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The Relationship Between Nurse Staffing Ratio of Hospitals and Patient Satisfaction in Emergency Units

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,

and that any and all revisions required by

the review committee have been made.

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Walden University

2024

Abstract

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MS, Western Governor University, 2018

BS, University of Jos Plateau State Nigeria, 1995

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Healthcare Administration

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Abstract

This completed quantitative research study explores the intricate relationship between nurse staffing ratios in emergency units and patient satisfaction, grounded in Donabedian's conceptual model. The primary objective was to examine the correlation between nursing staff-to-patient ratios and patient satisfaction, utilizing the Davis Consumer Emergency Care Satisfaction Scale. Employing a correlational analysis research design, the study utilized descriptive and inferential statistics, including analysis of covariance (ANCOVA), to control for factors such as nursing hours per patient day, nursing staff mix, and education/experience levels.

The study's significance lies in informing healthcare managers about the pivotal role of nurse staffing in enhancing healthcare services for patients, nurses, and the community. Addressing gaps in current literature, the research provides a comprehensive understanding of factors contributing to staff shortages and their impact on patient satisfaction. The target population comprised nurses in Alabama hospitals, selected based on official datasets from Medicare.gov. The findings offer valuable insights for policy discussions and decision-making related to nurse-to-patient ratios, particularly in emergency units. As the healthcare landscape evolves, the study underscores the importance of addressing staffing challenges, especially in emergency units where patient needs are urgent and unpredictable. The COVID-19 pandemic further highlights the critical role of staffing as demand overwhelms the supply of healthy nurses.

This research significantly contributes to the healthcare quality improvement discourse by unraveling the complex relationship between nurse staffing ratios and patient satisfaction. The findings provide practical guidance for policymakers, administrators, and healthcare leaders in optimizing nurse staffing levels for improved patient outcomes and experiences. The study emphasizes the ongoing importance of addressing staffing challenges, particularly in the dynamic environment of emergency units.

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Dedication

I dedicate this doctoral study in Healthcare Administration to the cherished memory of my late parents, Mr. and Mrs. Christopher Okonkwo Onuigbo. May their gentle souls continue to rest in peace. They have been, and continue to be, a profound inspiration in my life and educational journey. In heartfelt acknowledgment, I also extend this dedication to my sons, Muna and Chidubem Darlington, who have been unwavering pillars of strength throughout the course of this study.

Acknowledgments

I would like to express my sincere gratitude to my sons, Muna and Chidubem Darlington, as well as my entire family, for their unwavering daily prayers, sacrifices, and encouraging words throughout the journey of acquiring my PhD. Your steadfast support has been a source of strength, and I am truly blessed to have such dedicated family members by my side.

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I extend my appreciation to Mrs. Bridget Owunna, who inspired me to enroll in a PhD program, and to Dr. & Dr. Emmanuel Onyedike, Dr. Pete Ajar, Mrs. Ngozi Okpo, Dr. Obi Okonkwo, Gloria Ezulike, Mr. & Mrs. Chuks Onuigbo, Chukwudi Onuigbo, Mrs. Rebecca Anyiam, and Mr. Vincent Onuigbo. Each of you has supported me in more ways than one to accomplish my dreams. Thank you.

To my sons, family, and the mentioned doctors, your contributions have not gone unnoticed, and I am profoundly grateful for the love, encouragement, and professional guidance you have bestowed upon me. Your collective support has played a significant role in reaching this milestone, and I am sincerely thankful for each one of you.

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Section 1: Foundation of the Study and Literature Review

Introduction

The section will address the following topics: introduction, background, problem statement, research question and hypotheses, theoretical/conceptual framework, nature of the study, literature search strategy, literature review of key variables and concepts, definitions, assumptions, scope and delimitations, limitations and significance, summary, and conclusions.

Persolja (2018) studied the link between nursing care, patient satisfaction, and nurse performance. The study found a significant relationship between nursing hours per patient per day, proportion of registered nurses on the nursing team, and percentage of required registered nursing and patient satisfaction. Winter et al. (2020) also explored the relationship between hospital staffing, environmental factors, and organizational factors and their effect on patient satisfaction. They found that the correlation between staffing and patient outcome and satisfaction varied for physicians and nurses, indicating that hospital staffing is a separate concept and not just a result of patient outcomes and satisfaction.

This study aims to improve the administrative path of healthcare managers concerning the cost, relevance, and improvement of quality healthcare services for patients, nurses, and members of the community. It aims to fill the gap in current literature and provide a more comprehensive understanding of the factors contributing to staff shortages and the relationship between staffing difficulties and patient satisfaction.

Nurse administrators need to proactively address staffing challenges and shortages by forecasting staffing resources (Carlisle et al., 2020). The patient experience is as important as physical well-being in today's healthcare. The nurse-to-patient ratio in emergency units is crucial for patient care, outcomes, experiences, and satisfaction. Policymakers and administrators responsible for staffing should take into account patient health needs, staff qualifications, and adequate staffing in emergency units. Nurse staffing in emergency units can also be a matter of life or death, as optimal healthcare depends on appropriate staffing ratios (Sedeh, 2018). Nurse staffing also impacts patient experiences and the work environment. Forecasting staffing needs in emergency units is complex, as the number of patients can vary hourly and must be predicted for each shift. This study's target population is the nurses in hospitals in Alabama. The selection of hospitals in Alabama for this study was made based on the availability of data and information. These hospitals were chosen because they had official datasets available on Medicare.gov provided by the Centers for Medicare and Medicaid Services (CMS). This information will enable a comparison of the quality of care provided, the ratio of nursing staff to patients, and patient satisfaction.

Recent research has investigated which aspects of the patient experience in emergency healthcare, such as efficiency, compassion, and comfort, impact their satisfaction. Studies have focused on waiting times in emergency units as a key indicator of quality of care. Long wait times in emergency units are a common problem due to unpredictable nature of the work and often lead to patient complaints. Prolonged wait

times can lead to decreased satisfaction and feelings of frustration and loss of control (Viotti et al., 2020).

Background

The traditional healthcare model is fee-for-service (Guo et al., 2019) and hospital funding partly depends on the hospital's performance on the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey (Rozario, 2019). The CMS (2019) began administering the HCAHPS survey in 2008 to assess hospitals on a local, regional, and national level. The focus is on patient well-being and satisfaction with the care received (Rozario, 2019). Adequate nurse staffing is crucial for patient satisfaction (Rozario, 2019). Ball et al. (2018) found that low staffing levels lead to patient mortality, missed nursing care, nurse burnout, dissatisfaction, and failure-to-rescue rates. In emergency units, patient needs are higher than in non-emergency units, and patients depend on the nurses to have their needs met. Overworked nurses can't meet the needs of patients when staffing is insufficient.

Previous studies have shown that timeliness of care, provision of information, staff attitudes, and pain management are service factors that impact emergency units patient satisfaction (Abass et al., 2021). Patients in emergency units require urgent care to stabilize their health. Timeliness of care is feasible with an appropriate staffing-to-patient ratio in emergency units. The importance of patient satisfaction surveys as a measure for improving healthcare service quality has been emphasized in previous studies. These surveys are crucial quality improvement tools that are gaining popularity worldwide.

For the best patient outcomes, healthcare leaders must continually focus on enabling nurses to perform at their best. Nurse staffing levels impact the nurse's ability to improve the patient experience. Nurses on understaffed units or with insufficient skills are likely to have less time to attend to patient requests and educate them (Kyung Jin Hong et al., 2021). Inadequately qualified nurses in the ED can lead to medication errors, falls, and poor communication with patients. Despite research on the issue, there is limited literature on the relationship between nurse staffing structures in EDs, staffing ratios, and patient satisfaction with nursing care. This study aims to improve the administrative path of healthcare managers concerning the cost, relevance, and improvement of quality healthcare services for patients, nurses, and members of the community. Optimal nurse staffing is crucial for safety, quality, and satisfaction. During the COVID-19 pandemic, staffing has become even more critical as demand has overwhelmed the limited supply of healthy nurses and capacity for care.

The National Nursing Shortage Reform and Patient Advocacy Act 2004 (CMS, 2020b) calls for minimum nurse-to-patient ratios, such as 1-to-3 in emergency units and 1-to-5 in medical-surgical units (Pfander et., 2018). However, some hospital executives don't understand the relationship between patient satisfaction scores on HCAHPS surveys, nurse-to-patient ratios, and hospital profitability (CMS, 2020b). If funding decreases, hospital executives will have less money to invest in improving patient care. They need to focus on quality-of-care measures that will enhance their funding (CMS, 2020b). This study aims to quantitatively examine the relationship between patient satisfaction and nursing staffing in the emergency unit.

Problem Statement

The American Nurses Association maintains that appropriate staffing is needed to meet patient demands and refers to a nurse-patient ratio as the number of nurses per number of patients that determines staffing levels (Saaiman et al., 2021). In emergency units, patient numbers are constantly in flux, complicating the prediction of ideal staffing levels (Saaiman et al., 2021). Because of the unpredictability of the number of patients coming into the emergency units at every shift, the nursing staff on duty can fall short of meeting the needs of the patients and this could cause medication errors, staff being overworked, patient falls, high mortality rates, and low output.

Poor nursing staffing ratio leads to missed nursing care, which is a prevalent problem globally, with studies in various countries, including the United States, Europe, Asia, and Australia, showing a high incidence of this issue (Aiken et al., 2018). Research has also highlighted the negative impact of poor nursing staff ratio on patient outcomes, including poor quality of care, increased mortality, decreased patient satisfaction, and an increase in adverse events such as medication errors, falls, pressure ulcers, infections, and readmission (Aiken et al., 2018).

This study aims to improve the administrative path of healthcare managers concerning the cost, relevance, and improvement of quality healthcare services for patients, nurses, and members of the community. It could also improve patient outcomes, nurse staffing to patient ratio, and patient experience in general. This study will examine the relationship between nurse staffing ratio (independent variable) of hospitals and patient satisfaction (dependent variable) in emergency units.

Purpose Statement

This quantitative study aims to investigate the relationship between nurse staffing ratio(independent variable) of hospitals and patient satisfaction(dependent variable)

The focus of the research is on how nursing staffing affects patient satisfaction.

Research Question and Hypothesis

This research aims to establish the correlation between the proportion of nursing staff to patients in the emergency unit and patient satisfaction. The research question is

RQ 1: What is the correlation between the nurse to patient ratio and patient satisfaction in emergency units?

$H_0$1: There is no notable statistically significant correlation between the proportion of nursing staff to patients and patient satisfaction in emergency units.

$H_0$1: There is a statistically significant correlation between the nursing staff ratio and patient satisfaction in emergency units.

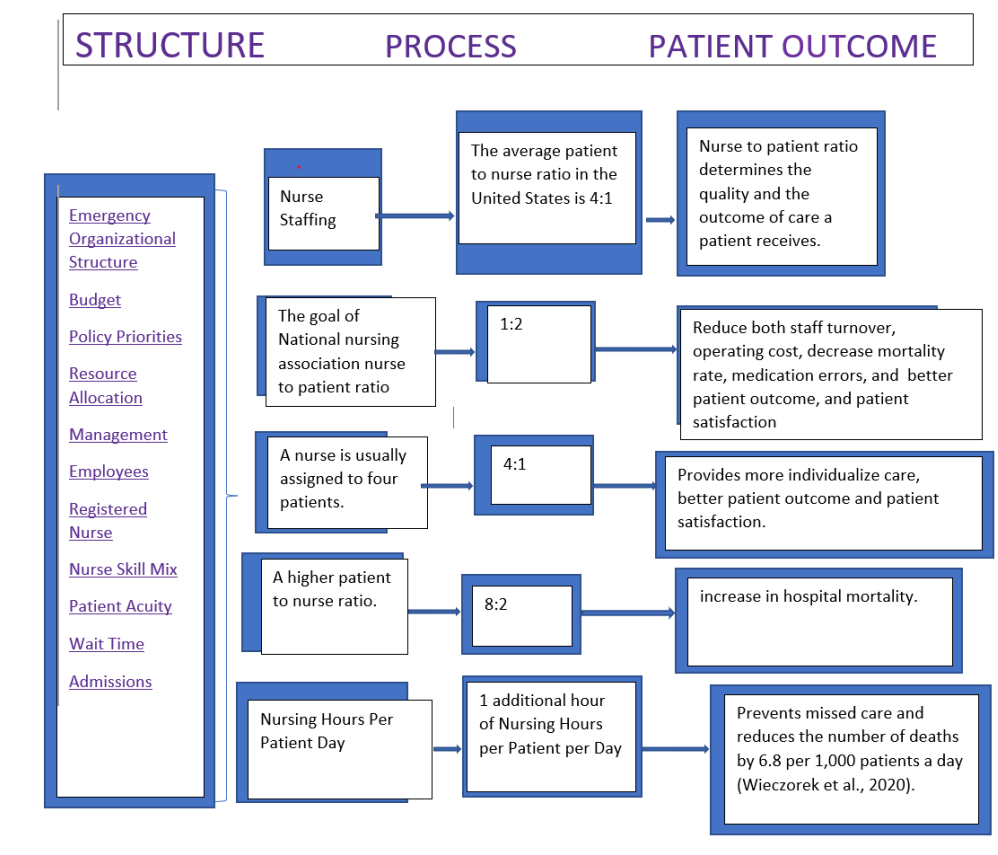
In summary, this study will investigate the link between patient satisfaction (dependent variable) and nurse staffing (independent variable) in emergency units.

Theoretical or Conceptual Framework

The study aims to investigate the relationship between nursing staffing ratios and patient satisfaction using Donabedian's conceptual model for evaluating the quality of healthcare. This model, proposed by Donabedian in 1966, has three key components: the structure of care, process of care, and outcome of care. These components have been used in healthcare research for over five decades to assess and compare the quality of care (Burke et al., 2000).

The study will use correlational research to determine whether nursing staffing ratios serve as a predictor of patient satisfaction. The logical connections between the framework presented and the nature of the study include Donabedian's (1966) theoretical work, which indicates that the quality assessment of nurse staffing and patient satisfaction is impacted by the structure, process, and outcome of care. Furthermore, subsequent research applications of Donabedian's theory have offered guidance on how patient factors, such as gender, age, and patient outcomes, as well as hospital factors, such as emergency unit and nurse staffing, influence the quality of care. Additionally, research on self-reported patterns of under-and overestimation of time, as related to the types of activities assessed and documented (Burke et al., 2000), will also be considered in this study.

Figure 1 Conceptual Framework



The conceptual framework created by the researcher in this study, as depicted in Figure 1, illustrates the relationship between emergency unit service quality, nurse staffing, and patient outcomes. According to the World Health Organization (2018), an effective health system should be efficient, accessible, patient-centered, equitable, and most importantly, provide safe quality care. This framework serves as the basis for the examination of the variables in this study. The value of patients to a hospital is related to efficiency, transactional, aesthetic, self-gratification, and social interaction values (Chahal et al., 2021).

"Value" in this context refers to the perceived worth or importance that patients attach to their experiences with a hospital. The five factors listed (efficiency, transactional, aesthetic, self-gratification, and social interaction values) are components that can contribute to a patient's overall perception of value.

Study Design

This quantitative study aims to investigate the relationship between nurse staffing ratio (independent variable) of hospitals and patient satisfaction (dependent variable)

The focus of the research is on how nursing staffing affects patient satisfaction. The Davis Consumer Emergency Care Satisfaction Scale will be used as a valid instrument to measure patient satisfaction (Clarke et al., 1996). Descriptive and inferential statistics will be used to analyze the sample and the data. A correlational analysis research design and an analysis of covariance (ANCOVA) will be used to compare the independent and dependent variables while controlling for other factors such as nursing hours per patient day, nursing staff mix, percent of full-time, part-time, or casual staff, and level of education and experience of the nursing staff. The research question will be answered by evaluating the relationship between the independent and dependent variables.

Nature of Study

The different research designs include Experimental design, Quasi-experimental design, Correlational design, Descriptive design, Case Study design, and Longitudinal design. Each of these research designs has its own set of advantages and disadvantages,

and the choice of research design will depend on the research question and the resources available.

While each type of design has its limitations and strengths, it's important to choose the one that best suits the research question and the resources available. Quantitative research is expressed in numbers and graphs used to test or confirm assumptions or theories (Hulder D. et al., 2019). It is used to generalize facts or topics, and the quantitative methods include surveys with close-ended questions, observations recorded as numbers, and experiments. Quantitative research is a “formal, objective, systematic process used to describe variables, test relationships between them, and examine cause and effect associations between variables” (Burns et al., 2018). Quantitative research generates numerical data, is predominantly informed by positivist or post-positivist paradigms, and is underpinned by some assumptions (Davies & Fisher, 2018). Moreover, quantitative research uses the belief in a single truth or reality, objectivity, and deduction. As such, quantitative research seeks to find the true answer by testing hypotheses using objective and impartial scientific methods (Davies & Fisher, 2018).

Correlational research involves finding and measuring the relationship between two or more variables (Bloomfield et al., 2019). Survey research includes describing the characteristics of a group or population (Bloomfield et al., 2019). In my study, I did not create conditions for participants or describe the characteristics of a group or population; therefore, the correlational design was appropriate for my quantitative research project.

This researcher used the quantitative research method because it is appropriate for analyzing secondary data from 50 states in United states and for testing the hypothesis using numerical data and structured theoretical frameworks. To address the research question in this quantitative study, the approach will include a correlational analysis (Creswell et al., 2018).

The researcher used the quantitative research method because it is appropriate to analyze secondary data from 50 states in United states to confirm the hypothesis using numerical data and structured theoretical frameworks. To address the research question in this quantitative study, the approach will include a correlational analysis research test (Creswell et al., 2018). The selected research design is suitable for addressing the study aims, questions, and hypotheses.

Two Study Variables

The correlational analysis will compare the independent variable (nursing staffing ratio of hospitals in the emergency unit) and the dependent variable (patient satisfaction) while controlling for different factors, utilizing the analysis of covariance (ANCOVA). The Pearson correlation will highlight the relationship between the independent variable and the dependent variable (Creswell et al., 2018). The patient satisfaction concept requires a valid instrument that supports the construct validity using Davis Consumer Emergency Care Satisfaction Scale (CECSS). Data will be analyzed using descriptive and inferential statistics to describe the sample and analyze the relationship between the independent and dependent variables.

Data Collection and Analysis

Secondary data will be collected from the Agency for Healthcare Research and Quality(www.ahrq.gov)and analyzed using descriptive and inferential statistics to describe the sample and analyze the relationship between the independent and dependent variables. There is a plausible rationale for hypotheses to be tested or for the design of the intervention. The method used is appropriate for the research question and the questions are consistent with existing evidence.

Literature Search Strategy

The search strategy identified published data on the relationship between nursing staff and patient satisfaction. The literature review involved standard search strategies to query online databases (Walden University Library, Agency for Healthcare Research and Quality, National Center for Healthcare Statistics, and National Inpatient Sample using the relevant keywords.

Key Search Terms

Nursing staff ratio, patient satisfaction, emergency department, healthcare, staffing ratio, and staffing were searched, and it was followed by an evaluation of the bibliographies of the relevant articles, websites of the relevant organizations, and reference lists.

Description of Scope of Literature

The scope of the literature review was limited to the years 2018 to 2023. This time frame was chosen to ensure that the literature review is relevant and up to date, providing valuable insights into the field being studied. The selected time period is

expected to reflect the most recent advancements and developments in the field, thereby making the findings of the literature review more valuable. The literature review was a systematic quantitative literature review, and the sources of the literature review were peer-reviewed journals, the internet, and empirical or evidence-based scholarly articles.

Literature Review Related to Key Variables and Concepts

The quantitative designs encompass both experimental and nonexperimental designs. Nonexperimental design, specifically descriptive research correlation, aims to describe individuals, conditions, or events as they occur in nature. Descriptive studies identify problems in an organization, population, or unit, or compare variations in characteristics or practices between countries or institutions (Siedlecki, 2020).

The purpose of this quantitative study is to investigate the relationship between patient satisfaction (dependent variable) and nursing staffing (independent variable) in emergency units. The study is based on Donabedian's conceptual theory for quality care (Donabedian, 1966), which states that the structure of care, process of care, and outcome of care influence quality assessment, nurse staffing, and patient satisfaction. For 50 years, Donabedian's concepts have guided research outcomes in healthcare quality comparison and evaluation (Wille et al., 2020).

The study focuses on constructs, which are characteristics that explain individual or group differences in behavior or psychological processes (Wille et al., 2020). Constructs in quantitative studies provide clear research objectives and ask unambiguous questions (Dodgson, 2020).

Emergency units in the US are often overwhelmed and face numerous challenges, such as overcrowding, poor performance, delays in care, an undermanned healthcare system, adverse patient outcomes, and limited access to healthcare (Oppel et al., 2018). These challenges have impacted emergency units and their nurse staffing flow (Oppel et al., 2018). CMS provide data to analyze the factors that cause delays and affect patient outcomes in emergency units.

This study will examine the relationship between the nursing staffing ratio and patient satisfaction in emergency units and review the services and models of care provided to patients. Previous research has shown that higher nurse-to-patient ratios lead to improved patient outcomes, while lower staffing levels result in longer emergency department care times and a higher number of patients who leave without treatment (Ramsey et al., 2018). Nursing shortages can also affect emergency units, resulting in adverse staffing ratios. A study by Persolja et al. (2018) found that nursing staffing patterns impact patient satisfaction through a cross-sectional study, showing a direct relationship between staffing ratio and satisfaction and the effect of staffing instability on patient outcomes.

Oppel et al. (2018) approached nurse staffing and patient satisfaction by exploring the nurse staffing patterns and patient experience of care through an empirical analysis of the United States hospitals. Oppel's study focused on staff flexibility and nursing staffing patterns and found that patient experience was associated with three variables and fix-effect staffing flexibility was significant; therefore, this study supports the significance of different nurse staffing strategies in the patient experience. Winter et al. (2020) studied

hospital staff shortages and environmental and organizational determinants and their implications for patient satisfaction. They found out that none of the three measures of staffing correlate to the same degree for physicians and nurses, which indicates that the latter is a distinct concept, rather than a direct consequence of patient outcome and satisfaction. The 81st Texas Legislative Session concluded that nurse satisfaction and patient safety can be adversely affected when nurses work excessive hours and adequate nurse staffing is directly related to positive patient outcomes and nurse satisfaction. The State of Texas enacted legislation to protect patient safety, support nurse retention, and promote governance related to nursing staffing decisions (Chang et al., 2021). Finally, patient satisfaction and sensitive nurse quality indicate that more flexibility was allowed by Midland Memorial Hospital, a 464-bed hospital in Midland, Texas. Nurse leaders had taken the initiative to incorporate evidence and scientific data into nurse staffing and Midland Memorial Hospital developed nine principles to improve nurse staffing. Moreover, the National Database of Nurse Sensitive Quality Indicators shows the 50th percentile for Registered Nursing Hours Per Patient Day (Chang et al., 2021). The lack of staff in healthcare facilities affects patient satisfaction with care (McHugh et al., 2021). The staffing ratios in healthcare systems are crucial for patient care (Ramsey et al., 2018). The nurse-to-patient ratio is important as it affects time factors, finances, patient discharge, hospital readmissions, and safety in the emergency department. Balancing staffing ratios involves classifying patients by volume, using time-task methods, and aligning staffing with average demand. Healthcare management has the responsibility of ensuring that the staffing ratios match patient needs in healthcare facilities. This is

especially challenging during emergencies such as the COVID-19 pandemic. To ensure quality and efficient care, management must be able to identify, hire, and deploy staff as needed (Saville et al., 2019). The nursing staff ratio in the emergency department significantly impacts patient outcomes in healthcare organizations. High nursing workloads can lead to nurse burnout, emotional exhaustion, and even patient deaths (Halm et al., 2019).

A work environment that supports a suitable staff-to-patient ratio enhances staff retention, job satisfaction, patient outcomes, patient satisfaction, safety, and ethical care in the emergency department while reducing readmissions, job costs, and staff turnover (Johansen et al., 2019). Staffing is critical to providing high-quality care in healthcare facilities and is a factor in making decisions about staffing and patient needs. The American Association of Occupational Health Nurses (AAOHN) used its expertise in business and healthcare to create a safe work environment with a positive financial impact in 2021. A healthy work environment helps maintain an appropriate nurse-to-patient ratio, improve patient outcomes and satisfaction in the emergency department, and enhance patient satisfaction.

A patient who has been discharged from the hospital and then readmitted is considered readmission. A smooth transition from and to the hospital is crucial to their care and outcomes. Nurse staffing ratios play a vital role in this process. Incomplete handovers, such as incorrect discharge instructions or medication errors, can lead to avoidable readmissions and adverse events. Readmission can result from the patient-staff ratio, missed opportunities to coordinate care, added costs, and may indicate poor patient

care. Odom et al. (2018) found that patients discharged from the emergency department without seeing a doctor can have negative outcomes. To address this, Duke Regional Hospital (DRH) located in Durham, North Carolina aims to provide efficient, safe, and timely discharge of patients (Odom et al, 2018).

Research has shown that patient-to-nurse staffing ratios are associated with better clinical outcomes for patients with medical and surgical conditions (Lasater et al., 2020). Studies have also linked nurse staffing to acquired infections, with patients with sepsis admitted to hospitals with strong nursing resources having better outcomes, lower readmissions, lower mortality rates, shorter lengths of stay, lower costs, and less intensive care unit utilization (Lasater et al., 2020). Adequately staffed emergency units with appropriate nurse-to-patient ratios reduce the chances of patients contracting infections and being readmitted (McHugh et al., 2021).

The nurse staffing ratio in the emergency department impacts staff shortages, work performance, delays, and accurate triage. Inadequate staffing and poor clinical outcomes, burnout among nursing personnel, high mortality rates, and low patient satisfaction result from inaccurate staffing assignments (Opiro et al., 2018). In Northern Uganda, formal adult-based triage was lacking, with staff relying on visual judgments to make triage decisions. This led to a lack of patient satisfaction due to an inadequate nurse-to-patient ratio (Saban et al., 2019). Poor patient satisfaction results from an imbalance in nurse-to-patient ratios, increased nurse workloads, and routine assessments and task decision-making processes in the emergency units (Opiro et al., 2018).

China declared an epidemic in November 2019 that caused a challenge to the nursing profession and shed light on the safety of critical care and staffing issues (Imtyaz et al., 2020). To support and resolve some of these issues, including inadequate nurse-to-patient ratios and lack of patient satisfaction, Atrium Health (Atrium Health in the south-eastern United states is an integrated, not-for-profit healthcare system) leveraged a tele-ICU to alleviate the short-staffing dilemma (Imtyaz et al., 2020). The pandemic showed that in 2019, 39% of bedside nurses had less than two years of nursing experience and 73% had even lesser experience (Arneson et al., 2020). The healthcare facility used technology to augment staffing by increasing collaboration among staff while maintaining a high level of care for patients and minimizing the risk to bedside nursing. A multidisciplinary team of nurses, information system directors, physicians, and administrators assessed and prioritized the need for additional technology cameras, laptops, carts, and headsets. Safe operations in the hospital and patient outcomes require appropriate staffing for different shifts (Arneson et al., 2020).

The patient's experience is intricately linked to the services rendered by nurses in the emergency unit. In the emergency unit of hospitals, patient satisfaction is receiving increasing attention as a quality indicator of hospital performance and excellence (Spechbach et al., 2019). The service perception shared by patients with negative experiences has a negative influence on the service perception of the hospital in general (Spechbach et al., 2019). The provision and demand of safe, quality, patient-centered, accessible, and affordable care will require a comprehensive reassessment of the role of the Affordable Care Act (Spechbach et al., 2019).

The goal of the ACA was to transform the healthcare system to provide quality, patient-centered, affordable, and accessible care that would require a comprehensive reassessment of the role of the nursing profession (Hoffman et al., 2020) or emergency units to improve and coordinate healthcare services, there needs to be a balance between nursing staff ratios and positive patient outcomes, which will increase patient satisfaction. As consumers grow more knowledgeable about choices for their health care, word-of-mouth promotes and disseminates the consumers' opinion of care received in emergency units; thus, this becomes a powerful tool, similar to that of an advertisement. As patient outcomes are improved by reciprocal relationships between the continuity of care and patient satisfaction, patients are likely to inform their family members about the hospital's services they received in the emergency department. Moreover, patients satisfied with the care received in the emergency department adhere to treatment plans (Spechbach et al., 2019). An equal number of nurses assigned to patients promotes patient relationships with the nursing staff.

Patients globally face long wait times in emergency units, especially for nonurgent cases (Spechbach et al., 2019). Overcrowding is a significant problem affecting the quality of care patients receive and their waiting times (Spechbach et al., 2019). If patients have to wait for an hour without any updates from nurses, they can feel neglected (Saban et al., 2019). Therefore, the researcher suggested a patient-centered triage approach, providing patients with materials that cater to their sociocultural backgrounds and help them understand the care process (Spechbach et al., 2019). The shortage of staff impacts the nursing staffing ratio in emergency units and can lead to

inaccurate triage, poor clinical outcomes, burnout among nursing staff, high emergency department mortality rates, and reduced patient satisfaction (Saban et al., 2019). Inaccurate triage affects over 50% of patients requiring treatment (Spechbach et al., 2019).The quality of medical and nursing care, healthcare performance, and the emergency unit's success rely on patient satisfaction (Saban et al., 2019). The nursing staff ratio in the emergency department is imbalanced, leading to increased nursing workload, repetitive assessments, and routine task performance, which may impair decision-making and result in poor patient satisfaction and inadequate care for current patients (Spechbach et al., 2019).

Due to the COVID-19 pandemic, emergency units in the US became overcrowded in 2020, impacting the nursing staffing ratio (Apornak, 2021). The emergency department plays a critical role as the entry point for low-income patients with critical illnesses, offering assistance to vulnerable populations, including uninsured individuals (Apornak, 2021). With 44.5 emergency department visits per 100 persons in the US in 2018, 12% of which resulted in hospitalization, the emergency department is an important social contributor to the community (National Center for Health Statistics, 2018). Nursing care represents the largest sector of the healthcare workforce and can influence the work environment. Different models are used to determine nursing staffing ratios in emergency units (Apornak, 2021).

The number of nurses assigned to work has decreased. In some hospitals, the 1:1 nurse-to-patient ratio has worsened to a 1:4 ratio (Perkins, 2021). The World Health Organization declared the outbreak of Covid-19 a Public Health Emergency of

International Concern on 30 January 2020, and a pandemic on 11 March 2020, defined by researchers as the global health crisis of our time (National Center for Health Statistics, 2018). Nursing staff received operationalized rapid training to address the shortage of nursing staff in emergency units and for their swift deployment (Wells et al., 2021).

Human resources during COVID-19 were a major required resource in the emergency department but were lacking. The quaternary care hospital in New York City used the tiered model of staffing strategy to oversee the delivery of critical care to patients. The hospital expanded its care capacity by maximizing its existing staff resources during the COVID-19 pandemic to accommodate additional staff resources for its 1139 beds. Due to overcrowding and an inadequate nursing staffing ratio, the quality of care was reduced, which affected patients' experience and satisfaction. In emergency units, standardization and nursing distribution became a necessity to enable patients to access and receive quality care. The biggest challenge the emergency department faced was staffing, as there was not enough staff to provide quality care to patients (Apornak, 2021).

Patients requiring intensive care received care from the emergency department designed to provide prompt access and care to patients. Patients requiring emergency care are managed in the emergency department after an initial evaluation. Haas et al. (2020) analyzed the relationship between the turnover of staff in the emergency department and the pattern of transferring patients to the emergency department. The researchers concluded that patients who received earlier consultations arrived before the emergency shift turnover. It was discovered that emergency unit utilization was higher during

emergency department shift turnover. The study hoped its findings would guide the staffing model, time of shift turnover for hospitals, and operational planning (Haas et al., 2020).

A combination of nurse shortages, an increasing number of patients, and increasing clinical responsibilities for nurses has resulted in a range of staffing models being introduced in recent years. These include changes to nursing staffing levels, the nursing skill mix, staff allocation models with varying nurse staff levels (or nurse-to-patient ratios), shift patterns, and the use of overtime and agency staff (Haas et al., 2020).

In recent years, nursing staff shortages and an increase in nursing staff responsibilities have increased the use of staffing models and changed staff allocation and nurse staffing levels, including nurse-to-patient ratios, the use of overtime, and patterns of shifts. In the emergency department, nurse staffing and the patient ratio will highlight the changes in methodology and models of care and measure the level of nursing staff needed concerning patient outcomes, experiences, and satisfaction.

Determining the appropriate number of nurses needed and measuring workload in nursing has been a topic of research since the early days of nursing studies. Despite multiple reviews of the methods used to determine staffing needs, a lack of solid evidence remains a significant issue (Griffiths et al., 2020). Due to the arrival of case-mix cases in the emergency department, it is difficult to determine the staffing required based on fluctuating volumes and the length of stay of patients with acute needs. Emergency department staff are expected to multitask in an atmosphere of noise, activities, and high

tension. Staffing the emergency department should be a priority to improve outcomes for patients and nurses and ensure patient satisfaction.

Staffing approaches are described in the emergency care literature based on workforce mix, patient classification systems, patient census, professional judgment, and nursing productivity (Recio et al., 2018). The different methodologies identified by researchers include daily deployment, retrospective review, and an established setting. Recent studies on the evaluation of emergency department systems have provided little evidence of the impact of non-cost patient care, with no evidence of tools used to provide resources for staffing or patient satisfaction. Simple volume-based methods (patient-to-nurse ratios), patient prototype/classification, timed-task approaches, and professional judgment are needed in determining the nursing staffing ratio, to ensure quality care to patients. Despite evidence of skewed demand distributions, managements use tools to match staffing to a mean average demand or time requirement (Griffiths et al., 2020).

An issue in the nursing agenda is the need to identify the levels of nursing staff that safe nursing care warrants, which contributes to achieving the nursing agenda (Twigg et al., 2019). To ensure sufficient resources in expertise and skill mix, determining the number of nurses and education required is a managerial decision. These decisions simplify the complex work of nurses using traditional workload measurement tools that inform the allocation of resources according to patients' needs and financial burdens (Leary et al., 2019).

Researchers in the field of nursing have investigated the relationship between nurse staffing and patient satisfaction by focusing on the quality of patient care and nurse

staffing patterns in hospitals (Aiken et al., 2018). This research was motivated by financial pressures faced by hospitals and a reduction in nurse staffing that can compromise patient care. Researchers examined the factors that influence nurse staffing, including staffing policies, staffing ratios and measures, nurse-to-patient ratios, nursing hours per patient day, nursing staff mix, number of full-time equivalents, and the percentage of full-time, part-time, and casual staff.

Strength and weakness of quantitative research

Scholars can analyze quantitative data by using either secondary data collected by international agencies or other sources, or primary data collected by themselves (Boeren, 2018). Boeren (2018) noted that traditional research designs often rely on quantitative measurements through experiments or surveys. However, Smith (2018) pointed out that one of the limitations of quantitative research is the limited use of secondary data due to the presence of missing values and measurement errors.

Advantage and Strength of Quantitative Research

In quantitative research, secondary data sets are often available to scholars at a low or no price. The weaknesses of case study research are that it is a poor method for establishing cause-effect relations, relies heavily on the researcher's subjective interpretations, and is vital (Boeren E 2018).

The Rationale for Selection of the Variables or Concepts

Past scholars and researchers have studied emergency units in healthcare hospitals, focusing on staffing, patient experiences, nurse-patient relationships, patient

care, and the impact of low nurse staffing on adverse patient outcomes. Satisfaction in emergency units depends on the competence of the assigned nurse (Saban et al., 2019).

In 2018, Fukaada proposed three theories of competence: holism, trait, and behavior. Trait theory involves critical thinking skills and knowledge for nursing roles, while behaviorism theory is the ability to perform core skills evaluated by skill performance. Holism encompasses elements of skills, values, critical thinking, and ability. Inadequate staffing in emergency units negatively impacts the quality, affordability, safety, and accessibility of patient care, making it crucial to understand factors affecting staffing adequacy.

Nurse staffing involves determining the right mix and number of nurses to meet the demand for emergency nursing care. The American Nurses Association defines staffing adequacy as matching registered nurses' expertise with patients' needs in the practice setting (Griffiths et al., 2020). In the healthcare field, "adequacy" goes beyond just adequate staffing, with a focus on patient safety (Vermeulen et al., 2021). Nursing workload demand was estimated using volume-based analysis, expressed as nursing hours per patient day, full-time equivalent numbers, and nurse-to-patient ratios. Previous studies show that low nurse staffing leads to unattended patients leaving the emergency department and longer wait times for care (Griffiths et al., 2020).

Patient care requirements considered for the workload-based approach are categorized into dependency and activity-based methods. The dependency-based method relies on the classification of patients’ needs and indicators that determine the nursing time required. The activity-based method considers the length of time taken to

accomplish a nursing task (Saaiman et al., 2021). Nurses influence patient experiences, patient output, work environment, and the overall quality of healthcare. To have quality healthcare, the ANA prescribes meeting the demands of patients, and having an appropriate nurse-patient-staff ratio; "the number of nurses per number of patients or patient days determines staffing levels," which indicates the need for proper staffing (Saaiman et al., 2021).

The relationship between low nursing staff and adverse patient outcomes was reviewed systematically, and 101 studies were published in the United States in 2006 (Kane et al., 2007). The researchers assumed that factors that influence nursing staffing policies were patients, physical and psychosocial diagnosis, age, functional status, severity, urgency, communication ability, ability to meet healthcare requisites, social support availability, culture, and linguistics. Staff-related factors that influence nurse staffing include policies, permanent staff, contract staff, education, age, involvement in decision-making, the number of competent clinical and nonclinical staff, education, certification, tenure in the unit, language capabilities, and level of nurses' experience, etc. The organizational factors that influence staffing policies include risk management, staff mix, enough time for collaboration, supervision of unregulated workers, technology management, ongoing competence level, access to prompt information, and efficient support services. Nursing staffing policies dictate a minimum staffing level that varies by the type of ward. A mandatory staffing ratio in the emergency units was implemented in the state of California through agreements with employers and trade unions (Saaiman et al., 2021).

The nurse staffing measure is used to evaluate the validity, reliability, and limitations of the Nursing Hours Per Patient Day (Kouatly et al., 2018). Patients have voiced increasing concern about the quality of health care. As healthcare delivery has evolved, nurse staffing has become one of the factors that can strongly impact the quality of clinical care settings (Kouatly et al., 2018). The nursing staffing ratio impacts the output treatment, quality care, decreased wait time, and prompt treatment received by patients.

Over the decades, numerous studies have been conducted to examine and identify the appropriate relationship between nurse staffing and quality of care (Kouatly et al., 2018) The six nurse staffing measures identified include full-time equivalents, nurse-perceived staffing adequacy, nurse-reported number of assigned patients, skill mix, NHPPD, and nurse-to-patient ratios. Nurse staffing measures include the ratio of registered nurses per patient, NHPPD, percentage of full-time, contract, and part-time staff, the proportion of registered nurses, mixed nursing staffing, education, and expertise.

Poor patient experiences and a high mortality rate are linked to inadequate staffing (Haegdorens et al., 2019). To meet patients' needs and provide safe nurse staffing with experienced skills in the emergency department, nurses must meet the official standard of nurse education (Haegdorens et al., 2019). Emergency units with high patient demand and turnover face the challenge of a safe nursing staffing ratio related to patient satisfaction. Emergency nurse staffing has been known to affect patient waiting times to see a physician. Emergency department staffing and the time a patient waits to

be seen by a physician have contributed more to patient wait time than the volume of emergency department patients (Spechbach et al., 2019). In the emergency department, an appropriate nurse staffing ratio is associated with job satisfaction, autonomy, enhanced teamwork, and a positive work environment (Spechbach et al., 2019).

In 2019, the Faculty of Intensive Care Medicine and the Intensive Care Society described the levels of care required by critically ill patients in hospitals according to their clinical needs (Hill, 2020). The guidelines stipulate a nurse/patient ratio of a minimum of 1:1 for care delivery to patients under ventilation. Critically ill patients who are unstable and require various simultaneous nursing activities need a higher ratio than 1:1 to administer the complex therapies used in supporting multiple organ failures (Hill, 2020). In the emergency department, due to the nature of the department structure of having to treat critically ill patients involving life and death, nurse staffing is required round the clock to meet patients' needs. Patients in emergency units who require close monitoring require a high level of experience and must be attended to by certified registered nurses. In England, the emergency department has a minimum for nursing establishments that requires one registered nurse per patient for level 3 intensive care patients and one nurse for every two patients for level 2 (high dependency) patients (Anandaciva, 2020).

In March 2020, the National Health Services sought to rapidly expand its capacity for staff-to-patient ratios, given the onset of coronavirus in critically unwell people. Nursing credentialing was reduced to treat severely ill COVID-19 patients (Dunhill, 2020). The coronavirus, due to its high level of infection, impacted the nursing staff ratio

and patient ratio in the United States. This has changed the staffing model in many hospitals. Studies have shown that patients' unmet needs and negative nurse-sensitive outcomes due to nursing shortages and low staffing result in patient falls, pressure injuries, mortality, nosocomial infections, readmissions, and cardiac arrest (Yoon et al., 2022). The relationship between nurse staffing and improved patient nurse-sensitive outcomes or patient outcomes has been emphasized in cross-sectional studies (Yoon et al., 2022). Researchers have studied the quality of patient care and indicated that better clinical outcomes for patients and better patient experiences are associated with higher staffing (Yoon et al., 2022).

Nursing Hours Per Patient Day (NHPPD) is a healthcare metric used to assess the daily nursing care received by patients (Welch et al., 2020). It is calculated by dividing the total nursing hours worked in a day by the number of patients in a facility or unit. The purpose of NHPPD is to ensure adequate nursing care and appropriate patient care by nursing staff. NHPPD is a quality indicator and benchmark for nursing care and can be used to improve patient care. The American Nurses Association recommends an NHPPD of 4.0 hours per patient per day in acute care hospitals, but actual NHPPD may vary based on factors such as facility type, patient acuity, and staffing levels (Welch et al., 2020).

Determining the right number of nurses to deploy is challenging for hospitals, as they have variable costs and employ large numbers of professional and support staff for various shifts. Inadequate staffing in hospitals can negatively impact patient safety and quality of care. Emergency units may have a flex pull in place to address staff shortages

during an influx of patients. Flex pull in nurse staffing refers to the practice of temporarily transferring or reassigning nurses from one unit or department to another within the same healthcare facility in order to meet fluctuations in patient needs and staff shortages. The goal of flex pull is to ensure that there are enough staff members available to provide safe, high-quality care for patients at all times.

Emergency units' utilization has increased without a corresponding increase in emergency services. Ensuring safe and quality care remains a crucial aspect of hospitals. Research shows that certain hospital characteristics, such as emergency department, socioeconomic status of the surrounding neighborhood, and number of elective surgery admissions, can negatively impact emergency department throughput, percentage of patients admitted, overcrowding, and nurse staffing. (Ramsey et al., 2018).

In the UK, from September 2017 to September 2018 there was a crisis-level shortage of registered nurses, low staffing levels, and an inadequate mix of skills to deliver effective and safe nursing care (Senek et al., 2020). COVID-19 has exacerbated the nurse shortage despite a large nursing workforce in the country. A 2020 report found that safe nurse staffing was still a challenge (Royal College of Nursing, 2020). Nurses who care for patients with limited resources and time face serious coping issues (Senek et al., 2020).

The staffing pattern in a healthcare organization's emergency department determines the appropriate staffing for the unit (Johansen et al., 2019). South African doctors provide 24-hour service by working 60 hours per week. Filling institutional resource security and part-time nursing vacancies is challenging due to high nurse

turnover. George Hospital, a large rural training hospital, changed medical officer positions from full-time to part-time (Schaefer et al., 2021). A decrease in the nurse-to-patient ratio affects key emergency department performance metrics, impacting administrators, physicians, and nurses.

The literature review of patient satisfaction gives an overview of patients as stakeholders in health service organizations. This quantitative study aims to investigate the relationship between nurse staffing ratio(independent variable) of hospitals and patient satisfaction(dependent variable). The focus of the research is on how nursing staffing affects patient satisfaction. Patient experience measures interactions between patients and healthcare providers, while patient satisfaction evaluates how well care met the patient's needs and expectations, including health outcomes and trust in the healthcare system. A positive patient experience with nursing care can lead to increased satisfaction (Chen et al., 2022).

Patient satisfaction is a key metric for evaluating emergency care quality, healthcare service effectiveness, and patient adherence to treatment. Research shows that providing patients with proper information leads to higher satisfaction. Studies found that patients who receive more information are more satisfied with their emergency department visit and that a lack of information about progress and delays has a greater impact on satisfaction than perceived wait times. However, these studies generally focused on overall satisfaction rather than specifically on satisfaction related to information during the emergency department visit (de Steenwinkel et al., 2022).

Patient satisfaction plays a role in evaluating performance by giving insight into how well healthcare providers meet the expectations and values of their patients, as the patients are the ultimate authority in this regard (Wudu, 2021). Many factors can affect patient satisfaction and have a direct impact on the patient's experience and the quality of nursing care they receive, such as the perceived level of compassion, respect, and care, institutional factors, the patient's health status, and individual patient characteristics such as a history of hostility, previous surgeries or hospitalizations, and the type of nursing care received.

Gap in the Literature

Despite previous research on the topic, limited literature exists on the connection between the structure and processes of nurse staffing in emergency units and the staffing ratio, as well as patient satisfaction with the nursing care received in these departments.

Methodological Limitations

Previous studies failed to quantify variables correctly or employed problems or biased research design. Scholars have speculated that quantitative health research may not be well-suited to incorporating intersectionality because it is a conceptual framework that was not designed initially to quantify, predict, or describe health outcomes (O'Reilly et al., 2021)

Review and synthesize studies related to the key independent, dependent, and covariate variables to produce a description and explanation of what is known about the variables, what is controversial (i.e., mixed findings by researchers), and what remains to be studied.

Past studies in The Relationship between Nurse Staffing and Patient Satisfaction in Emergency Unit that utilized mixed methodology denotes the combination of a qualitative and quantitative aspect within a study and can be referred to as *inter*-paradigm research (O'Reilly et al., 2021). Regardless of the diversification of evidence-based practice across this range of disciplines, the ideology of medical standards has remained rooted in the principles of what constitutes good evidence (O'Reilly et al., 2021). Those working with qualitative data may feel the need to add a quantitative component to boost the perceived validity of their research or boost its perceived value. The design and implementation of qualitative research must comply with the related quality standards of that approach in promoting parity approaches between quantitative and qualitative methods.

Based on a review of literature from various resources such as the Agency for Healthcare research and Quality (AHRQ), National Inpatient Sample (NIS), National Center for Health Statistics (CDC), and Long-Term Care Focus (LTC Focus), secondary data on nurse staffing and patient satisfaction can be found. The sources I reviewed aimed to examine the relationship between the patient-perceived care experience and improving nursing job satisfaction; assess the impact of assisted staffing levels and the experiences and satisfaction with care among older adults in a hospital or community ward; and investigate the factors that influenced patients to be viewed as customers of the hospital, and the perspective of acute care, for-profit hospitals. These studies found that adequate nurse staffing level, hospital cleanliness, minimal wait times, and effective

interdisciplinary relationships were among the predictors of patient satisfaction (Margrave et al., 2020).

The following disputes or central issues in the literature that are relevant to my research question are those factors that influenced patients' scores of the hospitals and patient experience. Although researchers have investigated this issue, there is very little or no literature on the relationship between nurse staffing structure processes in the emergency department to staffing ratio and patient satisfaction. My study of the relationship between nurse staffing and patient satisfaction in the emergency unit will contribute to positive social change in healthcare facilities by highlighting variables that are often ignored, regarding staffing in the emergency unit and the importance of the patient's outcome about patient satisfaction. The study will improve the administrative path of healthcare managers in the cost, relevance, and improvement of healthcare quality services for patients, nurses, and the members of the community.

The strength inherent in the approaches of the researchers included the utilization of appropriate instrument for measuring patient satisfaction with nursing care, looking at factors associated with patient satisfaction with nursing care, the role gender play in patient satisfaction, and nursing care, age, education, and experience.

Instruments for Measuring Patient Satisfaction with Nursing Care

The Joint Commission mandates the measurement of quality outcome indicators for the competitive healthcare environment, including the emergency department nursing staffing ratio and patient satisfaction (Saban et al., 2019) Patient satisfaction is one mandate, and a critical issue is measuring it. Studies have indicated that patients respond

according to their levels of satisfaction (Saban et al., 2019). Healthcare facilities are less likely to get a dissatisfied patient to participate in self-health maintenance, be compliant with treatment modalities, or remain loyal.

Gender plays a role in nursing care and patient satisfaction (Budu et al., 2019). Societal and cultural stereotyping of male nurses and marginalization in the hospital deepen the prevalent gender discrimination during personal and intimate care procedures provided by male nurses in the surgical and medical wards at Komfo Anokye Teaching Hospital (Budu et al., 2019). Gender plays a role in patient satisfaction, given that patients may prefer a male or female nurse. An inferential cross-sectional study design indicated that more females than males had been attended to by a male nurse during the period of the study; females described male nurses as polite and were comfortable with their treatment. Being single [OR = 0.111, 95% CI (0.013–0.928)] and professing Islamic faiths [OR = 36.533, 95% CI (2.116–630.597)] were functions of the respondents' preference for a male nurse. Significantly, affiliation to a religious sect (OR = 2.347, 95% CI [0.076–1.630]) and being educated (OR = 1.387, 95% CI [0.040–0.615]) were associated with higher odds of falling in one of the higher categories of satisfaction with nursing care provided by male nurses than the lower categories (Budu et al., 2019).

Western countries' emergency units face an increase in the complex needs of older patients, for example, unmet psychosocial needs in combination with somatic complaints and multimorbid patients (Schneider et al., 2021). High staff workload and time-sensitive patient presentations pose challenges to emergency units, patients, and environmental clinicians. In the emergency department, accidents, or health problems

pose critical life events for patients with implications for their psychological and physical well-being during hospitalization and after discharge (Schneider et al., 2021). The relationship between patient satisfaction and the functional needs of older patients related to the shortage of nursing staff gauges their need for care. The researcher assessed 393 patients, aged 70 or more, in a mixed prospective-correlational cohort study. At admission and discharge, the patient's functional status measured the nursing (Schneider et al., 2021).

The emergency department deals with treating patients with complex illnesses. This has made nursing challenging. Education, training, certification, and experience have become a requirement for nurses working in the emergency department, and gaining new knowledge and skills is required of them. Healthcare administrators must consider nurses' qualifications, certifications, and licenses in the nursing staffing ratio when they hire staff.

Clinical nurse educators, managers, and frontline staff implement new quality practices and accreditation-based documentation. The development of educational PowerPoint presentations, bedside in-services, and quick reference sheets are required to ensure that information is understood and disseminated accurately (Jaggiet al., 2018). Quick reference sheets are required to meet the learning needs of all emergency department nurses. Educators perform daily or weekly audits. Some new quality initiatives may take one to three years to develop, plan, implement, and evaluate (Jaggiet al., 2018).

A cross-sectional survey was conducted on emergency department nurses at the University of Alberta in the capital Edmonton, regarding nursing accreditation standards and their impacts (Filip et al., 2019) The survey was developed for nurses, nurse managers, and the health authority management team. Median ratings and interquartile ranges were determined for each survey statement. The responses included a 7-point Likert scale of agreement. Respondents were RNs (91.4%), female (88.9%), and had zero to five years of emergency department experience (43.7%). A total of 433/1241 (34.9%) surveys were completed. Respondents indicated a favorable attitude towards Accreditation Canada standards and other quality initiatives. The study concluded that education and experience, from a nursing perspective, are valuable in the emergency department for handling complex health issues in patients (Filip et al., 2019). This survey will aid hiring managers in handling nursing staff ratios and the needs of patients.

Nurses are responsible for most of the patient care in the emergency department and constitute the largest group of workers in the hospital. Growing evidence from emergency units indicates that inadequate nursing staffing is associated with adverse events, such as healthcare-related infections, medication errors, patient falls, and in-hospital mortality (Filip et al., 2019).

Skewness of Ratings

Positive skewness occurs when the mean and median are higher than the mode, and the distribution has a longer tail on the right. Low variability means data values are consistent, while high variability results in more diverse data and higher chances of extreme values. These data characteristics create difficulties when analyzing the

relationship between nursing staffing ratios and patient satisfaction (O'Connell et al., 2020). Skewness is a statistical term that describes the asymmetry of a distribution relative to its mean. Skewness can be undefined, negative, or positive.

Patient Satisfaction Response

Healthcare organizations use patient satisfaction surveys to rate patients' experience, nursing care, care output, communication with healthcare staff, nursing staffing ratio, and satisfaction with the treatment received in the hospital. Patients' responses to satisfaction surveys may be impacted and influenced by where, when, and how their opinions are requested. Patient satisfaction surveys are used routinely for the quality assessment of the hospital; participation rates in satisfaction surveys are commonly below 50% (Perneger et al., 2020). In the UK, participation rates in the Adult Inpatient Survey decreased from 59% in 2005 to 47% in 2014, and such ratings may decrease over time (Perneger et al., 2020).

Some patients reported lower satisfaction scores than those who returned their surveys without a reminder. Younger patients and very old psychiatric patients are less likely to participate in a satisfaction survey (Perneger et al., 2020).

In Massachusetts, across 80 primary care practices, the correlation between average outpatient satisfaction and the survey response rate was 0.52 (Correlational measures two or more relevant variables and assesses a relationship between or among (them) (Perneger et al., 2020) Correlation measures the relevance between average outpatient satisfaction and the survey response rate of 0.52. In the UK, survey item averages and response rates had Spearman correlation coefficients between 0.03 and 0.44

among cancer patients treated at 158 hospitals (Perneger et al., 2020).To conclude, posthospitalized patients are most likely to fill out satisfaction surveys, and this tendency produces a positive correlation between the response rate and average satisfaction across surveys (Perneger et al., 2020).

A cross-sectional, nonrandomized design study was used to examine whether the humaneness of care and environmental comfort played a role in moderating the relationship between patient satisfaction and waiting time in the emergency department (Viotti et al., 2020). In Italy, 260 patients in the emergency units of two hospitals completed a questionnaire (Viotti et al., 2020). Patient waiting time was significantly and inversely associated with patient satisfaction after adjusting for the control variables.

The study found that the interaction effect between waiting time and environmental comfort was not significant, whereas the interaction time between waiting to be attended to and being compassionate to people was found to be significant; thus, humaneness of care plays a key role in the moderation of the relationship between waiting time and patient satisfaction (Viotti et al., 2020). An inadequate nursing staffing ratio in an emergency department will impact patient waiting times and satisfaction.

Staffing plays a key role in patient outcomes in healthcare organizations. According to Halm et al. (2019), the odds of nurses experiencing burnout, emotional exhaustion, and patients dying are caused by higher nursing workloads. As nurses experience time pressure, care omissions may result in missed nursing care, affecting patients' needs and safety, and eroding the quality of care. Nurses get overwhelmed when the emergency department is short-staffed. The shortage of nursing staff increases the

chances of medication errors and lack of attention and lowers patient output, experience, and satisfaction.

A healthy environment that promotes a staffing ratio to patients attracts staff retention, good patient outcomes, readmission reduction, increased patient safety, reduced expenses, job satisfaction, less intent to leave, and the promotion of healthcare ethics in healthcare organizations (Assaye et al., 2018). Adequate staffing is essential for high-quality care in healthcare facilities and serves as evidence related to decision-making.

Annually, Low-to-Middle-Income Countries (LMICs) that is Afghnistan, Algeria, Angola, Bangladesh, Belize, Benin, Cabo Cambodia, Cameroon are challenged relating to the provision of quality healthcare. Assaye et al. (2018) noted that a major priority in healthcare is patient safety. Annually, 41.7 million adverse events occur in LMICs globally. Workforce outcomes (burnout, turnover rates, job satisfaction, and absenteeism) in healthcare units are affected by nurse staffing, which in turn affects patient outcomes and reflects on nurses' performance. Patient outcomes are shown by research to be due to the number of hours that nurses work and nurse staffing. According to Assaye et al. (2018), a decrease in staff turnover is associated with better staffing, and a negative outcome is associated with long working hours. Many hospitals with a high mortality rate have significant problems with staffing ratios, which are implicated in hospitals' failures (Assaye et al., 2018). In 2008, in South Korea, heart disease was the third most common cause of death, and it ranked second in 2014 (Kim et al., 2020). In 2018, 2.6% of the mortality rates of patients with percutaneous coronary intervention (PCI) in South Korea

had an acute myocardial infection. Investigation of nurse staffing by other countries showed an influence on the outcome of PCI and the role of providing education to patients at discharge. During the treatment of patients with ischemic heart disease in hospitals, achieving good patient outcomes requires adequate nurse staffing (Kim et al., 2020).

Hospital readmission can be due to the patient-staff ratio, missed opportunities to better coordinate care, or unnecessary costs, and can be an indication of poor patient care. The rate of readmission is higher for Medicare beneficiaries dually eligible for Medicare and Medicaid (Lasater et al., 2020). New York State enacted Rory's Regulations in 2013 after the death of a 12-year-old boy with sepsis (Lasater et al., 2020), prompting the state to lead efforts to reduce the high rates of mortality of people with sepsis, which required timely screening, treatment, and early diagnosis of patients with septic shock and severe sepsis. Patient-to-nurse staffing ratios have been associated with better clinical outcomes for patients with various medical and surgical conditions. Previous research has shown that nurse staffing is associated with acquired infections (Lasater et al., 2020). A recent study suggests that patients with sepsis admitted to hospitals with better nursing resources have better clinical outcomes, lower readmission, less mortality, shorter lengths of stay, lower costs of care, and less ICU utilization (Lasater et al., 2020). Patients in nursing homes can be negatively impacted by insufficient nursing staff. A strong positive relationship exists between the patients and the number of nursing home staff who provide quality care, daily care needs, and quality of life to patients. Since the 1980s, the dangers of understaffing in the U.S. nursing home sector have been common knowledge,

as a result of staffing ratios from the 2001 study of Appropriateness of Minimum Nurse published by CMS (Harrington et al., 2020).

Due to the coronavirus disease in the United States, approximately 27% of the deaths that occurred in 2019 concerned nursing home patients (Abbasi, 2020). Nursing homes that place significant importance on quality measures indicate that staffing is an appropriate method for containing the spread of coronavirus among the patients and staff (Georges et al., 2020). During the lockdown period, staffing was a challenge. Staff who worked round the clock became tired. This situation could cause medication errors, poor patient treatment outcomes, and dissatisfaction among family members and patients.

Lack of satisfaction with staffing cuts across various health agencies and hospitals locally, nationally, and globally. COVID-19 created numerous staffing problems. Certified nursing assistants and staff who tested positive for coronavirus were quarantined, making it more difficult and further impacting staff shortages.

According to Smetanka, there is currently a critical staff shortage at several residences in the country (Abbasi, 2020). Nursing and group home staff witnessed untold stress on staffing levels due to the restriction of staff members exposed to persons exposed to the virus. During the pandemic, the ratio of staff to patients increased. Nurses played dual roles as caregivers and providers of emotional support to the patients, which reduced the quality of the services received by the latter. The shortage of nursing staff in hospitals and overcrowding during COVID-19 impacted emergency units, patient experiences, and satisfaction.

Family members could not visit their loved ones in nursing and group homes. The nurses were expected to care for the needs of the patients, feed them, communicate frequently with their family members, administer medication, report cases, report deaths to public health officials, source infection-control supplies, and connect patients with their families online through social media, including Zoom, video, and Google Meet (Abbasi, 2020). Genesis had companies that opened staff personnel (Gorges et al., 2020). Some patients felt a sense of isolation at the end of family visits and a communal meal; licensed nursing assistants "really stepped up to be the companion, friend, and the family member for the patients not to feel alone". Nurses were deployed to different care facilities, which created a shortage of nursing staff for emergency units and impacted patients' satisfaction and how the patients' families felt.

Definitions

Emergency Department

The emergency department provides services in a hospital and cares for patients who need immediate care within the hospital or walk-in. The evaluation of the patient in the emergency department is linked to the customer's experience in a service-oriented healthcare facility; emergency department attendance is increasing in many countries and has resulted in considerable pressure on the services provided in England (Spechbach et al., 2019).

Emergency Room

The emergency room is an equipped room where patients with critical illnesses receive immediate medical care, surgical care, treatment, and stabilize. Patients'

evaluation of care by doctors and nurses, the organization of ED staff, and the quality of the information received during waiting time before being seen in the emergency room are important (Spechbach et al., 2019).

Emergency Unit

An emergency unit is a unit within the hospital that provides immediate treatment for acute trauma or illness. Based on the Swiss Emergency Triage Scale (SETS), eighty percent of the patients visiting the emergency unit are classified as level 3 and 10% as level 4. Level 1 is a life−/limb-threatening situation where the patient must be seen by a medical doctor immediately, level 2 in 20 min, level 3 in 120 min, and level 4 is considered non-urgent (Spechbach et al., 2019).

Nurse Staffing

Nurse staffing is the assignment of registered nurses to patients based on the patients' requirements for nursing care and medical treatment. Nurses are frontline staff in charge of function-preserving processes of care promotion, food intake, continence, and ambulation (Dahlke et al., 2019).

Patient Satisfaction- dependent variable

The quality of good nursing care received by patients encompasses effective communication, good community participation, appropriate nursing attitudes, adequate skills, and correct staffing ratios (de Steenwinkel et al., 2022). The correct staffing ratio of registered nurses to patients predicts the quality of care and is related to patient satisfaction (Amritzer et al., 2021).

Nursing Staff Ratio -Independent variable

The nursing staff ratio is the number of patients each nursing staff member tends to, documented as patient per registered nurse (de Steenwinkel et al., 2022).

Nursing staff to patient ratio

The nursing staff-to-patient ratio is the assignment of a nurse to a patient or patients (e.g., 1:2 or 1:3). However, a set ratio does not equate to fairness as the needs of both patients and nursing staff create challenges (Eastman D et al., 2022).

Quality Care

Quality of Care is the degree of care given to a patient based on the evidence of professional knowledge and the desired outcome as perceived by a patient, and the achievement of universal health coverage. Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Survey the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey examined the determinants of patient satisfaction and the characteristics of individuals, the outcome of service, and discharge impact on how patients perceive the quality of care (Perez et al., 2021).

Assumptions

The researcher adopted a positivist framework and employed quantitative methods of inquiry to objectively discover, measure, and quantify the truth (Asner-Self, 2009).

Additionally, the researcher assumed that there is a link between patient satisfaction in the emergency department, the nurse staffing patient ratio, and patient outcomes (Asner -Self, 2009).

Scope and Delimitations

The research problem addressed in this study focuses on the poor staffing ratio in the emergency unit and its impact on patient outcomes and satisfaction. Specifically, the nurse to patient ratio in the emergency unit affects the workload and performance of nurses, leading to issues such as burnout, turnover rates, poor outcome, increase in medication error and neglect, job dissatisfaction, and absenteeism. These factors can contribute to a shortage of staff, increased turnover, poor patient outcome, patient dissatisfaction and more call outs and sick leave. Research has shown that better staffing is associated with a decrease in staff turnover (Assaye et al., 2018) and that working long hours can have a negative impact on patient outcomes.

This secondary data for this research was collected from July 1, 2020, to June 30, 2021, by Medcare.gov through a survey of a random sample of adult patients with various medical conditions between 48 hours and 6 weeks after discharge from two hospitals in Alabama. The period from July 1, 2020, to June 30, 2021, was chosen for this study as it provides a specific and limited timeframe for the data collection. By using a defined period, the researcher can ensure that the data collected is relevant and up to date for the purpose of the study. Additionally, by choosing a specific period, the researcher can focus on the data that is most relevant to the study and avoid including extraneous data that may not be relevant.

The sample that meets the needs of the study will save time and cost. A total of 2,438 patients participated in the survey. The government website allows the data to be filtered to suit the research. Two hospitals in Alabama were used.

I will collect and work with sufficient data that supports the hypothesis regarding the dependent and independent variables and generalize it to similar circumstances. The characteristics of design and methodology that impacted the study include the methods/instruments/techniques used to collect the data. The researcher would have expanded the sample used for statistical measurement. The threats to internal validity in this research are the limitation of social interaction due to the use of secondary data and bias in the sample used, as the researcher used available data. Due to the nature of the patients in the emergency department, the secondary data explored the patients' immediate recollections over time, rather than their *post hoc* experiences. There is often a limitation regarding the information validity and reliability.

Limitations

One limitation of this study relates to its design and methodological weaknesses, which may affect the internal and external validity of the findings. Specifically, the study's cross-sectional design limits the ability to establish causality between the nursing staffing ratio and patient satisfaction. Additionally, the study's sample size may not be representative of the larger population, leading to issues of external validity. These limitations may affect the construct validity of the study and the conclusions that can be drawn from the results.

The pandemic has had a significant impact on healthcare systems and may have affected the staffing ratios and patient satisfaction levels at the hospitals studied. The pandemic may have also altered the normal functioning of the hospitals, leading to changes in the patient experience. The results of the study will be interpreted with caution and taking

into consideration the potential impact of the pandemic on the data. Furthermore, it is important to note that the study's data may be limited to a specific time period, which may not accurately reflect the current situation.

This research covers data collected from two hospitals in the state of Alabama. The samples collected can be increased, and further studies can replicate the result in other healthcare facilities to enhance the generalizability of the results. The limitations of this study include the inability of the researcher to directly collect the data from the patients and hospitals. Presenting public bias and postdictive research as predictive creates two threats to the validity of science that may be associated with rewarding high-profile publications (Nosek et al., 2018). Researchers should take steps to address these biases to ensure that the results of the study are as accurate and reliable as possible.

Significance of the Study and Conclusion

The study could drive positive social change in healthcare by emphasizing underrepresented factors in emergency unit staffing and the significance of patient outcomes and satisfaction. It may aid healthcare managers in improving the administration of cost, relevance, and quality of services for patients, nurses, and the community. Nursing administrators are proactive in budgeting and predicting staffing needs, tackling staff shortages, and basing their strategies on evidence (Winter et al. 2020). Winter et al. (2020) examined the connection between hospital staffing, environmental and organizational factors, and their impact on patient satisfaction. The study found that staffing measures do not correlate equally between physicians and nurses, suggesting that nurse staffing is a separate concept. This is important in

understanding the relationship between environment, staffing, and patient satisfaction. The potential for positive social change, limited by the study's scope, is to attain universal health coverage, leading to positive social change. Three independent reports in 2018 stressed the importance of focusing on quality care and improvement for all to achieve universal healthcare. Person-centered care leads to improved healthcare use and health outcomes, and everyone has the right to dignity and respect (Larson et al., 2019).

The future of nursing report by the Institute of Medicine (IOM) outlined recommendations to lead change and advance health by increasing the number of baccalaureate-prepared nurses (BSN) to 80% by 2020 (Knowlton et al., 2018). Healthcare administrators and managers have not altered their hiring processes over the decades to reflect recommendations by the IOM (Knowlton et al., 2018). The quality of care provided by any department in a hospital is an important indicator of the quality of healthcare in hospitals. Abdelhakim (2021) established that improving healthcare quality requires interventions in emergency units, including the enhancement of emergency department processes and operations, the implementation of regular performance improvement measures, and the improvement of providers' interpersonal skills through training. Healthcare administrators and policymakers find nurse staffing in the emergency unit to be a high priority due to the increased cost of healthcare (Abdelhakim, 2021) The administrator's prediction of the needs of patients and what is needed to fulfill that need is sometimes inaccurate. The emergency unit's provision of a broad spectrum of treatment to patients whose illnesses are life threatening affects patient outcomes. The volume of patients in the emergency unit in hospitals during the pandemic varied daily.

Finally, patient factors are seen as more important than system factors in the emergency unit (Diwan et al., 2020). Boarding ICU patients is a challenge commonly faced by the emergency unit for more than two-thirds of emergency patients and is exacerbated by staffing constraints and emergency unit volume (Diwan et al., 2020).

Winter et al. (2020) studied the relationship between hospital staffing, environmental, and organizational determinants, and the implications for patient satisfaction. They found that none of the three measures of staffing correlated to the same degree for physicians and nurses, indicating that the latter is a distinct concept rather than a direct consequence of patient outcomes and satisfaction. This is important in relation to understanding the connection between the three determinants of environment, staffing, and patient satisfaction.

Summary and Conclusions

The literature reviewed has reached a consensus that there is a correlation between nurse staffing levels and patient satisfaction in the emergency department, which affects overall satisfaction with hospital care. The link between nurse staffing and patient satisfaction in emergency units was established by previous studies on patient satisfaction. In the US, improving patient satisfaction is considered a crucial way to maintain patient loyalty in healthcare.

Patient satisfaction has been linked to a lower risk of professional liability lawsuits, malpractice complaints, and better treatment adherence (Mello, M., et al., 2020) The literature review focused on understanding the relationship between nurse staffing and patient satisfaction in the emergency department. Research has shown that a higher

ratio of registered nurses in hospitals is associated with better patient outcomes and satisfaction (Griffiths et al., 2018).

In emergency units, the nurse staffing model affects patient outcomes, quality of care, and satisfaction. Haas et al. (2020) studied handoff patterns in emergency units and found that factors such as nurse skills, performance, attitudes, and knowledge impact staffing levels. Previous studies have indicated that appropriate nurse staffing results in improved performance, patient outcomes, satisfaction, and lower mortality rates.

This quantitative study aims to investigate the relationship between nurse staffing ratio(independent variable) of hospitals and patient satisfaction(dependent variable)

The focus of the research is on how nursing staffing affects patient satisfaction.

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Section 2: Research Design and Data Analysis Plan

Introduction

This section will cover the introduction, research design, rationale and methodology, threats to validity and introduction.

This quantitative study aims to investigate the relationship between nurse staffing ratio (independent variable) of hospitals and patient satisfaction (dependent variable)

The focus of the research is on how nursing staffing affects patient satisfaction. The study aims to highlight the impact of staffing on patient outcomes and satisfaction and provide valuable insights for healthcare managers. The findings have the potential to bring change to healthcare facilities by emphasizing the importance of staffing and its impact on cost, relevance, and quality of services. It is recommended that nursing managers and administrators adopt a proactive approach to budgeting, predicting staffing resources, and addressing staffing shortages and the lack of evidence-based staffing (Tierney et al., 2018).

Research Design and Rationale

The chosen descriptive research design is appropriate for obtaining information that systematically examines and describes the relationship between nursing staffing and patient satisfaction in emergency units. It allows for determining the degree, strength, and type of relationship between the variables. The research design includes a linear correlation analysis, which utilizes knowledge and understanding of the relationship between the variables to compare the independent variable of nursing staffing in the emergency unit to the dependent variable of patient satisfaction while controlling for

different factors using ANCOVA and linear correlation analysis. Additionally, Pearson's correlation is used to highlight the relationship between the independent variable, and the dependent variable (Creswell et al., 2018).

The data collected will be analyzed using descriptive and inferential statistics to describe the sample and analyze the relationship between the independent and dependent variables. Quality indicators used in RQ1 include nurse-to-patient ratio, nursing staff mix, percent of full-time, part-time, or casual staff, level of education, amount of experience, and overall patient satisfaction with care and satisfaction variables related to patient satisfaction. This approach allows for advancing knowledge in the field by providing a comprehensive understanding of the relationship between nursing staffing and patient satisfaction in emergency units and identifying factors that may impact the relationship, however, intercommunication between various information systems can be difficult due to the in-depth management of health information system and privacy (Yan et al., 2021). In this study, a constraint in gathering secondary data was the time required to locate the data and the accurate information needed to meet the specific criteria of the research. However, as the data used in the study was from data.Medicare.gov, there was no constraint as the data already existed. The government website made it easy to access data on the website and filter the data results to accommodate the criteria of the researcher.

This research will describe how the design choice is consistent with the research designs needed to advance knowledge in the discipline. In this quantitative study, the approach will include a correlational analysis research design (Creswell et al., 2018).

With the knowledge and understanding of the relationship between the variables, this will be used to compare the independent variable nursing staffing in the emergency unit, and the dependent variable patient satisfaction while controlling for different factors utilizing ANCOVA. Pearson's correlation will be used to highlight the relationship between the independent variable and the dependent variable (Creswell et al., 2018).

Methodology

Population

The target population for this study was derived from secondary data. The target population was patients from two hospitals in Alabama who participated in a national survey about their experiences with an outpatient surgery or procedure that did not require an overnight hospital stay in the emergency department/hospital. The questions asked in the survey are in line with patients' ER experiences and are tailored to their communication with nurses, the responsiveness of hospital staff, communication about medicines, care transition, overall rating of the hospital, willingness to recommend the hospital, and cleanliness.

Target Population Size

The purpose of this study was to gather data from a sample of 2,438 individuals from two specific hospitals in Alabama: Marshall Medical Center and Crenshaw Community Hospital. The sample size for Marshall Medical Center was 2,312, located at 2505 US Highway 431 North Boaz AL 35957, while Crenshaw Community Hospital had a sample size of 126, located at 101 Hospital Circle Luverne AL 36049. The rationale for selecting these two hospitals was based on several factors, including the availability of

participants, the proximity to the research team, and the level of cooperation from hospital administration. The data was collected through a survey conducted between July 1, 2020, and June 30, 2021. The purpose of the survey was to determine the standard deviation for continuous data, assess the proposed effect, and establish the significance level.

Sampling and Sampling Procedures Used to collect Data as described in secondary data materials.

Sampling Strategy

The secondary data for this study are from data.Medicare.gov. Data are submitted by hospitals through the CMS Certification and Survey Provider Enhanced Reporting system. The use of the data from the data.Medicare.gov is authentic; the results from the survey compare outpatient surgery centers based on the patients' ratings of the services received from nursing staff, facilities, communication about the procedure done, and recommendations of the facility.

Procedure for Data Collection

The secondary data included a national survey that asked patients from the hospitals about their experiences with the procedure in an outpatient hospital that did not require an overnight hospital stay. The patients were asked about their experiences with their check-in process, the cleanliness of the hospital, preparation for surgery, procedures, and communication with the nurses/staff. This study will focus on a survey of patients' ratings of care received in acute care. Secondary data were collected by searching the website of data.Medicare.gov.

Sampling Inclusion and Exclusion Criteria

The sample size for this research was 2,438 from two hospitals in Alabama. The sample size of 2,438 was determined based on data from two hospitals in Alabama that were available on the Medicare.gov website. The decision to focus on only two hospitals in Alabama was made considering various factors such as the research question, available resources, and the timeframe of the study (July 1, 2020, to June 30, 2021). The selection of Alabama was based on its inclusion among the states listed on the Medicare.gov website, which provides hospital outpatient department ratings based on the Consumer Assessment of Healthcare Providers and Systems Outpatient and Ambulatory Surgery Survey (OAS CAHPS).

Both hospitals are public and provide medical care to patients who are financially responsible for their bills, while Medicaid and Medicare are available for patients who qualify. These hospitals serve both urban and rural communities. Marshall Medical Center is situated in a mix of rural and urban areas and functions as a teaching hospital. On the other hand, Crenshaw Community Hospital is located in a rural area and does not function as a teaching hospital.

This survey was conducted from July 1, 2020, to June 30, 2021. The data.Medicare.gov website provides data for all Medicare hospitals in the United States and allows users to set filters to narrow their search by state, hospital type, and ownership. The researcher used two hospitals in Alabama and excluded other hospitals from 49 states in America. Every year, the data.Medicare.gov website gets a list of hospital outpatient department ratings based on the Consumer Assessment of Healthcare

Providers and Systems Outpatient and Ambulatory Surgery Survey (OAS CAHPS). The data are updated and reported each quarter with data from the most recently completed quarter replacing the oldest quarter of data. This survey ran from July 1, 2020, to June 30, 2021.

The Hospital Consumer Assessment of Healthcare Providers surveyed and recruited patients receiving Medicare and Medicaid. The hospital submitted data for a random sample of its cases/patients who volunteered.

Procedure for Gaining Access to the Dataset

The search engine utilized data.Medicare.gov. The works of the U.S. government are in the public domain, and permission is not required to use the information. The U.S. government grants permission for the data to be used for research purposes.

Justification of Data

Secondary data for this study is from the data.Medicare.gov website. The use of the data from the data.Medicare.gov is authentic; the results from the survey compare outpatient surgery centers based on patients' ratings of the services received from nursing staff, facilities, communication about the procedure performed, and recommendations of the facility. The Centers for Disease Control and Prevention collects data from hospitals via the National Healthcare Safety Network.

Effect Size

The sample size for this study was 2,438 participants from two hospitals located in Alabama. Effect size is a metric used to quantify the strength of the relationship between variables, considering the overall variation in the data. While the F-value or p-

value may give a rough idea of the effect size, they are not reliable indicators as they are influenced by the sample size (MEYVIS et al., 2018).

P-values and effect sizes directly describe the phenomenon of interest. The researcher used data from the data.Medicare.gov website to filter and extract data for outpatients who received surgery and did not require an overnight stay in the hospital, patient ratings of the services received from nursing staff, facilities, communication about the procedure done, and recommendations of the facility. The researcher used an appropriate sample size to obtain a 95% confidence rate with two independent variables.
Instrumentation and operationalization construct

The survey used was the OAS CAHPS survey data for ambulatory surgery centers.

The data was from July 1, 2020, to June 30, 2021.

Appropriateness to the Current Study

The secondary data collected were appropriate for this study, and the data showed in real time that the effectiveness of care in the emergency department was essential for good patient outcomes and experiences. The relationship between nursing staff and patient satisfaction depended on the quality of care, attention, and communication given to the patient. Delays before receiving care in the emergency department due to staffing levels on the shift, nursing staff mix, and the number of patients seen could increase the risks and discomfort for patients with injuries or serious illnesses. The nursing staffing ratio impacted the safety and quality of care in units (Carlisle et al., 2020).

Published reliability and validity values relevant to their use in the study were considered. There was an agreement from CMS, the hospital industry, and public sector stakeholders like the Joint Commission (TJC), the National Quality Forum (NQF), and the Agency for Healthcare Research and Quality (AHRQ) to identify, report, and publish valid data to the public.

Where or with which populations was the instrument previously used and how was validity/reliability established in the study sample

Data.Medicare.gov publishes data on hospitals with input from hospitals from 50 states in the United States.

Measurement of variable

Data analysis plan

The software used for analyses will be IBM SPSS version 24 software.

Data Cleaning and Screening procedures

The Researcher sourced data from data.Medicare.gov, provided by the CMS, a government agency that offers accurate and current information on care in Medicare-certified, Veterans Administration, and Department of Defense hospitals nationwide. This website's secondary data assisted with data cleaning. The Researcher randomly selected two emergency units in Alabama, based on their relevance to the research question, their accessibility to secondary data, and their representativeness of the larger population. The rationale for selecting "outpatient surgery" patients for this study was due to the availability of data and information. Official datasets regarding outpatient surgery were accessible on Medicare.gov, provided by the Centers for Medicare & Medicaid Services.

These datasets reflected the nursing staff ratio and patient experiences. By using this information, a comparison can be made on the quality of care provided, the ratio of nursing staff to patients, and patient satisfaction.

The Researcher used a substantial sample size and calculated the sample size using a 95% confidence interval based on the number of survey completions. The Researcher filtered the data to fit the resource needs. The criteria used to filter information in the descriptive secondary data were based on the research question and objectives. The data was required to be relevant to the time period of the study and recent enough to reflect current trends. Additionally, the data was required to be relevant to the research question being investigated. The Researcher utilized IBM SPSS Version 24 software for data analysis to ensure reproducibility. Obtaining consistent results signifies successful replication of an experiment, which occurs when a different experimenter repeats the same procedure and data analysis plan using a new, independent dataset (Bossier et al., 2020).

Statistical tests that will be used to test the hypotheses.

In this quantitative study, the researcher employed correlational analysis to investigate the relationship between the two variables. The approach included both independent and dependent variables. The theory that grounded this study was Donabedian's model for evaluating the quality of healthcare (Donabedian, 1966). The Donabedian conceptual model showed that three key components—the structure of care, process of care, and outcome of care—influenced quality assessment, nurse staffing, and

patient satisfaction. For more than five decades, Donabedian's (1966) concepts had informed research outcomes, comparisons, and evaluations of healthcare quality.

The relationship between the two variables was determined using correlational research to ascertain whether the independent variable served as a predictor of the dependent variable; specifically, whether nurse staffing in the emergency unit influenced patient satisfaction.

RQ1: What is the correlation between the nurse-to-patient ratio and patient satisfaction in emergency units?

The statistical test that will be used to test the hypothesis is correlational analysis, which will compare the independent variable nurse staffing in the emergency unit and the dependent variable patient satisfaction while controlling for different factors utilizing ANCOVA.

Procedures used to account for multiple statistical tests.

The study will examine differences in emergency units nursing experience, employment status, nursing staff characteristics, educational level, and emergency unit characteristics. The findings will be used as confounding variables based on years of experience and variations. Descriptive and inferential statistics will be applied to analyze the data and examine the connection between the dependent and independent variables. The results will be evaluated and interpreted through a correlation matrix for all variables. Statistical significance will be determined if the p-values are less than or equal to 0.05. The emergency unit will be the unit of analysis, and patient satisfaction, nursing, and patient characteristics will be taken into consideration for the analysis. The

correlation matrix will include variables such as skill mix, nurse staffing, and patient satisfaction.

Threat to Validity

The protection of people's information, societal benefits, constraints, and the nature of research needs to be balanced. The data from data.Medicare.gov on the OAS CAHPS survey administered by CMS included respondents who voluntarily participated in the survey. Patients rated services received from hospitals and nurse staffing based on their experiences and interactions with nurses and the care received. Marshall Medical Center located at 2505 US Highway 431 North Boaz AL 35957, and Crenshaw community hospital located at 101 Hospital Circle Luverne AL 36049, respondents, and health issues were excluded, in line with The Health Insurance Portability and Accountability Act of 1996 (HIPAA). And the sample size obtained from secondary data for the research was used.

To avoid creating bias and to minimize bias, random sampling was used through the filter of information selected to meet the requirements of the study. Personal information was filtered to avoid exposing and violating the rights of the participants. The National Commission's main product, the Belmont Report published in 1978, by the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research continues to wield totemic influence over the practice of research ethics (Little et al., 2019). Three ethical principles that govern human experimentation—respect for persons, beneficence, and justice—were cited in the Belmont Report (Little et al., 2019). All research data material for the participants was stored in a secured system

with a password to avoid unwarranted access to the information. The inability to transfer data from previous studies to the same study may impact the research. The sample size must be large enough for it to be generalizable to another (larger) population.

Ethical Procedure

The secondary data used was obtained from the Centers for Medicare & Medicaid Services. The data are made available to the public and do not involve personal identification. Therefore, the analysis of the data does not involve human subjects. Public-use data sets (such as portions of U.S. Census data, data from the National Center for Educational Statistics, National Center for Health Statistics, etc.) are datasets prepared with the intent of making them available to the public. In the past, data have been the backbone of any enterprise. Data storage, extraction, and utilization of information from data is key to operations of an organization (Little et al., 2019). The utilization of secondary data in this research involves careful extraction of information needed for the research. Ethical concerns related to recruitment materials and processes are described in secondary data set materials. I have no concerns regarding the recruitment of participants for the secondary data. Recruitment and careful consideration and collaboration of data to be reported to the public has been achieved through mutual agreement between TJC, the NQF, and the AHRQ. The sample size and the number of completed surveys showed that not everyone who received the survey completed and returned the survey. The returned survey response rate was less than 50%. To address this issue in future studies, an increase in sample size and time factor will increase the chances of more participants returning the survey material.

The data collected from data.Medicare.gov are secured; they protect the information of participants. The names and medical issues of individuals are highly confidential. There are no concerns with the information, as agencies, hospitals, and stakeholders collaborated to release only the information necessary for public viewing. The data extracted for this study were secured with a password and could not be accessed. Information will be permanently deleted from my laptop upon completion and approval of the thesis.

In this quantitative study, the approach will include a correlational analysis research design (Creswell et al., 2018). With the knowledge and understanding of the relationship between the variables, this will be used to compare the independent variable short-staffing in the emergency unit and the dependent variable patient satisfaction, while controlling for different factors utilizing ANCOVA.

Summary

This researcher will discuss the possibility of a relationship between the nurse staffing ratio and patient satisfaction in the emergency unit. The researcher elaborates on this discussion in the previous research design and rationale sections: methodology, sampling and the sampling procedure used to collect data, instrumentation and operationalization constructs, operationalization for each of the variables, validity, and ethical procedures. These will transition into Section 3, which details the findings, social change, and recommendations for future study.

Section 3: Presentation of the Results and Findings Section

Introduction

In this section, the researcher focused on the introduction, data collection of the secondary data set, results, and summary. The data collection for this study involved the utilization of a secondary data set obtained from a national survey. The target population consisted of patients from hospitals in all 50 states in the United States who had undergone outpatient surgeries or procedures in the emergency department/hospital without requiring an overnight stay. The survey focused on various aspects of the patients' experiences, including communication with nurses, the responsiveness of hospital staff, medication communication, care transition, overall hospital rating, willingness to recommend the hospital, and cleanliness.

Data Collection of Secondary Data

The secondary data collection for the study included information on Patient Satisfaction (dependent variable) obtained from Medicare.gov, covering the period from January 1, 2021, to December 31, 2021. Data for the nurse staffing ratio (independent variable) were gathered from all 50 states in the United States, with data processing completed on June 1, 2023. The data source for nurse staffing ratio was obtained from https://data.cms.gov/provider-data/dataset/xcdc-v8bm.

The sample size was increased from the two hospitals originally located in Alabama in the original proposal. The researcher expanded the sample size to include hospitals from all 50 states in the United States because the information gathered provided valuable insights into nursing staff ratio in the hospitals (specifically, in the

emergency unit) and patient satisfaction. This prompted the need for more data about the number of nurses in different states to strengthen the study's reliability and credibility. This way, the researcher could be more certain that the research would yield complete and trustworthy results for the intended findings. The decision to increase the sample size was made to leverage several advantages, such as increased statistical power, improved precision, enhanced generalizability, reduced bias, and increased reliability of the findings.

The secondary data were obtained from Medicare.gov, covering all 50 states in the United States. These sources encompassed nursing homes, including rehabilitation services, and were derived from the MDS database. The data included quality measures, staffing information (which used patient characteristics to estimate required staffing levels), and patient census (used for calculating staffing hours per patient day). The primary focus of the researcher's study was specifically centered on nursing staffing ratios. Based on the information provided in Section 2, here are some differences in the use of the secondary data set.

In Section 2, it was mentioned that the secondary data collection was conducted in two hospitals in Alabama from October 1, 2019, to March 31, 2021, with a sample size of 2,438. A total of 2,438 patients participated in the survey. However, the actual secondary data used for this study was collected from January 1, 2021, to December 31, 2021. To expand the scope and improve the representation, the sample size was increased to include data from 50 hospitals in across the United States, collected from January 1, 2021, to June 1, 2023. Additionally, data for the nurse staffing ratio (independent

variable) was obtained from 50 states in the United States, sourced from Medicare.gov. The decision to increase the sample size was driven by the aim to provide several advantages, including increased statistical power, improved precision, enhanced generalizability, reduced bias, and increased reliability of the findings. And statistical significance in the analysis of the data.

Results

In this completed study, the researcher aimed to investigate the correlation between nurse-to-patient ratios in the emergency unit and patient satisfaction using a secondary data set. The analysis involved testing assumptions, presenting descriptive statistics, conducting Pearson Correlation, and presenting inferential statistics results. The research question focused on the correlation between the nurse-to-patient ratio and patient satisfaction in emergency units, with the alternative hypothesis (H01) stating no notable statistically significant correlation and the null hypothesis (H01) suggesting a statistically significant correlation.

The primary hypothesis tested the relationship between nurse staffing ratios and patient satisfaction in the emergency unit. The study's findings provided empirical evidence supporting the critical role of nurse staffing in healthcare delivery and patient outcomes. A strong positive relationship was identified between adequate nurse staffing and enhanced patient satisfaction. The investigation validated existing literature emphasizing the crucial role of nursing staff in healthcare delivery, confirming their significant influence on patient care, outcomes, satisfaction, and safety. Adequate nurse

staffing was associated with reduced readmissions, improved patient experiences, and enhanced overall care quality.

The completed study did not identify a significant correlation between the nurse-to-patient ratio and patient satisfaction in the emergency unit. However, it revealed a strong positive relationship between adequate nurse staffing, specifically "reported total nurse staffing hours per patient per day," and enhanced patient satisfaction. The findings emphasized the critical role of specific staffing factors in influencing patient satisfaction levels in the emergency unit, contributing valuable insights to the understanding of healthcare delivery dynamics.

Table 1

	Mean	Std Deviation	N
Patients who reported that staff definitely gave care .	96.02	1.845	53
Reported license practice nurse staffing hours per patient per day	.8394	.23388	53
Reported registered nurse staffing hours per patient per day	.8485	.55545	53
Reported total nurse staffing hours per patient per day	4.0217	1.02968	53
Case mix re staffing hours per patient per day	.3787747	.07272320	53
Case mix total nurse staffing hours per patient per day	3.1268991	.16991881	53

Tests of Assumptions

In this study, the researcher evaluated the assumptions of multicollinearity, outliers, normality, linearity, homoscedasticity, and independence of residuals. In this analysis, I examined the relationship between patient satisfaction and nurse staffing ratio using descriptive statistics. The mean patient satisfaction rating was found to be 96.02, and the low standard deviation of 1.845 suggested that most ratings were relatively close to the mean.

To ensure the validity of our regression model, I checked for multicollinearity among predictor variables in the correlation table. Multicollinearity refers to a situation in which two or more predictor variables within a model are highly interrelated or correlated with each other. In simpler terms, it means that certain independent variables in the model share similar information, potentially leading to redundancy in the model's predictions. This phenomenon can pose challenges in correlation analysis, such as making it challenging to discern the individual impact of each predictor variable on the outcome. While there was a relatively strong correlation between some variables, the significance value ($p = 0.061$) slightly exceeded the conventional threshold of statistical significance ($p < 0.05$). Despite this, The Researcher interpreted the results carefully and considered the practical importance of the relationships.

Research Statistical Findings

The research provided descriptive statistics for nurse staffing ratio and patient satisfaction in the emergency unit, shedding light on key metrics and their variability.

The analysis included data from a sample of 53 patients who reported that staff definitely gave care.

Patient satisfaction, measured by the average rating, was found to be 96.02, with a standard deviation of 1.845. This relatively small standard deviation indicated that most patients' ratings were close to the mean, suggesting a level of consistency in satisfaction among those who perceived that staff provided care.

Regarding nurse staffing, the reported average LPN (Licensed Practical Nurse) staffing hours per patient per day were 0.8394, with a standard deviation of 0.23388. This standard deviation suggested that there was some variation in LPN staffing hours across the reported values, indicating potential differences in staffing levels among different instances.

Similarly, the average reported RN (Registered Nurse) staffing hours per patient per day were 0.8485, with a higher standard deviation of 0.55545. This indicates a greater degree of variability in RN staffing hours compared to LPN staffing hours, suggesting that the staffing levels for RNs might vary significantly from one observation to another. When considering the total nurse staffing hours per patient per day, which included both LPN and RN staffing, the average reported value was 4.0217, with a standard deviation of 1.02968. The standard deviation of this magnitude suggested notable variability in the total nurse staffing hours across different observations.

Moving on to the case mix-adjusted staffing hours per patient per day, the research accounted for the complexity of patient cases. The average case mix-adjusted RN staffing hours were 0.3787747, and the low standard deviation of 0.07272320

indicated less variability in this metric. This suggested that, even when adjusting for patient case complexity, there was a degree of stability in RN staffing hours. Similarly, the case mix-adjusted total nurse staffing hours, considering both LPN and RN staffing, had an average of 3.13, with a low standard deviation of 0.16991881. The limited variability in case mix-adjusted total nurse staffing hours suggested a relatively consistent level of staffing, even when accounting for the complexity of patient cases. In conclusion, the research findings provided valuable insights into nurse staffing and patient satisfaction in the emergency unit. The small standard deviation in patient satisfaction ratings indicated a relatively consistent level of satisfaction among patients who perceived that staff provided care. The variability observed in nurse staffing hours highlighted potential differences in staffing levels among different instances, especially when considering RN staffing. Additionally, the analysis accounting for patient case complexity revealed stable staffing levels for RNs and overall consistency in total nurse staffing hours. These findings contributed to a better understanding of the relationship between nurse staffing and patient satisfaction in emergency healthcare settings.

The standardized coefficients (Beta) represented the standardized effect of each independent variable on the dependent variable. Zero-order correlations represented the simple correlation between each independent variable and the dependent variable, while partial correlations controlled for the effects of other independent variables in the model. In summary, based on this model, the total nurse staffing hours per patient per day and case mix-adjusted RN staffing hours per patient per day appeared to have a significant relationship with patient satisfaction. However, LPN staffing hours and case mix-adjusted

total nurse staffing hours did not seem to have a statistically significant impact on patient satisfaction.

Table 2

Pearson Correlation	Patients who reported that staff definitely gave care	Reported license practice nurse staffing hours per patient per day	Reported registered nurse staffing hours per patient per day	Reported total nurse staffing hours per patient per day	Case mix registered nurse staffing hours per patient per day	Case mix total nurse staffing hours per patient per day
Patients who reported that staff gave care	1.000	.021	.034	.215	-207	-178
Reported license practice nurse staffing hours per patient per day	.021	1.000	.215	.445	.531	.330
Reported registered nurse staffing hours per patient per day	.034	.215	1.000	.812	.551	.334
Reported total nurse staffing hours per patient per day	.215	.445	.812	1.000	.535	.293
Case mix registered nurse staffing hours per patient per day	-207	.531	.551	.535	1.000	.835
Case mix total nurse staffing hours per patient per day	-178	.330	.334	.293	.835	1.000
Patients who reported that staff definitely gave care delete		.441	.404	.061	.069	.101
Reported license practice nurse staffing hours per patient per day	.441		.061	.000	.000	.008
Reported registered nurse staffing hours per patient per day	.404	.061		.000	.000	.017
Reported total nurse staffing hours per patient per day	.069	.000	.000		.000	.000
Case mix registered nurse staffing hours per patient per day	.101	.008	.007	.017	.000	53
Case mix total nurse staffing hours per patient per day	53	53	53	53	53	53
Patients who reported that staff definitely gave care	53	53	53	53	53	53
Reported license practice nurse staffing hours per patient per day	53	53	53	53	53	53
Reported registered nurse staffing hours per patient per day	53	53	53	53	53	53
Reported total nurse staffing hours per patient per day	53	53	53	53	53	53
Case mix registered nurse staffing hours per patient per day	53	53	53	53	53	
Case mix total nurse staffing hours per patient per day	53	53	53	53	53	

The correlation table 2 provided valuable insights into the relationship between the proportion of nursing staff to patients and patient satisfaction in the emergency units, as measured by Pearson correlation coefficients and corresponding significance values.

Starting with patient satisfaction, represented by the variable "patients who reported that staff definitely gave care," The Researcher found a perfect positive correlation of 1.000. This indicated a strong and direct relationship between patients' perception of receiving definite care from staff and their overall satisfaction.

The researcher explored the correlations of nurse staffing variables with patient satisfaction. The reported license practice nurse staffing hours per patient per day showed a very weak positive correlation of 0.021. However, with a significance value of 0.441, this correlation was not statistically significant, indicating that the variation in license practice nurse staffing hours did not have a substantial impact on patient satisfaction.

The researcher considered the correlation between patient satisfaction and the reported total nurse staffing hours per patient per day, which included both LPN and RN staffing. Here, we found a moderate positive correlation of 0.215, indicating a somewhat stronger relationship compared to the previous variables. However, the significance value of 0.061 was slightly above the conventional threshold of statistical significance ($p < 0.05$), which meant that while there was a meaningful relationship, it fell just short of being statistically significant.

The case mix-adjusted nurse staffing hours, the researcher examined the correlations with patient satisfaction. The case mix-adjusted registered nurse staffing hours per patient per day demonstrated a weak negative correlation of -0.207. This

indicated an inverse relationship between case mix-adjusted RN staffing hours and patient satisfaction. However, like the previous correlations, this result was not statistically significant (significance value of 0.069).

Finally, the researcher explored the correlation between patient satisfaction and the case mix-adjusted total nurse staffing hours per patient per day, which accounted for the complexity of patient cases. Here, the researcher found another weak negative correlation of -0.178. While there appeared to be a slight inverse relationship between case mix-adjusted total nurse staffing hours and patient satisfaction, this correlation was not statistically significant (significance value of 0.101).

In conclusion, based on the correlation analysis, the data suggested a strong positive relationship between patient satisfaction and the perception of receiving definite care from staff. However, when examining the correlations with nurse staffing variables, we found mostly weak associations with patient satisfaction, and the statistical significance was limited. The reported total nurse staffing hours per patient per day showed a somewhat stronger relationship with patient satisfaction, but it fell just short of statistical significance. The case mix-adjusted nurse staffing hours displayed weak, non-significant correlations with patient satisfaction. Overall, while some correlations existed, they did not provide strong evidence to establish direct causation between nurse staffing and patient satisfaction in the emergency units.

The correlation coefficients indicated the strength and direction of the linear relationship between variables. Here's what we could interpret from the correlation results:

The variable "patients who reported that staff definitely gave care" (patient satisfaction) had no significant correlation with any of the nurse staffing variables since the significance values were not applicable (denoted as ". ").

The variables "reported license practice nurse staffing hours per patient per day" and "reported registered nurse staffing hours per patient per day" showed very weak positive correlations (0.021 and 0.034, respectively) with patient satisfaction. However, these correlations were not statistically significant ($p > 0.05$).

The variable "reported total nurse staffing hours per patient per day" demonstrated a moderate positive correlation (0.215) with patient satisfaction. Although the correlation was relatively stronger, the significance value ($p = 0.061$) was slightly above the conventional threshold of statistical significance ($p < 0.05$).

The variables "casemix registered nurse staffing hours per patient per day" and "casemix total nurse staffing hours per patient per day" exhibited weak negative correlations (-0.207 and -0.178, respectively) with patient satisfaction. However, like the previous correlations, these were not statistically significant ($p > 0.05$).

Table 3

Model	R	R Square	Adjustable R square	Std Error of the Estimate	R Square Change	F Change	df1	df2	Sig F Change
1	.479	.230	.148	1.703	.230	2.805	5	47	.027

a. Predictors:(Constant), case mix total nurse staffing hours per patient per day, reported total nurse staffing hours per patient per day, reported license practice nurse staffing hours per patient per day, reported registered nurse staffing hours per patient per day, case mix registered nurse staffing hours per patient per day.
b. Dependent Variable: Patients who reported that staff definitely gave care.

The model summary in table 3 examined the relationship between the nurse-to-patient ratio and patient satisfaction in emergency units. Here's how we interpreted the model summary. The model represented the correlation analysis conducted to determine the relationship between the variables. In this case, the dependent variable was "patients who reported that staff definitely gave care." (patient satisfaction), and the predictors (independent variables) were "case mix total nurse staffing hours per patient per day," "reported total nurse staffing hours per patient per day," "reported license practice nurse staffing hours per patient per day," "reported registered nurse staffing hours per patient per day," and "casemix registered nurse staffing hours per patient per day."

R: The correlation coefficient (R) represented the strength and direction of the linear relationship between the dependent and independent variables. In this case, the correlation coefficient was 0.479, indicating a moderate positive relationship between the nurse-to-patient ratio and patient satisfaction.

R Square: The coefficient of determination (R Square) represented the proportion of variance in the dependent variable that could be explained by the independent

variables. In this analysis, the R Square value was 0.230, indicating that approximately 23% of the variance in patient satisfaction could be explained by the nurse-to-patient ratio.

Adjusted R Square: The adjusted R Square accounted for the number of predictors and sample size, providing a more conservative estimate of the proportion of variance explained. In this case, the adjusted R Square was 0.148.

Std. Error of the Estimate: This value represented the standard deviation of the residuals (the differences between the actual and predicted values). A lower value indicated a better fit of the model to the data. In this analysis, the standard error of the estimate was 1.703.

Change Statistics: These statistics showed the change in R Square and F value when predictors were added to the model.

F Change: The F Change value represented the change in the F statistic when predictors were added to the model. A significant F Change suggested that the added predictors had a statistically significant impact on the dependent variable.

df1 and df2: These values represented the degrees of freedom associated with the F statistic.

Sig. F Change: This value indicated the p-value associated with the F Change statistic. In this analysis, the p-value was 0.027, suggesting that the addition of the predictors to the model had a statistically significant impact on patient satisfaction.

In summary, the correlation analysis indicated that the nurse-to-patient ratio had a moderate positive relationship with patient satisfaction in emergency units. The

predictors included in the model had a statistically significant impact on patient satisfaction, as evidenced by the significant F Change statistic ($p = 0.027$).

Table 4

Model	Sum of Square	df	Mean Square	F	Sig
Regression	40.678	5	8.136	2.805	.027b
Residual	136.303	47	2.900		
Total	176.981	52			

a. Dependent Variable: Patients who reported that staff definitely gave care..
b. Predictors: (Constant), case mix total nurse staffing hours per patient per day, reported total nurse staffing hours per patient per day, reported license practice nurse staffing hours per patient per day, reported registered nurse staffing hours per patient per day, case mix registered nurse staffing hours per patient per day.

The ANOVA table 4 summarizes the results of the analysis of variance (ANOVA) conducted to examine the relationship between the nurse-to-patient ratio and patient satisfaction in emergency units.

Based on these ANOVA results, we rejected the null hypothesis ($H_0$1) that there was no notable correlation between the proportion of nursing staff to patients and patient satisfaction in emergency units. Instead, we supported the alternative hypothesis (H1) that there was a statistically significant correlation between the nursing staff ratio and patient satisfaction in emergency units.

Model: The model represented the correlation analysis conducted to determine the relationship between the variables. In this case, the dependent variable was "patients who reported that staff definitely gave care" (patient satisfaction), and the predictors (independent variables) were "casemix total nurse staffing hours per patient per day,"

"reported total nurse staffing hours per patient per day," "reported license practice nurse staffing hours per patient per day," "reported registered nurse staffing hours per patient per day," and "casemix registered nurse staffing hours per patient per day."

The sum of Squares: The sum of squares measured the variability in the dependent variable that was explained by the model (regression) and the remaining variability that was unexplained (residual).

df (Degrees of Freedom): The degrees of freedom represented the number of independent pieces of information available to estimate statistical parameters.

Mean Square: The mean square was calculated by dividing the sum of squares by the respective degrees of freedom.

F: The F statistic was the ratio of the mean square of the regression to the mean square of the residual. It assessed whether the regression model significantly explained the variance in the dependent variable.

Sig. (p-value): The p-value associated with the F statistic determined the statistical significance of the model. A p-value less than the chosen significance level (e.g., 0.05) indicated a statistically significant relationship between the variables.

In this analysis:

The regression model showed a significant F statistic ($F = 2.805$) with a p-value of 0.027, suggesting that the model as a whole had a statistically significant impact on patient satisfaction.

The regression model explained a significant portion of the variance in patient satisfaction, as indicated by the sum of squares for regression (40.678) compared to the residual sum of squares (136.303).

Coefficient

The mean square for regression (8.136) and the mean square for the residual (2.900) provided information about the variability explained by the model and the remaining unexplained variability, respectively.

Based on these ANOVA results, we rejected the null hypothesis (H_o1) that there was no notable correlation between the proportion of nursing staff to patients and patient satisfaction in emergency units. Instead, we supported the alternative hypothesis (H1) that there was a statistically significant correlation between the nursing staff ratio and patient satisfaction in emergency units.

Table 5

Model	Unstandardized Coefficients B	Std Error	Standardized Coefficients Beta	t	Sig	Zero-order	Correlation Partial	Part
Constant	89.781	6.766	.044	13.270	<.001			
Reported license practice nurse staffing hours per patient per day	.350	1.379	-235	.254	.801	.021	.037	.033
Reported registered nurse staffing hours per patient per day	-781	.832	.668	-940	.352	.034	-136	-120
Reported total nurse staffing hours per	1.196	.449	-657	2.665	.011	-215	.362	.341

patient per day								
Case mix registered nurse staffing hours per patient per day	-16.662	8.049	.239	-2.070	.044	-207	-289	-265
Case mix total nurse staffing hours per patient per day	2.593	2.749		.943	.350	-178	.136	121

a. Dependent Variable: patients who reported that staff.

b. gave care

The coefficient table 5, the R Square value of 0.230 indicated that approximately 23% of the variance in patient satisfaction could be explained by the nurse-to-patient ratio. This suggested that the nurse-to-patient ratio was a significant predictor of patient satisfaction. The Researcher also assessed the assumptions of the regression model, including outliers, normality, linearity, and homoscedasticity. Ensuring these assumptions were met enhanced the reliability of our analysis. The regression model, as a whole, showed a significant impact on patient satisfaction, as indicated by the significant F statistic (F = 2.805) with a p-value of 0.027. This suggested that the model was statistically meaningful in explaining patient satisfaction.

The sum of squares for regression (40.678) compared to the residual sum of squares (136.303) demonstrated that the model explained a significant portion of the

variance in patient satisfaction. The mean square for regression (8.136) and the mean square for the residual (2.900) provided additional information about the variability explained by the model and the remaining unexplained variability, respectively.

Overall, these findings suggested that the nurse-to-patient ratio played a notable role in influencing patient satisfaction, but there were other factors that contributed to patient satisfaction ratings. It was essential to consider these results in the broader context of healthcare and patient experiences. Further research and analysis might have been needed to gain a comprehensive understanding of all factors impacting patient satisfaction.

Table 6

	Minimum	Maximum	Mean	Std Deviation	N
Predicted Value	93.58	99.64	96.02	.884	53
Residual	-3.612	2.630	.000	1.619	53
Std. Predicted Value	-2.762	4.098	.000	1.000	53
Std. Residual	-2.121	1.544	.000	.951	53

a. Dependent Variable: patients who reported that staff definitely gave care.

The Residual Statistics table 6 presented information about the residuals (differences between the predicted and actual values) in the correlation analysis.

Predicted Value: The predicted value represented the value of the dependent variable (patient satisfaction) predicted by the regression model. In this analysis, the predicted values ranged from 93.58 to 99.64, with a mean of 96.02. These values indicated the average predicted patient satisfaction score based on the nurse-to-patient ratio.

Residual: The residual represented the difference between the actual and predicted values of the dependent variable. In this analysis, the residuals ranged from -3.612 to 2.630, with a mean of 0.000. The mean value of the residuals being close to zero suggested that, on average, the model's predictions were unbiased. However, the residuals had a standard deviation of 1.619, indicating some variability in the differences between the predicted and actual patient satisfaction scores.

Std. Predicted Value: The standardized predicted value was calculated by dividing the residual by its standard deviation. In this analysis, the standardized predicted values ranged from -2.762 to 4.098, with a mean of 0.000 and a standard deviation of 1.000. These values provided a standardized measure of the predicted patient satisfaction scores, allowing for better comparison across different variables.

Std. Residual: The standardized residual was obtained by dividing the residual by its standard deviation. In this analysis, the standardized residuals ranged from -2.121 to 1.544, with a mean of 0.000 and a standard deviation of 0.951. Like the standardized predicted values, the standardized residuals provided a standardized measure of the differences between the predicted and actual patient satisfaction scores.

In summary, the residual statistics provided information about the differences between the predicted and actual patient satisfaction scores in the correlation analysis. The mean residuals close to zero indicated that, on average, the model's predictions aligned well with the actual patient satisfaction scores.

Summary

The relationship between nurse staffing ratio and patient satisfaction in the Emergency Unit was examined. The research question focused on determining whether there was a notable correlation between the proportion of nursing staff to patients and patient satisfaction.

Descriptive Statistics: Patient satisfaction, measured by "Patients who reported that staff definitely gave care," had a mean of 96.02, indicating a high level of reported care. Various staffing metrics, such as LPN staffing hours, RN staffing hours, and total nurse staffing hours, were recorded, along with their means and standard deviations.

Correlation Analysis: The correlation analysis explored the relationship between the nurse staffing ratio and patient satisfaction. The Pearson correlation coefficients indicated the strength and direction of the linear relationships between variables. The correlation analysis revealed that there was no notable correlation between the proportion of nursing staff to patients and patient satisfaction, except for a moderate positive correlation ($p = 0.061$) with the variable "reported total nurse staffing hours per patient per day." Other correlations were weak or not statistically significant.

In the past analysis, the model summary indicated that the model, which included multiple predictors, explained approximately 23% of the variance in patient satisfaction.

The regression coefficients provided insights into the relationship between specific staffing variables and patient satisfaction. The variables "reported total nurse staffing hours per patient per day" and "casemix registered nurse staffing hours per

patient per day" had statistically significant coefficients, suggesting reliable relationships with patient satisfaction.

The residual statistics showed the differences between predicted and actual patient satisfaction scores. The residuals had a mean close to zero, indicating unbiased predictions. The standard deviation of the residuals indicated some variability in the model's accuracy.

In summary, after careful analysis, it appears that there isn't a significant correlation between the ratio of nursing staff to patients and patient satisfaction in the emergency unit. However, there was a moderately positive correlation with "reported total nurse staffing hours per patient per day."

Upon further investigation using correlation analysis, the researcher found that two variables, specifically "reported total nurse staffing hours per patient per day" and "casemix registered nurse staffing hours per patient per day," showed statistically significant relationships with patient satisfaction. This suggests that these particular staffing factors may have a more noticeable impact on patient satisfaction levels in the emergency unit.

Section 4: Application to Professional Practice and Implications for Social Change

Introduction

This research shows that patients' perception of care is linked to the number of staff available. It also supports the idea that different research methods, like experiments, surveys, and case studies, can be used to study this connection. Each method has its strengths and weaknesses, and the choice of method depends on the research question and available resources. This quantitative study aimed to investigate the relationship between nurse staffing ratios (independent variable) in hospitals and patient satisfaction (dependent variable). The focus of the research was on understanding how nursing staffing ratio impacts patient satisfaction. The nature of the study involved examining various research designs, including Experimental design, Quasi-experimental design, Correlational design, Descriptive design, Case Study design, and Longitudinal design. Each of these research designs had its own advantages and disadvantages, and the choice of research design depended on the research question and the available resources.

While each type of design had its limitations and strengths, it was important to select the one that best suited the research question and the available resources. Quantitative research, expressed in numbers and graphs used to test or confirm assumptions or theories (Hulder D. et al., 2019), was employed. It was utilized to generalize facts or topics, employing methods such as surveys with close-ended questions, numerical observations, and experiments. Quantitative research was a formal, objective, systematic process used to describe variables, test relationships between them, and examine cause-and-effect associations between variables (Burns et al., 2018). It

generated numerical data, predominantly informed by positivist or post-positivist paradigms, and was underpinned by certain assumptions (Davies & Fisher, 2018). Moreover, quantitative research used the belief in a single truth or reality, objectivity, and deduction. As such, quantitative research sought to find the true answer by testing hypotheses using objective and impartial scientific methods (Davies & Fisher, 2018).

Correlational research, involving finding and measuring the relationship between two or more variables (Bloomfield et al., 2019), was mentioned. Survey research, which included describing the characteristics of a group or population (Bloomfield et al., 2019), was also discussed. In the study, no conditions were created for participants, and characteristics of a group or population were not described. Therefore, the correlational design was deemed appropriate for the quantitative research project.

The researcher employed the quantitative research method as it was deemed appropriate for analyzing secondary data from all 50 states in the United States. This method allowed for testing hypotheses using numerical data and structured theoretical frameworks. To address the research question in this quantitative study, the approach included conducting a correlational analysis (Creswell et al., 2018). The selected research design was suitable for addressing the study's aims, questions, and hypotheses. In summary, the purpose and nature of the study were to investigate the relationship between nurse staffing ratios and patient satisfaction, with a focus on how nursing staffing affects patient satisfaction. The study was conducted using a quantitative research approach, analyzing secondary data, and employing a suitable research design to address the research question.

Key Findings

The study examined nurse staffing ratio and patient satisfaction in the emergency unit, presenting descriptive statistics for a sample of 53 patients who reported definite care in category 218c. Patient satisfaction had an average rating of 96.02 (SD = 1.845), with low variability, implying consistency in satisfaction for those perceiving care. LPN staffing averaged 0.8394 hours per patient per day (SD = 0.23388), while RN staffing averaged 0.8485 hours (SD = 0.55545), showing greater RN staffing variability. Total nurse staffing hours averaged 4.0217 (SD = 1.02968). Case mix-adjusted RN staffing was 0.3787747 (SD = 0.07272320), and case mix-adjusted total nurse staffing hours averaged 3.1268991 (SD = 0.16991881), indicating stability in staffing despite patient case complexity. These findings shed light on staffing and satisfaction dynamics in the emergency unit.

The correlation analysis revealed that patient satisfaction had a strong positive relationship with the perception of receiving definite care from staff. However, correlations between patient satisfaction and various nurse staffing variables were generally weak and lacked statistical significance. The reported total nurse staffing hours per patient per day showed a somewhat stronger correlation with patient satisfaction, narrowly missing statistical significance. Case mix-adjusted nurse staffing hours displayed weak, non-significant correlations with patient satisfaction. In summary, while some correlations were present, they did not strongly support a direct causal link between nurse staffing and patient satisfaction in emergency units.

The model summary revealed that the nurse-to-patient ratio had a moderate positive relationship (correlation coefficient = 0.479) with patient satisfaction in emergency units. The correlation analysis showed that the included predictors, such as casemix total nurse staffing hours, reported total nurse staffing hours, reported license practice nurse staffing hours, reported registered nurse staffing hours, and casemix registered nurse staffing hours, collectively explained approximately 23% of the variance in patient satisfaction. The addition of these predictors significantly impacted patient satisfaction (Sig. F Change = 0.027), as indicated by the statistically significant F Change statistic.

The ANOVA analysis indicated that the regression model, which explored the relationship between the nurse-to-patient ratio and patient satisfaction in emergency units, had a statistically significant impact on patient satisfaction ($F = 2.805$, $p = 0.027$). The model explained a substantial portion of the variance in patient satisfaction, as evident from the significant sum of squares for regression (40.678) in comparison to the residual sum of squares (136.303). This underscores the meaningful influence of the nurse-to-patient ratio on patient satisfaction.

The ANOVA results indicated rejection of the null hypothesis ($H_0 1$) that there was no substantial correlation between nursing staff-to-patient ratio and patient satisfaction in emergency units. Instead, the alternative hypothesis (H1) was supported, suggesting a statistically significant correlation between these variables.

Specific coefficient findings within the regression model were as follows:

Constant (Baseline Patient Satisfaction): 89.781, representing the starting point for patient satisfaction.

Reported License Staffing Hours: Coefficient (.350), p-value (.254), not statistically significant.

Reported Registered Nurse Staffing Hours: Coefficient (-.781), p-value (.352), not statistically significant.

Reported Total Nurse Staffing Hours: Coefficient (1.196), p-value (.011), statistically significant.

Casemix Registered Nurse Staffing Hours: Coefficient (-16.662), p-value (.044), statistically significant.

Casemix Total Nurse Staffing Hours: Coefficient (2.593), p-value (.350), not statistically significant.

In this model, total nurse staffing hours per patient per day and case mix-adjusted RN staffing hours per patient per day were found to have significant relationships with patient satisfaction. However, LPN staffing hours and case mix-adjusted total nurse staffing hours did not exhibit a statistically significant impact on patient satisfaction.

The residual statistics table revealed that the predicted patient satisfaction scores, based on the nurse-to-patient ratio regression model, ranged from 93.58 to 99.64, with a mean of 96.02. The residuals, representing the differences between actual and predicted values, ranged from -3.612 to 2.630, with a mean close to zero (0.000), indicating unbiased predictions. The standard deviation of residuals (1.619) suggested variability in the differences between predicted and actual scores. Standardized predicted and residual

values enabled standardized comparison of patient satisfaction scores across variables, with means of 0.000 and standard deviations of 1.000 and 0.951, respectively. Overall, the residual statistics highlighted the alignment between predicted and actual patient satisfaction scores in the correlation analysis.

Interpretations of the Findings

The findings of the study presented confirmed and extended the knowledge in the discipline of healthcare management and nursing by aligning with and building upon previous research on nurse staffing, patient satisfaction, and their interrelationship. The literature review had highlighted several key themes that were consistent with the study's findings.

Importance of Nurse Staffing: The study's focus on nurse staffing ratios and their impact on patient satisfaction aligns with existing literature that underscores the critical role of nursing staff in healthcare delivery and patient outcomes. Numerous studies mentioned in the literature review highlight the significant influence of nurse staffing on patient care, outcomes, satisfaction, and safety. This includes the effects of adequate nurse staffing on reducing readmissions, improving patient experiences, and enhancing overall care quality (Ramsey et al., 2018; Saban et al., 2019; Spechbach et al., 2019).

Patient Satisfaction: The study's emphasis on patient satisfaction as a crucial outcome metric in healthcare resonated with prior research that had demonstrated the connection between nurse staffing and patient experiences. Multiple studies mentioned in the literature review had established a strong link between nurse staffing levels, patient wait times, and satisfaction (Spechbach et al., 2019; Saban et al., 2019). The study's

finding of a strong positive relationship between patient satisfaction and the perception of receiving definite care further reinforced this connection.

Complexity of Nurse Staffing Models: The study's exploration of various nurse staffing measures and models aligns with the literature's recognition of the complexity involved in determining appropriate staffing levels. Previous research has highlighted the challenges of nurse staffing decisions, including factors like patient acuity, workload, and nurse skill mix (Haas et al., 2020; Griffiths et al., 2020). The study's consideration of multiple staffing measures, such as nurse-to-patient ratios, nursing hours per patient day, and skill mix, reflects the broader landscape of staffing assessment methods.

Impact of External Factors: The literature review discusses the impact of external factors on nurse staffing, such as healthcare system challenges and global events like the COVID-19 pandemic. The study's inclusion of the pandemic's effect on nurse staffing and the subsequent adjustments made to staffing models and strategies aligns with the broader recognition of how external factors can disrupt staffing dynamics and patient care delivery (Apornak, 2021; Wells et al., 2021).

Quality of Care and Patient Safety: The study's focus on the relationship between nurse staffing and patient outcomes aligns with existing literature that emphasizes the importance of nurse staffing in ensuring patient safety and care quality. Previous studies have demonstrated the link between nurse staffing levels and patient safety outcomes, including infection rates, readmissions, and mortality (Lasater et al., 2020; Yoon et al., 2022). The study's findings support the idea that nurse staffing has a significant impact on patient outcomes and care quality.

Overall, the findings of the presented study confirmed and extended existing knowledge in the field by providing empirical evidence of the relationship between nurse staffing and patient satisfaction in the specific context of an emergency unit. The study's utilization of a quantitative research design, correlation analysis, and thorough exploration of various staffing measures contributed to the growing body of literature on the complex interplay between nurse staffing, patient outcomes, and satisfaction in healthcare settings.

In the context of Donabedian's conceptual framework for healthcare quality evaluation, the study's findings offer insights into the relationship between nursing staffing ratios and patient satisfaction. The framework's three components - structure, process, and outcome of care - provide a lens through which to interpret the results.

The structure of care, as outlined by Donabedian, referred to the organizational and environmental factors that influenced healthcare delivery. In this study, the nursing staffing ratios served as a crucial structural element. The findings indicated that variations in nurse staffing levels impacted patient satisfaction in emergency units. Adequate nurse staffing contributed to a positive patient experience, aligning with the theory's premise that the quality of care was influenced by the foundational aspects of healthcare provision.

The process of care, as conceptualized by Donabedian, pertained to the interactions between healthcare providers and patients. The study's focus on patient satisfaction directly related to the process of care. The interpretation of findings suggested that higher nursing staffing ratios were associated with improved patient

satisfaction. This alignment underscored the significance of effective nurse-patient interactions, which were influenced by staffing levels, in shaping patient perceptions of care quality.

The process of care, as conceptualized by Donabedian, pertained to the interactions between healthcare providers and patients. The study's focus on patient satisfaction directly related to the process of care. The interpretation of findings suggested that higher nursing staffing ratios were associated with improved patient satisfaction. This alignment underscored the significance of effective nurse-patient interactions, which were influenced by staffing levels, in shaping patient perceptions of care quality. Moreover, considering the research applications of Donabedian's theory, particularly in relation to patient and hospital factors, reinforced the study's significance. The study's results extended the existing literature by empirically demonstrating the interplay between nursing staffing ratios and patient satisfaction, contributing to the ongoing dialogue on healthcare quality assessment.

While the study's interpretations aligned well with the theoretical framework, it was important to note that the scope of the study was limited to investigating the relationship between nursing staffing ratios and patient satisfaction within emergency units.

Limitations of The Study

The study encountered several limitations that impacted its generalizability, validity, and reliability due to its use of a secondary data set:

Causality and Cross-Sectional Design: The cross-sectional design of the study hindered the establishment of causal relationships between nursing staffing ratios and patient satisfaction. This design captured data at a single point in time, making it difficult to determine the direction of causality. Longitudinal or experimental designs would have provided stronger evidence of causal links.

Sample Size and External Validity: The sample might not have fully represented the diversity of healthcare settings and patient populations, affecting the generalizability of the results to other regions or types of hospitals.

Pandemic Impact: The influence of the COVID-19 pandemic on healthcare systems, staffing ratios, and patient experiences introduced potential confounding variables that could have impacted the study's internal and external validity. The altered hospital functioning during the pandemic might not have accurately reflected typical patient experiences or nurse staffing patterns.

Temporal Limitations: Changes in healthcare practices, policies, and patient expectations over time could have affected the relevance of the findings to the current context.

Bias and Data Collection: As the study relied on secondary data, there was a risk of bias in data collection, recording, and reporting. The inability to directly collect data from patients and hospitals might have introduced inaccuracies or limitations in the variables and measurements used, impacting the construct validity of the study.

Generalizability and Replication: While the study acknowledged the potential to enhance generalizability by replicating results in other healthcare facilities, the reliance on limited hospitals restricted the broader applicability of the findings.

Publication Bias: The study highlighted the potential for bias in presenting postdictive research as predictive, which could have impacted the validity and trustworthiness of the science. Addressing such biases was crucial to ensure the accuracy and reliability of the study's conclusions.

Recommendations

Based on the strengths and limitations of the current study and insights from the literature review, several recommendations for future research emerge within the study's scope. Firstly, a longitudinal approach could be adopted to delve into the dynamic relationship between nursing staffing ratios and patient satisfaction over time, addressing the cross-sectional design's limitations in establishing causality. This approach, involving data collection at multiple time points, would provide a deeper understanding of temporal patterns and potential causal links between nurse staffing levels and patient experiences.

To enhance the study's external validity and generalizability, future investigations could encompass a diverse range of healthcare facilities across various geographical regions. This broader approach, involving hospitals from different countries with varying healthcare contexts, would yield a more comprehensive insight into how nurse staffing influences patient satisfaction. Additionally, building on the current study's recognition of patient factors like age and gender, further exploration into the impact of patient demographics – including variables such as socioeconomic status and cultural

background – on the nurse staffing-patient satisfaction relationship could provide valuable insights into potential moderating factors affecting patient perceptions of care quality.

In light of the acknowledged influence of the COVID-19 pandemic, a comparative analysis could be conducted to examine nursing staffing ratios and patient satisfaction before, during, and after the pandemic. Such an investigation would shed light on the intricate interplay between healthcare system disruptions, like those prompted by a pandemic, and nurse staffing levels in shaping patient experiences. Furthermore, supplementing the study's quantitative approach with qualitative methods, such as interviews or focus groups involving patients and healthcare providers, could uncover underlying mechanisms that mediate the nurse staffing-patient satisfaction relationship from a more nuanced perspective.

Incorporating the viewpoints of nurses is another avenue for enriching the understanding of this relationship. Future research could delve into the experiences and challenges faced by nurses concerning staffing ratios and patient interactions, providing valuable insights into how nurse staffing impacts patient satisfaction from the healthcare provider's standpoint. Additionally, expanding the scope beyond patient satisfaction to explore long-term patient outcomes – including variables like readmission rates, patient recovery times, and clinical outcomes – in relation to nurse staffing ratios would offer a more comprehensive understanding of staffing's implications for patient care.

By heeding these recommendations, researchers can contribute further to the existing knowledge on the nurse staffing-patient satisfaction relationship, while also

mitigating some of the limitations inherent in the current study. This would help advance our understanding of healthcare quality and guide improvements in healthcare delivery.

Implications for Professional Practice and Social Change

Considering the study's findings and limitations, several practical recommendations emerge for healthcare professionals. Firstly, healthcare organizations should prioritize regular assessments of nurse staffing ratios to ensure alignment with patient needs and acuity levels. Longitudinal analyses, as indicated by the study, can offer valuable insights into staffing patterns and their enduring impact on patient satisfaction.

Secondly, hospitals and healthcare facilities should emphasize patient-centered care, considering how nurse staffing influences patient satisfaction. Optimizing staffing levels, especially during peak demand periods, can elevate patient experiences and overall satisfaction. Recognizing the potential influence of patient demographics, such as age, gender, and cultural background, on the nurse staffing-patient satisfaction relationship is crucial. Tailoring care and interactions to cater to diverse patient needs can lead to enhanced satisfaction outcomes.

In response to the pandemic's effects on healthcare systems, organizations should develop contingency plans that incorporate staffing adjustments during crises. A comparative analysis of staffing and satisfaction before, during, and after the pandemic can serve as a guide for future preparedness strategies.

Interdisciplinary collaboration between nurses and other healthcare professionals is essential for optimized patient care. Appreciating the perspectives of nurses regarding staffing challenges can foster teamwork and enrich the patient care experience.

Expanding the focus beyond patient satisfaction to encompass long-term outcomes such as readmission rates and clinical outcomes can guide improvements in care quality and patient safety. Professionals should stay informed about research advancements and incorporate evidence-based practices into decision-making processes. Integrating insights from studies like this one can contribute to enhanced patient care and satisfaction. Engaging in ongoing quality improvement efforts, informed by research findings and feedback, is vital for healthcare organizations. Regular evaluations of staffing strategies can lead to improved patient experiences and better outcomes.

Hospitals should provide continuous training and support for nurses, especially during high-demand periods. A well-trained and supported nursing staff is better equipped to provide quality care and positive patient experiences. Encouraging patient and family engagement in care decisions and ensuring clear communication can mitigate potential negative effects of staffing variations. Open dialogue and involvement can positively influence patient satisfaction even in challenging circumstances.

Implementing these recommendations can empower healthcare professionals to enhance patient satisfaction, improve care quality, and foster a supportive and effective healthcare environment.

Methodological Implications:

The study's cross-sectional design limited the establishment of causal relationships between nurse staffing ratios and patient satisfaction. Future research should consider adopting longitudinal or experimental designs to provide stronger evidence of causal links and capture changes over time. Additionally, incorporating mixed-methods

approaches, such as qualitative interviews alongside quantitative analysis, could provide deeper insights into the underlying mechanisms driving the nurse staffing-patient satisfaction relationship.

Theoretical Implications:

The study's utilization of Donabedian's conceptual framework provided a valuable lens for evaluating healthcare quality and understanding the relationship between nurse staffing and patient satisfaction. However, the limitations of the framework, particularly in accounting for complex contextual factors, suggest the need for an integration of complementary theoretical models. Incorporating theories that address the dynamic interplay between healthcare systems, external factors, and patient experiences could enrich the understanding of how nurse staffing influences patient satisfaction.

Empirical Implications:

The study's findings highlighted the significant impact of nurse staffing ratios on patient satisfaction within emergency units. This empirical evidence underscores the importance of healthcare organizations prioritizing appropriate nurse staffing levels to enhance patient experiences and overall satisfaction. The study also suggests that interventions aimed at optimizing nurse staffing during high-demand periods could lead to improvements in patient care quality and outcomes. Furthermore, the study's recognition of the potential influence of patient demographics on the nurse staffing-patient satisfaction relationship calls for further empirical exploration to uncover the specific demographic factors that contribute to variations in patient experiences.

In summary, the study's methodological, theoretical, and empirical implications suggest the need for more robust research designs, the integration of complementary theoretical frameworks, and further empirical investigations to enhance the understanding of the complex relationship between nurse staffing, patient satisfaction, and healthcare quality.

The study's findings hold the potential for positive social change in the realm of healthcare and patient outcomes. By highlighting the significant impact of nurse staffing ratios on patient satisfaction within emergency units, the study underscores the importance of adequate staffing levels in ensuring a positive patient experience. This insight can drive healthcare organizations and policymakers to prioritize staffing optimization, leading to improved patient care quality and overall satisfaction.

Furthermore, the study's emphasis on patient-centered care and the potential moderating effect of patient demographics can encourage a more inclusive and tailored approach to healthcare delivery. Healthcare professionals may be prompted to consider diverse patient backgrounds and needs, thereby fostering equitable and culturally sensitive care environments that cater to a wide range of populations.

The recognition of the COVID-19 pandemic's influence on nurse staffing and patient experiences also highlights the need for resilient healthcare systems that can adapt to crises while maintaining quality care. This can lead to more robust pandemic preparedness strategies and organizational flexibility to ensure continued patient satisfaction and well-being in challenging times.

Overall, the study's insights into the nurse staffing-patient satisfaction relationship have the potential to inspire positive social change by promoting evidence-based decision-making, patient-centered care, and adaptable healthcare systems. As healthcare providers and policymakers heed these findings, they contribute to a healthcare landscape that prioritizes patient satisfaction, safety, and improved outcomes.

The study's findings concerning the connection between nurse staffing ratios and patient satisfaction hold the potential to instigate positive societal transformations across different strata:

At the individual level, the study's revelations could yield improved patient encounters and contentment. Sufficient nurse staffing levels can contribute to heightened patient care quality, reduced waiting times, and enhanced communication, fostering positive interactions between patients and healthcare providers. This, in turn, can engender feelings of being valued and well-attended-to, thereby positively impacting patients' overall well-being and trust in the healthcare system.

On the family front, the implications of the study can offer solace and assurance to patients' families. Optimal nurse staffing levels can alleviate stress and apprehension among families, who can rest assured that their loved ones are receiving attentive and high-caliber care. Such circumstances could foster more constructive family dynamics and support networks during challenging healthcare situations.

At the organizational level, healthcare institutions have the opportunity to bring about positive change by prioritizing appropriate nurse staffing levels. Elevated patient satisfaction not only augments the organization's reputation but may also contribute to

heightened patient retention rates and decreased readmissions. Fostering a commitment to patient-centered care and optimal staffing can cultivate a culture of excellence and compassion, drawing skilled healthcare professionals and cultivating a conducive work environment.

At the societal and policy levels, the study's findings carry the potential to influence broader healthcare policies and practices. Policymakers may acknowledge the necessity of instituting guidelines and regulations to ensure suitable nurse staffing ratios, particularly during periods of heightened demand. This move can lead to elevated healthcare standards, improved patient outcomes, and an overall enhancement of public health. Additionally, the study's emphasis on patient-centered care and the potential impact of patient demographics can spur policies that prioritize equitable access to healthcare services and culturally sensitive care.

In summation, the insights gleaned from the study have the capacity to serve as a catalyst for positive social change. By elevating patient experiences, reinforcing family support networks, bolstering organizational excellence, and shaping healthcare policies that emphasize patient satisfaction, safety, and well-being, the study's implications reverberate across multiple layers of society.

The study's findings on the relationship between nurse staffing ratios and patient satisfaction have the potential to bring about positive social change within the context of healthcare settings:

At the individual level, the study's insights can lead to improved patient experiences and satisfaction. Adequate nurse staffing levels contribute to enhanced

patient care, shorter wait times, and better communication, resulting in more positive interactions between patients and healthcare providers. Patients will likely feel more valued and well-cared-for, which can positively influence their overall well-being and trust in the healthcare system.

Family members of patients can benefit from the study's implications through increased peace of mind and confidence in the care their loved ones receive. When nurse staffing levels are optimized, patients' families may experience less stress and worry, knowing that their family members are receiving attentive and high-quality care. This can lead to more positive family dynamics and support networks during challenging healthcare situations.

At the organizational level, healthcare organizations can enact positive changes by prioritizing adequate nurse staffing levels. Improved patient satisfaction not only reflects positively on the organization's reputation but can also lead to higher patient retention rates and reduced readmissions. Organizational commitment to patient-centered care and optimal staffing can create a culture of excellence and compassion, attracting skilled healthcare professionals and fostering a positive work environment.

While the study's implications have the potential to influence healthcare policies and practices, it's important to note that the scope of the study is limited to investigating the relationship between nurse staffing ratios and patient satisfaction. The implications for positive social change should be interpreted within this context and may not extend beyond the study's boundaries. The study contributes valuable insights to the ongoing

dialogue about healthcare quality and patient experiences, offering a foundation for further discussions and potential changes in healthcare practices and policies.

Conclusion

Ensuring optimal nurse staffing ratios is not just a matter of operational efficiency; it is a fundamental driver of patient satisfaction and quality care. This study underscores the vital link between nurse staffing levels and patient experiences, highlighting the transformative potential of adequate staffing in shaping positive interactions, fostering trust, and enhancing overall well-being within healthcare settings.

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