological, and social data, including sociodemographic, were contained in the biopsychosocial characteristics. It was used to gather data on elements that were understood to be connected to burnout. A study by Elliott and Richardson (2014) from the Canadian Community Health Survey (CCHS) was used to conceptualise the questions. The permission and approval to use the questions were obtained through email on 26 August 2020 (refer to Appendix G). The questionnaire was divided into social, psychological, and biological sections. Age, gender, race, physical condition, exercise status, number of doctor visits, mental health issues, educational level, marital status, number of children, sense of belonging at work, and supervisor support were covered in the Malay and English questions.

Spiritual data

The Duke University Religion Index (DUREL) was utilised in this study to examine the religious aspects that could be used to determine the correlations between spiritual variables and burnout. Koenig and Büssing (2010) created the five-item DUREL measure of religious participation for use in sizable cross-sectional and longitudinal observational studies. The questions were written in both English and Malay language. The study by Nurasikin et al. (2010) served as the basis for the Malay version of the Duke Religious Index (DUREL-M). The researcher requested and received permission to use DUREL-M through email on 18 September 2020 (refer to Appendix H). Organisational religious activity (ORA), non-organisational religious activity (NORA), and intrinsic religiosity were the three dimensions of religiosity captured by the questions in DUREL (IR).

The scoring of DUREL was particularly important both for analysis purposes and for interpretation of results. Subscale 1 was the first question in DUREL that asked about the frequency of attendance at religious services (ORA). Subscale 2 was the second question that asked about the frequency of private religious activities (NORA). Subscale 3 consisted of the final three items assessing intrinsic religiosity (IR).

According to Koenig and Büssing (2010), it is not recommended to sum all three subscales into a total overall religiosity score. Instead, researchers should examine each subscale score independently in separate regression models when examining their relationships to health outcomes. If all three subscales are included in a single statistical model, multiple collinearities between subscale scores could interfere with an accurate estimate of the effects for each subscale.

Occupational data

Work-related information under occupational data included working unit, work grade, critical care experience, working schedule, number of hours worked per week, nurse-to-patient ratio, frequency of overtime per week, and self-rated job satisfaction. All questions were written bilingually in Malay and English language.

Maslach Burnout Inventory – Human Services Survey (MBI-HSS)

Maslach Burnout Inventory (MBI) is a well-known and frequently used tool to gauge burnout and identify its features (Maslach et al., 2009). The Maslach Burnout Inventory – Human Services Survey (MBI-HSS) is an established measure of burnout for people working directly with service recipients. This study utilised the MBI-HSS by Chen et al. (2014) as the basis for the validated Malay version of MBI-HSS. The researcher requested and received permission to utilise the Malay version of MBI-HSS in an email dated 31 March 2020 (refer to Appendix I).

The MBI-HSS questionnaire had 22 items that were divided into 3 subscales: Emotional Exhaustion (9 items), Depersonalization (5 items), and Personal Accomplishment (8 items). The questions' distributions are shown in Figure 3.2. The scores for each item on these tests were illustrated on a seven-point Likert scale ranging from 0 (never) to 6 (always). The individuals were categorised as having high, average, or low levels of each subscale of burnout based on their MBI responses. The levels of each MBI dimension were determined by the usage of the following cut-offs in Table 3.2 (Teixeira et al., 2013).

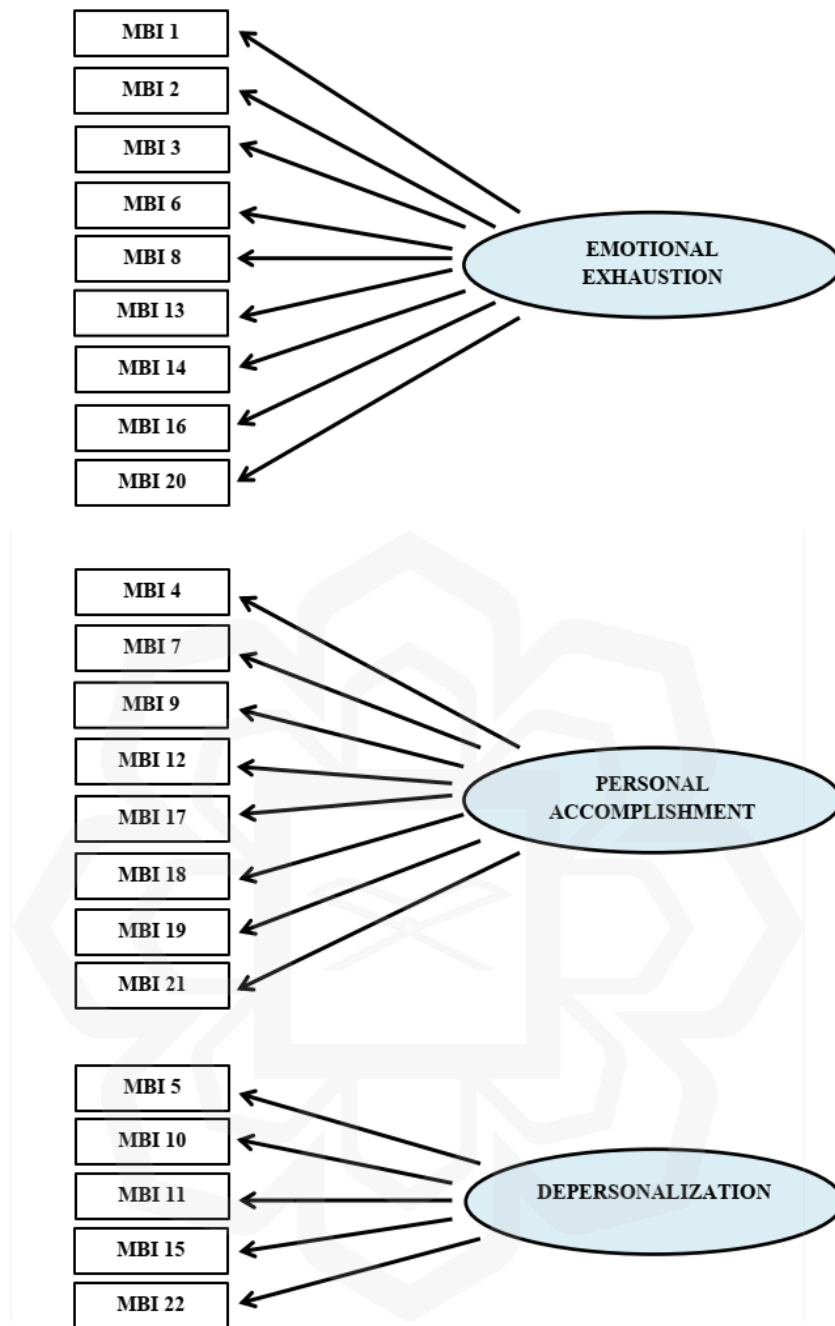


Figure 3.2: The distributions of MBI-HSS questions according to the 3 subscales

Table 3.2: Cut-off points for levels of burnout of each MBI dimension

MBI Dimension	Level of Burnout		
	Low	Average	High
Emotional Exhaustion	≤ 14	15-24	≥ 25
Depersonalization	≤ 3	4-9	≥ 10
Personal Accomplishment	≥ 40	33-39	≤ 32

3.6.2 Data Collection Procedure

This research was conducted from November 2021 to the end of November 2023 over a period of 24 months.

- Stage 1: data collection (November 2021 until March 2022)
- Stage 2: Data analysis (April 2022 until September 2022)
- Stage 3: Final report writing and presentation (October 2022 until November 2023)

The data collection stage began upon obtaining the permission letter to conduct the study from the Clinical Research Centre (CRC). The data collection procedures are illustrated in Figure 3.3.

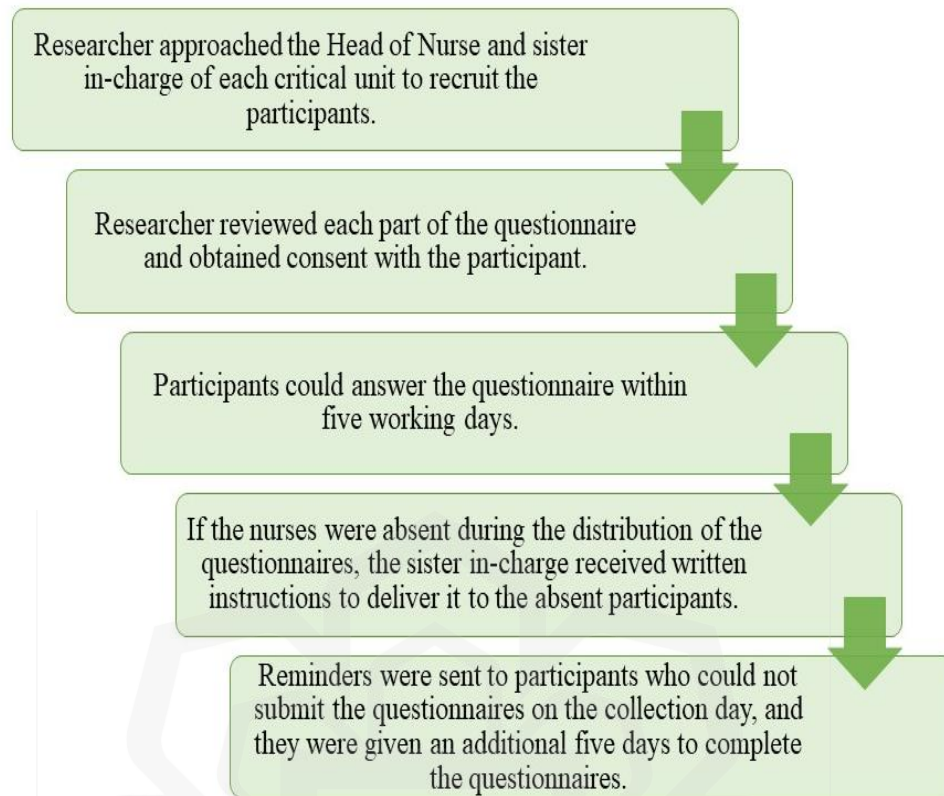


Figure 3.3: The flow of the data collection procedures

3.8 RELIABILITY AND VALIDITY

Two questionnaires (Refer Appendix I) were adapted in this study, namely (1) a validated Malay version of MBI-HSS with a Cronbach's alpha of 0.941 from Chen et al. (2014), and (2) a Malay version of the Duke Religious Index (DUREL-M) by Nurasikin et al. (2010). These instruments displayed good parallel reliability (0.70), test-retest reliability (0.68) (Spearman's rho, $p < 0.01$), and fair internal consistency (Cronbach's alpha = 0.45). The reliability of the questionnaires is shown in Table 3.3.

Table 3.3: Reliability of the Malay version of MBI-HSS and DUREL-M

No	Questionnaire	Reliability of the translated questionnaire
1.	Maslach Burnout Inventory – Health Services Survey (MBI-HSS)	• N = 220 respondents from hospitals and institutions located in the Klang Valley. • Cronbach's alpha value was 0.941.
2.	Duke Religious Index (DUREL)	• N = 173 Year 1 diploma nursing students from University Malaya. • Cronbach's alpha value was 0.45.

3.9 DATA ANALYSIS

Statistical Package for the Social Sciences (SPSS) Version 26.0 for Windows was used to analyse the data via multiple analyses, which included descriptive analysis, univariate analysis, and multivariate analysis. A p-value of 0.05 was recognised as statistically significant for all two-tailed tests. Figure 3.4 shows the data analysis techniques used in this study based on the research objectives that they intended to achieve.

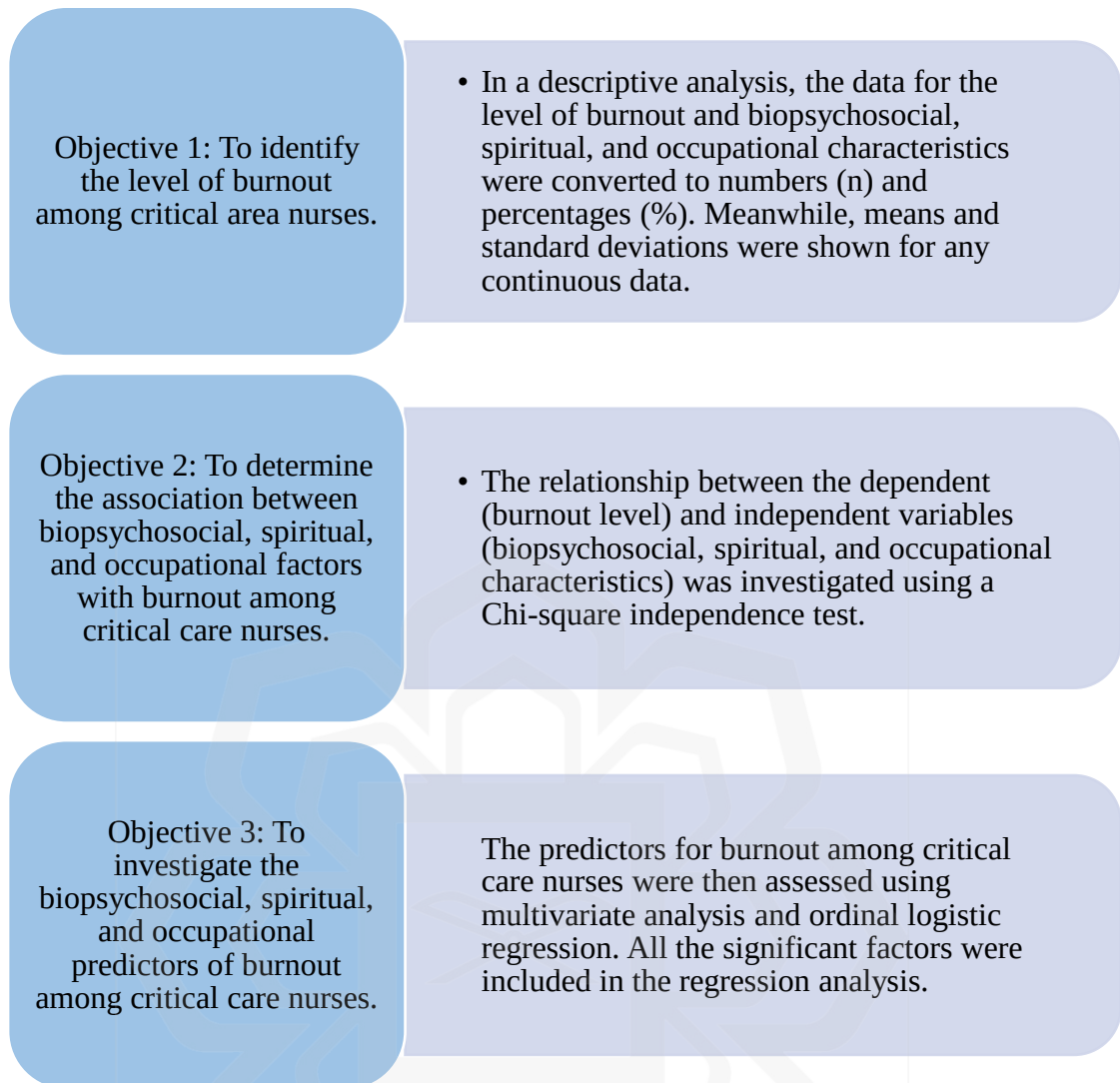


Figure 3.4: Data analysis techniques used according to the research objectives

CHAPTER FOUR

FINDINGS

4.0 INTRODUCTION

This chapter presents the results obtained from the analysis of data pertaining to the burnout level among critical care nurses in Hospital Sultan Ibrahim, Johor Bahru. It encompasses details regarding the respondents' biopsychosocial, spiritual, and occupational characteristics and its relationship with the level of burnout experienced by them.

4.1 RESPONSE RATE

Hospital Sultan Ismail (HSI) had a total of 196 critical care nurses working in the emergency department (ED), intensive care unit (ICU), neonatal intensive care unit (NICU), and coronary care unit (CCU). As per the sample size calculation, the questionnaire was distributed to 157 eligible respondents and 152 completed questionnaires were retrieved, making a response rate of 96.8%.

4.2 CHARACTERISTICS OF THE RESPONDENTS

The respondents' characteristics were categorised into biopsychosocial, spiritual, and occupational characteristics followed by the level of burnout among critical care nurses.

4.2.1 Biological Characteristics

Table 4.1 shows the distribution of the respondents' biological characteristics. The findings indicated that 52.0% (n=79) of the respondents were between the age of 30 to 39 years old, 94.1% (n=143) were female, 88.8% (n=135) were Malay, 85.5% (n=130) had no medical illness, and 57.9% (n=88) were not involved in exercise. The results also showed that the health status level of respondents was very good ($\bar{X}$ =8.27, SD=1.632) and 68.4% (n=104) never visited a family doctor or general practitioner for the past 12 months.



Table 4.1: Biological Characteristics

	Frequency	Percentage	Mean (SD)
Age			33.51 (6.481)
20 – 29 years	46	30.3	
30 – 39 years	79	52.0	
40 years and above	27	17.8	
Gender			
Male	9	5.9	
Female	143	94.1	
Race			
Malay	135	88.8	
Chinese	2	1.3	
Indian	10	6.6	
Other	5	3.3	
Medical Illness			
Hypertension	7	4.6	
DM	2	1.3	
Kidney disease	1	.7	
Heart disease	2	1.3	
Asthma	4	2.6	
No medical illness	130	85.5	
Ovarian cyst	2	1.3	
SLE	1	0.7	
Thyroid problem	1	0.7	
Gout	1	0.7	
Uterine fibroid	1	0.7	
Exercise Status			
No exercise	88	57.9	
2-3 days per week	45	29.6	
4-5 days per week	9	5.9	
Everyday	10	6.6	
Health Status Level			8.27 (1.632)
Visit a family doctor or general practitioner			
Never	104	68.4	
1-5 times	47	30.9	
More than 10 times	1	0.7	

4.2.2 Psychological Characteristics

Table 4.2 shows the distribution of the respondents' psychological characteristics. The findings indicated that 46.1% (n=70) of the respondents felt not very stressed, 95.4% (n=145) of them had no mood disorder, and 92.8% (n=141) of them had no anxiety disorder. The results also showed that participants' mental health status level was at ($\bar{X}$ =8.41 SD=1.633). Furthermore, 89.5% (n=136) of them had never visited a social worker or counsellor and 93.4% (n=142) had never visited a psychologist for the past 12 months.

Table 4.2: Psychological Characteristics

	Frequency	Percentage	Mean (SD)
Amount of Stress in Life			
Not stressful at all	11	7.2	
Not very stressful	70	46.1	
A bit stressful	50	32.9	
Quite stressful	18	11.8	
Extremely stressful	3	2.0	
Mood Disorder			
Yes	7	4.6	
No	145	95.4	
Anxiety Disorder			
Yes	11	7.2	
No	141	92.8	
Mental Health Status Level			8.41 (1.633)
Visit a Social Worker or Counsellor			
Never	136	89.5	
1-5 times	16	10.5	
Visit a Psychologist			
Never	142	93.4	
1-5 times	10	6.6	

4.2.3 Social Characteristics

Table 4.3 shows the respondents' distribution of social characteristics. The findings indicated that 93.4% (n=142) of the respondents graduated with a diploma in education, 80.3% (n=122) were married, and 57.9% (n=88) had 1 to 3 children. The results also showed that 72.4% (n=110) of them felt a strong sense of belonging to the workplace and felt supported by their supervisor (74.3%, n=113).

Table 4.3: Social Characteristics

	Frequency	Percentage	Mean (SD)
Educational Level			
Diploma	142	93.4	
Degree	10	6.6	
Marital Status			
Single	26	17.1	
Married	122	80.3	
Divorced	2	1.3	
Widowed	2	1.3	
Number of Children			
None	45	29.6	
1 – 3	88	57.9	
4 – 6	19	12.5	
Sense of Belonging to the Workplace			
Very strong	22	14.5	
Strong	110	72.4	
Weak	18	11.8	
Very weak	2	1.3	
Supervisor's Support			
Very supportive	27	17.8	
Supportive	113	74.3	
Not supportive	12	7.9	

4.2.4 Occupational Characteristics

Table 4.4 shows the distribution of the respondents' occupational characteristics. The findings demonstrated that 47.4% (n=72) of the respondents worked in ICU, 26.3% (n=40) worked in NICU, 13.8% (n=21) worked in CCU, and 12.5% (n=19) worked in ER. The results also showed that 42.1% (n=64) of the respondents had working experience between 6 to 10 years and 39.5% (n=60) of them had been working in the critical care department between 6 to 10 years. Most of the respondents (76.3%, n=116) were in grade U29, 94.1% (n=143) were working shift hours, 56.6% (n=86) were working 48 hours and above per week, and 45.4% (n=69) of them did overtime between 6 to 10 hours per week. Additionally, this study also found that 76.3% (n=116) of the respondents were satisfied with their job.

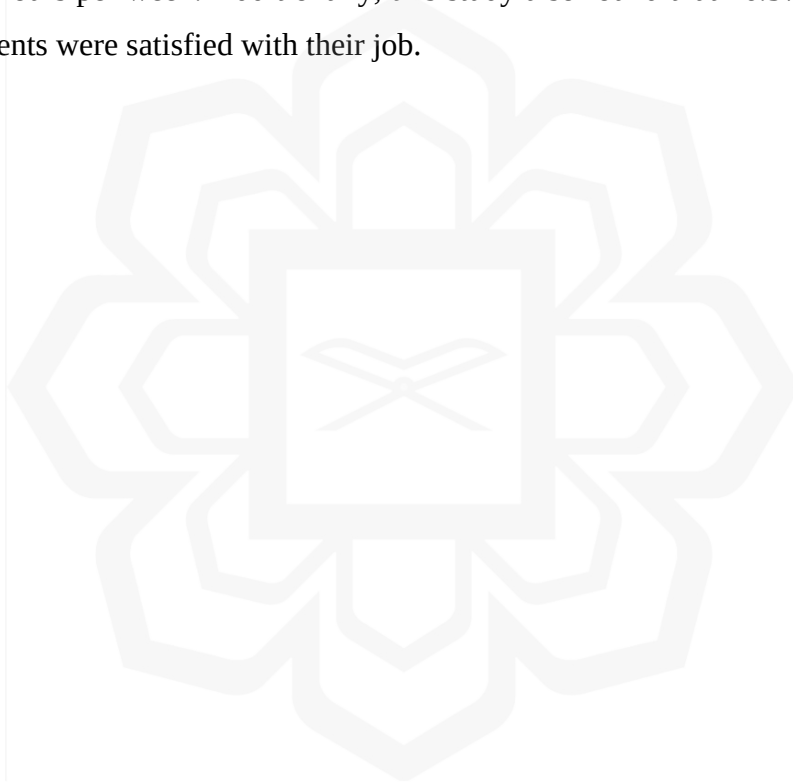


Table 4.4: Occupational Characteristics

	Frequency	Percentage	Mean (SD)
Working Unit			
ED	19	12.5	
ICU	72	47.4	
CCU	21	13.8	
NICU	40	26.3	
Working Experience			10.66 (6.041)
1 – 5 years	24	15.8	
6 – 10 years	64	42.1	
11 – 15 years	33	21.7	
16 years and above	31	20.4	
Working Experience in the Critical Care Department			9.07 (5.429)
1 – 5 years	39	25.7	
6 – 10 years	60	39.5	
11 – 15 years	32	21.1	
16 years and above	21	13.8	
Work Grade			
U29	116	76.3	
U36	2	1.3	
U32	30	19.7	
U41	2	1.3	
U42	2	1.3	
Working Schedule			
Office hour	9	5.9	
Shift hour	143	94.1	
Nurse-to-Patient Ratio			
1:1	17	11.2	
1:2	74	48.7	
1:4	43	28.3	
1:10	18	11.8	
Working Hours Per Week			45.90 (3.541)

Less than 48 hours	66	43.4
48 hours and above	86	56.6
Frequency of Overtime Per Week		9.25 (4.998)
Less than 5	23	15.1
6 - 10	69	45.4
11 and above	60	39.5
Self-rated Job Satisfaction		
Very satisfied	17	11.2
Satisfied	116	76.3
Unsatisfied	19	12.5

4.2.5 Spiritual Characteristics

Table 4.5 shows the distribution of respondents' spiritual characteristics. The findings indicated that 42.8% (n=65) of the respondents chose a few times a year for DUREL 1 (attend religious activities in mosques, churches, temples, or attend religious meetings) while 43.4% (n=66) of them chose daily for DUREL 2 (spend time in private religious activities, such as prayer, meditation, or reading Al-Quran or Bible). The results also showed that 96.1% (n=146) of the respondents chose true for DUREL 3 (In my life, I experience the presence of the Divine (God)), 92.8% (n=141) chose definitely true for DUREL 4 (My religious beliefs are what lie behind my whole approach to life), and 82.2% (n=125) chose definitely true for DUREL 5 (I try hard to carry my religion over into all other dealings in life).

Table 4.5: Spiritual Characteristics

	Frequency	Percentage
DUREL 1		
Never	19	12.5
Once a year or less	42	27.6
A few times a year	65	42.8
A few times a month	15	9.9
Once a week	7	4.6
More than once per week	4	2.6
DUREL 2		
Rarely or never	5	3.3
A few times a month	11	7.2
Once a week	3	2.0
Two or more times/week	18	11.8
Daily	66	43.4
More than once a day	49	32.2
DUREL 3		
Unsure	3	2.0
Tends to be true	3	2.0
Definitely true	146	96.1
DUREL 4		
Unsure	2	1.3
Tends to be true	9	5.9
Definitely true	141	92.8
DUREL 5		
Tends not to be true	1	0.7
Unsure	5	3.3
Tends to be true	21	13.8
Definitely true	125	82.2

4.3 LEVEL OF BURNOUT

There were three subscales of burnout for this study, namely emotional exhaustion (EE), depersonalization (DP), and low personal accomplishment (PA). The results are shown in Tables 4.6 to 4.8. For the EE and DP subscales, a higher score corresponded to a higher degree of burnout. Meanwhile, the higher mean scores of the EE and DP subscales and a lower score on the PA subscale were consistent with burnout.

4.3.1 Emotional Exhaustion

Table 4.6 shows the level of emotional exhaustion of burnout dimensions among critical care nurses at Hospital Sultan Ismail in Johor Bahru. The results indicated that 46.1% (n=70), 28.3% (n=43), and 25.7% (n=39) of the respondents had low, average, and high levels of EE, respectively. Overall, the EE score among critical care nurses at tertiary hospitals in Johor Bahru was found at an average level ($\bar{X}$ =17.84, SD=11.816).

Table 4.6: Level of Emotional Exhaustion

Variables	N	%	Mean	SD	Min.	Max.
Emotional Exhaustion			17.84	11.816	0	50
Low (≤ 14)	70	46.1				
Average (15 – 24)	43	28.3				
High (≥ 25)	39	25.7				

4.3.2 Depersonalization

Table 4.7 shows the level of depersonalization of burnout dimensions among critical care nurses at Hospital Sultan Ismail in Johor Bahru. The results indicated that 58.6% (n=89), 25.0% (n=38), and 16.4% (n=25) of the respondents experienced low, average, and high levels of DP, respectively. Overall, the DP score among critical care nurses at tertiary hospitals in Johor Bahru was found at an average level ($\bar{X}$ =4.53, SD=5.313).

Table 4.7: Level of Depersonalization

Variables	N	%	Mean	SD	Min.	Max.
Depersonalization			4.53	5.313	0	26
Low (≤ 3)	89	58.6				
Average (4 – 9)	38	25.0				
High (≥ 10)	25	16.4				

4.3.3 Personal Accomplishment

Table 4.8 shows the level of personal accomplishment of burnout dimensions among critical care nurses at tertiary hospitals in Johor Bahru. The results found that 31.6% (n=48), 33.6% (n=51), and 34.9% (n=53) of the respondents experienced low, average, and high levels of burnout in reduced PA. Overall, the score of PA among critical care nurses at tertiary hospitals in Johor Bahru was at the average level ($\bar{X}$ =34.75, SD=8.514).

Table 4.8: Level of Personal Accomplishment

Variables	n	%	Mean	SD	Min.	Max.
Personal Accomplishment			34.75	8.514	10	48
Low (≥ 40)	48	31.6				
Average (33 – 39)	51	33.6				
High (≤ 32)	53	34.9				

4.4 ASSOCIATION BETWEEN BIOPSYCHOSOCIAL CHARACTERISTICS AND BURNOUT: BIVARIATE ANALYSIS

A chi-square test was conducted between the biopsychosocial characteristics and burnout dimensions. Some items had to be grouped due to low responses. For example, the races of Chinese, Indian, and others were grouped into non-Malay, medical illness was grouped into medical illness or no medical illness, and exercise status was grouped into no exercise and exercise. The frequency of visiting doctors, general practitioners, social workers, counsellors, and psychologists was grouped into yes or no while the marital status of single, widowed, and divorced was grouped as unmarried. Finally, the amount of stress in life was grouped into stressful and not stressful.

4.4.1 Association between Biopsychosocial Characteristics and Emotional Exhaustion

The study found significant associations between emotional exhaustion with the amount of stress in life ($p=0.001$) and supervisor support ($p=0.001$). Table 4.9 summarises the results concerning the associations between emotional exhaustion and biopsychosocial characteristics.

Table 4.9: Association between Biopsychosocial Characteristics and Emotional Exhaustion

Biopsychosocial Characteristics	Emotional Exhaustion			X^2	df	p-value
	Low n (%)	Average n (%)	High n (%)			
Age				6.076	4	0.194
20 – 29 years	16 (34.8)	17 (37.0)	13 (28.3)			
30 – 39 years	40 (50.6)	17 (21.5)	22 (27.8)			
40 years and above	14 (51.9)	9 (33.3)	4 (14.8)			
Gender				0.135	2	0.935
Male	4 (44.4)	3 (33.3)	2 (22.2)			
Female	66 (46.2)	40 (28.0)	37 (25.9)			
Race				1.478	2	0.478
Malay	60 (44.4)	40 (29.6)	35 (25.9)			
Non-Malay	10 (58.8)	3 (17.6)	4 (23.5)			
Medical Illness				0.770	2	0.680
No medical illness	58 (44.6)	38 (29.2)	34 (26.2)			
Have medical illness	12 (54.5)	5 (22.7)	5 (22.7)			
Exercise Status				1.681	2	0.431
No exercise	38 (43.2)	24 (27.3)	26 (29.5)			
Do exercise	32 (50.0)	19 (29.7)	13 (20.3)			
Visit a Family Doctor or General Practitioner				2.082	2	0.353
Yes	18 (37.5)	16 (33.3)	14 (29.2)			
No	52 (50.0)	27 (26.0)	25 (24.0)			
Amount of Stress in Life				33.389	2	0.001**
Not stressful	51 (63.0)	24 (29.6)	6 (7.4)			
Stressful	19 (26.8)	19 (26.8)	33 (46.5)			
Anxiety Disorder				5.861	2	0.053
Yes	2 (18.2)	3 (27.3)	6 (54.5)			
No	68 (48.2)	40 (28.4)	33 (23.4)			
Visit a Social Worker or Counsellor				3.201	2	0.202

Biopsychosocial Characteristics	Emotional Exhaustion			X^2	df	p-value
	Low n (%)	Average n (%)	High n (%)			
No	65 (47.8)	39 (28.7)	32 (23.5)			
Yes	5 (31.3)	4 (25.0)	7 (43.8)			
Visit a Psychologist				1.468	2	0.480
No	67 (47.2)	40 (28.2)	35 (24.6)			
Yes	3 (30.0)	3 (30.0)	4 (40.0)			
Educational Level				0.181	2	0.914
Diploma	65 (45.8)	40 (28.2)	37 (26.1)			
Degree	5 (50.0)	3 (30.0)	2 (20.0)			
Marital Status				0.648	2	0.723
Unmarried	12 (40.0)	10 (33.3)	8 (26.7)			
Married	58 (47.5)	33 (27.0)	31 (25.4)			
Number of Children				2.816	4	0.589
None	19 (42.2)	14 (31.1)	12 (26.7)			
1 – 3	39 (44.3)	26 (29.5)	23 (26.1)			
4 – 6	12 (63.2)	3 (15.8)	4 (21.1)			
Sense of Belonging to the Workplace				8.360	4	0.079
Very strong	14 (63.6)	4 (18.2)	4 (18.2)			
Strong	52 (47.3)	31 (28.2)	27 (24.5)			
Weak	4 (20.0)	8 (40.0)	8 (40.0)			
Supervisor's Support				18.295	4	0.001**
Very supportive	16 (59.3)	6 (22.2)	5 (18.5)			
Supportive	52 (46.0)	36 (31.9)	25 (22.1)			
Not supportive	2 (16.7)	1 (8.3)	9 (75.0)			

**p≤0.005

*p≤0.05

4.4.2 Association between Biopsychosocial Characteristics and Depersonalization

This study also observed significant associations between the depersonalization of burnout and the amount of stress in life ($p=0.010$), anxiety disorder ($p=0.018$), and number of children ($p=0.013$). Table 4.10 summarises the associations between biopsychosocial characteristics and depersonalization.



Table 4.10 Association between Biopsychosocial Characteristics and
Depersonalization

Biopsychosocial Characteristics	Depersonalization			X^2	df	p-value
	Low n (%)	Average n (%)	High n (%)			
Age				3.436	4	0.488
20 – 29 years	22 (47.8)	15 (32.6)	9 (19.6)			
30 – 39 years	49 (62.0)	18 (22.8)	12 (15.2)			
40 years and above	18 (66.7)	5 (18.5)	4 (14.8)			
Gender				0.446	2	0.800
Male	5 (55.6)	3 (33.3)	1 (11.1)			
Female	84 (58.7)	35 (24.5)	24 (16.8)			
Race				4.905	2	0.086
Malay	75 (55.6)	37 (27.4)	23 (17.0)			
Non-Malay	14 (82.4)	1 (5.9)	2 (11.8)			
Medical Illness				0.178	2	0.915
No medical illness	76 (58.5)	32 (24.6)	22 (16.9)			
Have medical illness	13 (59.1)	6 (27.3)	3 (13.6)			
Exercise Status				3.025	2	0.220
No exercise	51 (58.0)	19 (21.6)	18 (20.5)			
Do exercise	38 (59.4)	19 (29.7)	7 (10.9)			
Visit a Family Doctor or General Practitioner				1.444	2	0.486
No	64 (61.5)	25 (24.0)	15 (14.4)			
Yes	25 (52.1)	13 (27.1)	10 (20.8)			
Amount of Stress in Life				9.177	2	0.010*
Not stressful	55 (67.9)	19 (23.5)	7 (8.6)			
Stressful	34 (58.6)	19 (26.8)	18 (25.4)			
Mood Disorder				4.276	2	0.118
Yes	2 (28.6)	2 (28.6)	3 (42.9)			
No	87 (60.0)	36 (24.8)	22 (15.2)			
Anxiety Disorder				8.072	2	0.018*
Yes	3 (27.3)	3 (27.3)	5 (45.5)			

Biopsychosocial Characteristics	Depersonalization			X^2	df	p-value
	Low n (%)	Average n (%)	High n (%)			
No	86 (61.0)	35 (24.8)	20 (14.2)			
Visit a Social Worker or Counsellor				1.744	2	0.418
No	82 (60.3)	33 (24.3)	21 (15.4)			
Yes	7 (43.8)	5 (31.3)	4 (25.0)			
Visit a Psychologist				1.436	2	0.488
No	84 (59.2)	36 (25.4)	22 (15.5)			
Yes	5 (50.0)	2 (20.0)	3 (30.0)			
Educational Level				0.193	2	0.908
Diploma	83 (58.5)	36 (25.4)	23 (16.2)			
Degree	6 (60.0)	2 (20.0)	2 (20.0)			
Marital Status				4.486	2	0.106
Unmarried	14 (46.7)	12 (40.0)	4 (13.3)			
Married	75 (61.5)	26 (21.3)	21 (17.2)			
Number of Children				12.761	4	0.013*
None	20 (44.4)	19 (42.2)	6 (13.3)			
1 – 3	55 (62.5)	15 (17.0)	18 (20.5)			
4 – 6	14 (73.7)	4 (21.1)	1 (5.3)			
Sense of Belonging to the Workplace				7.367	4	0.118
Very strong	16 (72.7)	3 (13.6)	3 (13.6)			
Strong	66 (60.0)	26 (23.6)	18 (16.4)			
Weak	7 (35.0)	9 (45.0)	4 (20.0)			
Supervisor's Support				2.437	4	0.656
Very supportive	19 (70.4)	5 (18.5)	3 (11.1)			
Supportive	64 (56.6)	30 (26.5)	19 (16.8)			
Not supportive	6 (50.0)	3 (25.0)	3 (25.0)			

**p≤0.005

*p≤0.05

4.4.3 Association between Biopsychosocial Characteristics and Personal Accomplishment

The results also indicated significant associations between reduced personal accomplishment and a sense of belonging to the workplace ($p=0.001$) and supervisor's support ($p=0.001$). Table 4.11 summarises the associations between biopsychosocial characteristics and personal accomplishment.



Table 4.11: Association between Biopsychosocial Characteristics and Personal Accomplishment

Biopsychosocial Characteristics	Personal Accomplishment			X^2	df	p-value
	Low n (%)	Average n (%)	High n (%)			
Age				2.655	4	0.617
20 – 29 years	14 (30.4)	13 (28.3)	19 (41.3)			
30 – 39 years	27 (34.2)	26 (32.9)	26 (32.9)			
40 years and above	7 (25.9)	12 (44.4)	8 (29.6)			
Gender				0.874	2	0.646
Male	4 (44.4)	2 (22.2)	3 (33.3)			
Female	44 (30.8)	49 (34.3)	50 (35.0)			
Race				0.875	2	0.646
Malay	42 (31.1)	47 (34.8)	46 (34.1)			
Non-Malay	6 (35.3)	4 (23.5)	7 (41.2)			
Medical Illness				4.372	2	0.112
No medical illness	45 (34.6)	43 (33.1)	42 (32.3)			
Have medical illness	3 (13.6)	8 (33.6)	11 (50.0)			
Exercise Status				5.009	2	0.082
No exercise	26 (29.5)	25 (28.4)	37 (42.0)			
Do exercise	22 (34.4)	26 (40.6)	16 (25.0)			
Visit a Family Doctor or General Practitioner				2.591	2	0.274
Never	34 (32.7)	38 (36.5)	32 (30.8)			
Yes	14 (29.2)	13 (27.1)	21 (43.8)			
Amount of Stress in Life				4.546	2	0.103
Not stressful	31 (38.3)	27 (33.3)	23 (28.4)			
Stressful	17 (23.9)	24 (33.8)	30 (42.3)			
Mood Disorder				0.210	2	0.901
Yes	2 (28.6)	2 (28.6)	3 (42.9)			
No	46 (31.7)	49 (33.8)	50 (34.5)			
Anxiety Disorder				0.233	2	0.890
Yes	4 (36.4)	3 (27.3)	4 (36.4)			

Biopsychosocial Characteristics	Personal Accomplishment			X^2	df	p-value
	Low n (%)	Average n (%)	High n (%)			
No	44 (31.2)	48 (34.0)	49 (34.8)			
Visit a Social Worker or Counsellor				0.678	2	0.713
No	44 (32.4)	46 (33.8)	46 (33.8)			
Yes	4 (25.0)	5 (31.3)	7 (43.8)			
Visit a Psychologist				0.214	2	0.899
No	45 (31.7)	47 (33.1)	50 (35.2)			
Yes	3 (30.0)	4 (40.0)	3 (30.0)			
Educational Level				1.550	2	0.461
Diploma	45 (31.7)	46 (32.4)	51 (35.9)			
Degree	3 (30.0)	5 (50.0)	2 (20.0)			
Marital Status				1.605	2	0.448
Unmarried	8 (26.7)	13 (43.3)	9 (30.0)			
Married	40 (32.8)	38 (31.1)	44 (36.1)			
Number of Children				4.435	4	0.350
None	12 (26.7)	17 (37.8)	16 (35.6)			
1 – 3	28 (31.8)	26 (29.5)	34 (38.6)			
4 – 6	8 (42.1)	8 (42.1)	3 (15.8)			
Sense of Belonging to the Workplace				18.313	4	0.001**
Very strong	12 (54.5)	5 (22.7)	5 (22.7)			
Strong	35 (31.8)	41 (37.3)	34 (30.9)			
Weak	1 (5.0)	5 (25.0)	14 (70.0)			
Supervisor's Support				19.386	4	0.001**
Very supportive	17 (63.0)	9 (33.3)	1 (3.7)			
Supportive	28 (24.8)	38 (33.6)	47 (41.6)			
Not supportive	3 (25.0)	4 (33.3)	5 (41.7)			

**p≤0.005

*p≤0.05

4.5 ASSOCIATION BETWEEN SPIRITUAL CHARACTERISTICS AND BURNOUT: BIVARIATE ANALYSIS

A chi-square test was conducted between the spiritual characteristics and burnout dimensions. Some items needed to be grouped due to low responses. For instance, the options for a few times a month, once a week, and more than once a week were grouped into a few times a month in DUREL 1; the options for rarely or never, a few times a month, and once a week were grouped into at least once a month in DUREL 2; while the options for tend not to be true, unsure, and tend to be true were grouped into unsure to be true in DUREL 3, DUREL 4, and DUREL 5.



4.5.1 Association between Spiritual Characteristics and Emotional Exhaustion

Table 4.12 shows no significant associations were found between spiritual characteristics and emotional exhaustion.

Table 4.12: Association between Spiritual Characteristics and Emotional Exhaustion

Spiritual Characteristics	Emotional Exhaustion			X^2	df	p-value
	Low n (%)	Average n (%)	High n (%)			
DUREL 1				4.499	6	0.610
Never	8 (42.1)	3 (15.8)	8 (42.1)			
Once a year or less	20 (47.6)	12 (28.6)	10 (23.8)			
A few times a year	28 (43.1)	21 (32.3)	16 (24.6)			
A few times a month	14 (53.8)	7 (26.9)	5 (19.2)			
DUREL 2				11.467	6	0.075
At least once a month	10 (52.6)	2 (10.5)	7 (36.8)			
Few times/week	6 (33.3)	10 (55.6)	2 (11.1)			
Daily	31 (47.0)	20 (30.3)	15 (22.7)			
More than once a day	23 (46.9)	11 (22.4)	15 (30.6)			
DUREL 3				0.274	2	0.872
Unsure to be true	3 (50.0)	2 (33.3)	1 (16.7)			
Definitely true	67 (45.9)	41 (28.1)	38 (26.0)			
DUREL 4				1.483	2	0.476
Unsure to be true	7 (63.9)	2 (18.2)	2 (18.2)			
Definitely true	63 (44.7)	42 (29.1)	37 (26.2)			
DUREL 5				0.424	2	0.809
Unsure to be true	11 (40.7)	8 (29.6)	8 (29.6)			
Definitely true	59 (47.2)	35 (28.0)	31 (24.8)			

4.5.2 Association between Spiritual Characteristics and Depersonalization

Meanwhile, the results in Table 4.13 indicate no significant associations between spiritual characteristics and depersonalization.

Table 4.13: Association between Spiritual Characteristics and Depersonalization

Spiritual Characteristics	Depersonalization			X^2	df	p-value
	Low n (%)	Average n (%)	High n (%)			
DUREL 1				9.937	6	0.127
Never	8 (42.1)	6 (31.6)	5 (26.3)			
Once a year or less	21 (50.0)	12 (28.6)	9 (21.4)			
A few times a year	40 (61.5)	14 (21.5)	11 (16.9)			
A few times a month	20 (76.9)	6 (23.1)	0 (0.0)			
DUREL 2				3.885	6	0.692
At least once a month	12 (63.2)	2 (10.5)	5 (26.3)			
Few times/week	11 (61.1)	5 (27.8)	2 (11.1)			
Daily	39 (59.1)	18 (27.3)	9 (13.6)			
More than once a day	27 (55.1)	13 (26.5)	9 (18.4)			
DUREL 3				2.217	2	0.330
Unsure to be true	5 (83.3)	0 (0.0)	1 (16.7)			
Definitely true	84 (57.5)	38 (26.0)	24 (16.4)			
DUREL 4				1.018	2	0.601
Unsure to be true	8 (72.7)	2 (18.2)	1 (9.1)			
Definitely true	81 (57.4)	36 (25.5)	24 (17.0)			
DUREL 5				2.147	2	0.342
Unsure to be true	14 (51.9)	6 (22.2)	7 (25.9)			
Definitely true	75 (60.0)	32 (25.6)	18 (14.4)			

4.5.3 Association between Spiritual Characteristics and Personal Accomplishment

This study also found significant associations between personal accomplishment and DUREL 1 ($p=0.045$) and DUREL 5 ($p=0.011$). The results in Table 4.14 showed the associations between spiritual characteristics and personal accomplishment.

Table 4.14: Association between Spiritual Characteristics and Personal Accomplishment

Spiritual Characteristics	Personal Accomplishment			X^2	df	p-value
	Low n (%)	Average n (%)	High n (%)			
DUREL 1				12.896	6	0.045*
Never	6 (31.6)	4 (21.1)	9 (47.4)			
Once a year or less	14 (33.3)	8 (19.0)	20 (47.6)			
A few times a year	17 (26.2)	29 (44.6)	19 (29.2)			
A few times a month	11 (42.3)	10 (38.5)	5 (19.2)			
DUREL 2				11.702	6	0.069
At least once a month	5 (26.3)	3 (15.8)	11 (57.9)			
Few times/week	6 (33.3)	3 (16.7)	9 (50.0)			
Daily	18 (27.3)	28 (42.4)	20 (30.3)			
More than once a day	19 (38.8)	17 (34.7)	13 (26.5)			
DUREL 3				0.850	2	0.654
Unsure to be true	1 (16.7)	2 (33.3)	3 (50.0)			
Definitely true	47 (32.2)	49 (33.6)	50 (34.2)			
DUREL 4				2.130	2	0.345
Unsure to be true	2 (18.2)	3 (27.3)	6 (54.5)			
Definitely true	46 (32.6)	48 (34.0)	47 (33.3)			
DUREL 5				9.093	2	0.011*
Unsure to be true	4 (14.8)	7 (25.9)	16 (59.3)			
Definitely true	44 (35.2)	44 (35.2)	37 (29.6)			

** $p \leq 0.005$

* $p \leq 0.05$

4.6 ASSOCIATION BETWEEN OCCUPATIONAL CHARACTERISTICS AND BURNOUT: BIVARIATE ANALYSIS

A chi-square test was conducted to explore the association between occupational characteristics and burnout dimensions. Some items needed to be grouped due to low responses, whereby work grade was grouped into grade U29 and grade U32 and above while job satisfaction was grouped into satisfied and unsatisfied.

4.6.1 Association between Occupational Characteristics and Emotional Exhaustion

Table 4.15 shows the associations between emotional exhaustion and working unit ($p=0.001$), nurse-to-patient ratio ($p=0.001$), frequency of overtime per week ($p=0.004$), and self-rated job satisfaction ($p=0.001$).

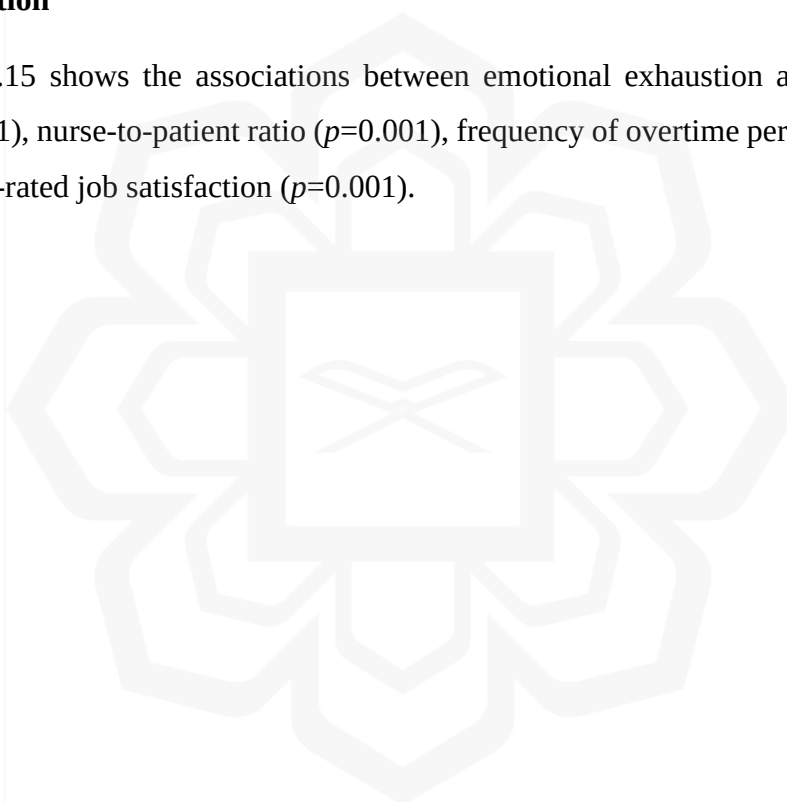


Table 4.15: Association between Occupational Characteristics and Emotional Exhaustion

Occupational Characteristics	Emotional Exhaustion			X^2	df	p-value
	Low n (%)	Average n (%)	High n (%)			
Working Unit				40.470	6	0.001**
ED	2 (10.5)	6 (31.6)	11 (57.9)			
ICU	43 (59.7)	24 (33.3)	5 (6.9)			
CCU	12 (57.1)	6 (28.6)	3 (14.3)			
NICU	13 (32.5)	7 (17.5)	20 (50.0)			
Working Experience				8.125	6	0.229
1 – 5 years	7 (29.2)	8 (33.3)	9 (37.5)			
6 – 10 years	27 (42.2)	20 (31.3)	17 (26.6)			
11 – 15 years	18 (54.5)	6 (18.2)	9 (27.3)			
16 years and above	18 (58.1)	9 (29.0)	4 (12.9)			
Working Experience in the Critical Care Department				7.197	6	0.303
1 – 5 years	13 (33.3)	12 (30.8)	14 (35.9)			
6 – 10 years	27 (45.0)	18 (30.0)	15 (25.0)			
11 – 15 years	20 (62.5)	6 (18.8)	6 (18.8)			
16 years and above	10 (47.6)	7 (33.3)	4 (19.0)			
Work Grade				3.212	2	0.201
U29	49 (42.2)	34 (29.3)	33 (28.4)			
U32 & above	21 (58.3)	9 (25.0)	6 (16.7)			
Working Schedule				1.405	2	0.495
Office hour	5 (55.6)	1 (11.1)	3 (33.3)			
Shift hour	65 (45.5)	42 (29.4)	36 (25.2)			
Nurse-to-Patient Ratio				39.377	6	0.001**
1:1	10 (58.8)	5 (29.4)	2 (11.8)			
1:2	44 (59.5)	24 (32.4)	6 (8.1)			
1:4	15 (34.9)	8 (18.6)	20 (46.5)			
1:10	1 (5.6)	6 (33.3)	11 (61.1)			
Working Hours Per Week				4.945	2	0.084

Occupational Characteristics	Emotional Exhaustion			X^2	df	p-value
	Low n (%)	Average n (%)	High n (%)			
Less than 48 hours	34 (51.5)	21 (31.8)	11 (16.7)			
48 hours and above	36 (41.9)	22 (25.6)	28 (32.6)			
Frequency Of Overtime Per Week (Hour)				15.451	4	0.004**
Less than 5	13 (56.5)	8 (34.8)	2 (8.7)			
6 – 10	40 (58.0)	14 (20.3)	15 (21.7)			
11 and above	17 (28.3)	21 (35.0)	22 (36.7)			
Self-rated Job Satisfaction				34.435	2	0.001**
Satisfied	70 (52.6)	39 (29.3)	24 (18.0)			
Unsatisfied	0 (0.0)	4 (21.1)	15 (78.9)			

** $p \leq 0.005$

* $p \leq 0.05$

4.6.2 Association between Occupational Characteristics and Depersonalization

As shown in Table 4.16, there were significant associations between depersonalization and working unit ($p=0.001$), nurse-to-patient ratio ($p=0.001$), frequency of overtime per week ($p=0.001$), and self-rated job satisfaction ($p=0.001$).

Table 4.16: Association between Occupational Characteristics and Depersonalization

Occupational Characteristics	Depersonalization			X^2	df	p-value
	Low n (%)	Average n (%)	High n (%)			
Working Unit				31.189	6	0.001**
ED	6 (31.6)	4 (21.1)	9 (47.4)			
ICU	52 (72.2)	18 (25.0)	2 (2.8)			
CCU	14 (66.7)	5 (23.8)	2 (9.5)			
NICU	17 (42.5)	11 (27.5)	12 (30.0)			
Working Experience				7.818	6	0.252
1 – 5 years	11 (45.8)	9 (37.5)	4 (16.7)			
6 – 10 years	33 (51.6)	17 (26.6)	14 (21.9)			
11 – 15 years	24 (72.7)	6 (18.2)	3 (9.1)			
16 years and above	21 (67.7)	6 (19.4)	4 (12.9)			
Working Experience in the Critical Care Department				7.629	6	0.267
1 – 5 years	20 (51.3)	14 (35.9)	5 (12.8)			
6 – 10 years	32 (53.3)	14 (23.3)	14 (23.3)			
11 – 15 years	23 (71.9)	6 (18.8)	3 (9.4)			
16 years and above	14 (66.7)	4 (19.0)	3 (14.3)			
Work Grade				2.355	2	0.308
U29	64 (55.2)	31 (26.7)	21 (18.1)			
U32 & above	25 (69.4)	7 (19.4)	4 (11.1)			
Working Schedule				1.508	2	0.471
Office hour	7 (77.8)	1 (11.1)	1 (11.1)			
Shift hour	82 (57.3)	37 (25.9)	24 (16.8)			
Nurse-to-patient ratio				31.398	6	0.001**
1:1	12 (70.6)	4 (23.5)	1 (5.9)			
1:2	53 (71.6)	18 (24.3)	3 (4.1)			
1:4	18 (41.9)	13 (30.2)	12 (27.9)			
1:10	6 (33.3)	3 (16.7)	9 (50.0)			
Working Hours Per Week				5.234	2	0.073
Less than 48 hours	40 (60.6)	20 (30.3)	6 (9.1)			

48 hours and above	49 (57.0)	18 (20.9)	19 (22.1)			
Frequency of Overtime Per Week				26.233	4	0.001**
Less than 5	22 (95.7)	0 (0.0)	1 (4.3)			
6 – 10	44 (63.8)	18 (26.1)	7 (10.1)			
11 and above	23 (38.3)	20 (33.3)	17 (28.3)			
Self-rated Job Satisfaction				20.623	2	0.001**
Satisfied	86 (64.7)	31 (23.3)	16 (12.0)			
Unsatisfied	3 (15.8)	7 (36.8)	9 (47.4)			

** $p \leq 0.005$

* $p \leq 0.05$

4.6.3 Association between Occupational Characteristics and Personal Accomplishment

This study also found a significant association between personal accomplishment and self-rated job satisfaction ($p=0.001$), as shown in Table 4.17.

Table 4.17: Association between Occupational Characteristics and Personal Accomplishment

Occupational Characteristics	Personal Accomplishment			X^2	df	p-value
	Low n (%)	Average n (%)	High n (%)			
Working Unit				3.217	6	0.781
ED	5 (26.3)	5 (26.3)	9 (47.4)			
ICU	26 (36.1)	23 (31.9)	23 (31.9)			
CCU	7 (33.3)	8 (38.1)	6 (28.6)			
NICU	10 (25.0)	15 (37.5)	15 (37.5)			
Working Experience				4.531	6	0.605
1 – 5 years	5 (20.8)	8 (33.3)	11 (45.8)			
6 – 10 years	22 (34.4)	19 (29.7)	23 (35.9)			
11 – 15 years	13 (39.4)	12 (36.4)	8 (24.2)			
16 years and above	8 (25.8)	12 (38.7)	11 (35.5)			
Working Experience in the Critical Care Department				9.648	6	0.140
1 – 5 years	8 (20.5)	15 (38.5)	16 (41.0)			
6 – 10 years	23 (38.3)	19 (31.7)	18 (30.0)			
11 – 15 years	14 (43.8)	7 (21.9)	11 (34.4)			
16 years and above	3 (14.3)	10 (47.6)	8 (38.1)			
Work Grade				0.648	2	0.723
U29	38 (32.8)	37 (31.9)	41 (35.3)			
U32 & above	10 (27.8)	14 (38.9)	12 (33.3)			
Working Schedule				2.656	2	0.265
Office hour	1 (11.1)	5 (55.6)	3 (33.3)			
Shift hour	47 (32.9)	46 (32.2)	50 (35.0)			
Nurse-to-Patient Ratio				3.943	6	0.684
1:1	7 (41.2)	5 (29.4)	5 (29.4)			
1:2	26 (35.1)	26 (35.1)	22 (29.7)			
1:4	10 (23.3)	15 (34.9)	18 (41.9)			
1:10	5 (27.8)	5 (27.8)	8 (44.4)			
Working Hours Per Week				4.261	2	0.119

Occupational Characteristics	Personal Accomplishment			X^2	df	p-value
	Low n (%)	Average n (%)	High n (%)			
Less than 48 hours	19 (28.8)	28 (42.4)	19 (28.8)			
48 hours and above	29 (33.7)	23 (26.7)	34 (39.5)			
Frequency of Overtime Per Week				8.362	4	0.079
Less than 5	8 (34.8)	10 (43.5)	5 (21.7)			
6 – 10	25 (36.2)	25 (36.2)	19 (27.5)			
11 and above	15 (25.0)	16 (26.7)	29 (48.3)			
Self-rated Job Satisfaction				14.528	2	0.001**
Satisfied	45 (33.8)	49 (36.8)	39 (29.3)			
Unsatisfied	3 (15.8)	2 (10.5)	14 (73.7)			

**p≤0.005

*p≤0.05

4.7 PREDICTORS OF BURNOUT AMONG CRITICAL CARE NURSES: A MULTIVARIATE ANALYSIS

Multivariable logistic regression analysis was performed in this study to identify the predictor factors independently associated with burnout in at least one subscale, with $p < 0.05$ was considered to be significant. Ordinal logistic regression is a modelling tool widely applied to analyse data, particularly where an ordinal nature is present or has been created (Williams, 2006). This study measured the dependent variables by order (low, average, and high). In this light, ordinal logistic regression is an appropriate statistical analysis. Furthermore, ordinal models are more effective at providing generalised visualisations by comparing the impact of independent variables on burnout levels (Lelisho et al., 2022). All the significant factors were included in the regression analysis.

4.7.1 Emotional Exhaustion

The model coefficient test in this study was statistically significant ($p = 0.001$) and able to explain between 39.1% (Cox and Snell R square) and 44.4% (Nagelkerke R square) of variability in the EE level. The model was also found to be valid and had a good fit ($p = 0.517$) while the multivariate analysis indicated that the predictor factors for EE included stressful life (OR=4.231, 95% confidence interval [CI]: 0.702-2.182; $p = 0.001$), working in ED (OR=0.001, 95% CI: 18.185-15.616; $p = 0.001$), nurse-to-patient ratio of 1:1 (OR=0.001, 95% CI: 20.075-13.849; $p = 0.001$) and 1:2 (OR=0.001, 95% CI: 19.866-14.041; $p = 0.001$), and unsatisfied with the job (OR=11.372, 95% CI: 0.974-3.889; $p = 0.001$). Table 4.18 shows the multivariate analysis results for emotional exhaustion.

Then, Pearson's correlation coefficient was used to check the collinearity of independent variables (Shrestha, 2020). For the predictors factors associated with emotional exhaustion as shown in Figure 4.1, the correlation coefficient of amount of stress with nurse-to-patient ratio ($r = 0.345$, $p < 0.01$), followed by job satisfaction ($r = 0.395$, $p < 0.01$) and between nurse-to-patient ratio with job satisfaction ($r = 0.390$, $p < 0.01$). Here the absolute value of Pearson correlation coefficient is less than 0.8, it shows collinearity is very less likely to exist (Shrestha, 2020).

Table 4.18: Multivariate Analysis of Predictor Factors for Emotional Exhaustion

Domain	Emotional Exhaustion					
	Coefficient	Odd Ratio	Std. Error	Wald	95% CI	p-value ^a
Biopsychosocial Characteristics						
1. Amount of Stress in Life (Reference = Not Stressful)						
Stressful	1.442	4.231	0.378	14.596	0.702-2.182	0.001**
2. Supervisor's Support (Reference = Not supportive)						
Very supportive	0.392	1.479	0.917	0.182	1.406-2.190	0.669
Supportive	-0.336	0.715	0.808	0.173	1.920-1.248	0.678
Occupational Characteristics						
Working unit (Reference = NICU)						
ED	-16.901	0.001	0.656	664.746	18.185-15.616	0.001**
ICU	-1.543	0.214	1.510	1.043	4.503-1.418	0.307
CCU	-1.136	0.321	1.501	0.573	4.079-1.806	0.449
Nurse-to-patient ratio (Reference = 1:10)						
1:1	-16.962	0.000	1.588	114.074	20.075-13.849	0.001**
1:2	-16.954	0.000	1.486	130.164	19.866-14.041	0.001**
1:4	-17.120	0.000	0.000		17.120-17.120	
Frequency of overtime per week (Reference = 11 and above)						
Less than 5	-0.439	0.644	0.581	0.573	1.578-0.699	0.449
6 – 10	-0.325	0.723	0.427	0.581	1.161-0.511	0.446
Self-rated job satisfaction (Reference = Satisfied)						
Unsatisfied	2.431	11.372	0.744	10.689	0.974-3.889	0.001**

a = ordinal logistic regression

**p-value ≤ 0.005 considered significant

Correlations				
		Thinking about the amount of stress in your life, would you say that most of your days are?	What is your average daily nurse-to-patient ratio?	How satisfied are you with your job in general?
Thinking about the amount of stress in your life, would you say that most of your days are?	Pearson Correlation	1	.345**	.395**
	Sig. (2-tailed)		<.001	<.001
	N	152	152	152
What is your average daily nurse-to-patient ratio?	Pearson Correlation	.345**	1	.390**
	Sig. (2-tailed)	<.001		<.001
	N	152	152	152
How satisfied are you with your job in general?	Pearson Correlation	.395**	.390**	1
	Sig. (2-tailed)	<.001	<.001	
	N	152	152	152

** . Correlation is significant at the 0.01 level (2-tailed).

Figure 4.1: Pearson's correlation coefficient for predictor of emotional exhaustion

4.7.2 Depersonalization

The model coefficient test was statistically significant ($p=0.001$) and the model was able to explain between 29.5% (Cox and Snell R square) and 34.6% (Nagelkerke R square) of variability in the DP level. It indicates that the model was valid and had a good fit ($p=0.311$). The multivariate analysis showed that the predictor factors for depersonalization are less than 5 hours of overtime per week (OR=0.046, 95% CI: 5.251-0.913; $p=0.005$) and unsatisfied with the job (OR=3.226, 95% CI: 2.230-0.113; $p=0.030$). Table 4.19 shows the multivariate analysis results for depersonalisation.

For the predictors factors associated with depersonalization as shown in Figure 4.2, the correlation coefficient of job satisfaction with overtime ($r = 0.229$, $p < 0.005$). Since the absolute value of Pearson correlation coefficient is less than 0.8, it shows collinearity is very less likely to exist (Shrestha, 2020).

Table 4.19: Multivariate Analysis of Predictor Factors for Depersonalization

Domain	Depersonalization					
	Coefficient	Odd Ratio	Std. Error	Wald	95% CI	p-value ^a
Biopsychosocial Characteristics						
Amount of stress in life (Reference = Not stressful)						
Stressful	0.331	1.393	0.386	0.738	0.425-1.087	0.390
Anxiety disorder (Reference = No)						
Yes	-0.047	0.954	0.706	0.004	1.431-1.336	0.947
Number of children (Reference = 4-6)						
None	1.034	2.813	0.724	2.042	0.384-2.453	0.153
1 – 3	0.959	2.610	0.661	2.107	0.336-2.255	0.147
Occupational Characteristics						
Working unit (Reference = NICU)						
ED	0.797	2.219	1.912	0.174	2.950-4.544	0.677
ICU	-1.572	0.208	1.502	1.096	4.515-1.371	0.295
CCU	-0.901	0.406	1.471	0.375	3.785-1.983	0.540
Nurse-to-patient ratio (Reference = 1:10)						
1:1	1.413	4.106	2.573	0.301	3.630-6.455	0.583
1:2	1.179	3.252	2.491	0.224	3.702-6.061	0.636
1:4	0.973	2.647	1.969	0.244	2.886-4.833	0.621
Frequency of overtime per week (Reference = 11 and above)						
Less than 5	-3.082	0.046	1.107	7.753	5.251-0.913	0.005**
6 – 10	-0.752	0.472	0.424	3.145	1.583-0.079	0.076
Self-rated job satisfaction (Reference = Satisfied)						
Unsatisfied	1.171	3.226	0.540	4.702	2.230-0.113	0.030*

a = ordinal logistic regression

**p-value ≤ 0.005 considered significant*p-value ≤ 0.05 consider significant

Correlations			
		How satisfied are you with your job in general?	Frequency of overtime per week
How satisfied are you with your job in general?	Pearson Correlation	1	.229**
	Sig. (2-tailed)		.005
	N	152	151
Frequency of overtime per week	Pearson Correlation	.229**	1
	Sig. (2-tailed)	.005	
	N	151	151

** . Correlation is significant at the 0.01 level (2-tailed).

Figure 4.2: Pearson's correlation coefficient for predictor of depersonalization

4.7.3 Personal Accomplishment

The model coefficient test was statistically significant ($p=0.001$) and the model was able to explain between 23.7% (Cox and Snell R square) and 26.7% (Nagelkerke R square) of variability in the PA level. Furthermore, the model was valid and had a good fit ($p=0.422$). The multivariate analysis showed that the predictor factor for high personal accomplishment had a strong sense of belonging in the workplace (OR=0.244, 95% CI: 2.563-0.257; $p=0.017$). Table 4.20 shows the multivariate analysis results for personal accomplishment.

Table 4.20: Multivariate Analysis of Predictor Factors for Personal Accomplishment

Domain	Personal Accomplishment					
	Coefficient	Odd Ratio	Std. Error	Wald	95% CI	p-value ^a
Biopsychosocial Characteristics						
Sense of belonging in the workplace (Reference = Weak)						
Very strong	-1.260	0.284	0.745	2.861	2.720-0.200	0.091
Strong	-1.410	0.244	0.588	5.742	2.563-0.257	0.017*
Supervisor support (Reference = Not supportive)						
Very supportive	-0.789	0.454	0.844	0.872	2.444-0.866	0.350
Supportive	0.762	2.143	0.692	1.214	0.594-2.118	0.270
Spiritual Characteristics						
DUREL 1 (Reference = A few times a month)						
Never	0.624	1.867	0.617	1.024	0.585-1.833	0.311
Once a year or less	0.760	2.139	0.506	2.260	0.231-1.752	0.133
A few times a year	0.768	2.156	0.469	2.684	0.151-1.688	0.101
DUREL 5 (Reference = Definitely true)						
Unsure to be true	0.699	2.011	0.458	2.324	0.199-1.597	0.127
Occupational Characteristics						
Self-rated job satisfaction (Reference = Satisfied)						
Unsatisfied	1.150	3.157	0.634	3.291	2.392-0.092	0.070

a = ordinal logistic regression

*p-value ≤ 0.05 consider significant

CHAPTER FIVE

DISCUSSION

5.0 INTRODUCTION

This chapter discusses and elaborates comprehensively on the results regarding the level of burnout and its predictors among critical care nurses at a tertiary hospital in Johor Bahru, followed by a comparison of its relevance based on the findings reported by previous research. The results were analysed based on four subsections: level of burnout, biopsychosocial-spiritual characteristics, occupational characteristics, and the predictor factors of burnout among critical care nurses at Hospital Sultan Ismail (HSI). The discussion also includes the conclusion, limitations, implications of the study as well as recommendations for future research.

5.1 DISCUSSION

5.1.1 Level of Burnout

The first research question explored the level of burnout among critical care nurses at tertiary hospitals in Johor Bahru. The results showed an average level of burnout among critical care nurses at Hospital Sultan Ismail in each subscale. Nevertheless, some respondents still experienced a low and high level of burnout. The findings of this study indicated that critical care nurses at Hospital Sultan Ismail, Johor Bahru had a high level of emotional exhaustion (25.7%), a high level of depersonalization (16.4%), and a low level of personal accomplishment (34.9%).

The findings of this study regarding the level of burnout among the general nursing population in Malaysia are almost similar to those reported by previous studies (Jasmani & Abdul Jumaat, 2015; Huda & Siti Hajar, 2018; Hussain et al., 2022; Zakaria et al., 2022). However, after comparing the results of every dimension of burnout, it was found that reduced PA was lower in this study compared to a past study involving nurses in Kota Bharu, which recorded a reduced PA of 51.1% (Zaidah & Gim, 2015).

This discrepancy is likely due to the difference in the setting and working areas whereby the study by Zaidah and Gim (2015) had a smaller sample size (40 samples) and the data was only collected among nurses working in one medical unit.

Compared to other studies involving only critical care nurses, this study observed that the high prevalence of three dimensions of burnout is comparable with previous global studies, which reported the prevalence of EE, DP, and PA burnout dimensions ranging from 38.4% to 84.0%, 26.1% to 77.0%, and 13.0% to 77.1%, respectively (Harkin & Melby, 2014; Alharbi et al., 2016; Torre et al., 2019; Yıldız, 2021). Most studies also reported that almost one-third of their critical care nurses experienced burnout in every MBI dimension (Guntupalli et al., 2014; Hamdan & Hamra, 2017; Vasconcelos & Martino, 2018).

For both DP and EE subscales, higher mean scores correspond to higher degrees of perceived burnout, whereas lower mean scores on the personal accomplishment subscale correspond to higher degrees of perceived burnout. The results portrayed that critical care nurses in this study experienced a high level of burnout in every subscale. Such finding is consistent with previous burnout studies involving critical care nurses in South Africa, China, and Saudi Arabia. (Klopper et al., 2012; Zhang et al., 2014; Alharbi et al., 2016).

5.1.2 Biopsychosocial Factors

Based on the biological data, this study showed no association between burnout and age, gender, and race. However, past studies reported a contradictory finding whereby age and gender could be the predictors of burnout. For instance, several studies found that younger nurses are more likely to experience burnout (Hamdan & Hamra, 2017; Harkin & Melby, 2014; Kim & Yeom, 2017). At the start of their career, young nurses were observed as inexperienced and still in the learning phase with procedures and managing critically ill patients, all of which make them more tense and prone to occupational stress, eventually possibly leading to burnout (Harkin & Melby, 2014; Vasconcelos & Martino, 2018).

Nevertheless, past studies have reported contradictory findings regarding gender. Merlani et al. (2011) reported that males experience higher burnout than females, explaining that having more female nurses on the team contributes to a lower chance of experiencing high levels of individual burnout. On the other hand, Azizkhani et al. (2014) found that female nurses have higher burnout than males. This could be due to the fact that women bear a greater burden of caring and responsibility for the home than men (Chayu & Kreitler, 2011).

Vasconcelos and Martino (2018) found that most critical care nurses at Sao Paulo Teaching Hospital in Brazil who suffered from burnout did not engage in any physical activity even though physical activity had a significant impact on nurses' emotional exhaustion and depersonalization (Guo et al., 2018; Hu et al., 2021). This study found no significant association between burnout and physical activity despite 29.5% of critical care nurses experiencing high EE and 20.5% experiencing high DP, indicating that they never exercise.

Reduced PA showed no correlation with psychological data, while EE and DP were significantly associated with stressful days. It was found that 46.5% and 25.4% of nurses with high EE and DP claimed that most of their day in life is stressful. According to Maslach and Leiter (2016a), increased emotional fatigue related to individual psychological characteristics is an important indicator of burnout. This suggests that those with depleted emotional resources cannot express themselves psychologically. A study by Vasconcelos and Martino (2018) involving ICU nurses in Brazil found that 11% of nurses showed depressive symptoms and there was a high possibility for them to experience burnout, which triggers depressive symptoms.

Depersonalization was found to be significantly associated with anxiety disorder. The finding is similar to Yildiz (2021) who found that individuals with anxiety and depressive symptoms are more likely to experience emotional exhaustion and personal accomplishment. It is further supported by Ortega-Campos et al. (2019) who reported that Spanish nurses suffering from anxiety and depression received high scores for emotional exhaustion and depersonalization and lower scores for personal accomplishment. The skills required by nurses and the heavy workload associated with inefficient allocation of tasks and inadequate resources led nurses to perceive the environment as hostile, resulting in anxiety, vulnerability, stress, feelings of

irresponsibility, and depression, all of which increase the feeling of burnout (Ortega-Campos et al., 2019).

This study also found significant associations between the burnout subscales with several social demographics, number of children, supervisor support, and sense of belonging to the workplace. Findings from this study suggest that DP is associated with having children whereby 20.5% of critical care nurses with one to three children were shown to have high DP. It corroborates with a study which reported an independent association between having children and high EE and low PA scores among nurses in Lima, Peru. This could be linked to the traditional cultural belief that exclusively associates women with child-rearing responsibility (Manzano-García & Ayala, 2017). It is also consistent with other studies suggesting that being married and having kids may lead to more obligations and demands on one's time, leading to family work conflicts and raising the risk of tiredness (Teixeira et al., 2013; Choi et al., 2018). Nevertheless, several studies reported a contradictory result: those with no children are more likely to have burnout (Merlani et al., 2011; Vasconcelos & Martino, 2018).

This study also found that high EE and DP are associated with supervisor support and low PA is associated with a sense of workplace belonging. The work environment contributes to burnout among nurses (Elshaer et al., 2018; Alfuqaha et al., 2019). The findings are in line with Kim et al. (2019) who found that nurses with unsupportive supervisors are more likely to experience high pressure and high burnout. Moreover, a poor work environment with higher workload, inadequate equipment, and shortage of staff and work shifts can trigger stress among nurses and cause individual burnout (Huda & Siti Hajar, 2018). Workgroup cohesion is also an important protective factor as supervisors could target to promote nurse satisfaction and positive nursing outcomes to help retain nurses (Jiang et al., 2017). According to a study by Padilha et al. (2017), nurses working in an environment who do not favour autonomy or a good relationship between the nursing team and other professional teams and have lower professional support tend to have unsatisfactory perceptions of the workplace.

Moreover, no significant association was found between burnout, marital status, and education level. This contradicts a Peruvian study showing that DP is independently and negatively correlated with being divorced or widowed compared to being single (Manzano-García & Ayala, 2017). Additionally, single nurses are more prone to burnout

than married nurses (Harkin & Melby, 2014; Kim & Yeom, 2017; Kumar et al., 2021; Vasconcelos & Martino, 2018). The findings of this study also contradicted those reported by previous research that found critical care nurses with degrees had statistically higher mean ratings for burnout compared to nurses without a degree due to greater work responsibility (Ozden et al., 2013; See et al., 2018; Alfquaha et al., 2019). However, most critical care nurses in this study only had a diploma, which probably explains the contradicting result.

The domain of biopsychosocial characteristics, which encompassed the amount of stress in life, anxiety disorder, supervisor's support, sense of belonging to the workplace, and the number of children, were significantly associated with the level of burnout. Therefore, the findings from this study addressed the second objective, which is to determine the association between biopsychosocial characteristics and the level of burnout among critical care nurses. It also rejected the second null hypothesis on the significant association between biopsychosocial characteristics and the level of burnout among critical care nurses.

5.1.3 Spiritual Factors

Concerning spiritual characteristics data, this study found no significant association between spiritual data with EE and DP. However, significant associations were found between reduced PA with DUREL 1 and DUREL 5. The findings of this study were in line with Kim and Yeom (2017) who found that the low levels of spiritual well-being among ICU nurses in South Korea are associated with high levels of burnout. It was assumed that spiritual well-being helps nurses maintain internal peace and psychological stability, which may buffer the impact of job-related stress on burnout (Kim & Yeom, 2017).

Past research also denoted that having a religious background or belief, compared to none, was a prominent protective factor against burnout among ICU professionals in Asian countries, where such an association has only recently been explored (See et al., 2018). Koenig and Büssing (2010) also stated that spiritual variables should also be considered as factors associated with burnout as it is considered more personal and something that people define for themselves that is largely free of the rules, regulations, and responsibilities associated with religion. It was believed that

further work studying the protective mechanisms of religiosity or spirituality would be important in mitigating burnout.

As mentioned above, it was found that attending religious activities and incorporating religion into other dealings in life were associated with the level of burnout. Therefore, the findings from this study answered the second research objective, which is to determine the association between spiritual characteristics and the level of burnout among critical care nurses. It also rejected the second null hypothesis as there is a significant association between spiritual characteristics and burnout among critical care nurses.

5.1.4 Occupational Factors

The results showed significant associations between burnout level and the working unit, nurse-to-patient ratio, frequency of overtime per week, and self-rated job satisfaction. On the other hand, the study remarkably found no association between work schedules and working experience.

It was found that high levels of EE and DP are significantly associated with working units. Due to the greater workload and stress in ED and ICU, there was a higher rate of occupational burnout among critical care nurses than in other units (Teixeira et al., 2013; Azizkhani et al., 2014). Correspondently, a study among critical care nurses in Saudi Arabia found that those working in the Paediatric Intensive Care Unit (PICU) had greater levels of EE than those working in ED and other critical units (Alharbi et al., 2016). Burnout may result from greater exposure to life-threatening situations when working in critical units with a severe workload and from routinely caring for critically ill patients and being exposed to the potential for patient mortality (Alharbi et al., 2016; Kim & Yeom, 2017).

The results of this study also showed that the high nurse-to-patient ratio is an occupational characteristic factor associated with the EE and DP subscales of burnout among critical care nurses. The findings align with a past study among critical care nurses in Belgium where a nurse-to-patient ratio greater than 1:2 and a perceived increased workload significantly increased the risk of EE and DP (Bruyneel et al., 2021). Moreover, another study confirmed a high prevalence of moderate to serious

burnout among nurses in critical care and that the main variable associated with this is the nurse-to-patient ratio equal to or higher than 1:3 (Torre et al., 2019). A high nurse-to-patient ratio will indirectly add to the burden of the nurse's duties in taking care of the health of the patient and will show that work overload and role overload have a relationship with emotional exhaustion, depersonalization, and self-accomplishment (Jasmani & Abdul Jumaat, 2015a).

Furthermore, this study found significant associations between the frequency of overtime done by nurses per week with EE and DP. This is consistent with several studies whereby increased hours worked per week were linked to increased burnout and high EE with DP (Harkin & Melby, 2014; Vasconcelos & Martino, 2018). Inadequate staffing, insufficient resource availability, and heavy workload usually lead to extra working hours, contributing to burnout in critical care nurses (Klopper et al., 2012; Jiang et al., 2017; Padilha et al., 2017).

Besides that, self-rated job satisfaction is significantly associated with all three dimensions of burnout. The finding is parallel with several studies that found burnout among critical care nurses is greatly associated with work dissatisfaction (Ozden et al., 2013; Padilha et al., 2017; Guo et al., 2018). Job satisfaction can be due to many issues. A study conducted in Saudi Arabia revealed that registered critical care nurses experienced moderate to severe burnout in EE and DP, which has been associated with ambivalence and unhappiness with their occupations but contentment with the nature of their work (Alharbi et al., 2016). Respondents in this study were dissatisfied with payment, fringe benefits, the financial benefits that employees receive from their organisation, and work conditions in their units (Alharbi et al., 2016). Meanwhile, a study in Egypt discovered a favourable relationship between burnout's personal accomplishment and job satisfaction (Elshaer et al., 2018). Moreover, a previous study found that employees with greater autonomy in their vacation timing, flexibility in their work schedule, and equal opportunities to participate in professional activities reported greater satisfaction (Ozden et al., 2013).

Contrary to this study, previous studies showed that nurses working shift rotations have high EE and DP ratings but low PA scores (Ozden et al., 2013). It was explained that a nurse's work schedule includes shift work and a day off. The duty schedule system at the hospital ensures that all combinations of shifts and days off of

each staff meet the manpower requirements of each shift (Felici & Gentile, 2004). Moreover, a study among nurses in Hospital Serdang found that those with working shift hours were experiencing higher levels of burnout (Huda & Siti Hajar, 2018). However, this study found no association between work schedule and burnout level. Most of the nurses in HSI were working shifts of 7, 7, and 10 hours (morning, afternoon, and evening shifts, respectively), thus explaining the uneven data to analyse.

This finding also contradicts a study focusing on South Korean nurses, which found high burnout among nurses with fewer than five years of clinical experience. This is because new nurses may still adjust to their job responsibilities, making them less equipped to handle stressful situations (Kim & Yeom, 2017). On the other hand, Zaidah and Gim (2015) revealed that nurses with longer working experience have a high level of depersonalization. The workload among the more senior staff is characterised by bigger, heavier, and more challenging responsibilities and demands from superiors (Zaidah & Gim, 2015). Thus, this study assumes that critical care nurses in HSI have better coping capacity and great teamwork between junior and senior nurses to manage stressful events in the workplace regardless of their working experience.

The results of this study also answered the third objective, which is to determine the association between occupational characteristics and level of burnout among critical care nurses. It was found that occupational characteristics of the working unit, nurse-to-patient ratio, frequency of overtime per week, and self-rated job satisfaction were associated with the level of burnout. Thus, the third null hypothesis was rejected as there is a significant association between occupational characteristics and burnout among critical care nurses.

5.1.5 Predictor Factors of Burnout

Several predictor factors were found in the EE subscale: the amount of stress in life, working unit, nurse-to-patient ratio, and self-rated job satisfaction. When comparing the amount of stress in life, it was found that nurses with stressful lives were 4.23 times more likely to experience high EE than those who are not stressed. According to a study by Choi et al. (2018), emotional tiredness strongly correlates with negative feelings, including sadness and anxiety. Nurses with worrying levels of stress were found to be experiencing burnout syndrome (Padilha et al., 2017). Past studies also showed that

nurses tend to feel anxious, vulnerable, stressed, unreliable, and depressed due to extreme workload, ineffective task distribution, lack of resources, and lack of staff in the workplace, all of which heighten the feeling of burnout (Gomez-Urquiza et al., 2017; Huda & Siti Hajar, 2018).

The odds of working in ED experiencing EE is less than the odds of working in NICU, while those with a nurse-to-patient ratio of 1:1 and 1:2 are less likely to face the risk of EE. This study showed that critical care nurses who work in the ED experienced a higher level of burnout than nurses who work in the ICU, NICU, and CCU. Furthermore, critical care nurses with a nurse-to-patient ratio of 1:10 are prone to experience EE compared to those with a low nurse-to-patient ratio. Hence, this situation explains the work environment in ED. ED HSI has a 1:10 nurse-to-patient ratio, explaining their high workload. ED is a department with a high patient volume where health workers who work in a shift system may experience high fatigue, eventually contributing to job dissatisfaction and ultimately triggering burnout (Manzano-García & Ayala, 2017).

Besides that, the finding showed that critical care nurses who are unsatisfied with their jobs are 11.37 times more likely to have EE and 3.23 times more likely to experience DP than satisfied nurses. A study in Saudi Arabia also found that increased EE resulted in reduced satisfaction with contingent rewards, working conditions, and team communication (Alharbi et al., 2016). Klopper et al. (2012) discovered that most nurses are dissatisfied with aspects like wages, opportunities for advancement, and study leave opportunities. Another Malaysian study also found a substantial correlation between burnout and nurses' job satisfaction, with lower job satisfaction showing higher prevalence of burnout (Huda & Siti Hajar, 2018).

Moreover, critical care nurses with overtime frequency of 1 to 5 hours per week are less likely to have DP than those who do overtime for more than 11 hours per week. Thus, critical care nurses who perform frequent overtime more than 11 hours per week are more vulnerable to DP. Several studies also found that nurses who worked extra hours per week were related to increased burnout and high EE with DP (Harkin & Melby, 2014; Vasconcelos & Martino, 2018). It was probably due to short staffing and high workload that required nurses to extend their working hours. This usually leads to extra working hours, contributing to burnout among critical care nurses (Klopper et al.,

2012; Jiang et al., 2017; Padilha et al., 2017). Furthermore, extra working hours lessen the rest hours. Inadequate rest periods and days off between working hours and between shifts schedules can lead to tiredness and exhaustion, thus causing burnout (Padilha et al., 2017).

Critical care nurses who feel a strong sense of belonging to the workplace are 0.24 times less likely to have reduced PA than nurses who feel a weak sense of belonging. Therefore, having a weak sense of belonging to the workplace will subsequently reduce nurses' personal achievement. A study conducted by Kim et al. (2019) found that nurses with unsupportive supervisors experienced high pressure and a higher level of burnout. Additionally, Padilha et al. (2017) found that nurses working in an environment that does not favour autonomy or a good relationship between the nursing team and other professional teams and offers no professional support are most likely to have an unsatisfactory perception of their workplace.

5.2 CHAPTER SUMMARY

The results of this study have answered the research questions and fulfilled the research objectives. Results of the three dimensions of burnout investigated in this study showed that the level of burnout faced by nurses at Hospital Sultan Ismail is at an average level.

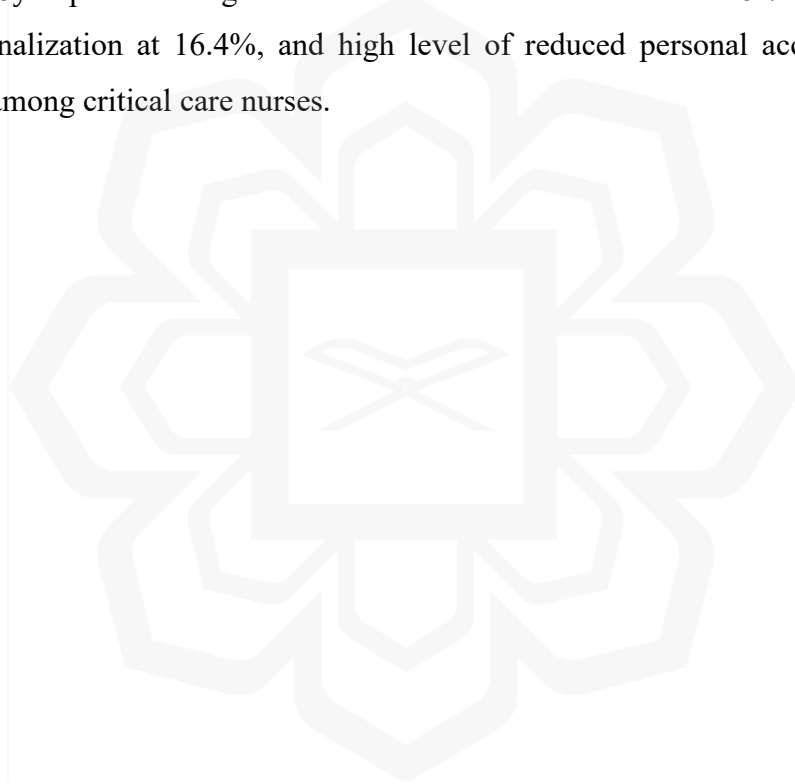
The 25.7% high emotional exhaustion reported in this study suggests that a substantial portion of critical care nurses are experiencing emotional fatigue. This finding aligns with previous research highlighting the demanding nature of critical care work, which often involves high-stress situations, long hours, and emotionally charged interactions with patients and their families (Teixeira et al., 2013).

The high level of depersonalization at 16.4% indicates that nurses in critical care may be adopting a detached or impersonal approach in their interactions. This finding is consistent with past literature emphasising the risk of depersonalization in high-stress healthcare settings where nurses may develop coping mechanisms that involve emotional distancing (Hamdan & Hamra, 2017; Nobre et al., 2019).

Furthermore, 34.9% of critical care nurses in this study reported high levels of reduced personal accomplishment, which is a concerning finding. This may imply a

sense of ineffectiveness or reduced satisfaction in one's achievements at work. Previous studies have also highlighted the vulnerability of healthcare professionals to the feeling of diminished personal accomplishment, which is often attributed to high workloads and burnout (Jasmani & Abdul Jumaat, 2015).

In summary, the level of burnout reported in this study aligns with prior research in Malaysia that has consistently identified nurses as a high-risk profession for burnout. According to Siti Hajar and Huda (2018), burnout affected 24% of nurses in Hospital Serdang. The latter study among nurses caring for children at Hospital Universiti Sains Malaysia showed a burnout prevalence of 28.7% (Fatimah et al., 2022). Meanwhile, this study reported a high level of emotional exhaustion at 25.7%, high level of depersonalization at 16.4%, and high level of reduced personal accomplishment at 34.9% among critical care nurses.



CHAPTER SIX

CONCLUSION

6.0 INTRODUCTION

This chapter presents the overall conclusion of this study. It contains an explanation of the study's limitations and the actions taken to mitigate their influence. Finally, this chapter elaborates on the implications of this study and proposes several recommendations for future research, with the aim of improving nursing management.

6.1 LIMITATIONS OF THE STUDY

Despite careful implication, there were several limitations faced by the researcher during the process of conducting this study, such as difficulty in recruiting the respondents, time constraints, and the COVID-19 pandemic that hit the healthcare services worldwide.

Initially, this study was planned to be conducted at two tertiary hospitals in Johor Bahru: Hospital Sultanah Aminah (HSA) and Hospital Sultan Ismail (HSI). However, the hospital director and CRC of HSA disapproved the request to conduct this study at their hospital (Refer Appendix J). Thus, the sample size was reduced to only critical care nurses at HSI.

Furthermore, the COVID-19 pandemic had imposed major impacts and restrictions across many sectors and individuals globally, including the restriction on physical contact and social activities. As the Malaysian government announced the Movement Control Order (MCO) from March 2020 until November 2021, the research process was halted due to hospital policy changes that disallowed data collection during that period. Even though Malaysia eased into the COVID-19 endemic phase in 2022, the situation in the critical care unit remained hectic with strict visiting time, prolonging

the completion of data collection. The researcher tried to circumvent this limitation with another alternative for data collection via Google Forms. However, this approach limited the interaction between the researcher and participants. Furthermore, there was a susceptibility for some participants to not answer the questions and it was difficult to track those who were yet to complete the questionnaire.

However, it should be noted that the limitations of this study did not stand as an obstacle for this study to answer the research questions and address the research objectives. Cooperation from the respondents also allowed the completion of this study within the stipulated time.

6.2 IMPLICATIONS OF THE STUDY

The present study can help stakeholders, particularly nurses and the Ministry of Health (MOH) Malaysia, to recognise any nurses who need help with their mental health and the risk of burnout at an early stage. This will primarily benefit nurses who work in various health facilities in Malaysia because they are often exposed to high stress levels, which is mainly caused by the nature of their job of serving the community. It is important to address the issue of burnout among nurses as it can affect their physical and mental well-being, job satisfaction, as well as patient care and healthcare services (Laschinger & Grau, 2012; Huda & Siti Hajar, 2018; Padilha et al., 2017).

Furthermore, working with sick and ill people will expose nurses to emotional situations, such as in a critical care setting. This study found a significant relationship between biopsychosocial and occupational characteristics contributing to burnout. Subsequently, burnout has become a significant issue in nursing, predominantly in the Malaysian healthcare setting. This study therefore enriches the limited literature on predictors of burnout among Malaysian nurses and a comparison of working areas, particularly in critical care areas.

The rationale for this study is based on the need to analyse the associated factors of burnout among critical care nurses and highlight the relationship between the biopsychosocial and spiritual characteristics of nurses on burnout. The results obtained from this study can support important discussions on how to provide a picture of the

current situation and enable the administrator of healthcare professionals to promote a good understanding of work-related occupational health issues such as burnout among critical care nurses to improve the quality of care delivered to patients.

Furthermore, this study provides input to guide the implementation of programmes that could convey information related to the importance of enriching the management of stress and workplace-life balance. This is to ensure the proper management of the mental health of nurses on duty at the hospital. Moreover, this study can provide exposure to the person in charge or supervisor about the current situation of nurses on duty at Hospital Sultan Ismail so that they can create programs or provide facilities to help reduce the stress levels among nurses and reduce the risk of burnout.

The implication of this study also extends to the field of health science research. In Malaysia, studies on the predictors of burnout among nurses and a comparison of working areas, particularly the critical area, are limited, making it difficult for researchers to obtain relevant information. As such, the findings of this study have indirectly contributed relevant data, information, and an overview regarding the level of knowledge among the Malaysian community, especially regarding burnout and its associated factors.

This study can also help the Ministry of Health Malaysia and future researchers to understand the factors contributing to the burnout level among nurses. Conversely, efficient intervention programs can be devised and implemented that meet the current needs of the nurse community.

Additionally, the findings of this study stand as additional knowledge that can assist health science researchers to help people live their lives better, especially concerning mental well-being and healthy workplace promotion. This study holds significance for the government as it can offer crucial insights to design additional programs and update existing policies aimed at enhancing mental well-being among healthcare workers in Malaysia. This is especially pertinent following the impact of the COVID-19 pandemic, which has placed considerable strain on healthcare professionals.

6.3 RECOMMENDATIONS

This study focused on the burnout level among critical care nurses at tertiary hospitals in Johor Bahru and its predictor factors. However, the findings indicated the obtainment of fewer responses. Thus, future researchers are encouraged to conduct a nationwide study on burnout by targeting a larger population of nurses. This will increase the number of references from Malaysian studies, especially among nurses working at a highly tense and stressful workplace such as the critical care unit.

Besides that, future research should focus on exploring various social and psychological factors contributing to this issue and plan programs or interventions to reduce burnout among nurses, which has unfortunately become increasingly limited. In-depth studies involving more specific demographic factors are also needed to identify the coping strategies used by nurses when facing stress.

As this study was conducted during the COVID-19 pandemic, it was speculative to directly attribute the reported level of burnout to the pandemic. However, it is crucial to recognise that the level of burnout among healthcare professionals, including critical care nurses, has been a topic of heightened concern during the pandemic period. The unique stressors and challenges brought about by the pandemic have the potential to influence the levels of emotional exhaustion, depersonalization, and personal accomplishment reported in this study. Future research can specifically explore the association between the pandemic and burnout among critical care nurses by considering factors such as increased workload, exposure to trauma, and changes in work dynamics. Such investigation will contribute to a more nuanced understanding of the complex interplay between workplace stressors and external events, thus providing valuable insights for targeted interventions and support programs.

6.4 CONCLUSION

In conclusion, this study indicates that critical care nurses at Hospital Sultan Ismail, on average, experienced moderate levels of burnout in each subscale. Notably, 25.70% of these nurses reported high levels of emotional exhaustion, 16.4% exhibited high depersonalization, and 34.9% expressed high levels of reduced personal accomplishment.

Moreover, certain predictors were identified as contributors to the high levels of burnout among critical care nurses. Meanwhile, the high level of emotional exhaustion was caused by predictors such as experiencing a stressful life, working in the Emergency Department (ED) compared to other critical care units, having a high nurse-to-patient ratio, and experiencing job dissatisfaction. Whereas, the predictors of high depersonalization were working overtime for more than 5 hours per week and job dissatisfaction. Lastly, a weak sense of belonging in the workplace emerged as a predictor for reduced personal accomplishment.

These findings not only provide insights into the current state of burnout among critical care nurses but also highlight specific areas and factors that require attention. Addressing these predictors could be integral in developing targeted interventions and support mechanisms to enhance the well-being of critical care nurses in Hospital Sultan Ismail. This information is crucial for healthcare administrators and policymakers in crafting effective strategies to mitigate burnout and foster a healthier work environment.

REFERENCE

- Adriaenssens, J., De Gucht, V., & Maes, S. (2015). Determinants and prevalence of burnout in emergency nurses: A systematic review of 25 years of research. In *International Journal of Nursing Studies* (Vol. 52, Issue 2, pp. 649–661). Elsevier Ltd. <https://doi.org/10.1016/j.ijnurstu.2014.11.004>
- Ahola, K., Toppinen-Tanner, S., Huuhtanen, P., Koskinen, A., & Väänänen, A. (2009). Occupational Burnout and Chronic Work Disability: An Eight-year Cohort Study on Pensioning among Finnish Forest Industry Workers. *Journal of Affective Disorders*, 115(1–2), 150–159. <https://doi.org/10.1016/j.jad.2008.09.021>
- Alfuqaha, O. A., Alkawareek, M. Y., & Alsharah, H. S. (2019). Self-evaluation and professional status as predictors of burnout among nurses in Jordan. *PLoS ONE*, 14(3), 1–10. <https://doi.org/10.1371/journal.pone.0213935>
- Alharbi, J., Wilson, R., Woods, C., & Usher, K. (2016). The factors influencing burnout and job satisfaction among critical care nurses: a study of Saudi critical care nurses. *Journal of Nursing Management*, 24(6), 708–717. <https://doi.org/10.1111/jonm.12386>
- American Psychiatric Association. (2013). American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders Fifth Edition. In *Arlington*. <https://doi.org/10.1176/appi.books.9780890425596.744053>
- Aris, N. A. (2019). *Health ministry intends to take in more contract nurses*. FMT News. <https://www.freemalaysiatoday.com/category/nation/2019/05/12/health-ministry-intends-to-take-in-more-contract-nurses/>
- Azizkhani, R., Basravi, M., & Ahmadi, O. (2014). Correlation between workplace and occupational burnout syndrome in nurses. *Advanced Biomedical Research*, 3(1), 44. <https://doi.org/10.4103/2277-9175.125751>
- Bakker, A. B., Le Blanc, P. M., & Schaufeli, W. B. (2005). Burnout contagion among intensive care nurses. *Journal of Advanced Nursing*, 51(3), 276–287. <https://doi.org/10.1111/j.1365-2648.2005.03494.x>
- Bruyneel, A., Smith, P., Tack, J., & Pirson, M. (2021). Prevalence of burnout risk and factors associated with burnout risk among ICU nurses during the COVID-19 outbreak in French-speaking Belgium. *Intensive and Critical Care Nursing*, 65, 103059. <https://doi.org/10.1016/j.iccn.2021.103059>
- Chayu, T., & Kreitler, S. (2011). Burnout in nephrology nurses in Israel. *Nephrology Nursing Journal : Journal of the American Nephrology Nurses' Association*, 38(1).
- Chen, W. S., Haniff, J., Siau, C. S., Seet, W., Loh, S. F., Abd Jamil, M. H., Sa'at, N., & Baharum, N. (2014). Translation, Cross-cultural Adaptation and Validation of the Malay Version of the Maslach Burnout Inventory (MBI) in Malaysia. *International Journal of Social Science Studies*, 2(2), 66–74. <https://doi.org/10.11114/ijsss.v2i2.309>

- Chen, W.-S., Haniff, J., Siau, C.-S., Seet, W., Loh, S.-F., & Hadzrul Abd Jamil, M. (2013). Pilot Study of the Malay Maslach Burnout Inventory and Malay Work-Related Quality of Life Scale in Malaysia. *Studies in Asian Social Science*, 1(1). <https://doi.org/10.5430/sass.v1n1p20>
- Choi, B. S., Sun Kim, J., Lee, D. W., Paik, J. W., Chul Lee, B., Won Lee, J., Lee, H. S., & Lee, H. Y. (2018). Factors Associated with Emotional Exhaustion in South Korean Nurses: A Cross-Sectional Study. *Psychiatry Investigation*, 15(7), 670–676. <https://doi.org/10.30773/pi.2017.12.31>
- Chuang, C. H., Tseng, P. C., Lin, C. Y., Lin, K. H., & Chen, Y. Y. (2016). Burnout in the intensive care unit professionals: A systematic review. In *Medicine (United States)* (Vol. 95, Issue 50, p. e5629). Lippincott Williams and Wilkins. <https://doi.org/10.1097/MD.00000000000005629>
- Circenis, K., & Millere, I. (2011). Compassion fatigue, burnout and contributory factors among nurses in Latvia. *Procedia - Social and Behavioral Sciences*, 30, 2042–2046. <https://doi.org/10.1016/j.sbspro.2011.10.395>
- Cobb, S. (1976). Social support as a moderator of life stress. *Psychosomatic Medicine*, 38(5), 300–314. <https://doi.org/10.1097/00006842-197609000-00003>
- Dantas, T. S., Ferreira Filha, M. D. O. R. da, Carreiro, B. O., Pascoal, F. F. da S., Moraes, M. N., & Cordeiro, R. C. (2014). Prevalence of burnout syndrome among nurses in urgency and emergency hospital system. *Revista de Pesquisa: Cuidado é Fundamental Online*, 6(5), 196. <https://doi.org/10.9789/2175-5361.2014.v6i5.196-205>
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. In *Journal of Applied Psychology* (Vol. 86, Issue 3, pp. 499–512). <https://doi.org/10.1037//0021-9010.86.3.499>
- Díaz Tobajas, M. C., Juarros Ortiz, N., García Martínez, B., & Sáez Gavilán, C. (2017). Study on anxiety in intensive care nursing professionals facing the process of death. *Enfermería Global*, 16(1), 256–265. <https://doi.org/10.6018/eglobal.16.1.232221>
- Elay, G., Bahar, I., Demirkiran, H., & Oksüz, H. (2019). Severe burnout among critical care workers in Turkey. *Saudi Medical Journal*, 40(9), 943–948. <https://doi.org/10.15537/smj.2019.9.24520>
- Elliott, J. O., & Richardson, V. E. (2014). The biopsychosocial model and quality of life in persons with active epilepsy. *Epilepsy and Behavior*, 41, 55–65. <https://doi.org/10.1016/j.yebeh.2014.09.035>
- Elshaer, N. S. M., Moustafa, M. S. A., Aiad, M. W., & Ramadan, M. I. E. (2018). Job Stress and Burnout Syndrome among Critical Care Healthcare Workers. *Alexandria Journal of Medicine*, 54(3), 273–277. <https://doi.org/10.1016/j.ajme.2017.06.004>
- Engel, G. L. (1980). The clinical application of the biopsychosocial model. *American Journal of Psychiatry*, 137(5), 535–544. <https://doi.org/10.1176/ajp.137.5.535>

- Farber, B. A. (1990). Burnout in psychotherapists: Incidence, types, and trends. *Psychotherapy in Private Practice*, 8(1), 35–44. https://doi.org/10.1300/J294v08n01_07
- Fatimah, S., Hussain, A., Taib, F., Yusoff, S., Rahman, A. A., Othman, A., & Mohamad, N. (2022). Burnout and Stressor Related Factors among Nurses Caring for Children in Hospital Universiti Sains Malaysia. In *Malaysian Journal of Medicine and Health Sciences* (Vol. 18, Issue 1).
- Favrod, C., Jan du Chêne, L., Martin Soelch, C., Garthus-Niegel, S., Tolsa, J. F., Legault, F., Briet, V., & Horsch, A. (2018). Mental health symptoms and work-related stressors in hospital midwives and NICU nurses: A mixed methods study. *Frontiers in Psychiatry*, 9(AUG). <https://doi.org/10.3389/fpsy.2018.00364>
- Felici, G., & Gentile, C. (2004). A Polyhedral Approach for the Staff Rostering Problem. *Management Science*, 50(3), 381–393. <https://doi.org/10.1287/mnsc.1030.0142>
- Forcier, K., Stroud, L. R., Papandonatos, G. D., Hitsman, B., Reiches, M., Krishnamoorthy, J., & Niaura, R. (2006). Links between physical fitness and cardiovascular reactivity and recovery to psychological stressors: A meta-analysis. *Health Psychology*, 25(6), 723–739. <https://doi.org/10.1037/0278-6133.25.6.723>
- Freudenberger, H. J. (1974). Staff Burn-Out. *Journal of Social Issues*, 30(1), 159–165. <https://doi.org/10.1111/j.1540-4560.1974.tb00706.x>
- Friberg, T. (2009). Burnout: From popular culture to psychiatric diagnosis in Sweden. *Culture, Medicine and Psychiatry*, 33(4), 538–558. <https://doi.org/10.1007/s11013-009-9149-z>
- Glenn, A. L. (2019). Using biological factors to individualize interventions for youth with conduct problems: Current state and ethical issues. *International Journal of Law and Psychiatry*, 65, 101348. <https://doi.org/10.1016/J.IJLP.2018.04.008>
- Goertzen, M. J., & ALA TechSource. (n.d.). *Applying quantitative methods to e-book collections*.
- Gómez-Urquiza, J. L., De la Fuente-Solana, E. I., Albendín-García, L., Vargas-Pecino, C., Ortega-Campos, E. M., & Cañadas-De la Fuente, G. A. (2017). Prevalence of burnout syndrome in emergency nurses: A meta-analysis. *Critical Care Nurse*, 37(5), e1–e9. <https://doi.org/10.4037/ccn2017508>
- Guntupalli, K. K., Wachtel, S., Mallampalli, A., & Surani, S. (2014). Burnout in the intensive care unit professionals. *Indian Journal of Critical Care Medicine*, 18(3), 139–143. <https://doi.org/10.4103/0972-5229.128703>
- Guo, Y. F., Luo, Y. H., Lam, L., Cross, W., Plummer, V., & Zhang, J. P. (2018). Burnout and its association with resilience in nurses: A cross-sectional study. *Journal of Clinical Nursing*, 27(1–2), 441–449. <https://doi.org/10.1111/jocn.13952>
- Gutsan, E., Patton, J., Willis, W. K., Coustasse, A., Gutsan, E., & Willis, J. (2018). Burnout syndrome and nurse-to-patient ratio in the workplace Recommended Citation. *54th Annual MBAA Conference*.

- Hamdan, M., & Hamra, A. A. (2017). Burnout among workers in emergency Departments in Palestinian hospitals: Prevalence and associated factors. *BMC Health Services Research*, 17(1), 407. <https://doi.org/10.1186/s12913-017-2356-3>
- Harkin, M., & Melby, V. (2014). Comparing burnout in emergency nurses and medical nurses. *Clinical Nursing Studies*, 2(3). <https://doi.org/10.5430/cns.v2n3p152>
- Honjo, K. (2004). Social Epidemiology: Definition, History, and Research Examples. In *Environmental Health and Preventive Medicine* (Vol. 9).
- Hooper, C., Craig, J., Janvrin, D. R., Wetsel, M. A., & Reimels, E. (2010). Compassion Satisfaction, Burnout, and Compassion Fatigue Among Emergency Nurses Compared With Nurses in Other Selected Inpatient Specialties. *Journal of Emergency Nursing*, 36(5), 420–427. <https://doi.org/10.1016/j.jen.2009.11.027>
- Hu, Z., Wang, H., Xie, J., Zhang, J., Li, H., Liu, S., Li, Q., Yang, Y., & Huang, Y. (2021). Burnout in ICU doctors and nurses in mainland China—A national cross-sectional study. *Journal of Critical Care*, 62, 265–270. <https://doi.org/10.1016/j.jcrc.2020.12.029>
- Huang, G. D., Feuerstein, M., & Sauter, S. L. (2002). Occupational stress and work-related upper extremity disorders: Concepts and models. *American Journal of Industrial Medicine*, 41(5), 298–314. <https://doi.org/10.1002/ajim.10045>
- Huda, B. Z., & Siti Hajar, R. (2018). Burnout and Its Associated Factors among Nurses in a Tertiary Hospital, Malaysia. *International Journal of Public Health and Clinical Sciences*, 5(6). <https://doi.org/10.32827/ijphcs.5.6.215>
- Hussain, S. F. A., Taib, F., Yusoff, S., Rahman, A. A., Othman, A., & Mohamad, N. (2022). Burnout and Stressor Related Factors among Nurses Caring For Children in Hospital Universiti Sains Malaysia. *Malaysian Journal of Medicine and Health Sciences*, 18(1), 214–221.
- Jasmani, M. Y., & Abdul Jumaat, M. (2015). Work Overload, Role Ambiguity and Role Boundary and its Effect on Burnout among Nurses of Public Hospitals in Malaysia. *International Journal of Research in Humanities and Social Studies*, 2(10), 18.
- Jiang, H., Ma, L., Gao, C., Li, T., Huang, L., & Huang, W. (2017). Satisfaction, burnout and intention to stay of emergency nurses in Shanghai. *Emergency Medicine Journal*, 34(7), 448–453. <https://doi.org/10.1136/emered-2016-205886>
- Kim, H. S., & Yeom, H. A. (2017). The association between spiritual well-being and burnout in intensive care unit nurses: A descriptive study. *Intensive and Critical Care Nursing*, 46, 92–97. <https://doi.org/10.1016/j.iccn.2017.11.005>
- Kim, M. H., Mazenga, A. C., Yu, X., Simon, K., Nyasulu, P., Kazembe, P. N., Kalua, T., Abrams, E., & Ahmed, S. (2019). Factors associated with burnout amongst healthcare workers providing HIV care in Malawi. *PLoS ONE*, 14(9), 1–14. <https://doi.org/10.1371/journal.pone.0222638>
- Klopper, H. C., Coetzee, S. K., Pretorius, R., & Bester, P. (2012). Practice environment, job satisfaction and burnout of critical care nurses in South Africa. *Journal of Nursing Management*, 20(5), 685–695. <https://doi.org/10.1111/j.1365-2834.2011.01350.x>

- Koenig, H. G. (2009). Research on Religion, Spirituality, and Mental Health: A Review. *La Revue Canadienne de Psychiatrie*, 54(5), 283–291.
- Koenig, H. G. (2018). Mechanisms. *Religion and Mental Health*, 153–176. <https://doi.org/10.1016/B978-0-12-811282-3.00007-0>
- Koenig, H. G., & Büssing, A. (2010). The Duke University Religion Index (DUREL): A five-item measure for use in epidemiological studies. In *Religions* (Vol. 1, Issue 1, pp. 78–85). Molecular Diversity Preservation International. <https://doi.org/10.3390/rel1010078>
- Korunka, C., Zdrehus, C., & Borza, A. (2010). *Burnout Intervention Training for Managers and Team Leaders Burnout: Definition, recognition and prevention approaches About the manual*.
- Kumar, A., Sinha, A., Varma, J., Prabhakaran, A., Phatak, A., & Nimbalkar, S. (2021). Burnout and its correlates among nursing staff of intensive care units at a tertiary care center. *Journal of Family Medicine and Primary Care*, 10(1), 443. https://doi.org/10.4103/jfmpe.jfmpe_1651_20
- Laschinger, H. K. S., & Grau, A. L. (2012). The influence of personal dispositional factors and organizational resources on workplace violence, burnout, and health outcomes in new graduate nurses: A cross-sectional study. *International Journal of Nursing Studies*, 49(3), 282–291. <https://doi.org/10.1016/j.ijnurstu.2011.09.004>
- Lelisho, M. E., Wogi, A. A., & Tareke, S. A. (2022). Ordinal Logistic Regression Analysis in Determining Factors Associated with Socioeconomic Status of Household in Tepi Town, Southwest Ethiopia. *Scientific World Journal*, 2022. <https://doi.org/10.1155/2022/2415692>
- Lin, F., St John, W., & McVeigh, C. (2009). Burnout among hospital nurses in China. *Journal of Nursing Management*, 17(3), 294–301. <https://doi.org/10.1111/j.1365-2834.2008.00914.x>
- Manzano-García, G., & Ayala, J. C. (2017). Insufficiently studied factors related to burnout in nursing: Results from an e-Delphi study. *PLoS ONE*, 12(4), 1–20. <https://doi.org/10.1371/journal.pone.0175352>
- Maslach, C., Leiter, Michael P., & Schaufeli, W. (2009). Measuring Burnout. In *The Oxford Handbook of Organizational Well Being* (pp. 86–108). <https://doi.org/10.1093/oxfordhb/9780199211913.003.0005>
- Maslach, C., & Leiter, M. P. (2016a). Burnout. In *Stress: Concepts, Cognition, Emotion, and Behavior: Handbook of Stress* (pp. 351–357). Elsevier. <https://doi.org/10.1016/B978-0-12-800951-2.00044-3>
- Maslach, C., & Leiter, M. P. (2016b). Understanding the burnout experience: Recent research and its implications for psychiatry. *World Psychiatry*, 15(2), 103–111. <https://doi.org/10.1002/wps.20311>
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job Burnout. *Annual Review of Psychology*, 52(1), 397–422. <https://doi.org/10.1146/annurev.psych.52.1.397>

- Merlani, P., Verdon, M., Businger, A., Domenighetti, G., Pargger, H., Ricou, B., Bächli, E., Baenziger, O., Baumgartner, J. D., Berner, M., Bühner, C., Cassina, T., Rusca, P., Chevalley, F., Laprés, C., Chevrolet, J. C., Chioléro, R., Schaller, M. D., Cotting, J., ... Cortinovis, P. (2011). Burnout in ICU caregivers: A multicenter study of factors associated to centers. *American Journal of Respiratory and Critical Care Medicine*, 184(10), 1140–1146. <https://doi.org/10.1164/rccm.201101-0068OC>
- National Clinical Research Centre. (2015). *National Healthcare Establishment and Workforce Statistics (Hospital) 2012-2013*.
- Nobre, D. F. R., Rabiais, I. C. M., Ribeiro, P. C. P. S. V., & Seabra, P. R. C. (2019). Burnout assessment in nurses from a general emergency service. *Revista Brasileira de Enfermagem*, 72(6), 1457–1463. <https://doi.org/10.1590/0034-7167-2017-0870>
- Nurasikin, M. S., Aini, A., Syarinaz, A. A., & Ng, C. G. (2010). Validity and Reliability of the Malay Version of Duke University Religion Index (DUREL-M) Among A Group of Nursing Student. *Malaysian Journal of Psychiatry*, 19(2), 68–72.
- Ortega-Campos, E., Cañadas-De La Fuente, G. A., Albendín-García, L., Gómez-Urquiza, J. L., Monsalve-Reyes, C., & de la Fuente-Solana, E. I. (2019). A multicentre study of psychological variables and the prevalence of burnout among primary health care nurses. *International Journal of Environmental Research and Public Health*, 16(18). <https://doi.org/10.3390/ijerph16183242>
- Özden, D., Karagözoğlu, Ş., & Yildirim, G. (2013). Intensive care nurses' perception of futility: Job satisfaction and burnout dimensions. *Nursing Ethics*, 20(4), 436–447. <https://doi.org/10.1177/0969733012466002>
- Padilha, K. G., Barbosa, R. L., Andolhe, R., de Oliveira, E. M., Ducci, A. J., Bregalda, R. S., & Dal Secco, L. M. (2017). Nursing Workload, Stress/Burnout, Satisfaction and Incidents in a Trauma Intensive Care Units. *Texto e Contexto Enfermagem*, 26(3). <https://doi.org/10.1590/0104-07072017001720016>
- Permarupan, P. Y., Mamun, A. Al, Samy, N. K., Saufi, R. A., & Hayat, N. (2020). Predicting Nurses Burnout through Quality of Work Life and Psychological Empowerment: A Study Towards Sustainable Healthcare Services in Malaysia. *Journal of Sustainability*, 12(1), p388. <https://doi.org/https://doi.org/10.3390/su12010388>
- Portero, S., & Vaquero, M. (2015). Desgaste profissional, stress e satisfação no trabalho do pessoal de enfermagem em um hospital universitário. *Revista Latino-Americana de Enfermagem*, 23(3), 543–552. <https://doi.org/10.1590/0104-1169.0284.2586>
- Puchalski, C. M., Vitillo, R., Hull, S. K., & Reller, N. (2014). Improving the spiritual dimension of whole person care: Reaching national and international consensus. *Journal of Palliative Medicine*, 17(6), 642–656. <https://doi.org/10.1089/jpm.2014.9427>
- Rasool, S. F., Wang, M., Tang, M., Saeed, A., & Iqbal, J. (2021). How toxic workplace environment effects the employee engagement: The mediating role of organizational support and employee wellbeing. *International Journal of Environmental Research and Public Health*, 18(5), 1–17. <https://doi.org/10.3390/ijerph18052294>

- Rodríguez-Rey, R., Palacios, A., Alonso-Tapia, J., Pérez, E., Álvarez, E., Coca, A., Mencía, S., Marcos, A., Mayordomo-Colunga, J., Fernández, F., Gómez, F., Cruz, J., Ordóñez, O., & Llorente, A. (2019). Burnout and posttraumatic stress in paediatric critical care personnel: Prediction from resilience and coping styles. *Australian Critical Care*, 32(1), 46–53. <https://doi.org/10.1016/j.aucc.2018.02.003>
- Saad, M., de Medeiros, R., & Mosini, A. (2017). Are We Ready for a True Biopsychosocial–Spiritual Model? The Many Meanings of “Spiritual”. *Medicines*, 4(4), 79. <https://doi.org/10.3390/medicines4040079>
- Sabbah, I., Sabbah, H., Sabbah, S., Akoum, H., & Droubi, N. (2012). Burnout among Lebanese nurses: Psychometric properties of the Maslach Burnout Inventory–Human Services Survey (MBI-HSS). *Health*, 04(09), 644–652. <https://doi.org/10.4236/health.2012.49101>
- Salmon, P. (2001). Effects of physical exercise on anxiety, depression, and sensitivity to stress: A unifying theory. *Clinical Psychology Review*, 21(1), 33–61. [https://doi.org/10.1016/S0272-7358\(99\)00032-X](https://doi.org/10.1016/S0272-7358(99)00032-X)
- Schaufeli, W. B., Leiter, M. P., & Maslach, C. (2009). Burnout: 35 years of research and practice. In *Career Development International* (Vol. 14, Issue 3, pp. 204–220). <https://doi.org/10.1108/13620430910966406>
- See, K. C., Zhao, M. Y., Nakataki, E., Chittawatanarat, K., Fang, W. F., Faruq, M. O., Wahjuprajitno, B., Arabi, Y. M., Wong, W. T., Divatia, J. V., Palo, J. E., Shrestha, B. R., Nafees, K. M. K., Binh, N. G., Al Rahma, H. N., Detleuxay, K., Ong, V., & Phua, J. (2018). Professional burnout among physicians and nurses in Asian intensive care units: a multinational survey. *Intensive Care Medicine*, 44(12), 2079–2090. <https://doi.org/10.1007/s00134-018-5432-1>
- Shrestha, N. (2020). Detecting multicollinearity in regression analysis. *American Journal of Applied Mathematics and Statistics*, 8(2), 39–42.
- Siti Hajar, R., & Huda, B. (2018). Burnout And Its Associated Factors Among Nurses In A Tertiary Hospital, Malaysia. *International Journal of Public Health and Clinical Sciences*, 5(6). <https://doi.org/10.32827/ijphcs.5.6.215>
- Tai, L. L., Lim, C. H., Mohd Ridhwan, M. N., Nahla Irtiza, I., & Wan Nasrudin, W. I. (2018). Malaysian Registry of Intensive Care Report for 2017. *Malaysian Registry of Intensive Care*, 1(3), 106.
- Tangarasan, V. (2019, October 9). Ways to Address Burnout. *The Star*.
- Teixeira, C., Ribeiro, O., Fonseca, A. M., & Carvalho, A. S. (2013). Burnout in intensive care units - a consideration of the possible prevalence and frequency of new risk factors: A descriptive correlational multicentre study. *BMC Anesthesiology*, 13. <https://doi.org/10.1186/1471-2253-13-38>
- Torre, M., Santos Popper, M. C., & Bergesio, A. (2019). Burnout prevalence in intensive care nurses in Argentina. *Enfermería Intensiva (English Ed.)*, 30(3), 108–115. <https://doi.org/10.1016/j.enfie.2018.04.005>

- Vasconcelos, E. M. de, & Martino, M. M. F. De. (2018). Predictors of burnout syndrome in intensive care nurses. *Revista Gaucha de Enfermagem*, 38(4), e65354. <https://doi.org/10.1590/1983-1447.2017.04.65354>
- Wang, Q. Q., Lv, W. J., Qian, R. L., & Zhang, Y. H. (2019). Job burnout and quality of working life among Chinese nurses: A cross-sectional study. *Journal of Nursing Management*, 27(8), 1835–1844. <https://doi.org/10.1111/jonm.12884>
- Welp, A., Rothen, H. U., Massarotto, P., & Manser, T. (2019). Teamwork and clinician burnout in Swiss intensive care: The predictive role of workload, and demographic and unit characteristics. *Swiss Medical Weekly*, 149(11–12), 1–11. <https://doi.org/10.4414/smw.2019.20033>
- Williams, R. (2006). Generalized ordered logit/partial proportional odds models for ordinal dependent variables. *Stata Journal*, 6(1), 58–82. <https://doi.org/10.1177/1536867x0600600104>
- World Health Organisation. (2010). Healthy workplaces: a model for action. *Who*, 1–32.
- World Health Organisation. (2019). *Burn-out an 'occupational phenomenon': International Classification of Diseases*. WHO. https://www.who.int/mental_health/evidence/burn-out/en/
- Wunsch, H., Angus, D. C., Harrison, D. A., Collange, O., Fowler, R., Hoste, E. A. J., De Keizer, N. F., Kersten, A., Linde-Zwirble, W. T., Sandiumenge, A., & Rowan, K. M. (2008). Variation in critical care services across North America and Western Europe. *Critical Care Medicine*, 36(10), 2787–2793. <https://doi.org/10.1097/CCM.0b013e318186aec8>
- Yıldız, E. (2021). Psychopathological Factors Associated with Burnout in Intensive Care Nurses: A Cross-Sectional Study. *Journal of the American Psychiatric Nurses Association*. <https://doi.org/10.1177/1078390321999725>
- Zaidah, M., & Gim, S. C. (2015). Prevalence and levels of burnout among nurses in Hospital Raja Perempuan Zainab II Kota Bharu, Kelantan. *The Malaysian Journal of Nursing*, 7(1), 7–11.
- Zakaria, N., Zakaria, N. H., Bin Abdul Rassip, M. N. A., & Lee, K. Y. (2022). Burnout and coping strategies among nurses in Malaysia: a national-level cross-sectional study. *BMJ Open*, 12(10). <https://doi.org/10.1136/bmjopen-2022-064687>
- Zarei, E., Ahmadi, F., Sial, M. S., Hwang, J., Thu, P. A., & Usman, S. M. (2019). Prevalence of burnout among primary health care staff and its predictors: A study in Iran. *International Journal of Environmental Research and Public Health*, 16(12). <https://doi.org/10.3390/ijerph16122249>
- Zhang, X. C., Huang, D. S., & Guan, P. (2014). Job burnout among critical care nurses from 14 adult intensive care units in northeastern China: a cross-sectional survey. *Open*, 4, 4813. <https://doi.org/10.1136/bmjopen-2014>



KULLIYAH OF NURSING

Our Reference : IIUM/313/DDPG&R/C/20/4/10
 Date : 30th December 2020 / 15 Jamadilawal 1442H

Siti Norsyuhada Ramli
 G1924172
 Postgraduate Student
 Master in Nursing Science
 Kulliyah of Nursing IIUM

Dear Siti Norsyuhada,

**APPROVAL OF RESEARCH PROPOSAL
 - MASTER IN NURSING SCIENCE**

May this letter find you in the best of health.

With reference to the above matter, kindly be informed that your research proposal title "Burnout Level among Nurses in Critical Care Area at the Tertiary Hospital in Johor Bahru and Its Predictors" has been approved by the Kulliyah of Nursing Postgraduate and Research Committee (KNPGRC) No. 10/2020 dated 24th December 2020.

Kindly proceed with necessary action accordingly.

Thank you.

Yours sincerely,


ASST. PROF. DR. LEE SIEW PIEN
 Deputy Dean (Postgraduate & Research)
 Kulliyah of Nursing

cc : Dean, Kulliyah of Nursing
 : Student file/Filing



Office Address: Kulliyah of Nursing, International Islamic University Malaysia, Jalan Sultan Ahmad Shah, Bandar Indera Mahkota, 25200 Kuantan, Pahang
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JAWATANKUASA ETIKA & PENYELIDIKAN PERUBATAN
(Medical Research & Ethics Committee)
 KEMENTERIAN KESIHATAN MALAYSIA
 d/a Kompleks Institut Kesihatan Negara
 Blok A, No 1, Jalan Setia Murni U13/52,
 Seksyen U13, Bandar Setia Alam,
 40170 Shah Alam, Selangor.



Tel: 03-3362 8888/8205

Ref : KKM/NIHSEC/ P20-2499 (4)
 Date: 05-Jan-2021

Siti Norsyuhada Binti Ramli
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA (IIUM) - KUANTAN CAMPUS

Dear Sir / Mdm,

ETHICS INITIAL APPROVAL: NMRR-20-2347-54281 (IIR)
BURNOUT LEVEL AND ITS ASSOCIATED FACTORS AMONG NURSES IN CRITICAL CARE
AREA AT THE TERTIARY HOSPITAL IN JOHOR BAHRU

This letter is made in reference to the above matter.

2. The Medical Research and Ethics Committee (MREC), Ministry of Health Malaysia (MOH) has provided ethical approval for this study. Please take note that all records and data are to be kept strictly **CONFIDENTIAL** and can only be used for the purpose of this study. All precautions are to be taken to maintain data confidentiality. Permission from the District Health Officer / Hospital Administrator / Hospital Director and all relevant heads of departments / units where the study will be carried out must be obtained prior to the study. You are required to follow and comply with their decision and all other relevant regulations, including the Access to Biological and Benefit Sharing Act 2017.

3. The investigators and study sites involved in this study are:

HOSPITAL SULTAN ISMAIL
 Siti Norsyuhada Binti Ramli (Penyelidik Utama)

HOSPITAL SULTANAH AMINAH
 Siti Norsyuhada Binti Ramli (Penyelidik Utama)

4. The following study documents have been received and reviewed with reference to the above study:

Documents received and reviewed with reference to the above study:

1. Study Protocol_Version 2, dated 02-Jan-2021
2. Information Sheet & Informed Consent Form_English_Version 3, dated 02-Jan-2021
3. Information Sheet & Informed Consent Form_Malay_Version 3, dated 02-Jan-2021
4. Questionnaire_Version 3, dated 02-Jan-2021
5. Investigator's documents : Declaration of Conflict of Interest (COI), IA-HOD-IA, and CV:
 - a) Siti Norsyuhada Binti Ramli (Penyelidik Utama)

5. Please note that ethical approval is valid until **04-Jan-2022**. The following are to be reported upon receiving ethical approval. Required forms can be obtained from the National Medical Research Register (NMRR) website.

- i. **Continuing Review Form** has to be submitted to MREC within 2 month (60 days) prior to the expiry of ethical approval.
- ii. **Study Final Report** upon study completion to the MREC.

Ref : KKM/NIHSEC/ P20-2499 (4)

- iii. Ethical approval is required in the case of **amendments / changes** to the **study documents/ study sites/ study team**. MREC reserves the right to withdraw ethical approval if changes to study documents are not completely declared.

6. This study involves the following methods:

i. **Questionnaire**

7. Please take note that the reference number for this letter must be stated in all correspondence related to this study to facilitate the process.

Comments (if any): NIL

Project Sites:

HOSPITAL SULTAN ISMAIL
HOSPITAL SULTANAH AMINAH

Decision by Medical Research & Ethics Committee:

- (☒) Approved
(☐) Disapproved

Date of Approval : **05-Jan-2021**


DR HJH SALINA ABDUL AZIZ
Chairperson
Medical Research & Ethics Committee
Ministry of Health Malaysia
MMC No: 27117

s.k. HRRC Hospital Sultanah Aminah

MD/Approval2021/Mrecshare

APPENDIX 5

Tarikh: 28 Februari 2021

Pengarah,
Hospital Sultan Ismail,
Jalan Persiaran Mutiara Emas Utama,
Taman Mount Austin,
81100, Johor Bahru,
JOHOR DARUL TAKZIM.

YBhg Dato' / Tuan / Puan,

PERMOHONAN KEBENARAN PENGGUNAAN FASILITI UNTUK MENJALANKAN PENYELIDIKAN

Dengan hormatnya saya merujuk kepada perkara tersebut di atas.

2. Saya perlu menggunakan fasiliti YBhg Dato'/Tuan/Puan untuk aktiviti penyelidikan saya yang bertajuk, "NMRR-20-2347-54281: BURNOUT LEVEL AND ITS ASSOCIATED FACTORS AMONG NURSES IN CRITICAL CARE AREA AT THE TERTIARY HOSPITAL IN JOHOR BAHRU". Penyelidikan ini telah diluluskan oleh Jawatankuasa Etika Penyelidikan Perubatan JEPP (*Medical Research Ethics Committee MREC*). Bersama-sama ini disertakan surat kebenaran MREC (Lampiran 1) dan kertas kajian (*protocol*) / makluman ringkas projek (Lampiran 2).

3. Pegawai dari fasiliti YBhg Dato'/Tuan/Puan yang terlibat dalam penyelidikan ini adalah seperti berikut: (jika berkenaan)

i. Tidak Berkenaan

4. Fasiliti/Jabatan di tempat YBhg Dato'/Tuan/Puan yang diperlukan adalah seperti berikut:

- i. Jabatan Kecemasan dan Trauma
- ii. Jabatan Anestesiologi dan Rawatan Rapi
- iii. Jabatan Pediatrik
- iv. Jabatan Perubatan Am

5. Aktiviti penyelidikan yang akan dijalankan di fasiliti YBhg Dato' / Tuan / Puan adalah seperti berikut:

i. Borang Soal Selidik

Saya berharap untuk mendapat kebenaran dari pihak YBhg Dato' / Tuan / Puan.

Sekian, terima kasih.

Saya yang menjalankan amanah,



(Siti Norsyuhada Binti Ramli)

s.k.

Dr Siti Aisah Binti Hassan

Ketua Unit Pusat Penyelidikan Klinikal (CRC), Hospital Sultan Ismail.



Surat Kebenaran MREC

LAMPIRAN 2

Protokol (full protocol)

Ringkasan Projek Penyelidikan

Tajuk Penyelidikan: Burnout Level and Its Associated Factors among Nurses in Critical Care Area at the Tertiary Hospital in Johor Bahru

Nama dan Institusi Ketua Penyelidik: Siti Norsyuhada Binti Ramli / Universiti Islam Antarabangsa Malaysia (UIAM)

Nombor pendaftaran NMRR: NMRR-20-2347-54281

Rujukan kelulusan MREC: KKM/NIHSEC/ P20-2499

Tarikh mula penyelidikan: 5 Januari 2021

Tarikh tamat penyelidikan: 4 Januari 2022

Objektif penyelidikan:

- Objektif Am: Penyelidikan ini adalah untuk mengkaji tahap 'burnout' dalam kalangan jururawat yang bekerja di bahagian penjagaan kritikal dan mengenalpasti faktor-faktor yang mempengaruhinya.
- Objektif Khusus:
 - i. Untuk mengenal pasti tahap 'burnout' dalam kalangan jururawat penjagaan kritikal.
 - ii. Untuk membandingkan tahap 'burnout' dalam kalangan jururawat penjagaan kritikal mengikut unit/jabatan mereka bekerja.
 - iii. Untuk menentukan faktor-faktor biopsikososial-spiritual yang menyumbang kepada 'burnout' dalam kalangan jururawat penjagaan kritikal.
 - iv. Untuk menentukan faktor pekerjaan yang berkaitan yang menyumbang kepada 'burnout' dalam kalangan jururawat penjagaan kritikal.

Ringkasan metodologi penyelidikan: Penyelidikan ini menggunakan kaedah jenis 'cross-sectional'. Penyelidikan ini hanya melibatkan pengumpulan data melalui borang soal selidik yang mempunyai 6 bahagian, yang meliputi topik biologikal, psikologikal, sosial, pekerjaan, kerohanian dan Inventori Burnout Maslach (MBI). Untuk penyelidikan ini, populasi yang dipilih adalah dalam kalangan jururawat berdaftar yang bekerja di unit penjagaan rawatan kritikal. Para peserta akan ditentukan dengan menggunakan kaedah persampelan 'simple random sampling'. Dijangkakan bahawa 310 individu akan mengambil bahagian dalam kajian ini.

APPENDIX 5 (b)

**MAKLUMBALAS PERMOHONAN KEBENARAN PENGGUNAAN FASILITI
UNTUK MENJALANKAN PENYELIDIKAN**

Tajuk Penyelidikan: Burnout Level And Its Associated Factors Among Nurses In Critical Care Area At The Tertiary Hospital In Johor Bahru

Nama dan Institusi Ketua Penyelidik: Siti Norsyuhada Binti Ramli / Universiti Islam Antarabangsa Malaysia (UIAM)

Pihak hospital/institusi dengan ini membuat keputusan seperti berikut : -

- ☒ Membenarkan projek penyelidikan dijalankan
- ☐ Tidak membenarkan projek penyelidikan dijalankan

"BERKHIDMAT UNTUK NEGARA"

Saya yang menurut perintah,

(Dr Yoong Kar Yaw)
Ketua Jabatan Perubatan Am
Hospital Sultan Ismail

DR YOONG KAR YAW
MBBS, (Malaya) M Med (Malaysia)
Head & Senior Consultant Physician
Department of Medicine
Hospital Sultan Ismail, Pandan
Johor Bahru

(Dr. Khadijah Binti Abu Bakar)
Pengarah Hospital
Hospital Sultan Ismail

DR. KHADIJAH BINTI ABU BAKAR
No. Pendaftaran Penuh MPM 31344
Pengarah Hospital
Hospital Sultan Ismail
Johor Bahru

S.K.
Dr Siti Aisah Binti Hassan
Ketua Unit Pusat Penyelidikan Klinikal (CRC), Hospital Sultan Ismail.

**MAKLUMBALAS PERMOHONAN KEBENARAN PENGGUNAAN FASILITI
UNTUK MENJALANKAN PENYELIDIKAN**

Tajuk Penyelidikan: Burnout Level And Its Associated Factors Among Nurses In Critical Care Area At The Tertiary Hospital In Johor Bahru

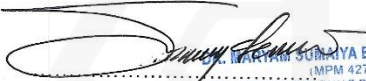
Nama dan Institusi Ketua Penyelidik: Siti Norsyuhada Binti Ramli / Universiti Islam Antarabangsa Malaysia (UIAM)

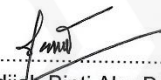
Pihak hospital/institusi dengan ini membuat keputusan seperti berikut : -

- ☒ Membenarkan projek penyelidikan dijalankan
- ☐ Tidak membenarkan projek penyelidikan dijalankan

“BERKHIDMAT UNTUK NEGARA”

Saya yang menurut perintah,


(Dr. Maryam Sumaiya Binti Ahmad Termizi)
Ketua Jabatan Kecemasan dan Trauma
Hospital Sultan Ismail


(Dr. Khadijah Binti Abu Bakar)
Pengarah Hospital
Hospital Sultan Ismail
DR. KHADIJAH BINTI ABU BAKAR
No. Pendaftaran Penuh MPM 31344
Pengarah Hospital
Hospital Sultan Ismail
Johor Bahru

S.K.
Dato' Dr Ghazali Ismail
Ketua Unit Pusat Penyelidikan Klinikal (CRC), Hospital Sultan Ismail.

**MAKLUMBALAS PERMOHONAN KEBENARAN PENGGUNAAN FASILITI
UNTUK MENJALANKAN PENYELIDIKAN**

Tajuk Penyelidikan: Burnout Level And Its Associated Factors Among Nurses In Critical Care Area At The Tertiary Hospital In Johor Bahru

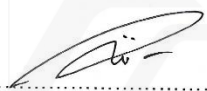
Nama dan Institusi Ketua Penyelidik: Siti Norsyuhada Binti Ramli / Universiti Islam Antarabangsa Malaysia (UIAM)

Pihak hospital/institusi dengan ini membuat keputusan seperti berikut : -

- ☒ Membenarkan projek penyelidikan dijalankan
- ☐ Tidak membenarkan projek penyelidikan dijalankan

"BERKHIDMAT UNTUK NEGARA"

Saya yang menurut perintah,


.....
(Dr Mohd Zaini bin Laman)
Ketua Jabatan Anestesiologi dan Rawatan Rapi
Hospital Sultan Ismail
DR MOHD ZAINI BIN LAMAN
No. Pendaftaran Penuh MPM: 33809 / NSR135180
KETUA JABATAN DAN PAKAR PERUNDING KANAN ANESTESIOLOGI
Jabatan Anestesiologi Dan Rawatan Rapi
Hospital Sultan Ismail
Johor Bahru


.....
(Dr. Khadijah Binti Abu Bakar)
Pengarah Hospital
Hospital Sultan Ismail
DR. KHADIJAH BINTI ABU BAKAR
No. Pendaftaran Penuh MPM 31344
Pengarah Hospital
Hospital Sultan Ismail
Johor Bahru

S.K.
Dr Siti Aisah binti Hassan
Ketua Unit Pusat Penyelidikan Klinikal (CRC), Hospital Sultan Ismail.

**MAKLUMBALAS PERMOHONAN KEBENARAN PENGGUNAAN FASILITI
UNTUK MENJALANKAN PENYELIDIKAN**

Tajuk Penyelidikan: Burnout Level And Its Associated Factors Among Nurses In Critical Care Area At The Tertiary Hospital In Johor Bahru

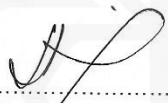
Nama dan Institusi Ketua Penyelidik: Siti Norsyuhada Binti Ramli / Universiti Islam Antarabangsa Malaysia (UIAM)

Pihak hospital/institusi dengan ini membuat keputusan seperti berikut : -

- ☒ Membenarkan projek penyelidikan dijalankan
☐ Tidak membenarkan projek penyelidikan dijalankan

“BERKHIDMAT UNTUK NEGARA”

Saya yang menurut perintah,


.....
(Dr Che Hadibiah Binti Che Mohd Razali)
Ketua Jabatan Pediatrik
Hospital Sultan Ismail
DR CHE HADIBIAH BINTI CHE MOHD RAZALI
No Pendaftaran Penuh MPM 31949
Pakar Perunding Pediatrik Onkologi & Ketua Jabatan
Jabatan Pediatrik
Hospital Sultan Ismail, Johor Bahru


.....
(Dr. Khadijah Binti Abu Bakar)
Pengarah Hospital
Hospital Sultan Ismail

DR. KHADIJAH BINTI ABU BAKAR
No. Pendaftaran Penuh MPM 31344
Pengarah Hospital
Hospital Sultan Ismail
Johor Bahru

S.K.
Dr Siti Aisah Binti Hassan
Ketua Unit Pusat Penyelidikan Klinikal (CRC), Hospital Sultan Ismail.

RESPONDENT INFORMATION SHEET

1. Title Of Study: Burnout Level and Predictors for Biopsychosocial, Spiritual and Occupational Factors Among Critical Care Nurses at a Tertiary Hospital in Johor Bahru
2. Name of investigator and institution: Siti Norsyuhada Binti Ramli – International Islamic University Malaysia (IIUM)
3. Name of sponsor: No external funding.

4. Introduction:

It is important that you understand why the research is being done and what it will involve. Please take your time to read through and consider this information carefully before you decide if you are willing to participate. Ask the study staff if anything is unclear or if you would like more information. After you are properly satisfied that you understand this study, and that you wish to participate, you must sign this informed consent form.

Your participation in this study is voluntary. You do not have to be in this study if you do not want to. You may also refuse to answer any questions you do not want to answer. If you volunteer to be in this study, you may withdraw from it at any time. If you withdraw, any data collected from you up to your withdrawal will still be used for the study. Your refusal to participate or withdraw will not affect any medical or health benefits to which you are otherwise entitled.

This study has been approved by the Medical Research and Ethics Committee, Ministry of Health Malaysia.

5. What is the purpose of the study?

The purpose of this study is to determine the burnout level of the nurses who are working in critical care areas in tertiary hospitals in Johor Bahru and its associated factors. This research is necessary to understand the problems faced by the nurses.

This research will be conducted for 24 months (28 December 2020 until 30 November 2022). The expected number of respondents is 310 individuals.

6. What are my responsibilities when taking part in this study?

The investigator will explain each section of the questionnaire to the respondents. Respondents will be allowed to answer the questionnaire within 5 working days. If respondents who were nurses were absent during the distribution of the questionnaire, an explanation and written instructions were given to the sister in charge of the ward for them to explain to the absent respondents. Reminders were given for those who were unable to submit the questionnaires on the collection day and another 5 days were given to submit it. This form contains 6 sections which will enquire about biological, psychological, social, spiritual, occupational and burnout topics.

7. What are the potential risks and side effects of being in this study?

Participation in this study will not affect your career and the risk is minimal. Respondents also can choose to withdraw at any time. Respondents may be withdrawn if the investigator deems that it is detrimental or risky for the respondents to answer the questionnaire.

8. What are the benefits of being in this study?

There may or may not be any benefits to you. Information obtained from this study will help nurses and healthcare management to be attentive to the nurses' working environment to understand the problems and difficulties they are facing and to ensure the nursing profession in Malaysia will keep expanding greatly. Each respondent will not be informed of the study findings.

9. Who is funding the research?

This study does not receive any external funding. You will not be paid for participating in this study.

10. Will my medical information be kept private?

All your information obtained in this study will be kept and handled in a confidential manner, by applicable laws and/or regulations. When publishing or presenting the study results, your identity will not be revealed without your expressed consent. Individuals involved in this study, qualified monitors, auditors, and governmental or regulatory authorities may inspect the study data, where appropriate and necessary.

11. Who should I call if I have questions?

If you have any questions about the study and you want information about this study, please contact the investigator, Siti Norsyuhada Binti Ramli at telephone number 017-9981698.

If you have any questions about your rights as a respondent in this study, please contact The Secretary, Medical Research & Ethics Committee Ministry of Health Malaysia, at telephone number 03-3362 8407/8205/8888.

RISALAH MAKLUMAT PESERTA

1. Tajuk penyelidikan: Burnout Level and Predictors for Biopsychosocial, Spiritual and Occupational Factors Among Critical Care Nurses at a Tertiary Hospital in Johor Bahru.
2. Nama Institusi and nama penyelidik: Siti Norsyuhada Binti Ramli - Universiti Islam Antarabangsa Malaysia (UIAM)
3. Nama penaja: Tidak menerima penajaan/dana dari pihak luar
4. Pengenalan:

Risalah ini menjelaskan hal-hal berkenaan penyelidikan dengan lebih mendalam dan terperinci. Penting untuk anda memahami mengapa penyelidikan ini dilakukan dan apa yang dilakukan dalam penyelidikan ini. Sila ambil masa yang secukupnya untuk membaca dan mempertimbangkan dengan teliti penerangan yang diberi sebelum anda bersetuju untuk menyertai penyelidikan ini. Jika ada sebarang kemusykilan ataupun maklumat lanjut yang anda ingin tahu, anda boleh bertanya dengan mana-mana kakitangan yang terlibat dalam penyelidikan ini. Setelah anda berpuas hati bahawa anda memahami penyelidikan ini, dan anda berminat untuk turut serta, anda dikehendaki untuk menandatangani Borang Persetujuan atau Keizinan Peserta, pada muka surat akhir risalah ini.

Penyertaan anda dalam penyelidikan ini adalah secara sukarela. Anda tidak perlu menyertai penyelidikan ini jika anda tidak mahu. Anda juga mempunyai hak untuk tidak menjawab mana-mana soalan yang anda tidak mahu jawab. Anda juga boleh menarik diri daripada penyelidikan ini pada bila-bila masa sahaja. Jika anda menarik diri, segala maklumat yang telah diperolehi sebelum anda menarik diri tetap akan digunakan dalam penyelidikan ini. Jika anda tidak mahu menyertai ataupun menarik diri dari penyelidikan ini, tindakan anda tidak akan menjejaskan segala hak dan keistimewaan perubatan kesihatan yang selayaknya anda terima.

Penyelidikan ini telah mendapat kelulusan Jawatankuasa Etika dan Penyelidikan Perubatan, Kementerian Kesihatan Malaysia.

5. Apakah tujuan penyelidikan ini dilakukan?
Tujuan penyelidikan ini dilakukan adalah untuk mengkaji tahap 'burnout' dalam kalangan jururawat yang bekerja di bahagian penjagaan kritikal di hospital tertiary di Johor Bahru dan mengenalpasti faktor-faktor yang mempengaruhinya. Penyelidikan ini diperlukan kerana dapat memberikan pemahaman yang lebih lanjut berkenaan dengan masalah-masalah yang dihadapi oleh para jururawat.

Penyelidikan ini akan berlangsung selama 24 bulan (28-Disember-2020 sehingga 30-November-2022). Dijangka bahawa 310 individu akan mengambil bahagian dalam kajian ini.

6. Apakah tanggungjawab saya sewaktu menyertai penyelidikan ini?
Penyelidik akan menerangkan setiap bahagian soal selidik kepada peserta. Peserta akan dibenarkan menjawab soal selidik dalam masa 5 hari bekerja. Sekiranya peserta yang merupakan jururawat tidak hadir semasa pengedaran soal selidik,

penjelasan dan arahan bertulis diberikan kepada ketua jururawat yang bertugas di wad agar mereka memberi penjelasan kepada responden yang tidak hadir. Peringatan telah diberikan untuk mereka yang tidak dapat menghantar borang soal selidik pada hari pengumpulan dan 5 hari lagi diberikan untuk mengemukakannya. Borang ini mempunyai 6 bahagian, yang meliputi topik biological, psikologikal, social, pekerjaan, kerohanian dan Inventori Burnout Maslach (MBI).

7. Apakah manfaatnya saya menyertai kajian ini?

Penyelidikan ini mungkin akan mendatangkan manfaat ataupun langsung tiada memberi apa-apa manfaat kepada anda. Segala maklumat yang diperolehi daripada penyelidikan ini akan dapat membantu jururawat dan bahagian pengurusan kesihatan supaya lebih memberi perhatian terhadap persekitaran kerja jururawat dalam memahami masalah dan kesulitan yang mereka hadapi dan untuk memastikan profesion kejururawatan di Malaysia akan terus berkembang pesat berdasarkan faktor-faktor yang mempengaruhi 'burnout' daripada kajian ini. Walaubagaimanpon, peserta tidak akan dimaklumkan mengenai hasil kajian ini.

8. Apakah risiko dan kesan-kesan sampingan menyertai penyelidikan ini?

Risiko untuk penyertaan penyelidikan ini yang adalah minima dan tidak akan menjejaskan kerjaya anda. Anda berhak memilih untuk menarik diri pada bila-bila masa. Peserta juga boleh ditarik balik sekiranya penyelidik menganggap bahawa ia berisiko bagi peserta untuk menjawab soal selidik.

9. Siapakah yang membiayai penyelidikan ini?

Kajian ini tidak menerima penajaan/dana dari pihak luar. Anda tidak akan dibayar untuk menyertai kajian ini.

10. Adakah maklumat saya akan dirahsiakan?

Segala maklumat anda yang diperolehi dalam penyelidikan ini akan disimpan dan dikendalikan secara sulit, bersesuaian dengan peraturan-peraturan dan/ atau undang-undang yang berkenaan. Sekiranya hasil penyelidikan ini diterbitkan atau dibentangkan kepada orang ramai, identiti anda tidak akan didedahkan tanpa kebenaran anda terlebih dahulu.

Pihak-pihak tertentu seperti individu yang terlibat dalam penyelidikan ini, juruaudit dan jurupantau yang terlatih, pihak berkuasa kerajaan atau undang-undang, boleh memeriksa maklumat atau data kajian jika diperlukan.

11. Siapakah yang perlu saya hubungi sekiranya saya mempunyai sebarang pertanyaan?

Anda boleh menghubungi penyelidik Siti Norsyuhada Binti Ramli pada nombor telefon 017-9981698 sekiranya anda mempunyai sebarang pertanyaan mengenai penyelidikan ini dan anda mahukan maklumat tentang penyelidikan ini.

Jika anda mempunyai sebarang pertanyaan berkaitan dengan hak-hak anda sebagai pesakit dalam penyelidikan ini, sila hubungi: Setiausaha, Jawatankuasa Etika & Penyelidikan Perubatan, Kementerian Kesihatan Malaysia melalui talian telefon 03-3362 8407/8205/8888.

INFORMED CONSENT FORM



**Title of Study: Burnout Level and Predictors for Biopsychosocial,
Spiritual and Occupational Factors Among Critical Care Nurses at
a Tertiary Hospital in Johor Bahru**

By signing below, I confirm the following:

- I have been given oral and written information for the above study and have read and understood the information given.
- I have had sufficient time to consider participation in the study and have had the opportunity to ask questions and all my questions have been answered satisfactorily.
- I understand that my participation is voluntary, and I can at any time freely withdraw from the study without giving a reason and this will in no way affect my future. I am not taking part in any other research study currently. I understand the risks and benefits, and I freely give my informed consent to participate under the conditions stated. I understand that I must follow the investigator's instructions related to my participation in the study.
- I understand that study staff, qualified monitors and auditors, the sponsor, or its affiliates, and governmental or regulatory authorities, have direct access to my medical record to make sure that the study is conducted correctly, and the data are recorded correctly. All personal details will be treated as STRICTLY CONFIDENTIAL
- I will receive a copy of this subject information/informed consent form signed and dated to bring home.
- I agree/disagree* with my family doctor to be informed of my participation in this study. (*delete which is not applicable)

Subject:

Signature:

I/C number:

Name:

Date:

Investigator conducting informed consent:

Signature:

I/C number:

Name:

Date:

Impartial witness:

Signature:

I/C number:

Name:

Date:

BORANG KEIZINAN PESERTA KAJIAN



Tajuk Penyelidikan: Tahap 'Burnout' Dan Faktor Peramal Untuk Biopsikososial, Spiritual Dan Pekerjaan Dalam Kalangan Jururawat Di Bahagian Penjagaan Kritikal Di Hospital Tertiari

Dengan menandatangani di bawah, saya mengesahkan bahawa:

- Saya telah diberi maklumat tentang penyelidikan ini secara lisan dan bertulis dan saya telah membaca dan memahami segala maklumat yang diberikan dalam risalah ini.
- Saya telah diberikan masa yang secukupnya untuk mempertimbangkan penyertaan saya dalam penyelidikan ini dan telah diberi peluang untuk bertanya soalan dan semua persoalan saya telah dijawab dengan sempurna dan memuaskan.
- Saya juga faham bahawa penyertaan saya adalah secara sukarela dan saya bebas menarik diri daripada penyelidikan ini tanpa harus memberi sebarang alasan dan ianya tidak akan menjejaskan rawatan perubatan saya pada masa akan datang. Saya tidak mengambil bahagian dalam mana-mana penyelidikan lain pada masa ini. Saya juga memahami tentang risiko dan manfaat penyelidikan ini dan saya secara sukarela memberi persetujuan untuk menyertai penyelidikan ini di bawah syarat-syarat yang telah dinyatakan di atas. Saya faham saya harus mematuhi nasihat dan arahan yang berkaitan dengan penyertaan saya dalam penyelidikan ini daripada penyelidik.
- Saya faham bahawa kakitangan penyelidikan, pemantau dan juruaudit terlatih, pihak penaja atau gabungannya, dan pihak berkuasa kerajaan atau undang-undang, mempunyai akses langsung dan boleh menyemak laporan perubatan saya bagi memastikan penyelidikan ini dijalankan dengan betul dan data direkodkan dengan betul. Segala maklumat dan data peribadi akan dianggap sebagai SULIT.
- Saya akan menerima satu salinan 'Risalah Maklumat Pesakit dan Borang Persetujuan atau Keizinan Pesakit' yang telah lengkap dengan tarikh dan tandatangan untuk dibawa pulang ke rumah.
- Saya bersetuju/ tidak bersetuju* untuk doktor yang merawat keluarga saya diberitahu tentang penyertaan saya dalam penyelidikan ini. (*Potong mana yang tidak berkenaan)

Subjek:

Tandatangan:

Nombor K/P:

Name:

Tarikh:

Penyelidik yang mengendalikan proses menandatangani borang keizinan:

Tandatangan:

Nombor K/P:

Nama:

Tarikh:

Saksi tidak-berpihak/adil:

Tandatangan:

Nombor K/P:

Nama:

Tarikh:

Tajuk Kajian / *Research Title:*

**TAHAP ‘BURNOUT’ DAN FAKTOR PERAMAL UNTUK
BIOPSIKOSOSIAL, SPIRITUAL DAN PEKERJAAN DALAM
KALANGAN JURURAWAT DI BAHAGIAN PENJAGAAN
KRITIKAL DI HOSPITAL TERTIARI DI JOHOR BAHRU**

***BURNOUT LEVEL AND PREDICTORS FOR BIOPSYCHOSOCIAL,
SPIRITUAL AND OCCUPATIONAL FACTORS AMONG CRITICAL
CARE NURSES AT THE TERTIARY HOSPITAL IN JOHOR BAHRU***

BAHAGIAN A / PART A

DATA BIOLOGIKAL / BIOLOGICAL DATA

Arahan: Sila tandakan (✓) dalam ruang yang disediakan bagi setiap jawapan pilihan anda dan isikan tempat kosong dengan jawapan yang sesuai.

Instruction: Kindly please tick (✓) the answer you have chosen in the available portion and fill in the blank with an appropriate answer.

1. Umur / Age: _____ years

2. Jantina / Gender

☐

Lelaki / Male

☐

Perempuan / Female

3. Bangsa / Race

☐

Melayu / Malay

☐

Cina / Chinese

☐

India / Indian

☐

Lain-lain / others _____

4. Adakah anda telah didiagnosis dengan sebarang penyakit?

Have you been diagnosed with any medical illness?

☐

Darah Tinggi / Hypertension

☐

Kencing Manis / Diabetes Mellitus

☐

Penyakit Buah Pinggang / Kidney Disease

☐

Penyakit Jantung / Heart Disease

☐

Kanser / Cancer

☐

Asthma / Asthma

☐

Tiada penyakit / No medical illness

☐

Lain-lain / Other _____

5. Berapa kerap anda melakukan senaman setiap minggu?

How frequently do you perform exercise per week?

☐	Tiada senaman / <i>No exercise</i>
☐	2-3 hari seminggu / <i>2-3 days per week</i>
☐	4-5 hari seminggu / <i>4-5 days per week</i>
☐	Setiap hari / <i>Everyday</i>

6. Secara umum, berdasarkan skala 0 (sangat teruk) hingga 10 (sangat baik), sila pilih tahap status kesihatan anda.

In general, based on a scale of 0 (very poor) to 10 (very good), please choose your health status level.

0	1	2	3	4	5	6	7	8	9	10	
Sangat teruk <i>Very poor</i>											Sangat baik <i>Very good</i>

7. Dalam 12 bulan yang lalu, berapa kali anda telah berjumpa atau bercakap di telefon mengenai kesihatan fizikal, emosi atau mental dengan doktor keluarga atau doktor am?

In the past 12 months, how many times have you seen, or talked on the telephone, about your physical, emotional, or mental health with a family doctor or general practitioner?

☐	Tidak pernah / <i>Never</i>
☐	1-5 kali / <i>1-5 times</i>
☐	6-10 / <i>6-10 times</i>
☐	Lebih dari 10 kali / <i>More than 10 times</i>

BAHAGIAN B / PART B

DATA PSIKOLOGICAL / PSYCHOLOGICAL DATA

Arahan: Sila tandakan (✓) dalam ruang yang disediakan bagi setiap jawapan pilihan anda dan isikan tempat kosong dengan jawapan yang sesuai.

Instruction: Kindly please tick (✓) the answer you have chosen in the available portion and fill in the blank with an appropriate answer.

1. Memikirkan jumlah tekanan dalam hidup anda, adakah anda mengatakan bahawa kebanyakan hari anda adalah:

Thinking about the amount of stress in your life, would you say that most of your days are?

- | | |
|--------------------------|---|
| ☐ | Sama sekali tidak menimbulkan tekanan / <i>Not at all stressful</i> |
| ☐ | Tidak terlalu tertekan / <i>Not very stressful</i> |
| ☐ | Sedikit tertekan / <i>A bit stressful</i> |
| ☐ | Agak tertekan / <i>Quite stressful</i> |
| ☐ | Sangat tertekan / <i>Extremely stressful?</i> |

2. Adakah anda mengalami gangguan mood seperti kemurungan, gangguan bipolar, mania atau dysthymia?

Do you have a mood disorder such as depression, bipolar disorder, mania or dysthymia?

- | | |
|------------------------------------|-------------------------------------|
| ☐ Ada / Yes | ☐ Tiada / No |
|------------------------------------|-------------------------------------|

3. Adakah anda mempunyai kecelaruan keresahan seperti fobia, gangguan obsesif-kompulsif atau gangguan panik?

Do you have an anxiety disorder such as a phobia, obsessive-compulsive disorder or panic disorder?

- | | |
|------------------------------------|-------------------------------------|
| ☐ Ada / Yes | ☐ Tiada / No |
|------------------------------------|-------------------------------------|

4. Secara umum, berdasarkan skala 0 (sangat teruk) hingga 10 (sangat baik), sila pilih tahap status kesihatan mental anda.

In general, based on a scale of 0 (very poor) to 10 (very good), please choose your mental health status level.

0	1	2	3	4	5	6	7	8	9	10
Sangat teruk <i>Very poor</i>					Sangat baik <i>Very good</i>					

5. Dalam 12 bulan yang lalu, berapa kali anda berjumpa atau bercakap di telefon mengenai kesihatan fizikal, emosi atau mental anda dengan pekerja sosial atau kaunselor?

In the past 12 months, how many times have you seen, or talked on the telephone, about your physical, emotional, or mental health with a social worker or counsellor?

☐	Tidak pernah / <i>Never</i>
☐	1-5 kali/ <i>1-5 times</i>
☐	6-10 / <i>6-10 times</i>
☐	Lebih dari 10 kali / <i>More than 10 times</i>

6. Dalam 12 bulan yang lalu, berapa kali anda berjumpa atau bercakap di telefon mengenai kesihatan fizikal, emosi atau mental anda dengan psikologi?

In the past 12 months, how many times have you seen, or talked on the telephone, about your physical, emotional, or mental health with a psychologist?

☐	Tidak pernah / <i>Never</i>
☐	1-5 kali/ <i>1-5 times</i>
☐	6-10 / <i>6-10 times</i>
☐	Lebih dari 10 kali / <i>More than 10 times</i>

BAHAGIAN C / PART C

DATA SOSIAL / SOCIAL DATA

Arahan: Sila tandakan (✓) dalam ruang yang disediakan bagi setiap jawapan pilihan anda dan isikan tempat kosong dengan jawapan yang sesuai.

Instruction: Kindly please tick (✓) the answer you have chosen in the available portion and fill in the blank with an appropriate answer.

1. Tahap pendidikan/Level of education

☐	Diploma/ <i>Diploma</i>
☐	Ijazah/ <i>Degree</i>
☐	Ijazah Sarjana / <i>Master</i>

2. Status perkahwinan / Marital status

☐	Bujang / <i>Single</i>	☐	Berceraai / <i>Divorced</i>
☐	Berkahwin / <i>Married</i>	☐	Balu / <i>Widowed</i>

3. Bilangan anak / No. of children: _____

4. Bagaimana anda menggambarkan rasa kekitaan anda di tempat kerja anda?

How would you describe your sense of belonging to your workplace?

☐	Sangat kuat / <i>Very strong</i>
☐	Kuat / <i>Strong</i>
☐	Lemah / <i>Wweak</i>
☐	Sangat lemah / <i>Very weak</i>

5. Adakah anda merasa sokongan daripada penyelia anda?

Do you feel supported by your supervisor?

☐	Sangat menyokong / <i>Very supportive</i>
☐	Menyokong / <i>Supportive</i>
☐	Tidak menyokong / <i>Not supportive</i>

BAHAGIAN D / PART D

DATA PEKERJAAN / OCCUPATIONAL DATA

Arahan: Sila tandakan (✓) dalam ruang yang disediakan bagi setiap jawapan pilihan anda dan isikan tempat kosong dengan jawapan yang sesuai.

Instruction: Kindly please tick (✓) the answer you have chosen in the available portion and fill in the blank with an appropriate answer.

1. Unit Bekerja / Working unit:

☐
☐
☐

Emergency Department (ED)

Intensive Care Unit (ICU)

Coronary Care Unit (CCU)

☐
☐

Neonatal ICU (NICU)

Pediatric ICU (PICU)

2. Pengalaman bekerja / Working experience: _____ Tahun/years.

3. Pengalaman bekerja di bahagian kritikal: _____ Tahun/years.

Working experience in critical care area:

4. Gred Kerja/ Work grade:

☐
☐
☐

U29

U36

U44

☐
☐

U32

U41

5. Jadual Kerja / Working Schedule

☐

Waktu pejabat / Office hour

☐

Waktu shif / Shift hour

6. Berapakah purata harian anda bagi nisbah jururawat dan pesakit?

What is your average daily nurse-to-patient ratio?

____ : ____

7. Jumlah jam bekerja seminggu : _____Jam/hours

Working hour per week

8. Kekerapan bekerja lebih masa dalam seminggu : _____Jam/hours

Frequency of overtime per week

9. Sejauh mana anda berpuas hati dengan pekerjaan anda secara umum?

How satisfied are you with your job in general?

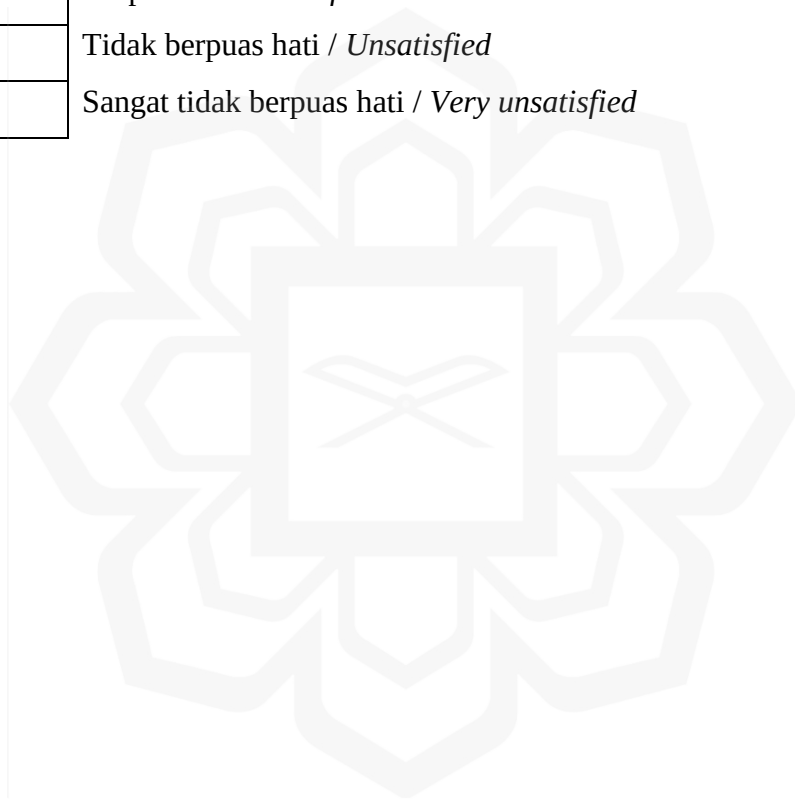
☐
☐
☐
☐

Sangat berpuas hati / *Very satisfied*

Berpuas hati / *Satisfied*

Tidak berpuas hati / *Unsatisfied*

Sangat tidak berpuas hati / *Very unsatisfied*



BAHAGIAN E / PART E

Indeks Agama Duke (DUREL)

Duke Religious Index (DUREL)

Arahan: Sila tandakan jawapan pilihan anda yang sesuai.

Instruction: Kindly please mark your appropriate answer.

1. Berapa kerapkah anda menghadiri aktiviti keagamaan di masjid, gereja, kuil, tokong atau perjumpaan agama?

How often do you attend religious activities in mosques, churches, temples, or religious meetings?

1.	2.	3.	4.	5.	6.
Tidak pernah / <i>Never</i>	Sekali setahun atau kurang / <i>Once a year or less</i>	Beberapa kali setahun / <i>A few times a year</i>	Beberapa kali sebulan / <i>A few times a month</i>	Seminggu sekali / <i>Once a week</i>	Lebih dari sekali dalam seminggu / <i>More than once/week</i>

2. Berapa kerapkah anda meluangkan masa untuk aktiviti keagamaan secara bersendirian seperti sembahyang, bermeditasi atau membaca kitab seperti Al-Quran atau Bible?

How often do you spend time in private religious activities, such as prayer, meditation or reading Al-Quran or Bible?

1.	2.	3.	4.	5.	6.
Jarang atau tidak pernah / <i>Rarely or never</i>	Beberapa kali sebulan / <i>A few times a month</i>	Sekali seminggu / <i>Once a week</i>	Dua kali atau lebih dalam seminggu / <i>Two or more times/week</i>	Setiap hari / <i>Daily</i>	Lebih dari sekali dalam sehari / <i>More than once a day</i>

Bahagian berikutnya mengandungi 3 kenyataan tentang kepercayaan agama atau amalan. Sila tandakan jawapan bagi kenyataan yang tepat bagi anda.

The following section contains 3 statements about religious belief or experience. Please mark the extent to which each statement is true or not true for you.

3. Saya dapat merasakan kehadiran Maha Pencipta (Tuhan) dalam hidup saya.

In my life, I experience the presence of the Divine (God).

1.	2.	3.	4.	5.
Tidak benar sama sekali / <i>Definitely not true</i>	Lebih cenderung kepada tidak benar / <i>Tends not to be true</i>	Tidak pasti / <i>Unsure</i>	Lebih cenderung kepada benar / <i>Tends to be true</i>	Amat benar sekali / <i>Definitely true</i>

4. Kepercayaan terhadap agama saya menjadi pedoman kepada kehidupan saya secara menyeluruh.

My religious beliefs are what lie behind my whole approach to life.

1.	2.	3.	4.	5.
Tidak benar sama sekali / <i>Definitely not true</i>	Lebih cenderung kepada tidak benar / <i>Tends not to be true</i>	Tidak pasti / <i>Unsure</i>	Lebih cenderung kepada benar / <i>Tends to be true</i>	Amat benar sekali / <i>Definitely true</i>

5. Saya telah sedaya upaya menerapkan elemen keagamaan saya dalam menangani segala urusan kehidupan saya.

I try hard to carry my religion over into all other dealings in life.

1.	2.	3.	4.	5.
Tidak benar sama sekali / <i>Definitely not true</i>	Lebih cenderung kepada tidak benar / <i>Tends not to be true</i>	Tidak pasti / <i>Unsure</i>	Lebih cenderung kepada benar / <i>Tends to be true</i>	Amat benar sekali / <i>Definitely true</i>

BAHAGIAN F / PART F

Inventori Burnout Maslach (MBI) - Kaji Selidik Perkhidmatan Manusia

Maslach Burnout Inventory – Human Services Survey

Arahan: Sila tandakan (✓) dalam ruang yang disediakan bagi setiap jawapan pilihan anda.

Instruction: Kindly please tick (✓) the answer you have chosen in the available portion

Berapa kerap skala untuk MBI adalah seperti berikut:

The frequency scale for MBI scales is as follows:

0 - Tidak pernah / <i>Never</i>
1 - Beberapa kali setahun atau kurang / <i>A few times a year or less</i>
2 - Sekali sebulan atau kurang / <i>Once a month or less</i>
3 - Beberapa kali sebulan / <i>A few times a month</i>
4 - Sekali seminggu / <i>Once a week</i>
5 - Beberapa kali seminggu / <i>A few times a week</i>
6 - Setiap hari / <i>Every day</i>

No.	Kenyataan / <i>Statement</i>	0	1	2	3	4	5	6
1	Saya berasa kelesuan dari segi emosi akibat kerja saya. <i>I feel emotionally drained from my work.</i>							
2	Saya berasa kehabisan tenaga pada penghujung hari kerja. <i>I feel used up at the end of the workday.</i>							
3	Saya berasa letih apabila bangun pada waktu pagi dan perlu menghadapi satu hari lagi untuk bekerja. <i>I feel fatigued when getting up in the morning and have to face another day on the job.</i>							
4	Saya memahami dengan mudah apa yang pesakit saya rasakan tentang sesuatu perkara.							

No.	Kenyataan / Statement	0	1	2	3	4	5	6
	<i>I can easily understand how my patients feel about things.</i>							
5	Saya berasa saya melayan sesetengah pesakit saya seolah-olah mereka ialah objek tanpa perasaan. <i>I feel I treat patients as if they were impersonal "objects".</i>							
6	Bekerja dengan individu lain sepanjang hari benar-benar satu tekanan pada saya. <i>Working with people all day is really a strain for me.</i>							
7	Saya menguruskan masalah-masalah pesakit saya dengan amat berkesan. <i>I deal very effectively with the problems of my patients.</i>							
8	Saya berasa lesu upaya (burnout) akibat pekerjaan saya. <i>I feel burned out from work.</i>							
9	Saya berasa saya mempengaruhi kehidupan orang lain secara positif melalui pekerjaan saya. <i>I feel I'm positively influencing other people's lives through my work.</i>							
10	Saya menjadi semakin kurang sensitif terhadap orang lain sejak saya memegang tugas ini. <i>I have become more callous toward people since I took this job.</i>							
11	Saya bimbang tugas ini akan menyebabkan saya bersikap keras hati dari segi emosi. <i>I worry that this job is hardening me emotionally.</i>							
12	Saya berasa amat bertenaga <i>I feel very energetic.</i>							
13	Saya berasa kecewa akibat kerja saya. <i>I feel frustrated by my job.</i>							
14	Saya berasa saya bekerja terlalu kuat dalam pekerjaan saya. <i>I feel I'm working too hard on my job.</i>							

No.	Kenyataan / Statement	0	1	2	3	4	5	6
15	Saya tidak begitu peduli tentang apa yang akan berlaku pada sesetengah pesakit. <i>I don't really care what happens to some patients.</i>							
16	Bekerja dengan individu lain secara langsung memberikan terlalu banyak tekanan pada saya. <i>Working with people directly puts too much stress on me.</i>							
17	Saya boleh mewujudkan suasana santai/rileks bersama pesakit saya dengan mudah. <i>I can easily create a relaxed atmosphere.</i>							
18	Saya berasa amat gembira selepas bekerja rapat dengan pesakit saya. <i>I feel exhilarated after working closely with my patients.</i>							
19	Saya telah banyak mencapai perkara yang berfaedah dalam pekerjaan ini. <i>I have accomplished many worthwhile things in this job.</i>							
20	Saya berasa tidak mampu bertahan lagi. <i>I feel like at the end of the rope.</i>							
21	Dalam kerja saya, saya menguruskan masalah-masalah emosi dengan amat tenang. <i>In my work, I deal with emotional problems very calmly.</i>							
22	Saya berasa pesakit menyalahkan saya dalam sesetengah masalah mereka. <i>I feel patients blame me for some of their problems.</i>							

APPENDIX G

Re: [EXTERNAL] A BIOPSYCHOSOCIAL-SPIRITUAL MODEL



Elliott, John O. <John.Elliott@ohiohealth.com>

To: Siti Norsyuhada Ramli



You replied to this message on 27/8/2020 10:40 AM.

If there are problems with how this message is displayed, click here to view it in a web browser.

External sender. Take care when opening links or attachments. Do not provide your login details.

Hi Syuhada,

Thanks for reaching out to me.

The model I used for my dissertation and the subsequent article in *Epilepsy & Behavior* was conceptualized based on the available data I had to work with from the Canadian Community Health Survey (CCHS).

There are other, more comprehensive models that may be more suitable for your needs.

I would recommend you look at a paper by Szaflarski in 2014: <https://www.sciencedirect.com/science/article/abs/pii/S1525505014002194>

That one has a more complete model that might give you some ideas.

In terms of the questionnaire, since I used publicly available data from Statistics Canada, so the survey is theirs.

They use a lot of standard single-item questions that are used for population research.

Those are not covered by copyright per se so you could find them and use them yourself.

Best regards,

John

John O. Elliott, PhD, MPH

Senior Research Specialist

Medical Education

Riverside Methodist Hospital

Phone: 614-566-3643

Fax: 614-566-1073

email: john.elliott@ohiohealth.com

APPENDIX H

From: NURASIKIN BINTI MOHAMAD SHARIFF <nurasikin@iium.edu.my>
Date: 18 September 2020 at 4:19:38 PM MYT
To: Siti Norsyuhada Ramli <Siti-Norsyuhada.Ramli@newcastle.edu.my>
Subject: Re: Copy of Questionnaire

⚠ External sender. Take care when opening links or attachments. Do not provide your login details.

As attached.

Best wishes,



Nurasikin Binti Mohamad Shariff

Dr.

Kulliyyah of Nursing,
International Islamic University Malaysia

t: 09-5707287

f:

e: nurasikin@iium.edu.my, w:
my



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APPENDIX I

CS

Ching Sin Siau <chingsin.siau@gmail.com>

To

Siti Norsyuhada Ramli

Asst. Prof. Dr. Siau Ching Sin

↩

Reply

↩

Reply All

→

Forward

You forwarded this message on 5/4/2023 1:37 PM.

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2c_MBI - General_FinalForMindGarden.pdf

127 KB

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2b_MBI - Educators_FinalForMindGarden.pdf

131 KB

▼

2a_MBI - Human Services_FinalForMindGarden.pdf

131 KB

▼

Dear Ms. Syuhada,

Thank you for your email and interest to use the translated MBI.

Please find attached the Malay MBI in three versions. Please refer to the journal articles for validation studies and past studies.

If you wish to publish your findings, you will need to buy licence from Mindgarden at the following website:
https://www.mindgarden.com/maslach-burnout-inventory/173-mbi-license-to-reproduce.html?search_query=maslach&results=51#translation-bahasa-malaysia-hss-es-forms-only/delivery-delivery-pdf/license-type-external-license

Please let me know if you have further queries. All the best!

Regards
Samantha

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HOSPITAL SULTANAH AMINAH JOHOR BAHRU
PUSAT PENYELIDIKAN KLINIKAL (CLINICAL RESEARCH CENTRE)
PERSIARAN ABU BAKAR SULTAN
80100 JOHOR BAHRU
NEGERI JOHOR DARUL TA'ZIM

Tel : 07-2257000 / EXT : 2782
Website : www.crc.gov.my

Sila rujuk bilangan surat ini apabila menjawab

Ruj. Tuan :

Ruj. Kami : (11) CRC/HSA/ March/2021

Tarikh : 31 March 2021

Puan Siti Norsyuhada binti Ramli
Kuliyah of Nursing
Universiti Islam Antarabangsa Malaysia (UIAM)

Puan,

MAKLUM BALAS PERMOHONAN KEBENARAN MENJALANKAN KAJIAN PENYELIDIKAN DI HOSPITAL SULTANAH AMINAH JOHOR BHARU (HSAJB):-

No. Penyelidikan	:	NMRR – 20- 2347- 54281
Nama Penyelidik	:	Puan Siti Norsyuhada binti Ramli
Institusi/Jabatan	:	Kuliyah of Nursing Universiti Islam Antarabangsa Malaysia (UIAM)
Tempat & Populasi Kajian	:	Jabatan kecemasan dan trauma Jabatan Anestesiologi dan Rawatan Rapi Jabatan Perubatan Kardiologi (Hospital Sultanah Aminah JB)
Tajuk Penyelidikan	:	Burnout level and its associated factors among nurses in critical care area at the tertiary hospital in Johor Bahru

Dengan hormatnya saya merujuk perkara di atas dan permohonan Puan bertarikh 28 Februari 2021 adalah berkaitan.

2. Kami mengambil maklum bahawa kajian ini telah memperolehi kelulusan dari Jawatankuasa Etika & Penyelidikan Perubatan (JEPP/MREC). Daripada pihak hospital, Kami **tidak menyokong dan tidak membenarkan** kajian ini dijalankan di hospital kami. Ini adalah kerana terdapat kajian lain yang hampir sama dan menggunakan responden yang sama sedang berlangsung di HSAJB. Mesyuarat bersama Pengarah hospital dan Hospital Research Committee HSAJB pada 29/3/2021 memutuskan untuk tidak membenarkan kajian puan dijalankan di HSAJB bagi mengelakkan kekeliruan dan aduan dari responden dan akhirnya menjejaskan keputusan kajian puan. Sekiranya puan mempunyai kemusykilan, sila berhubung dengan Unit Pusat Penyelidikan Klinikal (CRC) di hospital kami di talian 07-2257000 (ext 2782 – DR Hasmeir Razali) untuk perbincangan lanjut sekiranya perlu.

3. Pihak hospital ingin menegaskan, bagi semua kajian klinikal yang dijalankan di HSAJB, segala rekod dan data adalah **SULIT** dan hanya boleh digunakan untuk tujuan kajian sahaja. Untuk makluman pihak Puan, sebarang permohonan menjalankan

kajian hendaklah dimajukan satu (01) bulan awal sebelum tarikh kajian hendak dilaksanakan.

Sekian untuk makluman, terima kasih.

"PRIHATIN RAKYAT: DARURAT MEMERANGI COVID-19"

"BERKHIDMAT UNTUK NEGARA"

"PENYAYANG, BEKERJA BERPASUKAN DAN PROFESIONALISMA ADALAH BUDAYA KERJA KITA"

Saya yang menjalankan amanah,


(DR. HJ. MOHTAR BIN PUNGUT @ HJ. AHMAD)
Pakar Perubatan Kesihatan Awam
Pengarah Hospital
Hospital Sultanah Aminah Johor Bahru

s.k:

1. Ketua jabatan,
Jabatan kecemasan dan trauma HSAJB
2. Ketua Jabatan
Jabatan Anestesiologi dan Rawatan Rapi HSAJB
3. Ketua Jabatan,
Jabatan Perubatan Kardiologi HSAJB
4. Dr Norhaliza Binti Mohd Ali
Ketua Unit Pusat penyelidikan Klinikal (CRC), HSAJB
5. Fail Kajian, Pusat Penyelidikan Klinikal (CRC), HSAJB

GANTT CHART

	Research Project Activities	2020								2021								2022								2023																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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