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**The Impact of Workforce Management on Job Satisfaction and Burnout Among Operating
Room Nurses at King Fahad Medical City, Riyadh, Saudi Arabia**

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The healthcare workforce is the foundation of every healthcare system, with nurses representing the largest group of healthcare professionals responsible for delivering safe, effective, and patient-centered care. As healthcare services become increasingly complex due to population ageing, technological advancements, rising surgical demands, and the growing burden of chronic diseases, healthcare organizations face significant challenges in maintaining an adequate and sustainable nursing workforce. Consequently, effective workforce management has become a strategic priority to ensure high-quality patient care while supporting employee well-being, workforce retention, and organizational performance (World Health Organization [WHO], 2020; International Council of Nurses [ICN], 2023).

Workforce management refers to systematic planning, allocation, coordination, and supervision of human resources to ensure that the right number of competent healthcare professionals are available at the right time to meet patient care needs. In healthcare settings, workforce management extends beyond staffing numbers and includes workload distribution, shift scheduling, resource availability, and supervisor support. These organizational practices influence nurses' daily work experiences and contribute to the efficiency, quality, and safety of healthcare delivery (WHO, 2020; Bakker & Demerouti, 2017).

Among hospital departments, the operating room (OR) is recognized as one of the most demanding clinical environments. Operating room nurses work in a fast-paced and highly specialized setting that requires technical competence, effective communication, multidisciplinary collaboration, and rapid clinical decision-making. They are responsible for maintaining sterile techniques, preparing surgical instruments, coordinating perioperative care, and responding promptly to unexpected intraoperative events. These responsibilities require sustained physical and mental effort, making effective workforce management particularly important for maintaining both employee well-being and patient safety (Association of perioperative Registered Nurses [AORN], 2024).

One important outcome influenced by workforce management is job satisfaction. Job satisfaction reflects nurses' overall evaluation of their work experiences and is shaped by organizational factors such as staffing adequacy, workload, leadership, communication, recognition, and working conditions. Higher levels of job satisfaction have been associated with improved work performance, stronger organizational commitment, better teamwork, and lower turnover intention. Conversely, poor working conditions may reduce job satisfaction and negatively affect both employee well-being and the quality of patient care (Lu et al., 2019; ICN, 2023).

Another important outcome is burnout, which has become a growing concern among healthcare professionals worldwide. Burnout is an occupational phenomenon resulting from chronic workplace stress that has not been successfully managed and is characterized by emotional exhaustion, mental distancing from work, and reduced professional efficacy (World Health

Organization, 2019). Nurses working in demanding clinical environments, particularly operating rooms, are more susceptible to burnout because of heavy workloads, prolonged working hours, emergency surgical cases, and the continuous pressure to maintain high standards of patient care. Burnout has been associated with decreased job satisfaction, reduced organizational commitment, increased absenteeism, staff turnover, and poorer patient outcomes (Maslach & Leiter, 2021; National Academy of Medicine, 2022).

Saudi Arabia has placed increasing emphasis on strengthening its healthcare workforce through the Health Sector Transformation Program under Saudi Vision 2030. As tertiary healthcare institutions continue to expand specialized services, hospitals are expected to implement effective workforce management strategies that support workforce sustainability, enhance employee well-being, and improve healthcare quality (Saudi Vision 2030, 2023). King Fahad Medical City (KFMC), one of the largest tertiary referral hospitals in the Kingdom, provides a suitable setting for examining workforce management because of its high surgical volume, multidisciplinary workforce, and specialized perioperative services.

Despite increasing research on nursing workforce issues, studies specifically examining the impact of workforce management on both job satisfaction and burnout among operating room nurses remain limited, particularly within tertiary healthcare institutions in Saudi Arabia. Most previous studies have focused on general nursing populations or other clinical settings, such as medical wards, emergency departments, and intensive care units. Consequently, evidence relating to perioperative nursing remains comparatively scarce.

Therefore, this study aims to examine the impact of workforce management on job satisfaction and burnout among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia. The findings are expected to contribute to the growing body of nursing management literature and provide evidence to support organizational strategies that enhance nurse well-being, workforce sustainability, and the quality and safety of perioperative care.

1.2 Problem Statement

Healthcare organizations worldwide are experiencing increasing challenges in maintaining an adequate and sustainable nursing workforce. Growing healthcare demands, population ageing, increasing patient acuity, workforce shortages, and rising service expectations have placed considerable pressure on healthcare professionals, particularly nurses who constitute the largest proportion of the healthcare workforce. The World Health Organization (WHO, 2020) highlighted that strengthening the health workforce is essential for achieving universal health coverage and ensuring the delivery of safe, high-quality healthcare services. However, persistent workforce shortages and ineffective workforce planning continue to threaten healthcare quality and patient safety in many countries (International Council of Nurses [ICN], 2023).

Effective workforce management has become increasingly important because it directly influences nurses' working conditions and their ability to provide safe patient care. Workforce management involves ensuring appropriate staffing levels, equitable workload distribution, efficient shift scheduling, adequate resource allocation, and supportive supervision. When these organizational elements are not effectively managed, nurses are more likely to experience

excessive workloads, prolonged working hours, physical fatigue, psychological stress, and reduced work engagement. These conditions may subsequently contribute to lower job satisfaction, higher burnout, increased absenteeism, staff turnover, and compromised quality of patient care (WHO, 2020; ICN, 2023).

Job satisfaction is recognized as a key indicator of organizational effectiveness and employee well-being. Nurses who are satisfied with their work generally demonstrate greater organizational commitment, stronger work performance, and higher retention rates. Conversely, dissatisfaction has been associated with increased turnover intention, reduced productivity, poor morale, and lower quality of healthcare delivery (Lu et al., 2019). Given the continuing global nursing shortage, improving job satisfaction has become an important priority for healthcare organizations seeking to maintain a stable and competent workforce.

At the same time, burnout has emerged as one of the most significant occupational challenges affecting healthcare professionals. Maslach and Leiter (2021) described burnout as a work-related syndrome characterized by emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment resulting from chronic workplace stress. Burnout among nurses has been associated with increased clinical errors, reduced patient safety, absenteeism, decreased organizational commitment, and higher staff turnover, ultimately affecting both healthcare providers and patients (National Academy of Medicine, 2022). Consequently, identifying organizational factors that contribute to burnout is essential for developing effective interventions that support workforce sustainability.

Operating room (OR) nurses are particularly vulnerable to occupational stress because they work in a highly specialized, technically demanding, and time-sensitive environment. They are responsible for maintaining sterility, coordinating multidisciplinary surgical teams, preparing specialized equipment, anticipating intraoperative needs, responding to emergencies, and ensuring patient safety throughout surgical procedures. These responsibilities often involve prolonged standing, high levels of concentration, rotating shifts, emergency surgeries, and heavy workloads, making operating room nurses especially susceptible to physical and psychological fatigue (Association of Perioperative Registered Nurses [AORN], 2024). Inadequate workforce management within the operating room may therefore have a greater impact on nurses' well-being than in many other clinical settings.

In Saudi Arabia, the healthcare sector continues to expand rapidly under Saudi Vision 2030, with substantial investments in healthcare infrastructure, specialized services, and workforce development. While these initiatives aim to improve healthcare quality and accessibility, they have also increased the demand for skilled nursing professionals capable of supporting expanding healthcare services. Tertiary referral hospitals such as King Fahad Medical City (KFMC) perform a high volume of elective and emergency surgical procedures that require efficient workforce planning, effective staff deployment, and optimal utilization of nursing resources. Maintaining an adequate and satisfied perioperative nursing workforce is therefore essential to ensure patient safety and operational efficiency.

Although previous studies have investigated job satisfaction and burnout among nurses, many have focused on general nursing populations or departments such as intensive care units,

emergency departments, and medical wards. Comparatively fewer studies have specifically examined workforce management as an organizational factor influencing both job satisfaction and burnout among operating room nurses. Furthermore, evidence from tertiary healthcare institutions in Saudi Arabia remains relatively limited, particularly within specialized perioperative settings. As a result, there is insufficient evidence to explain how nurses' perceptions of workforce management influence their job satisfaction and burn out within the unique working environment of operating rooms.

Addressing this knowledge gap is important because understanding the relationship between workforce management, job satisfaction, and burnout may assist healthcare administrators and nurse managers in developing evidence-based workforce strategies that improve nurses' well-being, strengthen staff retention, optimize workforce utilization, and enhance the quality and safety of perioperative care. Therefore, this study seeks to examine the impact of workforce management on job satisfaction and burnout among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia.

1.3 Significance of the Study

This study is expected to contribute to both the academic literature and healthcare practice by providing evidence on the impact of workforce management on job satisfaction and burnout among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia. The findings may support healthcare organizations in developing effective workforce management

strategies that promote nurse well-being, improve workforce sustainability, and enhance the quality of perioperative care.

1.3.1 Operating Room Nurses

The findings of this study may help operating room nurses better understand how workforce management influences their job satisfaction and levels of burnout. By identifying organizational factors associated with nurses' well-being, the study may encourage greater awareness of workplace challenges and support initiatives aimed at improving working conditions, professional satisfaction, and overall quality of work life (Maslach & Leiter, 2021).

1.3.2 Nurse Managers

This study may assist nurse managers in evaluating existing workforce management practices within operating room settings. Evidence generated from the study may support decision-making related to staffing allocation, workload distribution, shift scheduling, resource management, and staff support programmes. Strengthening these management practices may contribute to higher job satisfaction, lower burnout, and improved staff retention (International Council of Nurses [ICN], 2023).

1.3.3 Hospital Administrators

For hospital administrators, the findings may provide valuable evidence to guide organizational policies and workforce planning. Effective workforce management is essential for maintaining a stable nursing workforce, improving employee engagement, reducing turnover intention, and ensuring efficient utilization of healthcare resources. The study may therefore support organizational strategies that enhance both staff well-being and patient safety (World Health Organization [WHO], 2020).

1.3.4 Healthcare Policymakers

The findings may also benefit healthcare policymakers, including the Ministry of Health and healthcare regulatory authorities in Saudi Arabia, by providing evidence that supports workforce development initiatives. The results may contribute to policies aimed at improving nursing workforce sustainability, strengthening workforce planning, and enhancing healthcare quality in line with the objectives of Saudi Vision 2030, which emphasizes healthcare transformation and the development of a resilient healthcare workforce (Saudi Vision 2030, 2023).

1.3.5 Patients

Although this study focuses on operating room nurses, the findings may indirectly benefit patients by supporting improvements in workforce management that contribute to safer and higher-quality perioperative care. Nurses who experience better working conditions and lower levels of burnout

are more likely to provide safe, effective, and patient-centered care, thereby contributing to improved patient outcomes and satisfaction (WHO, 2020; Maslach & Leiter, 2021).

1.3.6 Future Researchers

This study is expected to enrich the existing body of knowledge on workforce management within perioperative nursing practice, particularly in Saudi Arabia. The findings may serve as useful reference for future researchers interested in workforce management, job satisfaction, burnout, nursing management, organizational behavior, and healthcare workforce sustainability. Furthermore, the study may encourage future research involving different healthcare settings, professional groups, or additional organizational variables that influence nurses' well-being and performance.

1.4 Research Objectives

1.4.1 General Objective

To examine the impact of workforce management on job satisfaction and burnout among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia.

1.4.2 Specific Objectives

1. To determine the level of perceived workforce management among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia.
2. To determine the level of job satisfaction among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia.
3. To determine the level of burnout among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia.
4. To examine the relationship between workforce management and job satisfaction among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia.
5. To examine the relationship between workforce management and burnout among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia.
6. To determine whether workforce management significantly predicts job satisfaction and burnout after controlling for selected socio-demographic and professional characteristics among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia.

1.5 Research Questions

This study seeks to answer the following research questions:

1. What is the level of perceived workforce management among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia?
2. What is the level of job satisfaction among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia?
3. What is the level of burnout among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia?
4. Is there a significant relationship between workforce management and job satisfaction among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia?
5. Is there a significant relationship between workforce management and burnout among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia?
6. Does workforce management significantly predict job satisfaction and burnout among operating room nurses after controlling for selected socio-demographic and professional characteristics?

1.6 Research Hypotheses

The following hypotheses were formulated based on the research objectives to examine the relationships between workforce management, job satisfaction, and burnout among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia.

1.6.1 Null Hypotheses (H_0)

H_{01} : There is no statistically significant relationship between workforce management and job satisfaction among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia.

H_{02} : There is no statistically significant relationship between workforce management and burnout among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia.

H_{03} : Workforce management does not significantly predict job satisfaction among operating room nurses after controlling for selected socio-demographic and professional characteristics.

H_{04} : Workforce management does not significantly predict burnout among operating room nurses after controlling for selected socio-demographic and professional characteristics.

1.6.2 Alternative Hypotheses (H_1)

H_{11} : There is a statistically significant relationship between workforce management and job satisfaction among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia.

H₁₂: There is a statistically significant relationship between workforce management and burnout among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia.

H₁₃: Workforce management significantly predicts job satisfaction among operating room nurses after controlling for selected socio-demographic and professional characteristics.

H₁₄: Workforce management significantly predicts burnout among operating room nurses after controlling for selected socio-demographic and professional characteristics.

1.7 Operational Definitions

1.7.1 Workforce Management

Conceptually, workforce management refers to the systematic planning, allocation, coordination, and supervision of human resources to ensure that the right number of competent healthcare professionals are available at the right time to deliver safe, efficient, and high-quality healthcare services (World Health Organization [WHO], 2020).

Operationally, workforce management in this study refers to operating room nurses' perceptions of organizational workforce management practices, including staffing adequacy, workload distribution, shift scheduling, resource availability, and supervisor support. It will be measured using a structured questionnaire adapted from previously validated workforce

management instruments. Higher scores indicate more positive perceptions of workforce management.

1.7.2 Job Satisfaction

Conceptually, job satisfaction refers to an individual's positive emotional response and level of contentment toward their job, resulting from the evaluation of work experiences, organizational environment, and professional expectations (Spector, 1997).

Operationally, job satisfaction refers to the degree of satisfaction experienced by operating room nurses regarding their current job at King Fahad Medical City (KFMC). It will be measured using a researcher-developed job satisfaction questionnaire. Higher scores indicate greater levels of job satisfaction.

1.7.3 Burnout

Conceptually, burnout is a work-related psychological syndrome characterized by emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment resulting from prolonged exposure to chronic occupational stress (Maslach & Leiter, 2021).

Operationally, burnout refers to the level of physical and psychological exhaustion experienced by operating room nurses due to work-related demands. It will be measured using a researcher-developed burnout questionnaire. Higher scores indicate higher levels of burnout.

1.7.4 Operating Room Nurses

Conceptually, operating room nurses are registered nurses who provide specialized perioperative nursing care before, during, and immediately after surgical procedures while ensuring patient safety, maintaining aseptic practice, and supporting the surgical team throughout the operative process (Association of perioperative Registered Nurses [AORN], 2024).

Operationally, operating room nurses in this study refer to registered nurses employed in the operating rooms at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia, who are directly involved in perioperative patient care, including scrub nurses and circulating nurses.

1.7.5 King Fahad Medical City (KFMC)

Operationally, King Fahad Medical City (KFMC) refers to the tertiary referral hospital located in Riyadh, Saudi Arabia, where this study will be conducted. KFMC serves as the study setting and provides specialized surgical services across multiple clinical specialties.

1.8 Limitations of the Study

There are some limitations of this study that should be taken into account when interpreting the results. First, the study is a quantitative cross-sectional design that examines the relationship between variables at a single point in time and does not allow for causal relationships to be established between workforce management, job satisfaction, and burnout (Polit & Beck, 2021).

Second, the study is carried out in one tertiary referral hospital, King Fahad Medical City (KFMC), Riyadh, Saudi Arabia. The results, therefore, may not apply to other operating room nurses in other hospitals, health care organizations, or countries where the organizational structure and workforce management practices differ.

Third, data will be gathered by a self-administered online questionnaire. The study is based on participants' self-reported perceptions, which may be subject to recall bias, social desirability bias, or individual interpretation of the questionnaire items.

Lastly, other organizational and personal factors that might affect job satisfaction and burnout, such as organizational culture, personality traits, coping strategies, and individual psychological resilience, are not included in the present study.

Despite these limitations, the study is expected to provide valuable evidence on the effect of workforce management on job satisfaction and burnout among operating room nurses at KFMC and add to the literature on nursing management.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the existing literature relevant to the impact of workforce management on job satisfaction and burnout among operating room nurses. The review provides a comprehensive understanding of the concepts, theories, and empirical evidence that underpin the present study. It begins by discussing workforce management, including its definition, key components, and application within healthcare organizations and operating room settings. The chapter then examines the concepts of job satisfaction and burnout, highlighting their determinants, consequences, and significance in perioperative nursing practice.

In addition, this chapter presents the Job Demands–Resources (JD-R) Model as the theoretical framework guiding the study. The model explains how organizational resources and job demands influence employees' well-being, job satisfaction, and burnout. Relevant empirical studies conducted in international and Saudi Arabian healthcare settings are also critically reviewed to identify current evidence, inconsistencies, and gaps in the literature. Finally, the chapter presents the research gap and the conceptual framework that illustrate the proposed

relationships between workforce management, job satisfaction, and burnout among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia.

A comprehensive review of the literature is essential for establishing the theoretical and empirical foundation of this study. It facilitates a better understanding of the organizational factors that influence nurses' well-being and provides justification for investigating workforce management as a potential determinant of job satisfaction and burnout within the specialized operating room environment (Creswell & Creswell, 2023; Polit & Beck, 2021).

2.2 Workforce Management

2.2.1 Definition of Workforce Management

Workforce management is a strategic organizational process that ensures healthcare institutions have the appropriate number of competent healthcare professionals available at the right time to deliver safe, effective, and high-quality patient care. It involves planning, organizing, deploying, monitoring, and optimizing human resources to meet service demands while maintaining operational efficiency and employee well-being (World Health Organization [WHO], 2020). Effective workforce management enables healthcare organizations to balance workforce capacity with patient needs, thereby improving healthcare quality, organizational performance, and workforce sustainability.

In healthcare, workforce management extends beyond staffing allocation to include workforce planning, workload distribution, shift scheduling, resource allocation, competency

development, performance monitoring, and managerial support (American Organization for Nursing Leadership [AONL], 2021). These interconnected practices support healthcare professionals in delivering safe, efficient, and continuous patient care.

Effective workforce management is widely recognized as a key determinant of organizational performance and employee well-being. Appropriate staffing, equitable workload distribution, and supportive management contribute to higher job satisfaction, stronger workforce retention, improved patient outcomes, and reduced occupational stress. Conversely, inadequate workforce management may result in excessive workloads, staffing shortages, fatigue, reduced organizational commitment, and poorer quality of care (International Council of Nurses [ICN], 2023; WHO, 2020).

In operating room settings, effective workforce management is particularly important because surgical services require coordinated multidisciplinary teams, efficient scheduling, adequate resources, and supportive supervision to maintain patient safety, workforce sustainability, and nurses' professional well-being.

2.2.2 Components of Workforce Management

Workforce management is a multidimensional concept comprising organizational practices that influence employee performance, well-being, and organizational effectiveness. In healthcare, its key components include staffing adequacy, workload distribution, shift scheduling, resource availability, and supervisor support, all of which shape nurses' working experiences, particularly

in high-intensity environments such as operating rooms (World Health Organization [WHO], 2020; International Council of Nurses [ICN], 2023).

Staffing adequacy refers to ensuring sufficient numbers of qualified healthcare professionals to meet patient care demands safely and efficiently. Adequate staffing supports quality care and reduces workload pressures, whereas inadequate staffing has been associated with occupational stress, burnout, and poorer patient outcomes (Aiken et al., 2021; ICN, 2023).

Workload distribution involves allocating clinical responsibilities according to patient needs, staff competence, and workforce capacity. Fair workload allocation improves work performance and reduces fatigue, while excessive workloads have been identified as a major predictor of burnout and turnover intention (WHO, 2020; Maslach & Leiter, 2021).

Shift scheduling aims to balance organizational requirements with nurses' health, recovery, and work-life balance. Fair scheduling practices enhance job satisfaction and employee engagement, whereas prolonged working hours, frequent shift changes, and insufficient recovery periods contribute to fatigue and burnout (ICN, 2023).

Resource availability refers to access to the equipment, medical supplies, technology, and organizational support required to provide safe and efficient patient care. In operating rooms, adequate resources facilitate workflow efficiency and patient safety, while shortages may increase stress and procedural delays (Association of perioperative Registered Nurses [AORN], 2024).

Supervisor support reflects the extent to which nurse managers provide leadership, communication, guidance, and professional support. Effective supervision promotes teamwork,

resilience, organizational commitment, and job satisfaction, whereas inadequate support may contribute to workplace conflict, emotional exhaustion, and turnover intention (American Organization for Nursing Leadership [AONL], 2021). Together, these five components form the workforce management construct examined in this study and are expected to influence job satisfaction and burnout among operating room nurses.

2.2.3 Workforce Management in Healthcare

Effective workforce management has become a strategic priority for healthcare organizations due to increasing healthcare demands, nursing shortages, population ageing, and the growing complexity of patient care. It has evolved from a traditional administrative function into a comprehensive organizational strategy that supports patient safety, employee well-being, organizational performance, and workforce sustainability (World Health Organization [WHO], 2020).

In healthcare settings, workforce management involves aligning human resources with organizational goals and patient care needs through workforce planning, appropriate staffing, workload allocation, shift scheduling, staff development, and resource management. These practices enable healthcare organizations to respond efficiently to changing service demands while maintaining safe staffing levels and operational efficiency (International Council of Nurses [ICN], 2023).

Evidence indicates that effective workforce management is associated with higher employee engagement, greater job satisfaction, improved organizational commitment, lower absenteeism and turnover intention, and better patient outcomes (Aiken et al., 2021; WHO, 2020). Conversely, inadequate staffing, excessive workloads, unpredictable scheduling, and insufficient organizational support have been linked to occupational stress, burnout, reduced job satisfaction, increased medical errors, and higher organizational costs (Maslach & Leiter, 2021; National Academy of Medicine, 2022).

The COVID-19 pandemic further emphasized the importance of resilient workforce planning and supportive leadership in maintaining healthcare services while protecting healthcare workers' physical and psychological well-being (WHO, 2020; ICN, 2023).

In Saudi Arabia, workforce management has gained greater importance under Saudi Vision 2030, which emphasizes strengthening workforce capacity, improving healthcare quality, and enhancing organizational efficiency through sustainable workforce planning (Saudi Vision 2030, 2023). Although workforce management is essential across healthcare settings, its implementation differs according to clinical demands. High-acuity environments such as operating rooms require specialized workforce planning, making workforce management particularly important in influencing nurses' job satisfaction and burnout.

2.2.4 Workforce Management in the Operating Room

Workforce management is particularly important in operating room (OR) settings because perioperative services require coordinated teamwork, specialized clinical competencies, and efficient use of healthcare resources. Operating rooms operate in complex and time-sensitive environments where patient safety depends on effective communication, appropriate staffing, efficient scheduling, adequate resources, and continuous managerial support (Association of perioperative Registered Nurses [AORN], 2024).

Operating room nurses are responsible for preparing operating theatres, maintaining sterile techniques, coordinating surgical equipment, assisting during procedures, monitoring patient safety, and responding to unexpected intraoperative events. These responsibilities require technical competence, critical thinking, and effective multidisciplinary collaboration, making workforce management essential for maintaining staff well-being and patient safety (AORN, 2024).

Maintaining adequate staffing remains a major challenge because emergency procedures, prolonged surgeries, and unexpected staff shortages frequently require rapid workforce adjustments. These demands may increase workload, extend working hours, and contribute to occupational stress, fatigue, and reduced job satisfaction if not managed effectively (International Council of Nurses [ICN], 2023). Likewise, poorly designed shift schedules, excessive overtime, and inadequate recovery periods may disrupt work-life balance and increase burnout among perioperative nurses (Maslach & Leiter, 2021).

Adequate clinical resources and supportive leadership are equally important for ensuring efficient surgical workflows and a positive work environment. Insufficient resources or ineffective managerial support may contribute to workflow interruptions, communication problems, reduced morale, burnout, and turnover intention (World Health Organization [WHO], 2020; American Organization for Nursing Leadership [AONL], 2021).

Overall, effective workforce management supports safer surgical care, improves job satisfaction, and reduces burnout among operating room nurses. However, evidence remains limited within tertiary healthcare institutions in Saudi Arabia, highlighting the need for further research in settings such as King Fahad Medical City (KFMC).

2.3 Job Satisfaction

2.3.1 Definition of Job Satisfaction

Job satisfaction is a widely studied concept in organizational behavior and healthcare management that reflects employees' overall evaluation of their work experiences and organizational environment. It refers to the degree to which individuals feel positively or negatively about their jobs based on factors such as workload, working conditions, leadership, professional relationships, career development, recognition, and organizational support (Spector, 1997). In healthcare, job satisfaction is an important indicator of employee well-being, organizational commitment, and workforce stability.

Job satisfaction is influenced by both intrinsic factors, including professional achievement, autonomy, and personal growth, and extrinsic factors such as salary, staffing adequacy, workload, organizational policies, leadership, and workplace culture. Together, these factors shape employees' motivation, productivity, and intention to remain within an organization (Lu et al., 2019).

In nursing practice, high job satisfaction has been associated with improved work performance, stronger organizational commitment, better teamwork, enhanced patient safety, and lower turnover intention. Conversely, low job satisfaction may contribute to reduced morale, absenteeism, burnout, and increased intention to leave the profession, ultimately affecting healthcare quality and organizational performance (World Health Organization [WHO], 2020; International Council of Nurses [ICN], 2023).

Within operating room settings, job satisfaction is influenced by staffing adequacy, workload, shift scheduling, leadership, communication, teamwork, and resource availability. Understanding these factors is essential for developing workforce management strategies that enhance nurse well-being while supporting safe and efficient perioperative care.

2.3.2 Factors Influencing Job Satisfaction

Job satisfaction among nurses is influenced by individual, professional, and organizational factors. Although personal characteristics such as age, educational level, experience, and career expectations may affect job satisfaction, organizational factors generally have a greater influence

because they directly shape nurses' daily working environment (Lu et al., 2019). Consequently, healthcare organizations increasingly focus on improving workplace conditions to enhance workforce retention and the quality of patient care.

Workforce management is consistently recognized as one of the strongest organizational determinants of job satisfaction. Effective workforce management includes adequate staffing, equitable workload distribution, fair shift scheduling, sufficient resource allocation, and supportive supervision. These practices enable nurses to perform their responsibilities efficiently while maintaining a healthy work-life balance, whereas poor workforce management may increase occupational stress, reduce work engagement, and lower job satisfaction (World Health Organization [WHO], 2020; International Council of Nurses [ICN], 2023).

Adequate staffing and fair workload distribution allow nurses to provide safe, patient-centered care without excessive physical or psychological strain. In contrast, staff shortages and heavy workloads have been associated with fatigue, lower job satisfaction, reduced organizational commitment, and increased turnover intention (Aiken et al., 2021; Maslach & Leiter, 2021). Similarly, fair shift scheduling supports work-life balance, while prolonged working hours, rotating shifts, and mandatory overtime may negatively affect nurses' well-being and job satisfaction (ICN, 2023).

Supportive leadership and adequate resource availability further contribute to positive work environments by promoting teamwork, effective communication, professional recognition, and efficient clinical practice. Conversely, inadequate managerial support or limited resources

may reduce employee satisfaction and work performance (American Organization for Nursing Leadership [AONL], 2021; Association of perioperative Registered Nurses [AORN], 2024).

Overall, the literature indicates that effective workforce management is a key organizational determinant of job satisfaction and forms the primary independent variable examined in this study.

2.3.3 Job Satisfaction Among Operating Room Nurses

Job satisfaction among operating room (OR) nurses has received increasing attention because perioperative nursing is one of the most demanding specialties in healthcare. Operating room nurses work in a technologically advanced, highly coordinated, and time-sensitive environment where patient safety depends on effective teamwork, technical competence, and communication (Association of perioperative Registered Nurses [AORN], 2024).

Operating room nurses are responsible for preparing surgical instruments and equipment, maintaining sterile techniques, coordinating with multidisciplinary teams, assisting during surgical procedures, and ensuring patient safety. These responsibilities require sustained concentration, critical thinking, and rapid decision-making. Although they offer opportunities for professional growth, they may also contribute to occupational stress when organizational support is inadequate (AORN, 2024).

Previous studies indicate that job satisfaction among operating room nurses is strongly influenced by organizational factors, particularly staffing adequacy, workload, shift scheduling,

leadership, teamwork, and resource availability. Positive work environments characterized by effective communication, supportive leadership, and equitable workload distribution have been associated with higher job satisfaction and organizational commitment, whereas staff shortages, excessive workloads, overtime, and inadequate managerial support have been linked to lower job satisfaction and increased turnover intention (International Council of Nurses [ICN], 2023).

Effective workforce management is essential for coordinating staffing, responding to changing surgical demands, and ensuring fair workload distribution, thereby improving operational efficiency, reducing work-related stress, and enhancing job satisfaction (World Health Organization [WHO], 2020). Conversely, ineffective workforce management may increase fatigue, emotional strain, burnout, and turnover intention (Maslach & Leiter, 2021).

Despite the growing importance of perioperative nursing under Saudi Vision 2030, evidence regarding job satisfaction among operating room nurses in Saudi Arabian tertiary hospitals remains limited. Further research is therefore needed to examine how workforce management influences job satisfaction in specialized settings such as King Fahad Medical City (KFMC).

2.4 Burnout

2.4.1 Definition of Burnout

Burnout is a work-related psychological syndrome resulting from prolonged exposure to chronic occupational stress that has not been successfully managed. It is widely recognized as a

major challenge among healthcare professionals, particularly nurses, because of the demanding physical, emotional, and cognitive nature of their work. Burnout negatively affects employee well-being, workforce retention, organizational performance, and patient safety (World Health Organization [WHO], 2019; Maslach & Leiter, 2021).

The concept was first introduced by Freudenberger (1974) and later expanded by Maslach and colleagues, who defined burnout as a multidimensional syndrome comprising emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach & Leiter, 2021). The World Health Organization (2019) further classifies burnout as an occupational phenomenon in the *International Classification of Diseases, Eleventh Revision (ICD-11)*, characterized by energy depletion, increased mental distance from work, and reduced professional efficacy.

In nursing practice, burnout is associated with excessive workload, inadequate staffing, prolonged working hours, rotating shifts, poor work-life balance, limited managerial support, and insufficient professional recognition (International Council of Nurses [ICN], 2023). These factors may reduce nurses' resilience, motivation, and ability to deliver high-quality patient care.

Burnout has been linked to lower job satisfaction, reduced organizational commitment, absenteeism, turnover intention, decreased productivity, clinical errors, and poorer patient outcomes (National Academy of Medicine, 2022; Maslach & Leiter, 2021). In operating room settings, where nurses work in highly demanding and time-sensitive environments, effective workforce management is essential to reduce burnout and support workforce sustainability while maintaining safe, high-quality perioperative care.

2.4.2 Dimensions of Burnout

Burnout is a multidimensional construct comprising emotional exhaustion, depersonalization, and reduced personal accomplishment, as originally proposed by Maslach and colleagues. These dimensions remain the most widely accepted framework for understanding burnout among healthcare professionals and explain how prolonged occupational stress affects employees' psychological well-being, work attitudes, and professional performance (Maslach & Leiter, 2021).

Emotional exhaustion, the core dimension of burnout, refers to feelings of physical and emotional depletion resulting from prolonged workplace demands. Among operating room nurses, it may arise from heavy workloads, prolonged surgical procedures, emergency operations, staffing shortages, and continuous exposure to stressful clinical situations, potentially reducing work engagement, decision-making ability, and patient care quality (World Health Organization [WHO], 2019).

Depersonalization refers to detached or cynical attitudes toward patients, colleagues, or work responsibilities. Although it may initially serve as a coping mechanism, prolonged depersonalization can weaken teamwork, communication, and patient-centred care, particularly in operating room settings where multidisciplinary collaboration is essential (Maslach & Leiter, 2021).

Reduced personal accomplishment reflects diminished confidence in one's professional competence and effectiveness. Nurses experiencing this dimension often report lower motivation, job satisfaction, and organizational commitment, while limited recognition, inadequate support, and persistent workplace challenges may further contribute to these perceptions (International Council of Nurses [ICN], 2023).

These dimensions are closely interconnected, highlighting the importance of organizational interventions such as adequate staffing, balanced workloads, effective scheduling, sufficient resources, and supportive leadership to reduce burnout among operating room nurses (Maslach & Leiter, 2021).

2.4.3 Burnout Among Operating Room Nurses

Burnout is an increasing occupational concern among operating room (OR) nurses because perioperative nursing requires continuous concentration, technical competence, effective communication, and coordinated teamwork in a highly specialized and time-sensitive environment. These demanding conditions make operating room nurses particularly vulnerable to chronic occupational stress and burnout (Association of perioperative Registered Nurses [AORN], 2024).

Operating room nurses frequently work long hours, rotating shifts, on-call duties, and emergency surgical cases while maintaining sterile techniques, coordinating multidisciplinary teams, and responding to unexpected intraoperative events. These responsibilities may contribute

to emotional exhaustion, physical fatigue, and psychological distress, particularly when organizational support is inadequate (Maslach & Leiter, 2021).

Previous studies consistently identify organizational factors as major contributors to burnout among perioperative nurses. Inadequate staffing, excessive workload, overtime, insufficient recovery time, limited resources, and poor managerial support have been associated with higher burnout levels, whereas supportive leadership, equitable workload distribution, adequate staffing, and positive teamwork promote resilience and psychological well-being (International Council of Nurses [ICN], 2023; World Health Organization [WHO], 2020).

Burnout may impair concentration, decision-making, motivation, and job satisfaction, increasing the risk of communication errors, absenteeism, turnover, and reduced patient safety (National Academy of Medicine, 2022). Consequently, burnout is increasingly recognised as an organizational issue that can be mitigated through effective workforce management, including appropriate staffing, balanced workloads, fair scheduling, adequate resources, and supportive supervision (Maslach & Leiter, 2021).

Despite growing attention to burnout, evidence focusing specifically on operating room nurses remains limited, particularly in Saudi Arabian tertiary hospitals. Further research is therefore needed to examine how workforce management influences burnout among operating room nurses at King Fahad Medical City (KFMC).

2.4.4 Consequences of Burnout

Burnout has significant consequences for healthcare professionals, organizations, and patient care, making it an important organizational challenge rather than merely an individual response to workplace stress. In nursing, burnout affects physical, emotional, and cognitive functioning, ultimately influencing healthcare quality and workforce sustainability (World Health Organization [WHO], 2019; Maslach & Leiter, 2021).

At the individual level, burnout is associated with chronic fatigue, emotional exhaustion, sleep disturbances, anxiety, reduced motivation, impaired concentration, and poorer clinical performance. Prolonged burnout may also contribute to depression, reduced quality of life, and increased intention to leave the nursing profession (International Council of Nurses [ICN], 2023).

Organizationally, burnout has been linked to lower productivity, absenteeism, presenteeism, staff turnover, reduced organizational commitment, and higher recruitment and training costs. These challenges may disrupt workforce stability, communication, teamwork, and continuity of care (National Academy of Medicine, 2022).

Burnout also compromises patient safety by increasing the risk of clinical errors, communication failures, procedural delays, and adverse patient outcomes. In operating room settings, where sustained concentration, technical precision, and multidisciplinary collaboration are essential, burnout may impair decision-making, reduce situational awareness, and negatively affect surgical efficiency and patient safety (Aiken et al., 2021; WHO, 2020; Association of perioperative Registered Nurses [AORN], 2024).

These consequences highlight the importance of organizational interventions, including adequate staffing, balanced workloads, effective scheduling, sufficient resources, and supportive leadership. Strengthening workforce management may reduce burnout, improve job satisfaction and workforce retention, and support safe, efficient, and high-quality perioperative care.

2.5 Theoretical Framework

2.5.1 Job Demands–Resources (JD-R) Model

The present study is guided by the Job Demands–Resources (JD-R) Model, developed by Demerouti et al. (2001). The JD-R Model is one of the most widely used theoretical frameworks for explaining employee well-being, job satisfaction, work engagement, and burnout across occupational settings, including healthcare. It proposes that the interaction between job demands and job resources influences employees' psychological well-being, work performance, and organizational outcomes (Demerouti et al., 2001; Bakker & Demerouti, 2017).

According to the model, job demands are the physical, psychological, social, or organizational aspects of work that require sustained effort and may lead to occupational stress when excessive. In healthcare, these include heavy workloads, time pressure, prolonged working hours, rotating shifts, emotionally demanding patient care, and complex clinical responsibilities (Bakker & Demerouti, 2017).

In contrast, job resources are aspects of work that help employees achieve work goals, reduce job demands, and support professional development. Examples include adequate staffing,

supportive leadership, fair workload distribution, effective communication, sufficient resources, and organizational support, all of which enhance job satisfaction and protect against burnout (Bakker & Demerouti, 2017).

The JD-R Model describes two complementary processes: the health impairment process, in which excessive job demands contribute to burnout, and the motivational process, in which sufficient job resources promote job satisfaction, organizational commitment, and work performance (Demerouti et al., 2001; Bakker & Demerouti, 2017). Owing to its flexibility and strong empirical support, the JD-R Model provides an appropriate theoretical framework for examining how workforce management influences job satisfaction and burnout among operating room nurses in this study.

2.5.2 Application of the Job Demands–Resources (JD-R) Model to the Present Study

The Job Demands–Resources (JD-R) Model provides an appropriate theoretical foundation for this study by explaining how workplace conditions influence employees' psychological well-being and work-related outcomes. The model proposes that job demands increase occupational stress, whereas job resources enhance motivation, resilience, and professional performance (Demerouti et al., 2001; Bakker & Demerouti, 2017). This perspective aligns with the present study, which examines the impact of workforce management on job satisfaction and burnout among operating room nurses.

In this study, workforce management is conceptualized as an organizational resource comprising adequate staffing, equitable workload distribution, appropriate shift scheduling, sufficient resource availability, and supportive supervision. According to the JD-R Model, these resources enable nurses to perform their duties effectively, enhance job satisfaction, and protect against burnout (Bakker & Demerouti, 2017). Conversely, inadequate workforce management may increase job demands through staff shortages, excessive workloads, unpredictable scheduling, limited resources, and insufficient managerial support, thereby contributing to occupational stress and burnout (Demerouti et al., 2001).

The operating room is an appropriate setting for applying the JD-R Model because perioperative nurses work in high-pressure environments characterized by clinical complexity, time constraints, and continuous multidisciplinary collaboration. Balancing these demands with adequate organizational resources is essential for maintaining nurse well-being and safe perioperative care.

Accordingly, this study proposes that positive perceptions of workforce management are associated with higher job satisfaction and lower burnout among operating room nurses. The JD-R Model therefore provides the theoretical basis for the study hypotheses and conceptual framework.

2.6 Conceptual Framework

The conceptual framework for this study is based on the Job Demands–Resources (JD-R) Model developed by Demerouti et al. (2001), which proposes that organizational resources enhance job satisfaction while reducing burnout, particularly in demanding work environments (Demerouti et al., 2001; Bakker & Demerouti, 2017). In this study, workforce management is conceptualized as an independent variable and comprises five organizational dimensions: staffing adequacy, workload distribution, shift scheduling, resource availability, and supervisor support.

The dependent variables are job satisfaction and burnout. Based on the JD-R Model, effective workforce management is expected to enhance job satisfaction by providing sufficient organizational resources while reducing workplace stress and the risk of burnout among operating room nurses.

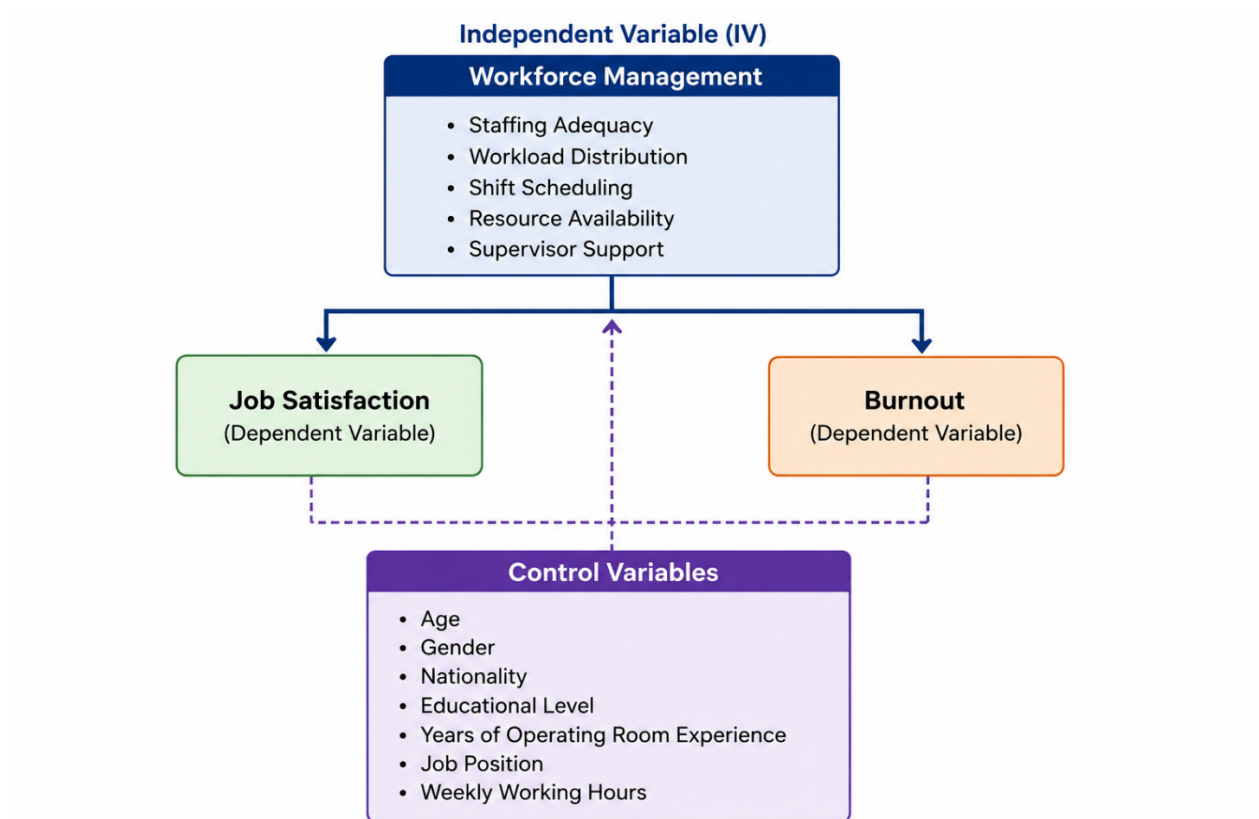
Selected socio-demographic and professional characteristics, including age, gender, nationality, educational level, years of operating room experience, job position, and weekly working hours, will be treated as control variables during data analysis to minimize potential confounding effects.

Accordingly, this study hypothesizes that positive perceptions of workforce management are associated with higher job satisfaction and lower burnout among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia. Figure 2.1 illustrates the conceptual framework guiding the study (Demerouti et al., 2001; Bakker & Demerouti, 2017).

Figure 2.1

Conceptual Framework of the Study

The Impact of Workforce Management on Job Satisfaction and Burnout Among Operating Room Nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia



Source: Adapted from Demerouti et al. (2001) and Bakker and Demerouti (2017).

2.7 Empirical Literature Review

2.7.1 Workforce Management and Job Satisfaction

Previous empirical studies have consistently shown that effective workforce management is positively associated with nurses' job satisfaction. Healthcare organizations that maintain adequate staffing, equitable workload distribution, effective shift scheduling, sufficient resource allocation, and supportive leadership generally report higher employee satisfaction, stronger organizational commitment, and better workforce stability. These organizational practices enable nurses to perform their duties efficiently while reducing workplace stress and enhancing their overall work experience.

Among these factors, adequate staffing and fair workload distribution are consistently identified as key determinants of job satisfaction. Sufficient staffing enables nurses to provide quality patient care without excessive workload, whereas staff shortages and heavy workloads contribute to fatigue, stress, and lower job satisfaction. Likewise, fair shift scheduling promotes work-life balance and reduces occupational stress, while unpredictable schedules and prolonged working hours negatively affect nurses' well-being.

Supportive leadership further enhances job satisfaction by promoting effective communication, teamwork, professional development, and employee engagement. Overall, empirical evidence suggests that effective workforce management is essential for creating a motivated, satisfied, and stable nursing workforce, thereby improving healthcare quality and organizational performance.

2.7.2 Workforce Management and Burnout

Empirical evidence consistently demonstrates that workforce management is closely associated with burnout among nurses. Organizational practices such as staffing adequacy, workload distribution, shift scheduling, resource availability, and managerial support influence nurses' psychological well-being. Effective workforce management provides organizational resources that help nurses cope with demanding clinical environments, whereas poor workforce management increases occupational stress and the risk of burnout.

Among these factors, adequate staffing and equitable workload distribution are consistently identified as major predictors of burnout. Staff shortages, excessive workloads, and prolonged working hours increase physical fatigue, emotional exhaustion, and reduced work performance, while adequate staffing and manageable workloads help reduce unnecessary work pressure and improve well-being.

Shift scheduling also influences burnout. Frequent rotating shifts, night duties, mandatory overtime, and insufficient recovery time may contribute to sleep disturbances, fatigue, poor work-life balance, and emotional exhaustion. Conversely, fair scheduling practices that allow adequate rest periods can reduce occupational stress.

Adequate clinical resources and supportive leadership further protect against burnout by promoting efficient clinical practice, effective communication, employee resilience, and positive workplace relationships. Within operating room settings, strengthening workforce management through appropriate staffing, balanced workloads, effective scheduling, sufficient resources, and supportive supervision may reduce burnout and promote a healthier, more resilient perioperative nursing workforce.

2.7.3 Job Satisfaction and Burnout

Previous empirical studies have consistently reported a significant inverse relationship between job satisfaction and burnout among nurses. Nurses with higher job satisfaction generally experience lower levels of burnout, whereas dissatisfied nurses are more likely to report emotional exhaustion, reduced motivation, and psychological distress. This relationship suggests that job satisfaction is an important indicator of nurses' well-being and resilience in demanding healthcare environments.

A positive work environment characterized by supportive leadership, effective teamwork, fair workload distribution, adequate staffing, and opportunities for professional development promotes higher job satisfaction while reducing burnout. Conversely, poor working conditions, including heavy workloads, staff shortages, prolonged working hours, inadequate organizational support, limited resources, and ineffective communication, contribute to dissatisfaction, emotional exhaustion, and increased burnout.

Within operating room settings, this relationship is particularly important because perioperative nurses work in high-pressure environments requiring sustained concentration, technical competence, and multidisciplinary collaboration. Inadequate organizational support may reduce job satisfaction and accelerate burnout.

Although the inverse relationship between job satisfaction and burnout has been consistently reported across healthcare settings, its strength may vary according to organizational culture, staffing models, leadership practices, and healthcare systems. Therefore, further research is needed to examine this relationship among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia, particularly within the context of workforce management.

2.7.4 International Studies

International research has consistently demonstrated that workforce management plays a significant role in influencing nurses' job satisfaction and burnout across healthcare settings. Organizational factors such as adequate staffing, manageable workloads, supportive leadership, effective communication, and sufficient resource allocation contribute to higher job satisfaction, stronger organizational commitment, lower burnout, and improved workforce sustainability.

Among these factors, staffing adequacy has been identified as a key determinant of nurses' work experiences. Hospitals with sufficient staffing generally report higher job satisfaction, stronger teamwork, and lower turnover intention, whereas staff shortages are associated with heavier workloads, occupational stress, emotional exhaustion, and poorer patient care. Similarly, supportive leadership promotes employee engagement, professional development, and

organizational commitment, while ineffective leadership contributes to lower morale, workplace conflict, and burnout.

International studies also indicate that equitable workload distribution and well-planned shift scheduling support work-life balance and reduce fatigue, whereas prolonged working hours, frequent night shifts, and unpredictable schedules increase emotional exhaustion and job dissatisfaction. Furthermore, burnout negatively affects organizational performance through increased absenteeism, staff turnover, communication problems, and adverse patient outcomes.

Although these findings consistently support the importance of effective workforce management, differences in healthcare systems, organizational structures, staffing models, and workforce composition may limit their applicability to Saudi Arabia. Therefore, context-specific research is needed to determine whether similar relationships exist among operating room nurses at King Fahad Medical City (KFMC).

2.7.5 Studies in Saudi Arabia

In Saudi Arabia, research on nurses' job satisfaction and burnout has increased in line with the healthcare transformation under **Saudi Vision 2030**, which emphasizes workforce sustainability, employee well-being, and healthcare quality. Consequently, understanding the organizational factors that influence nurses' job satisfaction and burnout has become an important research priority.

Previous studies in Saudi hospitals indicate that job satisfaction is strongly influenced by organizational factors, including staffing adequacy, workload, leadership support, professional development, workplace communication, and resource availability. Supportive leadership, effective teamwork, and equitable workload distribution have been associated with higher job satisfaction and organizational commitment, whereas inadequate staffing, excessive workloads, and limited organizational support contribute to lower job satisfaction and greater turnover intention.

Similarly, burnout has been linked to workforce shortages, prolonged working hours, rotating shifts, and increasing clinical demands, resulting in emotional exhaustion, occupational stress, reduced job performance, absenteeism, and workforce instability. Given the multicultural nature of Saudi Arabia's nursing workforce, effective leadership and equitable workforce management are essential for promoting collaboration and employee well-being.

Despite the growing body of research, most studies have focused on general nursing populations rather than operating room nurses. Evidence examining workforce management as a comprehensive organizational construct and its impact on both job satisfaction and burnout among operating room nurses at King Fahad Medical City (KFMC) remains limited. Addressing this gap may support the development of evidence-based workforce strategies to improve nurse retention, organizational performance, and perioperative care quality.

2.8 Research Gap

Despite the growing body of literature on workforce management, job satisfaction, and burnout among nurses, several important research gaps remain. Most previous studies have focused on general nursing populations or clinical settings such as medical wards, emergency departments, and intensive care units, with comparatively limited attention given to operating room nurses. Given the unique demands of perioperative nursing, including high surgical workloads, multidisciplinary collaboration, and time-sensitive clinical decision-making, findings from other nursing specialties may not be directly applicable to operating room settings.

Furthermore, many studies have examined staffing adequacy, workload, leadership, or shift scheduling as separate organizational factors rather than considering workforce management as a comprehensive construct. This approach may not fully capture the combined influence of these interrelated components on nurses' job satisfaction and burnout. In addition, variations in healthcare systems, organizational culture, staffing policies, and workforce composition may explain inconsistencies reported across previous studies.

Within Saudi Arabia, research specifically examining workforce management among operating room nurses remains limited, particularly in tertiary referral hospitals such as King Fahad Medical City (KFMC). Therefore, this study addresses these gaps by investigating the impact of workforce management on job satisfaction and burnout among operating room nurses at KFMC, providing evidence to support workforce sustainability and the quality of perioperative care.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter describes the methodology used to examine the impact of workforce management on job satisfaction and burnout among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia. It outlines the research design, study setting, study population, sampling method, sample size, research instrument, validity and reliability, pilot study, data collection procedures, ethical considerations, and data analysis. A systematic methodology is essential to ensure that the findings are valid, reliable, and capable of addressing the research objectives and hypotheses (Polit & Beck, 2021; Creswell & Creswell, 2023).

The study adopts a quantitative cross-sectional research design to examine the relationships between workforce management, job satisfaction, and burnout among operating room nurses. This design enables data to be collected at a single point in time using standardized questionnaires and analysed with appropriate statistical techniques to test the study hypotheses (Creswell & Creswell, 2023). Ethical procedures, appropriate sampling, and rigorous data analysis were incorporated to enhance the credibility and trustworthiness of the study findings (Polit & Beck, 2021).

3.2 Research Design

This study will employ a quantitative cross-sectional research design to examine the impact of workforce management on job satisfaction and burnout among operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia. A quantitative approach enables the objective measurement of participants' perceptions and statistical examination of relationships among the study variables (Creswell & Creswell, 2023). Data will be collected at a single point in time using a self-administered questionnaire and analyzed using SPSS version 29. Descriptive statistics, Pearson's correlation, and multiple linear regression will be performed, with statistical significance set at $p < 0.05$ (Polit & Beck, 2021).

3.3 Study Setting

This study will be conducted at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia, a tertiary referral hospital under the Ministry of Health that provides comprehensive specialized healthcare services. The study will focus on registered nurses working in the operating rooms, where perioperative care requires multidisciplinary collaboration and advanced clinical competence (Association of perioperative Registered Nurses [AORN], 2024). KFMC was selected because of its high surgical volume and diverse nursing workforce, providing an appropriate setting to examine the impact of workforce management on job satisfaction and burnout while maintaining consistency in organizational policies and workplace practices.

3.4 Study Population

The study population comprises registered nurses working in the operating rooms at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia. Eligible participants include scrub and circulating nurses involved in direct perioperative patient care across all operating room specialties. To ensure adequate workplace exposure, only nurses with at least six months of operating room experience at KFMC will be included (Association of periOperative Registered Nurses [AORN], 2024). Nursing interns, student nurses, agency nurses, nurses in administrative roles without direct patient care, and those on extended leave during the data collection period will be excluded. This population is appropriate for examining the impact of workforce management on job satisfaction and burnout in a tertiary healthcare setting.

3.5 Sampling Method

This study will employ simple random sampling to select registered operating room nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia. Following institutional approval, a list of eligible nurses will be obtained from the Nursing Administration. Each nurse will be assigned a unique identification number, and participants will be selected using a computer-generated random sampling technique until the required sample size is achieved. This method gives every eligible nurse an equal chance of selection, minimizing selection bias and improving sample representativeness (Polit & Beck, 2021; Creswell & Creswell, 2023).

3.6 Sample Size

The estimated population of registered operating room nurses at King Fahad Medical City (KFMC) is approximately 150 nurses. The sample size will be calculated using the Raosoft sample size calculator, with a 95% confidence level, 5% margin of error, and 50% response distribution, which is commonly used when the expected response pattern is unknown (Raosoft, 2004).

Based on an estimated population size of 150, the minimum required sample size is approximately 109 participants. To compensate for possible non-response or incomplete questionnaires, an additional 10% will be added. Therefore, the final target sample size for this study will be approximately 120 operating room nurses.

This sample size is considered adequate for a quantitative cross-sectional study examining the relationships between workforce management, job satisfaction, and burnout among operating room nurses.

3.7 Inclusion and Exclusion Criteria

3.7.1 Inclusion Criteria

Participants will be included in the study if they:

1. Are registered nurses working in the operating rooms at King Fahad Medical City (KFMC).
2. Are directly involved in perioperative patient care as scrub nurses or circulating nurses.

3. Have at least six months of experience in the operating room.
4. Are willing to participate voluntarily in the study.

3.7.2 Exclusion Criteria

Participants will be excluded if they:

1. Are nursing interns, student nurses, or agency nurses.
2. Are assigned only to administrative or managerial duties.
3. Have less than six months of operating room experience.
4. Are on annual leave, maternity leave, sick leave, or extended leave during the data collection period.
5. Decline to provide informed consent.

3.8 Research Instrument

Data will be collected using a structured self-administered questionnaire comprising four sections.

Section A collects socio-demographic and professional information, including age, gender, nationality, educational level, years of operating room experience, job position, and weekly working hours.

Section B measures perceptions of workforce management, covering staffing adequacy, workload distribution, shift scheduling, resource availability, and supervisor support.

Section C assesses job satisfaction.

Section D measures burnout.

Sections B, C, and D consist of researcher-developed questionnaires developed from an extensive review of the literature. All items will be measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Higher scores indicate more positive perceptions of workforce management and job satisfaction, whereas higher burnout scores indicate greater burnout. The questionnaire will undergo expert review and pilot testing to establish its validity and reliability before data collection (Polit & Beck, 2021).

3.9 Validity and Reliability of the Instrument

The researcher-developed questionnaire will undergo validity and reliability testing before the main study. Content validity will be established through expert review by nursing educators, perioperative nursing specialists, and researchers in nursing management and research methodology, who will evaluate the clarity, relevance, and comprehensiveness of the items. Necessary revisions will be made based on their recommendations. A pilot study will then be conducted to assess internal consistency using Cronbach's alpha, with a value of 0.70 or above considered acceptable (Polit & Beck, 2021; Taber, 2018). These procedures will ensure the instrument is valid and reliable for measuring the study variables.

3.10 Pilot Study

A pilot study will be conducted before the main study involving 20 operating room nurses who meet the inclusion criteria. These participants will not be included in the final sample. The pilot study aims to assess the clarity, feasibility, and administration of the questionnaire while identifying items requiring revision. Internal consistency will be evaluated using Cronbach's alpha, with a value of 0.70 or above considered acceptable (Polit & Beck, 2021; Taber, 2018). Feedback from the pilot study will be used to refine the questionnaire before the main data collection.

3.11 Data Collection Procedure

Following ethical approval and permission from King Fahad Medical City (KFMC), eligible participants will be identified according to the inclusion and exclusion criteria. Participants will receive a Participant Information Sheet and provide electronic informed consent before completing a self-administered Google Forms questionnaire. The questionnaire link will be distributed through hospital-approved communication channels and is expected to require 10–15 minutes to complete. Participation will be voluntary, anonymous, and participants may withdraw before submission without penalty. Upon completion of data collection, responses will be downloaded, screened, coded, and imported into SPSS version 29 for data cleaning and statistical analysis.

3.12 Data Analysis

Data collected through Google Forms will be exported to Microsoft Excel for data screening and coding before being imported into the Statistical Package for the Social Sciences (SPSS) version 29 for statistical analysis. Data will be checked for completeness, missing values, outliers, and data entry errors prior to analysis (Polit & Beck, 2021).

Descriptive statistics will be used to summarize participants' socio-demographic and professional characteristics. Categorical variables will be presented using frequencies and percentages, while continuous variables will be summarized using means and standard deviations.

To address the research objectives, both descriptive and inferential statistical analyses will be performed. The level of statistical significance will be set at $p < 0.05$.

Table 3.1 Data Analysis Plan

Research Objective	Variable	Statistical Analysis
To determine the level of workforce management among operating room nurses.	Workforce Management	Mean, Standard Deviation
To determine the level of job satisfaction among operating room nurses.	Job Satisfaction	Mean, Standard Deviation
To determine the level of burnout among operating room nurses.	Burnout	Mean, Standard Deviation
To examine the relationship between workforce management and job satisfaction.	Workforce Management, Job Satisfaction	Pearson's Correlation
To examine the relationship between workforce management and burnout.	Workforce Management, Burnout	Pearson's Correlation

To determine whether workforce management predicts job satisfaction and burnout after controlling for selected socio-demographic and professional characteristics.	Workforce Management, Job Satisfaction, Burnout, Control Variables	Multiple Linear Regression
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The findings will be presented using tables and appropriate statistical interpretations to address the research objectives and test the study hypotheses.

3.13 Ethical Considerations

Ethical approval will be obtained from the relevant Institutional Review Board (IRB), the Research Ethics Committee of King Fahad Medical City (KFMC), and the appropriate hospital authorities before data collection. Participation will be voluntary, and all participants will receive a Participant Information Sheet and provide electronic informed consent before completing the online questionnaire. Anonymity and confidentiality will be maintained by collecting no personal identifiers, and participants may withdraw before submitting the questionnaire without penalty. All data will be password-protected, used solely for research purposes, and retained according to university policy before secure deletion. The study will comply with the Declaration of Helsinki and university research ethics guidelines (World Medical Association, 2013).

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List of Abbreviations

Abbreviation	Full Term
AONL	American Organization for Nursing Leadership
AORN	Association of periOperative Registered Nurses
CBI	Copenhagen Burnout Inventory
ICD-11	International Classification of Diseases, 11th Revision
ICN	International Council of Nurses
IRB	Institutional Review Board
JD-R	Job Demands–Resources
KFMC	King Fahad Medical City
MSQ	Minnesota Satisfaction Questionnaire
OR	Operating Room
SPSS	Statistical Package for the Social Sciences
WHO	World Health Organization

APPENDICES

Appendix A: Participant Information Sheet

Study Title:

The Impact of Workforce Management on Job Satisfaction and Burnout Among Operating Room Nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia

Introduction

You are invited to participate in a research study entitled "**The Impact of Workforce Management on Job Satisfaction and Burnout Among Operating Room Nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia.**" This study is being conducted as part of the requirements for a Master's degree.

Purpose of the Study

The purpose of this study is to examine the impact of workforce management on job satisfaction and burnout among operating room nurses at KFMC.

Participation

Your participation is entirely voluntary. If you agree to participate, you will be asked to complete an online questionnaire using Google Forms. The questionnaire will take approximately **10–15 minutes** to complete.

Risks and Benefits

There are no foreseeable risks associated with participating in this study. Although you may not receive any direct benefit, your responses may contribute to improving workforce management strategies, nurse well-being, and perioperative healthcare services.

Confidentiality

Your responses will remain anonymous and confidential. No personal identifiers, such as your name or employee number, will be collected. All information obtained will be used solely for research purposes.

Voluntary Participation

Your participation is voluntary. You may decline to participate or withdraw from the study at any time before submitting the questionnaire without any consequences.

Contact Information

If you have any questions regarding this study, you may contact the researcher or the research supervisor using the contact details provided in the ethics application.

Thank you for your time and valuable participation.

Appendix B: Informed Consent Form

Informed Consent Form

Study Title:

The Impact of Workforce Management on Job Satisfaction and Burnout Among Operating Room

Nurses at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia

Please read the following statements carefully before deciding whether to participate in this study.

By selecting "**I Agree**" and proceeding to the questionnaire, you confirm that:

- I have read and understood the Participant Information Sheet.
- I understand the purpose, procedures, potential benefits, and minimal risks of this study.
- I understand that my participation is entirely voluntary.
- I understand that I may withdraw from the study at any time before submitting the questionnaire without any penalty or consequences.
- I understand that no personal identifying information will be collected and that all responses will remain anonymous and confidential.
- I understand that the information collected will be used solely for academic research purposes.
- I am at least 18 years of age.

- I voluntarily agree to participate in this study.

Consent

☐ **I Agree** – I have read and understood the information above and voluntarily agree to participate in this study.

☐ **I Do Not Agree** – I do not wish to participate in this study.

Appendix C: Questionnaire

Section A: Socio-demographic and Professional Characteristics

Please tick (✓) or select the most appropriate answer.

1. Age

☐ 20–29 years

☐ 30–39 years

☐ 40–49 years

☐ 50 years and above

2. Gender

☐ Male

☐ Female

3. Nationality

☐ Saudi

☐ Non-Saudi

4. Highest Educational Qualification

☐ Diploma

☐ Bachelor's Degree

☐ Master's Degree

☐ Doctorate

☐ Other: _____

5. Current Position

- ☐ Staff Nurse
- ☐ Senior Staff Nurse
- ☐ Charge Nurse
- ☐ Nurse Specialist
- ☐ Other: _____

6. Years of Experience in the Operating Room

- ☐ Less than 1 year
- ☐ 1–5 years
- ☐ 6–10 years
- ☐ 11–15 years
- ☐ More than 15 years

7. Average Weekly Working Hours

- ☐ Less than 40 hours
- ☐ 40–48 hours
- ☐ 49–56 hours
- ☐ More than 56 hours

Section B: Workforce Management

Instructions: Please indicate the extent to which you agree with each of the following statements by selecting **one** response.

Scale:

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

Dimension 1: Staffing Adequacy

No.	Item	1	2	3	4	5
B1	There are sufficient nurses to provide safe patient care during my shift.	☐	☐	☐	☐	☐
B2	Staffing levels in the operating room are generally adequate.	☐	☐	☐	☐	☐
B3	Additional staff are available when the workload increases.	☐	☐	☐	☐	☐
B4	Staff shortages rarely interfere with my ability to perform my duties effectively.	☐	☐	☐	☐	☐

Dimension 2: Workload Distribution

No.	Item	1	2	3	4	5
B5	My workload is fairly distributed among operating room nurses.	☐	☐	☐	☐	☐
B6	I have enough time to complete my assigned duties safely.	☐	☐	☐	☐	☐
B7	Emergency cases are allocated fairly among staff.	☐	☐	☐	☐	☐

B8	My workload is manageable during most shifts.	☐	☐	☐	☐	☐
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Dimension 3: Shift Scheduling

No.	Item	1	2	3	4	5
B9	My work schedule is planned fairly.	☐	☐	☐	☐	☐
B10	I receive my duty roster early enough to plan my personal activities.	☐	☐	☐	☐	☐
B11	I have sufficient rest time between shifts.	☐	☐	☐	☐	☐
B12	Overtime and on-call duties are managed fairly.	☐	☐	☐	☐	☐

Dimension 4: Resource Availability

No.	Item	1	2	3	4	5
B13	The operating room has adequate equipment to support patient care.	☐	☐	☐	☐	☐
B14	Surgical instruments and supplies are readily available when needed.	☐	☐	☐	☐	☐

B15	Resource shortages rarely interrupt surgical procedures.	☐	☐	☐	☐	☐
B16	The available resources allow me to perform my duties efficiently.	☐	☐	☐	☐	☐

Dimension 5: Supervisor Support

No.	Item	1	2	3	4	5
B17	My immediate supervisor provides adequate support when needed.	☐	☐	☐	☐	☐
B18	My supervisor communicates effectively with the nursing staff.	☐	☐	☐	☐	☐
B19	My supervisor listens to staff concerns and suggestions.	☐	☐	☐	☐	☐
B20	My supervisor treats all staff members fairly and respectfully.	☐	☐	☐	☐	☐

Scoring

- Possible score range: 20–100
- Higher scores indicate more positive perceptions of workforce management.

Instrument basis: The questionnaire is adapted from the Practice Environment Scale of the Nursing Work Index (PES-NWI) (Lake, 2002), with additional items on workload distribution and

shift scheduling adapted from nursing workforce management literature to suit the operating room context.

Section C: Job Satisfaction

Instructions: Please indicate the extent to which you agree with each of the following statements.

Scale:

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

No.	Item	1	2	3	4	5
C1	I am satisfied with my current job as an operating room nurse.	☐	☐	☐	☐	☐
C2	I enjoy performing my daily responsibilities in the operating room.	☐	☐	☐	☐	☐
C3	I am satisfied with the support I receive from my colleagues.	☐	☐	☐	☐	☐

C4	I am satisfied with the support provided by my supervisor.	☐	☐	☐	☐	☐
C5	I am satisfied with the recognition I receive for my work.	☐	☐	☐	☐	☐
C6	I am satisfied with the opportunities for professional development in my workplace.	☐	☐	☐	☐	☐
C7	I am satisfied with communication within my department.	☐	☐	☐	☐	☐
C8	I am satisfied with the overall working environment in the operating room.	☐	☐	☐	☐	☐
C9	I feel motivated to continue working in this organisation.	☐	☐	☐	☐	☐
C10	Overall, I am satisfied with my job at King Fahad Medical City.	☐	☐	☐	☐	☐

Scoring

- Total items: 10
- Response format: Five-point Likert scale (1–5)
- Possible score range: 10–50

- Higher scores indicate higher levels of job satisfaction.

Section D: Burnout

Instructions: Please indicate the extent to which you agree with each of the following statements.

Scale:

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

No.	Item	1	2	3	4	5
D1	I feel physically exhausted after completing my work shift.	☐	☐	☐	☐	☐
D2	I feel emotionally drained because of my work.	☐	☐	☐	☐	☐

D3	I feel mentally tired when performing my duties in the operating room.	☐	☐	☐	☐	☐
D4	My work leaves me with little energy for my personal life.	☐	☐	☐	☐	☐
D5	I find it difficult to recover from work-related stress after my shift.	☐	☐	☐	☐	☐
D6	I feel overwhelmed by my workload.	☐	☐	☐	☐	☐
D7	I often feel stressed while carrying out my responsibilities in the operating room.	☐	☐	☐	☐	☐
D8	I feel less enthusiastic about my work than I used to be.	☐	☐	☐	☐	☐
D9	I sometimes feel emotionally detached from my work.	☐	☐	☐	☐	☐
D10	I feel that the demands of my job are affecting my overall well-being.	☐	☐	☐	☐	☐
D11	I feel emotionally exhausted at the end of most working days.	☐	☐	☐	☐	☐
D12	Overall, I experience burnout related to my work in the operating room.	☐	☐	☐	☐	☐

Scoring

- Total items: 12

- Response format: Five-point Likert scale (1–5)
- Score range: 12–60
- Higher scores indicate higher levels of burnout.