HIGH WORKLOAD EFFECTS ON PATIENT SATISFACTION AND PROFITABILITY OF NURSING HOMES

by

Richard Alrayes

Dissertation

Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Health Care Management

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Abstract

The main issue focused on in the research is that increased workload experienced by employees in nursing homes in Houston, TX creates an increase in medical errors and results in the loss of customer satisfaction and profitability to the business. To address the problem, convergent parallel mixed methods were used to understand the effect of high workload on patient satisfaction and the profitability of nursing homes in Houston, Texas. The mixed methods study was guided by four research questions: (1) How does increased workload experienced by employees in nursing homes impact the quality of provided healthcare services? (2) How does the increase in medical errors (complaints) in nursing homes, as an indicator of the quality of provided healthcare services, impact the level of customer satisfaction and reflect profitability to the business? (3) What are the relational and professional practices that can help to overcome the obstacles of increased workload experienced by employees in nursing homes? (4) What is the relationship between the staff-patient ratio and the number of patient complaints, and between the staff-patient ratio and the bed occupancy rate in nursing homes in Houston, Texas? The qualitative data were gathered using information acquired from the face-to-face interviews. The qualitative data were organized in an Excel sheet and the codes and themes were developed accordingly. The coding process highlighted symmetric words. Codes and sub-codes were identified, conveying the work experience or information relevant to the in-person interview questions. The quantitative data collection consisted of pulling out data from a primary source of information (Medicare.gov). The data were registered into an Excel sheet. The information was then exported from Microsoft® Excel into the Statistical Package for Social Sciences (SPSS) software for final analysis. The convergent parallel design is appropriate for the study as both qualitative and quantitative data are needed to have a comprehensive understanding of the effects

of work overload. The significance of the study was to understand the phenomena of high workload and its effects on the residents and the nursing home facilities in Houston, Texas. The intention was to provide more in-depth information regarding how much high workload will reflect on the quality of medical services and finances of the nursing homes. The results of my study will assist nursing homes' decision-makers when reviewing their staffing policy, open the door to expanding the vision of the staffing process, and shed light on the long-term effects of high workload.

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Dedication

My dissertation is dedicated to my family, who supported me during this long journey. It would be impossible to meet my goals without their understanding, patience, and love. With working a full-time stressful job, taking care of a family of four, and pursuing a doctorate, this would have been an impossible mission, but with my family's support, I nailed it.

Acknowledgments

I am grateful for all the support given to me from those who had my back during this long journey of over 6 years. A want to give a big thanks to my daughter Kamar for all the support she has provided me. I cannot forget the thoughtful discussions we had while we discussed how the healthcare system functions.

I would like to thank my professor, Dr. Angela Cline, for guiding me throughout the dissertation. I greatly appreciate your support, patience, encouragement, and professionalism. I am thankful for your honor and wisdom while guiding me throughout my research. I would like to thank the dissertation committee, Dr. Ron Morgan, and Dr. Nicole Lowes, for your professional guidance and tips when helping me move forward on this journey.

Of course, I cannot forget to thank the nursing home administrators who allowed me to conduct my research in their facility, as well as all the other participants who spared me their time despite their tight schedule.

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Section 1: Introduction

The United States is the richest nation in the world, and in spite of spending on healthcare more than any other advanced nations, the United States is ranked poorly in objective measure of healthcare outcomes (Jones & Kantarjian, 2015). Nursing homes play an important role hand by hand with other kinds of healthcare facilities to service the medical needs of the elderly population, which is increasing rapidly globally and nationwide. Nursing homes provide a wide range of health services to residents who end up in their facilities due to the lack of patients' ability to serve themselves or due to other health-related issues. Poor quality of healthcare services is a problem in many nursing homes in Texas. This problem threatens the life of elderly patients, who are the most vulnerable of the population. Phelan (2015) stated that there have been concerns globally regarding care homes where negligent practices, poor service delivery, and maltreatment have been illuminated in scandals, via means such as undercover documentary evidence, inspection reports, public inquiries, or serious case reviews. The study walked the readers through the current process in nursing homes regarding the staffing policy and its effects on patient satisfaction and business profitability. Additional explanation is provided on the causes of staff shortages and employee overload as well as the federal and state regulations, which govern and control the staffing ratio. The aim of this research is to understand the effect of providing low quality healthcare services on patient satisfaction and how patient satisfaction is reflected on business profitability.

Background of the Problem

The older adult population is expanding, living longer, and, naturally, live with multiple chronic conditions. Understanding and managing the needs of the elderly over time is an integral part of defining successful aging (Tkatch et al., 2016). The demographic bulge created by the

Baby Boom generation—the roughly 76 million people born between 1946 and 1964 (Super, 2020). By 2030, all baby boomers will be older than age 65. This will expand the size of the older population so that one in every five residents will be retirement age (Orr et al., 2020). In the United States, elder-care homes are known as nursing homes, typically helping older adults unable to perform activities of daily living (ADLs) independently, such as bathing, dressing and toileting (Grabowski, 2021). The quality of care in the nursing home is typically conceptualized and operationalized in terms of resident outcomes (e.g., admissions to the hospital, pressure ulcers, falls, infections, or satisfaction; Konetzka, 2020). In 2002, the Centers for Medicare and Medicaid Services (CMS) substantially expanded its quality improvement efforts by launching Nursing Home Compare (NHC), a national effort to publicly report the quality of care in all U.S. nursing homes, thereby informing consumers and incenting the improvement of quality (Brauner et al., 2018). The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes is calculated using three aspects of quality: process measures, nurse staffing, and inspections (Burke & Werner, 2019). Growing evidence suggests that workload has an adverse effect on quality of care and patient safety in nursing homes (Buljac-Samardžić & van Woerkom, 2018). Employees struggle with heavier workloads and fewer resources, resulting in less time with patients and a poor quality of patient care (Johannessen et al., 2020). Many of the recent studies focus on the effects of high workload on the quality of health care. Chang et al. (2019) stated that current nursing workload was significantly associated with care quality. MacPhee et al. (2017) demonstrated that job-level nurse perceptions of heavy workloads and task-level interruptions adversely influence patient and nurse outcomes. Recent research fell short in shading a light on the effect of high workload on patient satisfaction and how that reflected negatively on the profitability of the nursing home.

Nantsupawat et al. (2016) demonstrated that nurses experiencing inadequate resources from practice environment or staffing will reduce job performance and probably threatening patient outcomes. Most of the studies that tackled the topic of high workload were conducted to figure out its effect on the quality of care and patients' output and failed to focus on patient satisfaction and business profitability. Griffiths et al. (2020) concluded that patient outcomes have been shown to improve when staffing is increased above levels identified as 'optimal' using professional judgements and a widely used prototype system.

Problem Statement

The general problem that was addressed is how increased workload experienced by employees in healthcare organizations create increased medical errors, resulting in the loss of customer satisfaction and profitability in the business. Metcalf et al. (2018) stated that understaffing and healthcare workers' overload will increase the rate of medical errors. Carrez et al. (2019) stated that an overload of work increases the occurrence of medical errors. Chang et al. (2019) concluded that an increased amount of workload experienced by healthcare service providers increases the rate of medical errors, which can lead to a loss of customer satisfaction, with common mistakes consisting of patient falls, infections, medications, and incorrect documentation. Richter and Muhlestein (2017) stated that the patient experience has had a direct financial impact on healthcare organizations as well as loss of profitability to the business due to increased workload experienced by employees in the healthcare industry. The specific problem that was addressed is the increased workload experienced by employees in nursing homes in Houston, TX, which creates an increase of medical errors and results in the loss of customer satisfaction and profitability to the business.

Purpose Statement

The purpose of this mixed design convergent parallel method was to understand the effect of high workload on patient satisfaction and the profitability of nursing homes in Houston, Texas. Convergent mixed methods design is a type of design where the qualitative and quantitative data are collected parallelly, analyzed separately, and then merged. In this study, the quantitative data were obtained from the Medicare public document (Nursing home compare) and used to test the relationship between staff-patient ratio and patient complaints and occupancy rate. At the same time, the qualitative method was applied by exploring the effect of high workload through interviewing healthcare workers and patients in multiple nursing homes in Houston, Texas. The reason for collecting both quantitative and qualitative data are to get a deeper insight on the effect of high workload on patient satisfaction and nursing home profitability.

Research Questions

The U.S. health care system is sick. The poor outcomes mainly impact the patients (Anderlini, 2018). Carayon and Gürses (2005) stated that heavy workload of nurses is a major problem for the American health care system. Pérez-Francisco et al. (2020) stated that the upward imbalance of workload for not respecting the nurse-patient ratio established is manifested in problems such as increased infections in patient. Nurses are currently experiencing higher workloads than ever before due to four main reasons: (a) increased demand for nurses, (b) inadequate supply of nurses, (c) reduced staffing and increased overtime, and (d) reduction in patient length of stay. Everhart et al. (2013) stated that healthcare facilities facing financial uncertainty have sought to reduce nurse staffing as a way to increase profitability. Everhart et al. (2013) performed a cost-effectiveness analysis on patient-to-nurse ratios and found that lowering

the nurse workload decreases mortality rates and led to overall cost savings. McHugh et al. (2021) stated that the minimum nurse-to-patient ratio policies are a feasible approach to improve nurse staffing and patient outcomes with good return on investment. The following research questions addressed the effects of high workload of healthcare workers on patient satisfaction and the connections and effects of this problem with business profitability.

RQ1- How does increased workload experienced by employees in nursing homes impact the quality of provided healthcare services?

RQ2- How does the increase in medical errors (complaints) in nursing homes, as an indicator of the quality of provided healthcare services, impact the level of customer satisfaction and reflect on the profitability of the business?

RQ3- What are the relational and professional practices that can help to overcome the obstacles of increased workload experienced by employees in nursing homes?

RQ4- What is the relationship between the staff-patient ratio and the number of patient complaints as well as the bed occupancy rate in nursing homes in Houston, TX?

Discussion of Research Questions

1- RQI: Healthcare workers, like nurses and nurse assistants, are considered the most essential health providers of the medical services. Overstaffing and assigning more patients to each care provider will affect the time per patient given by the care giver. This question will help my research by understanding how workload affects the medical services provided.

2- RQ2- Medical errors have a huge effect on the reputation of healthcare organizations and jeopardize them from being a patient's choice or a doctor's referral when it comes to healthcare. This research question will help my research in understanding

medical errors on the patient's satisfaction and how that satisfaction will affect the nursing home's profitability.

3- RQ3- Managers in nursing homes play an important role in the success of the business; the continuous communication between healthcare providers and managers and understanding their limitations will help overcome the health care providers' obstacles at work and limit the number of medical errors.

4- RQ4- Staff-patient ratio can sometimes determine dedicated time spent by the healthcare provider with the patient during the patient's stay in a medical facility. The high overload of patients on the medical staff will increase the burden to take care of patients and provide accurate medical services.

Hypotheses

H4o: There is no statistically significant relationship between staff-patient ratio and patient complaints and the profitability of the nursing home.

H4a: there is a significant relationship between staff-patient ratio and patient complaints and the profitability of the nursing home.

H4 address RQ4 seeks to explain the influence of high workload on patient satisfaction and business profitability. Variables included- H4 includes Staff-patient as ordinal value from 1 star to 5 stars [as determined by the CMS- The staffing rating is based on these measures: (1) Registered Nurse (RN) hours per resident per day; and (2) total nurse staffing (including RN, licensed practical nurse (LPN), and nurse aide) hours per resident per day], patient complaint as continuous value, and occupancy rate as continuous value.

Nature of the Study

Poor quality of healthcare services is an increasing problem in many nursing homes in Houston Texas. This problem threatens the life of elderly patients, who are the most vulnerable of the population. Phelan (2015) stated that there have been concerns globally regarding nursing homes where negligent practices, poor service delivery, and maltreatment have been illuminated in scandals, via means such as undercover documentary evidence, inspection reports, public inquiries, or serious case reviews. Patient satisfaction is an important and commonly used indicator for measuring the quality of health care. Prakash (2010) stated that patient satisfaction affects clinical outcomes, patient retention, and medical malpractice claims. The problem is that the increased workload experienced by employees in nursing homes in Houston, TX is creating an increase of medical errors, resulting in the loss of customer satisfaction and profitability to the business. The purpose of the convergent parallel mixed methods case study was to investigate the effects of high workload on patients' satisfactions and business profitability.

Research Paradigm

Kivunja and Kuyini (2017) explained that paradigms are important because they provide beliefs and dictates, which, for scholars in a particular discipline, influence what should be studied, how it should be studied, and how the results of the study should be interpreted. Monroe et al. (2019) stated that improving collective awareness of paradigmatic perspectives will help improve communication and understanding as we all work in the transformation of education, ecosystems, and human communities.

The pragmatism paradigm shaped the conceptual framework for the convergent mixed methods research study, which is the paradigm of this research. Pragmatism is a philosophy originated in the United States in the late nineteenth century (Morgan, 2014). Pragmatists believe

that reality is not static—it changes at every turn of events. Similarly, the world is also not static—it is in a constant state of becoming (Kaushik & Walsh, 2019). Pragmatism applies to mixed methods research in that inquirers draw liberally from both quantitative and qualitative assumptions when they engage in their research (Creswell, 2014). Mixed-methods researchers promote pragmatism as a paradigm by suggesting that it is directly linked to the needs of mixed-methods research (Kaushik & Walsh, 2019). Onwuegbuzie et al. (2009) explained that the pragmatist researchers can use the whole range of qualitative and quantitative analysis in an attempt to fulfill one or more of five mixed research purposes like triangulation, complementarity, development, initiation, and expansion.

Frey (2018) cited that the pragmatic paradigm is useful for guiding research design, especially when a combination of different approaches is philosophically inconsistent. The mixed methods researcher, pragmatism, opens the door to multiple methods, different worldviews, and different assumptions, as well as different forms of data collection and analysis (Creswell, 2014). Biesta (2010) stated that pragmatism has implications for the status of knowledge in that knowledge according to the pragmatist view is always about relationships between actions and consequences, never about a world "out there." Stark (2014) stated the through pragmatism as a mode of inquiry, those involved in the research process are looking to fit new pieces into their current understanding about a given phenomenon.

The framework of the convergent parallel mixed method design driven by a pragmatism paradigm provides a comprehensive view of the study. The pragmatism paradigm aligns with the core of the study that reveals the effect of high workload on the provided medical services and business profitability. The theory aligns with the methodology of the study by exploring the relationship between the staff-patient ratio and business profitability. Pragmatism framework

allows to shade a light on multiple experiences of the high workload phenomena and directs to problem solving by observing what participants say and how they act while studying the phenomena. Mertens and Hesse-Biber (2012) stated that pragmatists recognize the construction of meaning through experience and believe that researchers must focus on the consequences of their interpretive activities for moral and political purposes. Shannon-Baker (2016) states that pragmatism is characterized by an emphasis on communication and shared meaning-making in order to create practical solutions to social problems.

Research Design

One of the important steps in conducting research is to design the research. A research design is a blueprint to guide the research process by laying out how a study will move from the research purpose/questions to the outcomes (Abutabenjeh & Jaradat, 2018). Schoonenboom and Johnson (2017) stated that a mixed methods design is characterized by the combination of at least one qualitative and one quantitative research component. The research was conducted by using a mixed methods design that addressed the research questions more comprehensively than either qualitative or quantitative methods by themselves. Raven et al. (2011) stated that the mixed methods research therefore has the potential to harness the strengths and counterbalance the weaknesses of both approaches and can be especially powerful when addressing complex, multifaceted issues such as health services interventions. Fetters et al. (2013) stated that mixed methods research offers powerful tools for investigating complex processes and systems in health and health care. The method that has been followed when conducting the mixed method design is the convergent parallel mixed method. The convergent parallel design is appropriate for the study as both qualitative and quantitative data are needed to have a comprehensive understanding of the effects of work overload. Fetters et al. (2013) stated that in a convergent

design, the qualitative and quantitative data are collected and analyzed during a similar timeframe. During this timeframe, an interactive approach may be used where iterative data collection and analysis drives change during the data collection procedures.

Mixed methods research offers great promises for practicing researchers who would like to see methodologists describe and develop techniques that are closer to what researchers actually use in practice (Johnson & Onwuegbuzie, 2004). A qualitative dimension is needed to gather community perspectives at each stage of the research process, while a quantitative dimension provides the opportunity to demonstrate outcomes that have credibility for community members and scholars (Mertens, 2007). Mixed methods researchers need to establish a purpose for their mixing, a rationale for the reasons why quantitative and qualitative data need to be mixed in the first place (Creswell, 2014). The mixed methods approach has emerged as a "third paradigm"' for social research. It has developed a platform of ideas and practices that are credible and distinctive and that mark the approach as a viable alternative to quantitative and qualitative paradigms (Denscombe, 2008). Mixed methods research allows researchers to use creativity in integrating qualitative and quantitative elements to best answer the research question (Halcomb, 2019).

Mixed methods offer a number of advantages over qualitative or quantitative methodologies alone. Mixed-methods methodology is of strategic significance when the research questions require triangulating (Hadi & Closs, 2016). The current research method contains an in-built method triangulation using data from different types of resources. Qualitative research can answer specific research questions that cannot be adequately answered using (only) quantitative designs (Busetto et al., 2020).

Research Method

By the early 1990s, mixed methods turned toward the systematic convergence of quantitative and qualitative databases, and the idea of integration in different types of research designs emerged (Creswell, 2014). The methods that are followed by researchers conducting mixed design methods were differentiated (as summarized by Creswell (2014) such as (a) ways to integrate the quantitative and qualitative data, (b) one database could help explain other database, (c) one database could lead to better instruments, and (d) one database could build on other databases. The method that has been followed when conducting the mixed method design is the convergent parallel mixed method.

Salmon (2016) stated that convergent parallel design involves collecting and analyzing two independent strands of quantitative and qualitative data in a single phase: merging the results of the two strands and then looking for convergence, divergence, contradictions or relationships between the two datasets. Edmonds and Kennedy (2017) explained that the convergent parallel involves the collection of different but complementary data on the same phenomena. Thus, it is used for the converging and subsequent interpretation of quantitative and qualitative data. The convergent parallel mixed method design is used to analyze the effect of the workload on the patients' satisfaction and profitability of the business. Results from the data analysis of a convergent parallel mixed method provided insight into the effect of the high workload and shed light on this phenomenon. The quantitative portion was built on analyzing previously collected data, while the qualitative portion depended on interviewing the participants to extract in-depth data. Parallel-results convergent synthesis design consists of independent syntheses of qualitative and quantitative evidence and an interpretation of the results in the discussion (Hong et al., 2017). This approach is often referred to as the concurrent triangulation design (single-phase)

because the data are collected and analyzed individually but at the same time. The parallel-databases design is structured so that the QUAN and QUAL data are collected separately (not within the same measures) but at the same time (Edmonds & Kennedy, 2017). Creswell (2014) stated that in convergent parallel mixed study, the researcher will first report the quantitative statistical results and then discuss the qualitative findings (e.g., themes) that either confirm or disconfirm the statistical results. Hadi and Closs (2016) stated that convergent design is best suited when the researchers intend to obtain complementary data on same topic for the purpose of triangulation. It also allows researchers to overcome certain weaknesses of one methodology by complementing it with another methodology and gain in-depth understanding of the research problem. The convergent design deployed the qualitative and quantitative methods simultaneously not like other two methods where the result of one will influence the result of other. The goal of using convergent rather than other designs is to give more validity and reliability on the result of the research. The qualitative and quantitative research were conducted separately, with results converged at the end of the study.

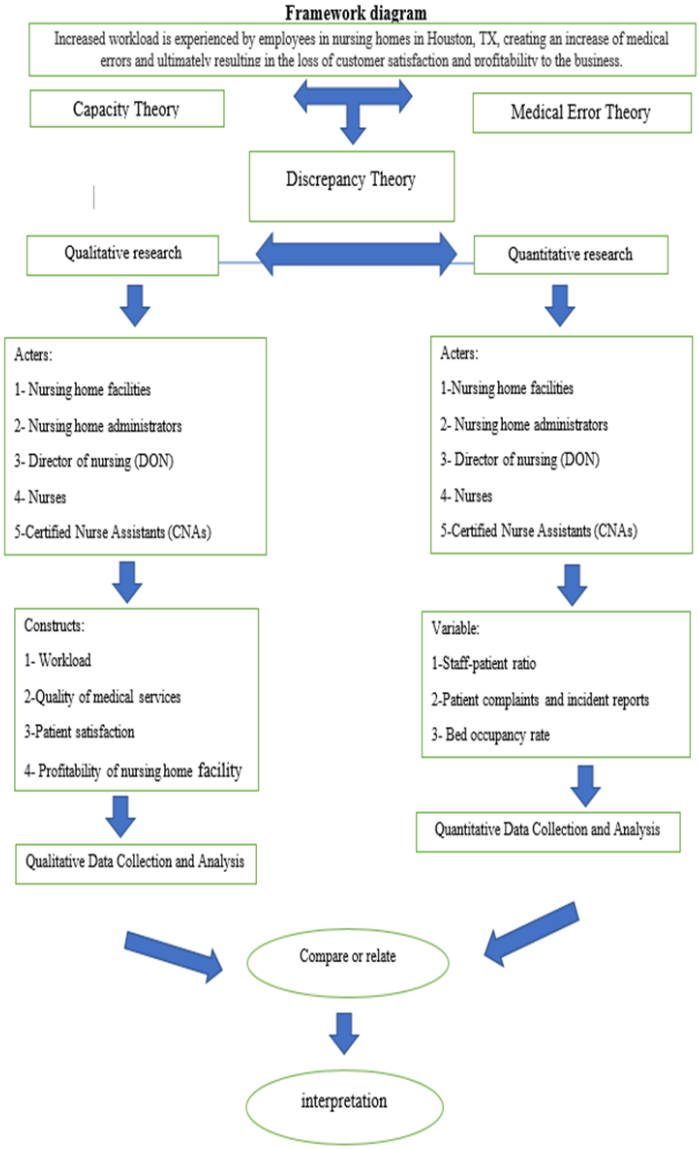
Conceptual Framework

Poor quality of healthcare services is an increasing problem in many nursing homes nationwide and in Houston Texas. This problem is threatening the life of elderly nursing home residents, who are the most vulnerable of the population. Harrington et al. (2020) stated that most nursing homes do not provide sufficient staffing to ensure basic quality. The problem is that the increased workload experienced by healthcare services providers in nursing homes in Houston, TX is potentially creating an increase of medical errors, which is defined by Grober and Bohnen (2005) as deviations from the process of care, resulting in the loss of customer satisfaction and profitability to the business. To address the problem, the convergent parallel mixed methods was

used to investigate the effects of high workload on patients' satisfactions and business profitability. The framework of the convergent parallel mixed method design driven by a pragmatism paradigm provides a comprehensive view of the study. The pragmatism paradigm aligns with the core of the study that reveals the effect of high workload on the provided medical services and business profitability.

Figure 1

Framework Diagram



Concepts

The high amount of workload increases tiredness, which leads to an increase of medical errors. Chang et al. (2019) stated that nurses' workload was shown to be significantly associated with care quality. Barton (2009) stated that there are several important consequences of high workload, which includes patient safety. Buljac-Samardžić and van Woerkom (2018) stated that workload has an adverse effect on quality of care and patient safety in nursing homes. Buljac-Samardžić and van Woerkom (2018) stated that with high workload, caregivers may not have the time to assess the psychosocial and physical status of patients due to limited time and therefore will hinder in providing accurate care and resulting in leaving essential task undone. Consequently, quality of care and patient safety will be diminished.

The increase in the number of medical errors affects negatively on patient satisfaction. Gorgich et al. (2016) stated that the most common causes of medications errors in nursing were tiredness due to increased workload (97.8%). Chang et al. (2019) concluded that the increased workload experienced by healthcare service providers increases the rate of medical errors, which can lead to a loss of customer satisfaction. Bari et al. (2016) stated that these medical errors can have a disastrous effect on patients as well as the institution.

Patient satisfaction affects positively on the profitability of healthcare facilities. Richter and Muhlestein (2017) identified that the patient experience has had a direct financial impact on healthcare organizations as well as the loss of profitability to the business due to increased workload experienced by employees in the healthcare industry. Plaku-Alakbarova et al. (2019) found that the employees' working conditions like job stress, management, and communication were strongly associated with resident satisfaction with the quality of care.

Theories

Capacity theory: in working memory tasks, participants are required to actively maintain information and to also manipulate that information and/or other information. Workload capacity is a quantity required to perform information processing with a reduced capacity, leading to slower processing (Heathcote et al., 2015). The theory of capacity originated from Kahneman in the early 1970s. His theory centered around that human information-processing capacity is limited. Kahneman (1973) stated that the effort increases steadily with increasing demand of the primary task, and that the increase will be insufficient to maintain the performance at a constant level of speed and quality. Kahneman (1973) published Attention and Effort, which summarized over a decade's worth of groundbreaking studies on a variety of aspects of attention, including divided attention, task interference, and the role of perception (Bruya & Tang, 2018). Ruf et al. (2022), regarding the capacity theory, states that capacity shortfalls occur when the workforce is too small. They are most evident when making medium- to short-term personnel scheduling decisions that involve the construction of weekly timetables, and short-term operational planning, such as the daily assignment of tasks. Consolidation includes the stabilization and integration of memory into long-term storage to increase resistance to interference and decay. This process creates enduring structural modification in the brain and thereby has consequential effects on the function by reorganizing and strengthening neural connections. Diverse sources like sleep and stress and the release of neurotransmitters can influence memory consolidation (Sridhar et al., 2023). Capacity theory helps research because it supports the general idea of the effect of high workload on healthcare workers in providing medical services. Bruya and Tang (2018) identified that the capacity theory assumes that there is a general limit on man's capacity to perform mental work.

Discrepancy theory: Discrepancy theory is the study of difference (Jiang et al., 2011). Discrepancy theory has taken psychological evaluation of outcomes into consideration in satisfaction formulation and claims dissatisfied results if the actual outcomes were deviated from the subject's initial expectation. Jiang et al. (2011) stated that expectations and performance delivery perceptions lead to a disconfirmation measure of the discrepancy between expectations and perceived performance. Pascoe (1983) stated that the discrepancy theory includes the subject's perception of what is expected or valued as the baseline of comparing actual outcomes. Ruf et al. (2022), regarding the discrepancy theory, state that when the delivered experience is at odds with the customer's closely held beliefs and values, this creates cognitive dissonance, and instead of happiness, it is supposed to generate unhappiness and disengagement results. The research conducted depended on the discrepancy theory in explaining patient satisfaction formulation. Thus, discrepancy theories define satisfaction as the difference between actual outcome and some other ideal outcome (Pascoe, 1983). Batbaatar et al. (2015) stated that satisfaction is a perceived discrepancy between what patients expect and what they experienced as a proportion of those expectations. Goncalves and Sampaio (2012) explained that customer loyalty is a top priority for firms in light of the fact that repeated purchases of products and services is critical to organizational success and firm profitability. The perceived discrepancy can result in a number of reactions that are emotive or active, including an adjustment or dismissal of the anchor, a change in the perception of accomplishment, or a resulting belief that leads to a particular attitude or action (Jiang et al., 2011). According to Hudak et al. (2004), patient satisfaction is measured according to the discrepancy theory by calculating the difference between patients' rating of the outcome after providing the medical services and their expectations about the outcome before providing medical services.

Medical error theory: Rodziewicz and Hipskind (2020) stated that healthcare organizations need to establish a culture of safety that focuses on system improvement by viewing medical errors as challenges that must be overcome. The medical error theory was developed in 2008 by Gluck (2008). The author reveals the effects of the complexity of work on medical errors. Gluck (2008) recommended that to improve patient safety, one must develop strategies to prevent errors with forcing functions, reduce complexity, providing reminders at the point of care, and that everyone working in healthcare should be alerted to identify and eliminate latent (potential) errors before patients are harmed. Makary and Daniel (2016) defined medical errors as any deviation from the process of care that may or may not cause harm to the patient. Errors in nursing homes may take a number of forms. First, because of the illness acuity level of nursing home residents, a substantial number of drugs are ordered and dispensed daily in this setting (Kapp, 2003). The theory is aligned with the core of the research since it sheds a light on the reflection of workload and patient distraction on increasing the number of medical errors. Karande et al. (2021), regarding the medical error theory, state that lengthy working hours and heavy workloads are being increasingly recognized as factors that cause stress, chronic fatigue, and sooner or later burnout in physicians, residents, and nurses. Burnout in these healthcare professionals is being recognized to result in suboptimal patient care practices and appreciably increase the risk of medical errors (Karande et al., 2021). The theories were considered throughout the study. The mixed methods study supported the conceptual framework concerning the high workload, quality of health care services, and nursing home profitability.

Constructs (Qualitative Approach)

Workload: high workload affected the quality of medical services, patient satisfaction, and healthcare organizations' profitability. Sturm et al. (2019) stated that workload can lead to

more job-related stress and strain, which will effect on patient outcomes. Qualitative interviews will be conducted to address the workload status in the targeted nursing home.

Quality of medical services: The quality of medical services depends on many factors. The study shed a light on how the quality of medical services is affected by the increase of workload. Qualitative interviews were conducted face-to-face to obtain more details about patients' experiences.

Patient satisfaction: high workload affected patient satisfaction, which is what was explored throughout the study. Patients were most dissatisfied when they were not met in a professional manner (Skär & Söderberg, 2018). Qualitative interviews were conducted face-to-face to explore the satisfaction of patients of the provided healthcare services.

Profitability of the nursing home facility: profitability is a measure of efficiency and success. Low quality of health care services leads to a decreasing number of patients, which reflects on the profitability of the nursing home facility. Qualitative interviews were conducted face-to-face to obtain more detailed information regarding the profitability of the nursing homes.

Variable (Quantitative Approach)

Variables may be either independent or dependent. Independent variables influence the value of other variables; dependent variables are influenced in value by other variables. A hypothesis states an expected relationship between variables (Andrade, 2021). The quantitative research has conducted by extracting the data from The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes, the correlation has been measured between three variables: staff-patients ratio (nursing hours per patient), patient complaints, and bed occupancy. The independent variable is something which is not affected by the experiment itself, but which can be manipulated to affect the dependent

variable, while the dependent variable is directly linked to the primary outcome of the study (Kaliyadan & Kulkarni, 2019).

Staff-patient ratio (nursing hours per patient). The nurse-to-patient-ratio (NPR) and the CAN-to-patient-ratio is very critical in providing accurate and on-time medical services. Barton (2009) stated that heavy workload of a major problem for the American health system due mainly to reduce staffing. In the qualitative approach of the research, workload represented as the staffing-patient ratio (nursing hours per patient). Griffiths et al. (2020) stated that the low nurse staffing levels were related to higher reports of missed care. The data were collected from The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes.

Patient complaints and incident reports: these are valuable resources for monitoring the quality of health-care services. Gillespie and Reader (2016) stated that patients can provide reliable data on a range of issues; healthcare complaints have been shown to reveal problems in patient care like medical errors, breaching clinical standards, and poor communication. which is hard to capture through safety and quality monitoring systems. Patients and families who make a formal complaint primarily desire two outcomes: a patient-centric response and system-level quality improvement (van Dael et al., 2020). The data were collected from The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes.

Bed occupancy rate. The study shed light on the effect of high workload on the bed occupancy rate, which mainly affects business profitability. Clement (2016) stated that the occupancy rate is positively associated with higher profitability. The data were collected from

The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes.

The three variables that were mentioned above include: The independent variable was nursing hours per patient per day as an ordinal value, which is reflected as a star rating system from 1 star to 5 stars (to get more accurate data, the Medicare website has provided detailed data of the time provided per healthcare workers to patients (residents) in nursing homes). The dependent variables were patient complaints as a discrete value, and bed occupancy rate as a continuous value. The results were exported from Microsoft® Excel into SPSS for analysis.

Actors

Nursing home facilities: there are approximately 17,000 nursing homes presently operating in the United States, with a total bed capacity of about 1.8 million. Over 90% of nursing home residents are over age 65, and almost half are over 85 (Kapp, 2003). Harrington et al. (2020) stated that more than half of U.S. nursing homes were found to have lower RN, CNA, and total nurse staffing levels than those recommended by experts with one quarter of nursing homes that had dangerously low staffing. Pesis-Katz et al. (2013) stated that consumers choose a nursing home on the basis of the quality dimensions that are easy for them to observe. The research has been done in seven nursing homes. These nursing homes are located all throughout the Grand Houston area, TX, which was the location focused on during this study.

Nursing home administrators: the nursing home administrator is considered the utmost responsible director in the quality of the healthcare services that are provided in the nursing home. Castle et al. (2009) stated that nursing home administrators have a multitude of daily responsibilities, including compliance and regulatory oversight, budgeting concerns, staffing issues, and resident care and satisfaction. Nursing home administrators must make decisions to

protect the financial viability of nursing homes while finding ways to deliver high quality care. This is done through a combination of increasing revenue and decreasing costs (Lord et al., 2018). All administrators also described conscious efforts to provide mental health and coping resources, from support groups and meditation classes to quiet spaces (Franzosa et al., 2022). The data were collected from interviewing these employees was valuable, especially data regarding the quality of healthcare indicators, business profitability, profit trends, patients' complaints, medical errors, and staffing policy.

Director of nursing (DON): DONs focus on supervising the quality of the medical services and give directions to other direct medical providers in the nursing department. Krause (2012) stated that the directors of nursing (DON) are central to quality of care in nursing homes (NH) because of their role in coordinating and overseeing nursing care. The DONs are considered a good source for the study because they overview the quality of health services and handle clinical incidents and patients' complaints.

Registered nurses (RNs) and licensed vocational nurses (LVNs): nurses work in shifts to provide patient care around the clock and are considered the primary gatekeepers of clinical observations, nursing interventions, treatment, and management of patient care (Choo et al., 2010). Nurses provide direct health care services like giving medication, inserting IV lines, withdrawing blood, charting, and many other medical services. Nurses are considered a very good source of the subject of the study, especially since they can provide more detailed information on how high workload affects their performance.

Certified nurse assistants (CNAs): CNAs provide 80% to 90% of the care to residents in nursing homes (Pennington et al., 2003). CANs play an important role in providing other kinds of health services like patients bathing, feeding, transferring, and cleaning. The CNA are

considered a very good source of the subject of the study especially since they can provide more detailed information on how high workload affects their performance.

Relationship Between Concepts, Theories, Actors, Constructs, and Variables

The goal of the research is to explore the effects of the high workload of nursing home employees on the quality of the health care services and patient satisfaction, and how said quality and level of satisfaction is reflected on the profitability of the nursing homes. Many theories were considered to articulate the vision of the research. The capacity theory explains the effect of workload on the performance of workers. The medical error theory aligns with the capacity theory since it reveals the effect of the complexity of work and the high workload on the quality of the medical services provided. While the discrepancy theory proposes that the deviation forms, the expectation will develop dissatisfaction. For the sake of exploring the deep end of the problem, a mixed study method was conducted by applying qualitative and quantitative research parallel. The results of both parallel studies (qualitative and quantitative) had been converged together at the end of the study to represent the conformity between the results of the two approaches. Nursing home administrators, directors of nurse departments, nurses, and nurses' assistants were interviewed. The recorded answers to the open-ended interview questions have been coded to organize the data regarding workload, quality, and patient satisfaction. The quantitative research was conducted by extracting the data from The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes. The correlations were measured amongst three variables: staff-patients ratio represented by nursing hours per patient (independent variable), patient complaints (dependent variable), and bed occupancy (dependent variable).

Definition of Terms

Some of the used terms could be unfamiliar to the reader, the rest will be defined through the context of the research. The definitions below will help readers to understand the terminology of the study.

Bedridden patients: loss of mobility is associated with a persistent decline in function and physical activity and is a risk factor for pressure ulcers, falls, urinary incontinence, and malnutrition (Gattinger et al., 2017).

Burnout: The National Academy of Medicine (NAM) defines burnout along three dimensions: emotional exhaustion, cynicism, and a low sense of personal accomplishment (Vuong, 2020).

CMS: The Center for Medicare and Medicaid services is an agency within the United State Department of Health and Human Services that controls the national health care programs. DeWalt et al. (2005) state that the CMS finances health care for more Americans than any other single entity; the agency has a responsibility to its beneficiaries to ensure that they receive quality, effective, and efficient health care.

High workload effects: high workload has been shown to be negatively associated with multiple health measurements, such as job satisfaction, mental well-being, job strain, depression, distress, fatigue, and emotional exhaustion (Sjöberg et al., 2020).

Patient satisfaction: Patient satisfaction surveys are often used to understand patients' concerns and determine areas for improvement (Thornton et al., 2017). Patient satisfaction is an important and commonly used indicator for measuring the quality of health care. Patient satisfaction affects clinical outcomes, patient retention, and medical malpractice claims (Prakash, 2010).

Assumptions, Limitations, Delimitations

High workload in nursing home facilities is very common and relates to many factors. The scope of the study is to focus on the effects of workload on patients' satisfaction and its reflection on the profitability of nursing home facilities in Houston, Texas. There are many items that could be taken into consideration when measuring the patient's satisfaction, such as patients' complaints. Workload factors at multiple levels were indirectly related to higher reports of physical and emotional workplace violence through the mechanism of patient/family complaints (Havaei & MacPhee, 2020). These are the study assumptions: (a) acquire honest and truthful answers to the desired research questions, (b) limit the bias in collecting, analyzing, and presenting the data, (c) the parallel convergent mixed method design will provide more authentic and stronger support to the final results of the study, and (d) participants of the study who agreed to fill the survey are considered to have filled out an implied consent. Limitations represent weaknesses within the study that may influence outcomes and conclusions of the research (Ross & Bibler Zaidi, 2019). The limitations of the study are: (a) the skills that researchers have to acquire to handle the collection and analysis data and (b) choosing the sample and the participants. The delimitations describe the boundaries of the study, like the work setting of the participant healthcare workers that are working in a fast-paced environment. Creswell (2014) stated that the delimitations help to further define the parameters of the research study.

Assumptions

The convergent mixed method research study implies many important assumptions. The key assumption of this approach is that both qualitative and quantitative data provide different types of information—often detailed views of participants qualitatively and scores on instruments quantitatively—and together they yield results that should be the same (Creswell,

2014). In recent years, mixed methods research has grown rapidly in health-related research. As an emerging research methodology, mixed methods research has much to offer to doctoral researchers in health care, who are increasingly faced with complex research issues (McKenna et al., 2021).

The first assumption is to get the honest and truthful answers to the desired research questions. This will be done by providing an environment of confidentiality and trust with the sample participants and providing full explanations of the purpose of the research before moving on to the in-person interview phase. If an honesty message is posed in the form of questions that precede sensitive questions, this may put the sensitive questions in context with the questions on honest responds (Vésteinsdóttir et al., 2019).

The second assumption is that the protocol and the way of collecting the data will be free of bias. Pannucci and Wilkins (2010) stated that bias occurs when systematic error is introduced into sampling or testing by selecting or encouraging one outcome or answer over others. An essential idea in eliminating the bias is to understand the source that the bias can initiate from. Bias can occur in the planning, data collection, analysis, and publication phases of research (Pannucci & Wilkins, 2010).

The third assumption is implemented in the type of study. The parallel convergent mixed method design will provide more authentic and stronger supportive to the founded result of the study. Fetters et al. (2013) stated that in a convergent design (sometimes referred to as a concurrent design), the qualitative and quantitative data are collected and analyzed during a similar timeframe. During this timeframe, an interactive approach may be used where iterative data collection and analysis drives changes in the data collection procedures. Examining the data for reliability and validity assesses both the objectivity and credibility of the research. Validity

relates to the honesty and genuineness of the research data, while reliability relates to the reproducibility and stability of the data. Utilizing in-person questions with high construct validity can reduce measurement error (Smith et al., 2019).

Limitation

The researcher should have an appropriate skill when running a mixed design, especially when both of the qualitative and quantitative are not following the same method of data collection. Without appropriate research skills to manage the multiple points of integration, the overall research study can seem unfocused or disjointed (Kajamaa et al., 2020). McKenna et al. (2021) stated that researchers need to possess the relevant quantitative and qualitative skills to be able to conduct all aspects of their research with integrity in a timely manner. A quantitative research study collects numerical data that must be analyzed in sake of drawing the research conclusions. Albers (2017) stated that learning quantitative data analysis is not learning number crunching but learning a way of critical thinking for how to analyze the data. The goal of data analysis is to reveal the underlying patterns, trends, and relationships of a study's contextual situation. Albers (2017) stated that learning quantitative analysis should focus on three aspects: Making sure the variables are relevant to the study question, assuring they are collected in a manner that supports the analysis, and determining the analysis method from the early design stage, learning how to perform an exploratory analysis to understand what the data contains, and learning how to perform a statistical-based data analysis. The goal of statistical data analysis is to tease out and understand data relationships. SPSS software, which is the most used data analysis software, was used for quantitative data analysis. SPSS, if used correctly, gives an appropriate result for data that has been entered, and the knowledge of what had been done previously is given. The quantitative research was conducted by extracting the data from The Centers for

Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes and the correlation was measured between three variables: the staff-patient ratio (nursing hours per patient per day), patient complaints, and bed occupancy.

Austin and Sutton (2014) stated that qualitative research involves asking participants about their experiences of things that happen in their lives. It enables researchers to obtain insights into what it feels like to be that person and to understand the world as others experience it. Interviews as "open-ended questions and probes yielding in-depth responses about people's experiences, perceptions, opinions, feelings, and knowledge (Austin & Sutton, 2014). Structured interviews have been conducted, and a set of questions has been determined before interviewing the participants. The collected raw data from interviewing the participants has been coded and converted into usable data through the identification of themes, concepts, and ideas that have connections to each other. The participant answers to the in-person interview questions were cross analyzed to better represent emerging thematic codes. The analysis of data was done by using thematic analysis, which supported theme development while staying grounded in the data.

Moser and Korstjens (2018) stated that the sampling plan is appropriate when the selected participants and settings are sufficient to provide the information needed for a full understanding of the phenomenon behind the study. The qualitative section of the study is built on interviewing a set of healthcare workers who provide different kinds of medical services, varying from direct patient care, like Nurses (Registered Nurses, Licensed Vocational Nurses) and CNAs (Certified Nurses Assistants), to higher management positions, like Directors of Nursing (DONs) and Nursing Home Administrators. The sample size should be chosen to address the qualitative question of the study. The purpose of using the in-person interview methods is to allow participants to share in-depth perspectives and experiences regarding the

provided healthcare services. The number of participants is therefore dependent on the richness of the data, and more than 15 cases can make analysis complicated and "unwieldy" (Austin & Sutton, 2014).

Because of the sensitivity of the research (exploring the feedback of the participants about crucial items like workload and satisfaction), some of the participants could hesitate to participate in answering or completing the in-person interview questions. Even if only a small number of participants use the feedback option to "ventilate" negative feelings about the study or about certain questions, this can also help to explain why participants drop out after a few questions, or why other individuals chose not to participate at all (Decorte et al., 2019). Then, before the interview began, participants received a full explanation of the goal of the research to gain the utmost participation and cooperation. Smith and Fogarty (2016) stated that it is important that potential study participants are appropriately informed and understand what is involved with their research participation, with an explanation on the benefits of how the research could participate in improving healthcare services. Ethically, all participants should consent to participate and analyze the data without bias. Gupta (2017) stated that the most common concerns that arise in research studies include ensuring anonymity, maintaining confidentiality, and obtaining informed consent. Transparency and confidentiality are required to reach the best feedback from the participants. Explicit assurance of confidentiality can improve data quality (Plutzer, 2019).

Delimitations

The scope of the study focused on the effects of the high workload on the quality of healthcare services and the profitability of nursing homes located in Houston, Texas. Participants were chosen to participate in the research based on their department (management, nurses,

nurses' assistants). As an example, the study excluded rehab health care providers, kitchen workers, housekeeping, and even pharmacy workers. The reason behind that is that most nursing homes outsource these services and are not involved directly in the staffing process regarding these departments. Chen (2018) stated that in a typical skilled nursing facility (SNF), numerous parties exchange goods and services in the delivery of care. Specifically, resident care is rendered through a complex series of transactions among various parties, including, but not limited to physicians, pharmacists, equipment distributors and manufacturers, rehabilitation therapists, laboratorians, and dieticians. Then, before starting to survey the nursing homes' employees and patients, they should be in a full understanding of the main reasons for the survey and the research subject to gain the utmost participation and cooperation. Smith and Fogarty (2016) stated that it is important that potential study participants are appropriately informed and understand what is involved with their research participation, with an explanation on the benefits of how the research could participate in improving healthcare services. Ethically all participants should consent to participate and analyze the data without bias. Gupta (2017) stated that the most common concerns that arise in research studies include ensuring anonymity, maintaining confidentiality, and obtaining informed consent. Transparency and the confidentiality are required to reach the best feedback from the participants. Explicit assurance of confidentiality can improve data quality (Plutzer, 2019).

Significance of the Study

The significance of the study was to understand the phenomena of high workload and its effects on the residents and the nursing home facilities in Houston, Texas. The intention was to provide more in-depth information on how much high workload will reflect on the quality of medical services and finances of the nursing homes. The result helps the nursing homes' decision

makers when reviewing their staffing policy and opens the door to expanding the vision of the staffing process as well as shades light on long-term affections of high workload. The study added to the literature on the nursing home staffing process and examined its effects on the profitability of the interviewed facilities.

Reduction of Gaps in the Literature

Many high-quality nursing homes exist, and meaningful gains have been made, but low quality and understaffing remain endemic (Konetzka, 2020). With the withdrawal of federal agencies getting involved in the staffing policies that nursing homes could apply, the staffing process still depends on the decision of the higher management team, which is directed mainly to cut costs and decrease expenses. Sofer (2017) stated that the latest revision of regulations for long-term care facilities by the Centers for Medicare and Medicaid Services (CMS) calls for nurse staffing to be determined by factors such as the number of residents at a facility, their diagnoses, and staff competencies than by mandatory staffing ratios. All the nursing home facilities should be incompliance with the federal agency (which delegated the authorities to the CMS and the State agencies to enforce its regulations) in sake of receiving payment from Medicare and Medicaid. Unroe et al. (2018) stated that nursing homes are a highly regulated setting of care and are regularly visited by both Federal and State surveyors. Harrington et al. (2020) stated that nurse staffing is one of the primary cost components for nursing homes. It is common for nursing homes to keep staffing costs as low as possible to maximize profits.

Most of the past literatures who tackled healthcare's heavy workload focused on its effects on patient's safety and quality of health care. A large body of research has examined the quality of nursing home care and associations with resident, organizational, and market characteristics as well as state and federal policies in an effort to identify possible pathways to

quality improvement (Konetzka, 2020). Buljac-Samardžić and van Woerkom (2018) stated that the stress of workload has negatively impacted patient safety and may lead to issues such as infections, patient falls, medication errors, and patient mortality. Low nurse staffing levels are associated with adverse outcomes, most notably mortality (Griffiths et al., 2018). Quality of care is typically conceptualized and operationalized in terms of resident outcomes (e.g., admissions to the hospital, pressure ulcers, falls, infections, or satisfaction; Konetzka, 2020). Sarafis et al. (2016) stated that a nurses' occupational stress, which is likely a result from understaffing, will increase incidences of practice errors and lower the quality of care. MacPhee et al. (2017) stated that job-level heavy workload demands, and task-level interruptions involve externally imposed time pressures and mental exertion that negatively influence patient and nurse outcomes.

Implications for Biblical Integration

The number of Americans over the age of 65 is currently increasing much faster than the overall population's growth rate. These changes can be largely attributed to the improvement in life expectancy (Chiu & Pinto, 2018). Due to the aging situation, the use of medical services for elderlies is exceeding the rest of the population, which, therefore, puts more pressure on the healthcare system. With an increasing aging population worldwide, there is a need for greater focus on the spirituality of older people, to better support them and lead them to an enhancement of their inner peace (Lepherd et al., 2020). Christianity is a monotheistic religion based on the life teachings and miracles of Jesus Christ. With the attainment of eternal life with God at the heart of most Christian beliefs, the acknowledged relationship between death and religion is not surprising (Choudry et al., 2018). Oberholzer (2019) stated that spirituality and healthcare have depended on and supported one another from the earliest times. Patients all over the world seek the services of faith healers for all kinds of ailments, including social and psychological issues

(Peprah et al., 2018). The nurse–patient relationship is understood as the basis for transforming the patient illness experience into one of patient and family gaining knowledge and experience that fosters health (Pfeiffer, 2018). Christian healthcare workers providing medical services with faith of the lord will help patients into a better situation. Do not forget to do good and to share with others, for with such sacrifices God is pleased (Hebrews 13:16). A Christian nurse's listening reflects the love of the God who knows each of his creation for the uniqueness, the gifting, and needs- the nurse discerns what will help move this particular person forward in the healing process (Pfeiffer, 2018). Let us not become weary in doing good, for at the proper time we will reap a harvest if we do not give up (Galatians 6:9).

Benefit to Business Practice and Relationship to Cognate

The result of the study explores the effect of work overload on patient satisfaction and the profitability of nursing homes. The workload will affect the employees' performance and the turnover rate (Inegbedion et al., 2020). The higher quality as gauged by better outcomes was associated with higher costs (Carey et al., 2018). Financial performance or profitability is the result of revenues and costs, and organizations may improve profitability by increasing revenues, decreasing costs, or both (Weech-Maldonado et al., 2019). Weech-Maldonado et al. (2019) stated that nursing homes must balance the challenge of delivering high-quality care while remaining financially solvent in this turbulent environment.

The cost of medical services in the nursing home consists of direct and indirect costs. The direct costs are attributed directly to patient care like nursing (RNs, LVNs, CNAs), drugs, rehabilitation services, laboratory cost, radiology services, and medical supplies. The direct cost is considered more flexible than the indirect cost, which makes direct costs more applicable to be managed and controlled by the management team. For-profit medical facilities to cut the cost and

increase their profit margin, they minimize the number of employees/staff and get benefit of lower personnel costs (Jeurissen et al., 2021). Burke and Werner (2019) stated that the Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes are calculated using three aspects of quality: (a) annual inspection and complaint survey data, (b) nurse staffing hours per resident day, and (c) resident quality measures based primarily on facility-reported data. The compare website plays an important role in leading patients to choose which facility they are headed to. Bougnol and Dulà (2021) stated that the Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system effectively summarizes large amounts of data and information, simplifying the consumer's decision-making process, and spotlighting excellence. In addition of the loss of businesses due to low rating scores, the nursing homes that struggle in providing good quality medical services have to face penalties and fines forced from the federal and state agencies for unfollowing the federal regulations. Harrington et al. (2020) stated that the enforcement of existing laws and regulations for nursing homes, using sanctions including monetary penalties, holds of admissions and denial of payments, and termination from the Medicare and Medicaid programs remains grossly inadequate.

Review of the Professional and Academic Literature

Healthcare System in the United States

Health is a relative state in which one is able to function well physically, mentally, and spiritually to express the full range of one's unique potentialities within the environment in which one lives (Svalastog et al., 2017). A healthcare system consists of all organizations, people, and actions whose primary intent is to promote, restore, or maintain health. This includes the efforts to influence determinants of health as well as more direct health improvement

activities (Griffin, 2016). Healthcare systems globally have experienced intensive changes, reforms, developments, and improvement over the past 30 years. Multiple actors (i.e., governmental and non-governmental) and countries have played their part in the reformation of the global healthcare system (Durrani, 2016). All health care systems have five major components: the facilities where health care is provided, the healthcare workers, the medical products, such as pharmaceutical and medical supplies, education and research institutions, and the financing mechanisms (Goldsteen et al., 2020). In a universal health care system, finance and delivery are interrelated and complementary. In the United States, on the other hand, finance and delivery are mostly separate and distinct (Ameringer, 2018).

Although the United States spends more on health care than any other comparable nation, Americans are less healthy than citizens of high-income countries that spend far less (Corso et al., 2018). The U.S. healthcare system differs from those other developed countries in three notable ways: It relies on multiple sources of private financing, it covers less of the population, and it costs much more (Camillo, 2016). Buntin (2021) stated that high healthcare prices might be less of a problem if the U.S. healthcare system was uniformly delivering high-quality care and yielding high value. The United States does prioritize health as a society and voters are reluctant to endorse solutions that limit access to the latest innovations in health care. However, a fundamental shortcoming in the U.S. healthcare system is the tendency to create and perpetuate incentives to deliver higher-margin treatments and specialty care instead of primary care, preventive care, and public health. The elderly (age 65 and over) made up around 13% of the U.S. population in 2002, but they consumed 36% of the total U.S. personal health care expenses. The average health care expenses in 2002 was $11,089 per year for elderly people but only $3,352 per year for working-aged people (ages 19-64; Goldsteen et al., 2020). The vast array of

the institutions includes 5,686 hospitals, 15,663 nursing homes, almost 2,900 inpatient mental health facilities, and 15,900 home health agencies and hospices (Shi & Singh, 2017). Texas had the fourth largest aged population, with 3.6 million residents 65 and older (Angel et al., 2019).

A remarkable feature of the U.S. health care system is that it largely evolved in the absence of any strong role of government (Almgren, 2018). For decades, U.S. taxpayers have been lamenting the high cost of health care. Since the mid-1980s, Americans have had double-digit spending on health care. Despite this investment, Americans are less healthy than their European and Scandinavian counterparts across an array of health measures (Bradley et al., 2017). Although the United States leads the world in health care spending, it fares far worse than its peers in coverage and most dimensions of value (Crowley et al., 2020). Americans spent $3.2 trillion on healthcare (almost $10,000 per person on average) in 2015, accounting for 17.8% of U.S. gross domestic product (GDP), and the percentage will increase to 20.1% of the GDP by 2025 according to the Center for Medicare & Medicaid Services (CMS; Branning & Vater, 2016). In the United States, between 1960 and 2019, healthcare spending as a percentage of U.S. Gross Domestic Product (GDP) grew from 5% to 17.7%, reaching $3.8 trillion in 2019 (Harrill & Melon, 2021).

Currently, the United States is the only wealthy industrialized country that has not achieved universal health coverage. The nation's existing health care system is inefficient, unaffordable, unsustainable, and inaccessible to many (Crowley et al., 2020). The proportion of the population with health insurance was 90% in the United States, lower than other developed countries (range, 99%-100%) and the United States has the highest proportion of private health insurance (55.3%; Papanicolas et al., 2018). According to a Gallup report (2018), 13.7% of U.S. adults were uninsured in the last quarter of 2018. This represents a 2.8% increase since 2016

when the percentage of uninsured adults stood at its lowest—10.9%, an increase of 2.8% represents about seven million adults (Sofer, 2019). Many Americans cannot afford health insurance, and even those with insurance face substantial cost-related barriers to care (Crowley et al., 2020). The United States spent approximately twice as much as other high-income countries on medical care, yet utilization rates in the United States were largely similar to those in other nations. Prices of labor and goods, including pharmaceuticals and administrative costs, appeared to be the major drivers of the difference in overall cost between the United States and other high-income countries (Papanicolas et al., 2018).

The waste in health care is estimated between one-quarter and one-half (the aggregate waste in medical care is about six percent of GDP) of medical spendings without being associated in improving health care services (Cutler, 2018). The high cost of pharmaceuticals considered one of the major financial burdens that Americans face today and creates barriers to medication access that almost eight percent of Americans do not take their medications as prescribed because of the overwhelmingly high cost (Garness, 2019). The most important factor that allows manufacturers to set high drug prices is market exclusivity, protected by monopoly rights awarded upon the Food and Drug Administration approval and by patents (Kesselheim et al., 2016). Compared with peer countries, the United States spends about 200% more per capita on prescription drugs (Crowley et al., 2020).

For pharmaceutical costs, spending per capita was $1443 in the United States vs a range of $466 to $939 in other countries (Papanicolas et al., 2018). Physicians and hospitals in the United States spend much more than their counterparts elsewhere on administrative activities (Crowley et al., 2020). Administrative costs of care (activities relating to planning, regulating, and managing health systems and services) accounted for 8% in the U.S. vs a range of 1% to 3%

in other countries (Papanicolas et al., 2018). Salaries of physicians and nurses were higher in the United States (e.g., generalist physicians' salaries were $218,173 in the United States compared with a range of $86,607 to $154,126 in the other countries; Papanicolas et al., 2018). The rate of growth in administrative costs in the United States has outpaced that of overall health care expenditures and is projected to continue to increase without reforms to reduce administrative complexity (Tseng et al., 2018). The United States is in the midst of a 40-year-long population health crisis. Life expectancy has declined since 2014, an unprecedented event that has followed on the heels of a decades-long slowing in secular gains in longevity in the United States, relative to peer countries (Venkataramani et al., 2020). The United States is being pulled apart as a country, separating into the simple categories of either rich or poor. Every dollar that is spent on medical care is one less dollar available for addressing the problems of an unequal society, and one more dollar that is difficult for much of the population to pay (Cutler, 2018).

Fraud and abuse contribute to unnecessary spending in the Medicare program, and federal agencies have prioritized recovery and the exclusion of health care practitioners who violate the policy (Nicholas et al., 2020). In 2018, $3.6 trillion was spent on health care in the United States and the estimated losses due to fraud range from 3% to 10% of total spendings. There would, of course, be significant variations across individual states (Goel, 2021). Health care fraud and abuse involve all sectors of the health care industry, including drug and device manufacturers, hospitals, pharmacies, physicians, wholesalers, distributors, laboratories, and payers (Mackey et al., 2020). Although Medicare fraud and abuse are typically viewed by policy makers as financial problems, fraud and abuse perpetrators engage in a number of activities that could also harm patient health. Many crimes are prosecuted as fraud because they involve billing insurance Medicare for unnecessary or unsanctioned services and also jeopardize patient's well-

being (Nicholas et al., 2020). The impact of healthcare fraud is significant and wide-reaching. Fraud will soon and increasingly impact us; insurance holders pay higher premiums and out-of-pocket expenses and also receive reduced benefits and coverage; businesses who pay increasing amounts to provide healthcare to their employees, which results in the overall increased cost of doing business, and taxpayers who pay more to cover healthcare expenditures in public health plans (Stowell et al., 2018).

Life expectancy is a key summary measure of the health and wellbeing of a population. A nation's life expectancy reflects its social and economic conditions and the quality of its public health and healthcare infrastructure among other factors (Ho & Hendi, 2018). The United States life expectancy has increased for the majority of the past 60 years, but the rate of increase slowed over time and life expectancy decreased after 2014. A major contributor has been an increase in mortality from specific causes (e.g., drug overdoses, suicides, organ system diseases) among young and middle-aged adults of all racial groups (Woolf & Schoomaker, 2019). Life expectancy in the United States was the lowest of the developed countries at 78.8 years, and infant mortality was the highest (5.8 deaths per 1000 live births in the United States; Papanicolas et al., 2018). The recent trends in the United States suggest that we have experienced a break from the trajectory of continued gains in life expectancy. In December 2017, the U.S. National Center for Health Statistics reported that the country experienced a decline in life expectancy between 2014 and 2016 by 0.3 years (Ho & Hendi, 2018). A total of 250,000 or more unnecessary deaths per year due to errors were reported in 2016. The outcomes of the fragmented health care system in the United States accounted for 100 million medication errors per year as revealed by studies in 2000 (Anderlini, 2018).

Shortages of Healthcare Workers

The supply of health workers can be defined as the number of people with the skills and qualifications to provide care, who are willing to work in the health sector (Scheffler & Arnold, 2019). A talented, qualified, engaged, and diverse workforce is at the heart of America's healthcare system. However, health systems now face mounting and critical staffing shortages that could jeopardize access to care in the communities they serve (Jaca et al., 2022). The shortage of healthcare workers is viewable in many countries, including developed countries such as the United States of America, and is attributable to a number of factors such as an increase in chronic diseases and conflict, brain drain in the case of developing countries, and concentration of such workers in urban areas (Miseda et al., 2017). Healthcare workforce projections have important implications. The most publicized physicians supply and demand projections, commissioned annually by the Association of American Medical Colleges, regularly predict dire physician shortages (Morgan, 2014). The current size of the physician workforce is struggling to meet the demand of an unhealthy and aging population (Corso et al., 2018). The American Association of Medical Colleges projects that United States will face a shortfall of 67,000-94,7000 physician by the year of 2025 (Corso et al., 2018). These shortages are expected to persist and will become a shortage of up to 3.2 million healthcare workers by 2026 (Jaca et al., 2022).

Drennan and Ross (2019) stated that shortages of nurses occur when demand for nurses outstrips the numbers of nurses available for employment. Due to aging population growth, and greater insured population following the Affordable Care Act (ACA), healthcare workers availability to patients has been recognized as one of the top barriers to meet the needs of the healthcare patients in the United States of America (Zhang et al., 2020). The National Council of

State Boards of Nursing (NCSBN, 2020) reports that there are more than four million RNs in the United States (Spurlock, 2020). Even with the high number of health care workers compared to the rest of the countries, the United States still suffers from nurse shortages. There will be significant RN workforce shortages throughout the country in 2030; the western region will have the largest shortage ratio of 389 RN jobs per 100,000 (Juraschek et al., 2019). The United States needs more than 200,000 new registered nurses (RNs) each year to meet increasing healthcare needs and to replace nurses entering retirement. In 2017, more than half of all nurses were age 50 or older, and almost 30% were age 60 or older. Workforce pressures also exist across a variety of allied health professions. According to one recent survey, the annual turnover rate of hospital-certified nursing assistants (CNAs) was 27.7% (Jaca et al., 2022). Tamata and Mohammadnezhad (2023) stated that although strategies have been implemented in the past to address the issues, the shortage of nursing is still evident.

Marć et al. (2019) stated that global demographic changes have led to a systematic increase in the elderly population and a decreasing number of births, which has impacted health policy and healthcare systems in various countries. There is clearly an inability of the educational system to cover the national demand. Abeliansky et al. (2020) stated that Americans develop five percent more health deficits per year, that men age slightly faster than women, and that, at any age above 50, Caucasians display significantly fewer health deficits than African Americans and a steady time trend of health improvements.

The other problem that could exaggerate the situation of the shortage of healthcare workers is the insufficient educational facilities to cover the increased demand. Unlike many other healthcare professional programs with standardized educational requirements for entry to practice, nursing has multiple educational programs for registered nurses: (RN): hospital or

diploma school program, a 2-year junior college or associate degree (AD) program, and a four-year baccalaureate or university program leading to a Bachelor of Science in Nursing (BSN) degree (Iheduru-Anderson, 2021). It has been established that patient outcomes improve as the percentage of the RNs who have a bachelor's degree (BSN) at the bedside increases (Anbari, 2019). The American Association of Collages of Nursing (AACN) and the Institute of Medicine's recommend that baccalaureate level education in nursing become the minimum educational requirement for professional nursing practice (Iheduru-Anderson, 2021). Financial constraints, not having enough time, and competing priorities are significant barriers identified by prospective students for moving to complete their (BSN) degree (Anbari, 2015). The number of doctors and nurses in a country is a function of (1) the number of graduates, (2) the import or export of health workers, and (3) deaths and retirements of health workers (Scheffler & Arnold, 2019). The healthcare workforce itself is aging, which increases the demand for the healthcare services. In addition to the strategy to educate and train domestic healthcare professionals, the United States try to attract healthcare workers from abroad to meet the growing demand (Schilgen et al., 2017). The United States suggests emigration is an important source of healthcare worker shortages (Owusu et al., 2017).

Texas is on the top of the list of the fastest-growing states in the United States of America. In the next 10 years, Texas's population will increase by 22%. Furthermore, by 2030, the aging population will increase to 55% in Texas (Zhang et al., 2020). Marć et al. (2019) stated that the education of future nursing staff is limited by the number of faculty places available and the insufficient number of qualified educators.

Regulations Governing the Healthcare System

Since 1953, the U.S. Department of Health and Human Services (DHHS) has been led by an official who reports directly to the President as a Cabinet member. The DHHS is the executive branch department responsible for the portion of American healthcare that is federally controlled (i.e., much of American healthcare is not federally regulated; Young & Smith, 2024). The DHHS consists of numerous appointed officers (such as the surgeon general) and eleven operating divisions, which include the Food and Drug Administration (FDA), the Centers for Disease Control (CDC), the Centers for Medicare & Medicaid Services (CMS), and the Agency for Healthcare Research and Quality (AHRQ). The AHRQ, which also interacts with the U.S. Congress, oversees a network of Patient Safety Organizations (PSOs) and the Network of Patient Safety Databases (NPSD). It funds the United States Preventive Services Task Force (USPSTF), created in 1984 (Young & Smith, 2024). For decades, healthcare reform has been front and center in public and political forums, driven in large part by concerns about access, cost quality, and economic burden placed on patients, employers, and payers (Warner et al., 2020).

Through regulation, government is able to encourage organizations to set their quality agendas and to measure outcomes, as long as the target of improved quality is reasonable (Sari, 2017). In the United States, public policies may be enacted by federal, state or local governments. Typically, public policies are created by a lower level of government (e.g., local) must comport with policies created by higher level of government (e.g., state; Young & Smith, 2024). At both the federal and state level of government, the legislature and executive (the President or Governor and their administration) originate health policies in various forms, the former through legislation and budget appropriations and the next through legislative proposals, budget proposals, implementing regulations, sub-regulatory guidance, and administrative

decisions (Camillo, 2016). Legally binding policies fall into three primary categories: legislation, regulation, and litigation. Legislations are created from U.S. Congress, state general assembly, or city councils. Regulations are promulgated by federal, state, or local administrative agencies in sake of adding specificity to the legislations. Litigations refer to the body of public policy created through judicial opinions (Young & Smith, 2024).

Social Security Act

The original Social Security Act, as passed in 1935, consisted of 11 titles enacting the program authorizing the necessary taxes, and establishing the administrative mechanism of the act (Allen, 2016). The Social Security Act developed a new general welfare scheme for social security and an insurance against unemployment. It targeted particularly vulnerable groups, such as the elderly, unemployed, dependent children, maternal and child welfare and public health work (Galofré-Vilà, 2023). The major amendment affecting the nursing home industry were added in 1965, with the pass of Title 18, known as Medicare. One year later, Title 19 was passed, known as Medicaid (Allen, 2016). While Medicare and Medicaid were both established by the Social Security Amendments of 1965, the implementation and financing structures of each program are dramatically different (Piatak, 2017). Medicare is implemented at the federal level, while the responsibility for implementing Medicaid has been left to individual states (Piatak, 2017). Federal rules are of overriding importance to the nursing home industry because, directly or indirectly, most nursing homes comply with them, especially if they expect to be reimbursed for services to Medicare or Medicaid patients (Allen, 2016). Nursing homes are integral to the efficient and effective functioning of the healthcare system through their roles as providers of short-term post-acute services and long-term care (Unroe et al., 2018).

Medicare

In 1965, President Johnson signed into law the creation of Medicare and Medicaid as amendments to the Social Security Act. Medicare was established by Title XVIII of the Social Security Act (Piatak, 2017). Medicare went into effect in 1966 for individual aged 65 and older, regardless of health or income (Huffman & Upchurch, 2018). Medicare has provided coverage to elderly U.S. residents for more than five decades. The broad-based program now covers more than 60 million people, the majority of whom have chronic conditions and some of whom are disabled, institutionalized, or both (Jacobs, 2021). Elderly individuals qualify if they are a U.S. citizen or a permanent legal resident and the individual or his or her spouse has worked and paid into the Social Security and/or Medicare system through Federal Insurance Contributions Act (FICA) taxes (Piatak, 2017). One of the major objectives to Medicare for all is that it would be mandatory and would be administered by the federal government (Dalen et al., 2019).

Medicare has subsequently grown to cover other group of individuals, including those who are younger than 65 and permanently disabled, as well as any individual diagnosis with amyotrophic lateral sclerosis or end stage kidney disease (Huffman & Upchurch, 2018). The Medicare program covers most persons age 65 or older and consists of four related health insurance plans: a hospital insurance plan (called Part A); a supplementary medical insurance plan (Part B); and two privately run plans, Medicare Advantage (Part C) and prescription drug coverage (Part D; Mazie, 2024). Medicare Part A covers only services deemed medically necessary like inpatient hospital stay, skilled nursing facility care (semi-private room, meals, skilled nursing, and rehabilitative services), home health services, and hospice care (Overview of Medicare Parts A-D, 2009). Medicare funds long-term care only temporarily and tangentially by covering nursing home- based rehabilitation after hospital discharge (Werner et al., 2020). The

program's rapid and unanticipated growth spurred the federal government to legislate various cost-containment measures beginning in the 1970s, notably one in 1983 that set standard payments for the care of patients with a particular diagnosis. Part C was enacted in 1997 and went into effect in 1999. It was later restructured with Part D, and both were enacted in 2003 and went into effect in 2006 (Mazie, 2024).

Medicare covers a different set of services than private insurance, and in the case of routine dental care, for example, the traditional Medicare fee-for-service program does not provide any coverage (Jacobs, 2021). Nursing home facilities are covered 100% by Medicare Part A for eligible patients for the first 20 days following hospitalization, and 80% for days 21-100 (Goodwin et al., 2017). Medicare can influence access to care or perceptions of affordability through a variety of channels.

Medicaid

Medicaid was established by Title XIX of the Social Security Act to provide medical assistance to low-income individuals and families. Medicaid is a health insurance program established for low-income persons under age 65 and persons over that age who have exhausted their Medicare benefits. The program is jointly funded by the federal government and the states. To participate in the plan, states are required to offer Medicaid to all persons on public assistance (Mazie, 2024). Since Medicaid is run at the state level under federal guidelines, these averages mask considerably the variability in the generosity of the programs and the eligibility rules across the states (Currie & Duque, 2019). The program serves four distinct populations: lower income children and their mothers, the disabled, elderly people in nursing homes, and since 2014, low-income nondisabled adults in states that have adopted Medicaid expansions that were allowed under the Affordable Care Act (ACA; Currie & Duque, 2019). Medicaid finances more

than half of all long-term care for people who need help with daily activities, such as bathing, dressing, or eating, but is available only to people who have spent down their own assets, and it has coverage gaps (Werner et al., 2020). Medicaid can improve beneficiary health and help sustain its own future by embracing payment for outcomes (Millwee et al., 2018). Medicaid outcome measures include preventable admissions, readmissions, emergency department visits, inpatient complications, early elective deliveries, infant and child mortality, patient-reported outcomes, satisfaction, confidence, and reduction in low-value care (Millwee et al., 2018). The current CMS quality reporting program for nursing homes uses length of stay to differentiate long stay (less or equal to 100 days) from long stay (more than 100 days).

Medicaid pays nursing homes a regulated capitation payment per Medicaid-resident day, the Medicaid reimbursement rate, which is intended to cover the providers expenses for health care services as well as room and board. The national average Medicaid reimbursement rate per resident per day equals about $164 (Hackmann, 2019). Medicaid acts much like a Medicare supplement, filling in the gaps that Medicare leaves and paying monthly premium for Part B and Part D coverage (Huffman & Upchurch, 2018). The individual states determine the eligibility guidelines for enrollment in their programs, with Medicaid generally offered to persons whose incomes and assets fall below a certain level. The federal government pays the states 50 to about 80% of state Medicaid costs. Hospital care, physicians' services, skilled nursing care, home health services, family planning, and diagnostic screening are covered by the plan (Mazie, 2024).

Center of Medicare and Medicaid

Federal engagement in regulation of the nursing home industry greatly expanded after the creation of the Medicare and Medicaid programs, which provided funding streams for post-acute and long-term care (Unroe et al., 2018). From the late 1970s through the 1990s, the Center of

Medicaid and Medicaid conducted a wide-range of demonstrations that included the development of diagnosis-related groups and testing their use in paying for inpatient hospital care. It also developed demonstrations of prospective payment for skilled-nursing facilities (Jain & Shrank, 2014). Since the Affordable Care Act was passed in 2010, CMS has been developing focused payment strategies that shift from fee for services toward value-based care (i.e., health care with meaningful patient outcomes) and a focus on population health (Burd et al., 2017). Nursing homes are highly regulated setting of care and are regularly visited by both Federal and State surveyors (Unroe et al., 2018). State survey agencies that have primary responsibility for regulating nursing facilities—licensing them at a state level and certifying them for participation in Medicare and Medicaid on behalf of the Center for Medicare and Medicaid Services (CMS; formerly the Health Care Financing Administration; Walshe & Harrington, 2002). Approximately two decades ago, federally mandated public reporting began for U.S. nursing homes through a system now known as Nursing Home Compare. The goals were to provide information to enable consumers to choose higher-quality nursing homes and to incent providers to improve the quality of care delivered (Konetzka et al., 2018).

Health Maintenance Organization Act of 1973

The HMO Act offered funds to support HMO development with the hope of improving overall U.S. health care and simultaneously decreasing costs (Falkson & Srinivasan, 2023). Health maintenance organizations (HMO) are organized healthcare systems that are responsible for both the financing and the delivery of broad range of comprehensive health services to an enrolled population (Pozgar, 2019). HMOs increased in popularity following the passage of the HMO Act in 1973, which sought to increase the usage of HMOs to improve patient care, decrease health care costs, and put a greater emphasis on preventative health care (Falkson &

Srinivasan, 2023). The major purpose is to stimulate interest from consumers and providers in the HMO concept and to make healthcare delivery under this form available and accessible in the healthcare market. The HMOs are responsible to provide medical services to their subscribers in return for a fixed monthly or annual payment periodically determined and paid in advance. HMOs are designed to improve overall U.S. health care and simultaneously decrease costs by integrating health insurance and health care delivery within the same organization and thus aligning the incentives of the health care payer and provider (Falkson & Srinivasan, 2023).

Omnibus Budget Reconciliation Act (OBRA) of 1987

This law resulted from years of reports of abuse and scandals in nursing homes (King, 2020). The Omnibus Budget Reconciliation Act of 1987 (OBRA) was enacted partially in response to criticism that the expanding population of nursing home residents with intellectual disability (ID) were not receiving appropriate care (Landes & Lillaney, 2019). OBRA and the subsequent regulations mandated uniform comprehensive assessments of all nursing facility residents after admission and periodically thereafter; developed quality indicators that were more outcome-oriented than process-oriented; and changed federal survey procedures to make them more oriented toward the residents through interviews and assessments of residents rather than simply reviewing medical records (Walshe & Harrington, 2002). The nursing home reform legislation in the Omnibus Budget Reconciliation Act increased the minimum standards for nursing home staffing. All nursing homes certified for Medicare and Medicaid residents must have an RN director of nursing, an RN on duty for 8 hours a day, 7 days a week, and a licensed nurse (i.e., either an RN or LVN/LPN) on duty around the clock (Harrington et al., 2000). The quality of resident care in U.S. nursing homes has been a concern of public policy at least since the Omnibus Budget Reconciliation Act of 1987, when Congress tied quality of care to

certification and reimbursement for Medicare and Medicaid (Plaku-Alakbarova et al., 2019). The Act mandate states to inspect nursing homes (unannounced) and subject non-compliant facilities to sanctions (King, 2020).

Health Insurance Portability and Accountability Act of 1996

Protected health information breaches have impacted over 176 million patients in the United States from 2009 to 2020. Most of these breaches have occurred due to the carelessness of employees and failure to comply with HIPAA rules versus external hackers (Edemekong et al., 2024). The Health Insurance Portability and Accountability Act (HIPAA) of 1996 has made an impact on the operation of health-care organizations (Moore & Frye, 2019). The Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule addresses the use and disclosure of individual's health information and sets standards for privacy rights so that individuals can understand and control how their health information is used (Williams & Colomb, 2020). HIPAA was created to improve healthcare system efficiency by standardizing healthcare transactions. HIPAA added a new Part C titled "Administrative Simplification" that simplifies healthcare transactions by requiring health plans to standardize healthcare transactions (Edemekong et al., 2024). In 1996, the federal government passed a law that created national standards to protect the confidentiality of medical records (Moore & Frye, 2019). HIPAA has accomplished its primary objective: making patients feel safe by giving their physicians and other treating clinicians sensitive information while permitting reasonable information flows for treatment, operations, research, and public health purposes (Cohen & Mello, 2018). HIPAA-covered entities such as providers completing electronic transactions, healthcare clearinghouses, and large health plans must use only the National Provider Identifier (NPI) to identify covered healthcare providers in standard transactions (Edemekong et al., 2024).

Balanced Budget Act of 1997

The Balance Budget Act of 1997 (BBA) is the most significant piece of healthcare legislation since the enactment of Medicare and Medicaid in 1965. It is a hodgepodge of provisions that dramatically changes government-funded medical services (Ettinger, 1998). This Act established a new part C in the Medicare program, known then as the Medicare-Choice (H+C) program, effective January 1999 which was re-named later on the Medicare Advantage program. The Medicare Advantage plans were introduced to give beneficiaries more choices and improve efficiency and cost savings (Brockett et al., 2018).

Patient Protection and Affordable Care Act of 2010

The Patient Protection and Affordable Care Act (ACA) of 2010 was a comprehensive national healthcare reform aimed at expanding health insurance coverage and improving access to care in the United States (Ercia, 2021). The ACA enabled people to gain coverage by (1) expanding the publicly funded Medicaid program to cover adults with annual incomes up to 138% of the federal poverty level; (2) establishing the Health Insurance Marketplace for individuals and small businesses, allowing them to purchase private health insurance (PHI); and (3) enforcing an individual mandate that required eligible people to have federally approved health insurance coverage (Ercia, 2021). In 2010, the passing of Patient Protection and Affordable Care Act (ACA) was the first successful attempt at health care reform in decades (McGee & Breslin, 2021). The ACA expanded insurance coverage in two principal ways. First, it created health insurance marketplace at the state level on the premise of competition and choice and second, it expanded eligibility for the Medicaid program (McIntyre & Song, 2019).

Title II of the ACA was meant to standardize and expand Medicaid eligibility; everyone earning below 138% of the federal poverty level would qualify for the coverage (McGee &

Breslin, 2021). The reforms resulting from the Affordable Care Act (ACA) over the past 6 years have led to increases in health care coverage. There is broad consensus that an estimated 20 million to 22 million individuals have obtained health care insurance since 2010 (Bauchner, 2017). The Affordable Care Act also provided low-income individuals and households up to 400% of the federal poverty line with the subsidies to help them purchase insurance (McIntyre & Song, 2019). The deployment of the Value-Based Purchasing (VBP) by the government payers to reward providers for quality and outcomes has not been widely replicated in the private sector. By contrast, many private health insurance plans, including those sold on the ACA Marketplaces, have focused on patient-side cost- containment tool such as deductible, pre-authorization, and coinsurance (McGee & Breslin, 2021). The Value-Based Purchasing (VBP) Program, one of several federal regulations mandated by the Patient Protection and Affordable Care Act, uses Medicare provider payment penalties and bonuses to encourage healthcare facilities' administrators to improve performance in four domains: clinical processes, patient outcomes, patient experiences, and efficiency (Lee et al., 2020).

The ACA called for two innovations in healthcare payments with serious implications for nursing homes: bundled payment (entail paying one fee for a health episode) and accountable care organizations (groups of providers who together agree to provide care to a group of patients over time for a set cost), both of which are designed as cost saving measures (King, 2020). The Affordable Care Act (ACA) launched unprecedented reforms to improve healthcare value. Skilled Nursing Facility-Value-based Purchasing Program (SNF-VBP) from the Centers for Medicare and Medicaid Services (CMS) incentivizes facilities to improve quality through lower hospital readmissions. However, SNF-VBP may penalize nursing homes that are unable to invest resources to reduce readmissions (Sharma et al., 2020). The ACA contains several provisions to

increase the availability and affordability of health insurance (e.g., health insurance exchanges, Medicaid expansion, and bans on insurance discrimination against preexisting medical conditions) and to reduce the rising costs of health care (e.g., excise taxes on high premium insurance plans and reducing the growth rate of Medicare payments; Doran et al., 2017). Facilities with negative profit margins that are penalized under SNF-VBP have an average loss of $ 24,400—an amount that roughly approximates the average annual salary of a certified nursing assistant, one of the key nursing home direct care staff. These losses may further exacerbate quality problems in facilities that are already struggling. Alternative approaches to assist financially struggling SNFs may help them improve quality and perform better under SNF-VBP (Sharma et al., 2020). SNFs with negative profit margins are more likely to be penalized under the SNF-VBP (Sharma et al., 2020).

Quality Measures

The healthcare sector is one of the important sectors of the service industry. It is believed that in this sector, the customer-server relationship is very critical, and even the slightest gap in the people quality may have a huge impact on the delivered service quality. Some of these enablers are doctors, nursing staff, and support staff (Gupta et al., 2022). Quality of care and a patient's safety are now recognized globally as a healthcare priority. While adverse events are a serious issue related to the patients' safety, concern has been raised on the quality of care provided globally (Islam & Li, 2019). Healthcare leaders face the tremendous challenge of burdened healthcare systems with rising healthcare demands and increasing costs, threatening the sustainability of national welfare systems. Somewhat surprisingly, the debate on the costs of healthcare systems occurs separately from another key challenge in healthcare: quality improvement and patient safety (Bal & Wallenburg, 2023). In March 2001, soon after the release

of To Err Is Human, the IOM released Crossing the Quality Chasm, a more comprehensive report that offered a new framework for a re-designed U.S. healthcare system. A number of reports presented strong evidence of widespread quality deficiencies and highlighted a need for substantial change to ensure high-quality care for all patients (Nash, 2019). In its 2016 National Healthcare Quality and Disparities Report, the AHRQ 2016 notes several improvements, including improved access, better care coordination, and improvement in patient-centered care (Nash, 2019). Crossing the Quality Chasm unifies the component of the quality through six aims (safety, timeliness, effectiveness, efficiency, equitable, and patient-centeredness) the acronym referred to as "STEEEP" (Thomas Craig et al., 2020). Although there are a variety of ways to interpret and assess patient-centered care, the goal of patient" centeredness" has led to the widespread mandatory introduction of patient satisfaction surveys (Chen et al., 2019). An increased number of adverse events always have detrimental effects on patients and healthcare providers including physical and mental harm, reducing credibility of the healthcare system (Islam & Li, 2019). Healthcare quality is the provision of effective and safe care, reflected in a culture of excellence, resulting in the attainment of optimal or desired outcome (Allen-Duck et al., 2017). However, poor quality due to lapses in provider care can trigger adverse events such as infections or falls, requiring additional resources to repair damages (Carey et al., 2018).

Successful discharge of nursing home residents to a community has been reported in Nursing Home Compare (NH Compare) as a quality indicator (Xu & Intrator, 2020). Quality indicators include structure, process, and outcome measures that are reported annually on the National Healthcare Quality Report, thus providing an overview of the quality of the health care in the United States (Allen-Duck et al., 2017). Quality indicators are described in a numerator/denominator format. The numerator includes all residents for whom the outcome of

interest is indicated; the denominator includes all residents except those who fit predetermined exclusion criteria (Favez et al., 2020). Nursing homes represent an important group of health care providers that are subject to public reporting. Most nursing homes in the United States provide two distinct types of services: (1) post-acute care to patients who required short term rehabilitation, and (2) long-term care (Ryskina et al., 2018). The low Medicaid reimbursement rates is an important contributor to shortfalls in the quality of care (Hackmann, 2019).

Medical Errors

The term "medical error" encompasses diverse events that vary in magnitude and can potentially harm the patient. According to the 2019 World Health Organization (WHO) Patient Safety Factsheet, adverse events due to unsafe patient care are among the top 10 causes of death and disability worldwide (Singh et al., 2024). Medical error occurs when the treatment was not in line with the required and generally accepted professional quality standards. Medical error is defined as a medical violation of the duty of care or a consequence of manifestly negligent conduct (Radanović & Vukušić, 2020). There is a need to improve safe nursing care in nursing homes. Residents are often frail and vulnerable with extensive needs for nursing care. Preventable adverse events in the United States cause an estimated 44,000 to 98,000 hospital deaths annually, which exceeds motor vehicle collision deaths. Furthermore, in terms of health care, disability, and loss of productivity, medical errors are estimated to cost the community an additional 37.6 to 50 billion dollars. The most severe consequences of medical errors are the adverse events patients, and their families suffer (Singh et al., 2024). Adverse events pose serious risk to persons older than 65 years. And adverse event is a harm or injury resulting from medical care, including the failure to provide needed care (Kapoor et al., 2019). Medical errors arise from various factors, including communication breakdowns, diagnostic errors, medication-

related issues, surgical errors, and systemic challenges. Preventive strategies encompass effective communication, standardized protocols, patient engagement, and a culture of safety. Managing medical errors necessitates prompt response thorough investigation, learning from mistakes, and implementation of preventive measures (Al-Worafi, 2024).

The overall number of deaths from medical error in 2016 was more than 250,000, which was 9.7% of deal percent of deaths nationwide, over double what had been reported in 1999 (Allhoff & Borden, 2019). The Institute of Medicine report To Err is Hunan reported that there were as many as 98,000 deaths per year due to medical error as of 1999 (Lancaster et al., 2022). The Institute of Medication's to Err is Human, published in 1999, represented a watershed moment for the U.S. health care system. The report dramatically raised the profile of patient safety and stimulated dedicated research funding to this essential aspect of patient care (Bates & Singh, 2018). To Err is Human points out many aspects regarding patient safety, but it emphasizes the idea that errors in the system, rather than individuals, are responsible for most preventable adverse events caused by unintentional error (Bengtsson et al., 2021). Mistakes or medical errors, including those committed by nurses, are considered an inevitable part of professional practice and the human condition (Lancaster et al., 2022).

As the largest group of healthcare professionals in the United States, nurses are the primary providers of care in inpatient settings and are most likely to be involved in errors associated with medication administration, patient falls, infections, documentation, and equipment-related patient injuries (Lancaster et al., 2022). Major national policy and practice initiatives have also built momentum to address safety in U.S. health facilities. The Patient Safety and Quality Improvement Act of 2005 authorized the creation of Patient Safety Organizations (PSOs; Bates & Singh, 2018). All Medicare and Medicaid participating hospitals

of more than 50 beds who want to qualify for health plan participation in affordable care exchanges (they receive a CMS certification number) will need to be a part of a Patient Safety Organization (PSO) or a Medicare QIO by January 1 of 2017 or be a participant in a Hospital Engagement Network (HEN; Lancaster et al., 2022). The number of errors in medication management in nursing homes is increasing, which may lead to potentially life-threatening harm (Bengtsson et al., 2021). In 2002 the Center of Medicare and Medicaid Services (CMS) substantially expanded its quality improvement efforts by launching Nursing Home Compare (NHC), a national effort to publicly report the quality of care in all U.S. nursing homes, thereby informing consumers and incenting the improvement of quality (Brauner et al., 2018). Bougnol and Dulà (2021) stated that the U.S. Government's Centers for Medicare & Medicaid Services (CMS) rates more than 15,000 nursing homes nationwide using a 5-star scale. The outcomes are disseminated in various ways including a user friendly and informative web page. The ratings are generated using publicly available data. One objective of this work is to explore and extract these data in a replicable manner and to reveal how the government uses them to generate the star ratings.

A quality improvement perspective would consider avoiding adverse events from errors as one of a broader set of goals. Quality improvement efforts also work to enable positive health outcomes beyond improving safety (Brauner et al., 2018). For nursing homes, some of these other goals have been defined as improving or maintaining functional status, treating pain, maintaining weight, avoiding incontinence and catheter use, avoiding depression, avoiding physical restraints and the inappropriate use of antipsychotic medications, and improving vaccination rate (Brauner et al., 2018). Nursing homes in the United States that accept funds from Medicare or Medicaid must be certified by CMS. Nearly all the homes are certified

although this is not complete. In 2014, 15,640 U.S. nursing homes were certified. Certified homes report their operation to the U.S. Centers for Medicare & Medicaid Services (Bougnol & Dulà, 2021).

NHC does include some patient safety measures, such as pressure sores and injurious falls, which are often associated in the minds of consumers with neglect (Brauner et al., 2018). Nursing home residents have a high risk of falling. The fall risk is estimated to be 33.9%, which is three times higher than older adults living in communities. Falls lead to fractures, subdural hematoma, and injury, causing death or disability (Cao et al., 2018). Fall-related injuries, such as hip fracture, increase the mortality rate and increase the financial burden on the U.S. healthcare system (Datta et al., 2018). Staffing levels and proportions of regulated staff are low in nursing homes, and up to 80% of direct care is provided by unregulated care providers with little or almost no training (Hoben et al., 2017). Lower staffing was associated with high rates of urinary catheter use, low rates of skin care, and low resident participation in activities (Harrington et al., 2000). Pressure ulcers are areas of localized damage to skin and underlying tissue. They are caused by prolonged, or short or intense, periods of pressure or pressure and shear. Pressure injury can lead to severe pain and distress, poor health-related quality of life and serious complications such as gangrene and mortality (Lavallée et al., 2019).

Pressure ulcers are often avoidable and can be prevented. Using support surfaces, repositioning the patient, optimizing nutritional status, and moisturizing pressure-bearing surfaces are generally considered effective preventive strategies (Righi et al., 2020). In the United States, nearly one million people develop pressure ulcer annually, while approximately 60,000 acute care patients die from related complications (Etafa et al., 2018). The common barriers of pressure ulcer prevention are the lack of staff/heavy workload, lack of training, and

lack of multidisciplinary initiative (Etafa et al., 2018). The impact of the pressure ulcer on a patient can be considerable, due to increased pain, length of stay in the medical facility, and decreased quality of life (Wood et al., 2019). In 2012, 11.3% of residents in Medicare/Medicaid-eligible nursing homes had had at least one fall since admission, and 5.4% were reported as having pressure ulcers (Plaku-Alakbarova et al., 2019).

Patients filed complaints about treatment quality and competence if they did not feel that healthcare providers performed a thorough job examining or observing patients, which they perceived as reasons for treatment delays or medical errors (Wei et al., 2018). Incident reporting as a mean to improve patient safety was one of the key recommendations in the Institute of Medicine Report to Err is Human in 1999. The purpose of the incident reporting is to identify safety hazards and, consequently, develop interventions to mitigate these hazards and reduce harm in health care (Carlfjord et al., 2018). Complaints can provide valuable data about nursing home quality because they originate with those who live in the facilities and other interested in the resident's day-to-day care (e.g., family, members, friends, long-term care ombudsmen, etc.), and they target areas identified by these consumers (The relationship between staffing levels and consumer complaints in nursing homes, 2021).

Patient complaints usually refer to an expression of grievance, which are often formal letters written to healthcare organization after a threshold of dissatisfaction with care has been crossed (Reader et al., 2014). The meanings of the complaints reflected six themes regarding access to healthcare services, continuity and follow-up, incidents and patient harm, communication, attitudes and approaches, and healthcare options pursued against the patient's wishes (Raberus et al., 2019). The complaints describe those inadequacies in meeting generated feeling of not being met with respect, not being understood, and not being welcomed to the

healthcare setting. The complaints described situations when patients felt ignored by the healthcare professionals due to insufficient time throughout the caring encounter (Skär & Söderberg, 2018). Patients' complaints are unstructured and voluntary information that patients and families reported to healthcare facilities regarding their unsatisfactory experience. This information contains a patient's feeling, values, and expectations for care (Wei et al., 2018). Complaints regarding the care process were related to the flow of patient care in the healthcare system. The main complaint about the process was patients' perceptions of long waiting times to register, to be seen, to have diagnostic work done, or to obtain medications (Wei et al., 2018). Complaints speak to a broader spectrum of harm and suffering that go beyond formal adverse events. Complaints about care episodes can take considerable time and effort, generate negative energy and may leave a dogged 'minority' embittered (McCreaddie et al., 2018). Facility level data on residents' pressure ulcer, medically unexplained weight loss, and falls were obtained from the Center for Medicare and Medicaid services long-term care minimum data set (Plaku-Alakbarova et al., 2019). Patient-reported complaints showing that most complaints are around communication and interaction with healthcare professionals (Skär & Söderberg, 2018). Complaints are defined as concerns about care that can be addressed at the point of service within 12 hours. Grievances are defined as "a formal or informal written or verbal complaint that is made to the healthcare facility by a patient, or the patient's representative, regarding the patient's care, abuse or neglect, issues related to the hospital's compliance with the CMS" (Bayer et al., 2021).

CMS Enforcement Processes (Quality Assurance)

Bishop and Degenholtz (2022) stated that the modern American nursing home, an unexpected creature of the Medicaid and Medicare programs, has evolved to provide neither a

comfortable, functional “home” nor reliably excellent “nursing.” In recent years, quality and safety issues have become increasingly important in nursing home care following an increased focus on both clinical outcomes and patient satisfaction. Health authorities and organizations priorities audits as a quality improvement (QI) approach by systematically evaluating delivered care, identifying areas for improvement and implementing changes for the better (Hut-Mossel et al., 2021). The Center of Medicare and Medicare (CMS) understands that the responsibility to monitor the safety of the nation’s nursing homes and other providers is a unique government task that lies at the core of government’s tole in healthcare (Moody-Williams, 2019). The Centers for Medicare and Medicaid Services (CMS) finalized a comprehensive update to nursing home requirements of participation in October 2016. The revamped requirements of participation are intended to promote person-centered care and quality of care in nursing homes and modernize the 1991 rule (Unroe et al., 2018). In the United States, Medicare's Hospital Readmission Reduction Program and Hospital Value-Based Purchasing Program, created under the Affordable Care Act (ACA), providing evidence on how variations in the design of incentive programs correspond with differences in effect (Doran et al., 2017).

The CMS may impose enforcement actions on a nursing home for care deficiencies. Deficiencies can result in civil money penalty (CMP) enforcement remedies, which are fines imposed when facilities fail to comply with Medicare or Medicaid participation requirements due to care deemed deficient by the state survey process (Wang et al., 2020). The three primary goals of the CMS regarding to the nursing homes is to (1) reduce the number of healthcare-associated infections, (2) improve the quality of resident-centered care and safety, and (3) reduce antipsychotic use (Moody-Williams, 2019). In order to be eligible for payment under Medicare

and Medicaid, the nursing homes must comply with the minimum quality and safety standards set forth in federal legislations.

Under contracted with the CMS, states perform on-site survey every nine to fifteen months using trained surveyors whose tasks include examining facility operations, reviewing medical records, and interviewing residents and staff (Li et al., 2015). State surveyors issue deficiency citations if they determine that service standards for a particular domain are not met. Depending on the severity and scope of identified deficiencies, facilities may face intermediate sanction, such as civil monetary penalties or termination of Medicare or Medicaid reimbursement (Li et al., 2015). In 2016, the CMS introduced 3 new quality measures (QMs) to its report card, Nursing Home Compare (NHC). These measures (i.e., rehospitalization, emergency department visits, and successful discharges to the community) focus on short stay residents (Saliba et al., 2018). Skilled Nursing Facility-Value-based Purchasing Program (SNF-VBP) from the Centers of Medicare and Medicaid Services (CMS) incentivizes facilities to improve quality through lower hospital readmissions. However, SNF-VBP may penalize nursing homes that are unable to invest resources to reduce readmissions (Sharma et al., 2020). Many nursing home residents have physical and cognitive impairments, causing nursing staff to have a vital role in assuring residents receive quality care and have a high quality of life. The Centers for Medicare and Medicaid Services (CMS) has acknowledged the importance of nursing staff levels for at least two decades. In 2000, CMS began publicly reporting nursing staff levels for RNs and total nursing staff which includes RNs, LPNs, and NAs (Brunt & Bowblis, 2023).

Litigations Against Healthcare Facilities

There were examples of staff becoming emotionally “blunted” when adapting to time limitations and cutting corners on a regular basis to maintain efficiency. Providing basic care

then became just another task to tick off the list, and to some the nursing home appeared more like a “care factory” where residents became just another task to be performed as quickly as possible, resulting in their objectification and depersonalization (Lund et al., 2024). The medical liability system is intended to serve three functions: compensate patients injured by negligence, promote corrective justice by providing a mechanism to rectify wrongful losses caused by defendants, and deter negligence (Mello et al., 2020). Experiencing lawsuit may lead nursing homeowners into a financial situation where they decide to sell or no longer provide the services (Konetzka et al., 2018). Injuries that are not due to negligence are less likely to become claims because healthcare facilities explain to patients what happened; preventing such claims strengthens the informational function of litigation because claims more reliably point to actual quality problems (Mello et al., 2020). Rising malpractice pressure causes both health care spending and quality to increase up to threshold, and decrease thereafter (Montanera, 2016). Malpractice causation requires the establishment of a correlation between an act and the standard of care that has not been complied with (Radanović & Vukušić, 2020).

Nursing home closure may have important consequences in the nursing home sector, where care is ongoing, sometimes for years, such that closure means relocation of residents (Konetzka et al., 2018). When nursing staff leave or when nursing hours are insufficient, quality suffers (Bishop & Degenholtz, 2022). The work of the nursing staff becomes next to impossible and quality of care plummets when available staff hours cannot meet resident needs due to turnover, worker shortages, or chronic understaffing (Bishop & Degenholtz, 2022). The regulatory failure to ensure adequate staffing and quality in this case had a detrimental impact on residents and led to the class action litigation (Lund et al., 2024). A growing body of evidence shows that the basic care needs of nursing home residents are regularly neglected, and residents

do not always receive qualitatively good care of basic human needs. Hence, these neglectful practices may include not providing sufficient basic care or ignoring residents' needs related to nursing home residents' physical, psychological, emotional, and social needs (Lund et al., 2024).

CMS Stars Rating

In 2008, the Centers for Medicare and Medicaid Services (CMS) implemented a five-star rating system of nursing homes in the United States. The Centers for Medicare & Medicaid Services today launched its enhanced Nursing Home Five-Star Quality Rating System which integrates data nursing homes report on their weekend staffing rates for nurses and information on annual turnover among nurses and administrators (Brown, 2022). The 5-star quality ratings were designed to simplify information for consumers by aggregating quality measures into a rating system of one of five stars, with more stars indicating better quality. The rating is derived from three domains of quality: nurse staffing to resident ratio, deficiency citations, and clinical outcomes (Li et al., 2019). Nursing homes have been subject to public reporting since 2002, when the Center for Medicare and Medicaid Services (CMS) launched the Nursing Home Compare website for Medicare and Medicaid certified nursing homes (Ryskina et al., 2018).

Quality measures were drawn from the federally mandated Minimum Data set (MDS) assessment instrument. The MDS was collected at time of admission and then at least quarterly thereafter for all nursing home residents (Grabowski et al., 2017). All nursing home residents are required to have an MDS admission (i.e., provides an admission date and an 'admission from' location) and discharge (i.e., provides the reason and date of discharge) record. The MDs includes detailed clinical and functional status data on all residents in Medicare or Medicaid certified nursing homes. The facility-level nursing home data and resident-level MDS data sets were linked to the Medicaid claims data files of inpatient care for the Medicaid beneficiaries for

2011–2012 (Xu et al., 2019). A full-length assessment is also required for each resident and annually thereafter, interspersed by abbreviated quarterly assessments (Doupe et al., 2018). In 2022, CMS introduced four new staffing measures that were incorporated into the calculations of NH's staffing star rating. These four new staffing measures included: (a) case-mix adjusted total nursing staff levels on the weekend, (b) total nursing staff turnover, (c) registered nurse turnover; and (d) administrator turnover (Centers for Medicare & Medicaid Services, 2019). These new staffing measures were in addition to the existing case-mix adjusted RN and total nursing staff levels (Brunt & Bowblis, 2023).

Reimbursement Methods

Medicare allows patients to pick any Medicare-certified SNF, which accounts for 85% of SNFs in the United States, according to the 2009 Nursing Home Compare. Once a patient is qualified for SNF care, Medicare covers the total cost in the first 20 days and charges $185.50 coinsurance per day during days 21–100. Patients must pay all costs by themselves starting from day 101 and beyond (Jin et al., 2022). Nursing homes have to balance delivery of high-quality care while ensuring financial viability in an increasingly challenging and competitive environment. Nursing home financial viability is an area of increasing challenging and competitive environment from alternative providers, declining occupancy rate, and a changing regulatory environment (Weech-Maldonado et al., 2019). High Medicaid nursing homes on average had a negative total margin. As such, these nursing homes are at particular risk for financial distress and ultimately closure (Weech-Maldonado et al., 2019). In 2000, Medicare Payment Advisory Commission (MedPAC) began using a new formula for Medicare margins that included a PPS, GME, bad debt, skilled nursing facility, home health, and non-PPS Medicare payments and costs (Phillips et al., 2004). Low insurance companies' reimbursement:

providing high-quality care and maintaining viable finances are both necessary for nursing home survival and maintaining a supply of high-quality nursing homes is necessary to meet national health care demands (Lepore & Leland, 2015). The low profit margin of the nursing home business is handled by shifting the financial stress to the employees by decreasing the hourly rate and increasing work overload. Nursing home care is largely financed by the U.S. government through Medicaid, a means-tested program that pays facilities a rate that is often below the costs of care (Grabowski, 2021). The Resident Assessment Instrument (RAI) is an international standard assessment tool used for determining the care requirements of nursing home residents.

A core component of the RAI is the Minimum Data Set (MDS), a data collection tool consisting of approximately 300 items that summarize individual residents' clinical status and functional capabilities (Carey et al., 2018). In the case of self-pay, most of the patients cannot afford to pay the expenses of nursing homes due to the high cost. Nursing home care, which is much more expensive than assisted living, is not affordable for most older people with significant long-term services and supports (LTSS) needs, only six percent of whom could pay for a nursing home stays out of their income alone (Johnson & Wang, 2019). In the beginning of 1998, CMS used the summary Resource Utilization Group (RUG) score (i.e., data from aggregate MDS resident assessments) to adjust its Medicare nursing home prospective payment (Harrington, Mollot, Edelman, et al., 2020). Residents are categorized according to MDS data into Resource Utilization Groups (RUGs), a classification system that provides a foundation for formulating individual care plans. RAI/MDS Version 3.0, including RUG Version IV, is part of the U.S. federally mandated process for clinical assessment of all residents of nursing homes certified to participate in Medicare or Medicaid (Carey et al., 2018). The average quality of care patients receive should increase as high-quality providers gain more market share and low-

quality providers work to improve their performance to avoid losing market share (Ryskina et al., 2018).

In October 2019, CMS changed its Medicare reimbursement methodology from using the RUG scores to Patient-Driven Payment Model (PDPM) scores primarily for readjusting Medicare reimbursement and not specifically to promote high-quality staffing nor to assure that nursing homes meet the federal regulatory requirements (Harrington, Mollot, Edelman, et al., 2020). Unruh et al. (2020) stated that whereas the RUG system incentivized longer SNF stays and more therapy, the PDPM incentivizes shorter stays with less therapy, which increases the financial difficulties on nursing homes. U.S. healthcare has reoriented towards quality and value, incorporating both the health outcomes and the resources allocated to achieve those outcomes (Chee et al., 2016). The PDPM would rely on patient characteristics and remove therapy minutes as a determinant of SNF payment. The clinical reason for a resident's SNF stays plays a critical role in the PDPM. CMS should include an evaluation of the need for therapy services at appropriate intervals to support clinical judgment (Bogenrief, 2018). The new patient-driven payment model (PDPM) bases payment on a patient's medical complexity and clinical outcomes, rather than on how much therapy a patient needs- the basis for the old system (Kinder, 2019). Under the PDPM, CMS must ensure that SNFs have access to timely and accurate information to complete this information and rely on it for payment purposes (Bogenrief, 2018). PDPM does not change coverage criteria for skilled care. The regulations for accessing skilled care remain the same. SNF care is covered only if all four of these factors are met: (a) The patient requires skilled nursing services or skilled rehabilitation services, (b) the patient requires these skilled services daily, (c) the daily skilled services can be provided only on an inpatient basis in an SNF,

and (d) the services delivered are consistent with the nature and severity of the individual's disease (Kinder, 2019).

Medicare does not pay for a skilled nursing facility (SNF) unless a fee-for-service patient has stayed in the hospital for at least three days. This Medicare reimbursement rule, or the "three-day rule," provides full coverage for the first 20 days and partial coverage for days 21–100 for skilled nursing care provided at any Centers for Medicare and Medicaid Services-approved SNF (Jin et al., 2022). The "Incentivizing Health Care Quality Outcomes Act of 2014" (HR 5823) proposes to replace the existing patchwork of process and outcomes quality measures with a uniform, coordinated, and comprehensive outcomes-based quality measurement system. The Outcomes Act represents a shift in payment policy toward getting value instead of an increasingly complex attempt to measure value (Averill et al., 2016). The ACA also includes changes to both payment systems and the organizational structure of health care. Specifically, it contains numerous provisions that aim to shift payments away from volume-based reimbursement by linking payments to quality in multiple settings, including hospitals, physician groups, nursing facilities, home health agencies, hospices, and dialysis facilities (Doran et al., 2017).

Staffing Policies (Hospitals, Dialysis Facilities, Nursing Homes)

Extensive evidence supports the association between increased nurse staffing and improve quality of patient care (de Cordova et al., 2019). United States has not adopted federal legislative initiatives to regulate nurse staffing (Jones et al., 2015). Passing efforts to mandate via Federal legislation ratios have failed largely due to hospitals' opposition (Anders, 2021). As of 2019, 14 states had laws or regulations representing one of the following approaches: (a) mandated nurse-to-patient ratio for all hospital unit (California, Massachusetts); (b) mandated

staffing committees (Illinois, Nevada, Ohio, Oregon, Texas, and Washington); and/or (c) mandated public reporting by hospitals of nurse staffing levels (Illinois, Minnesota, New Jersey, New York, Rhode Island, and Vermont; de Cordova et al., 2019). California has mandated RNs to patient ratios since 2011. Their experience has proven that patient outcomes improve as well as nurse retention. Hospitals' decrease has largely offset the impacts of hospitals' net revenue by decreasing acquired infection, reducing the 30-readmission rate, and improving patient satisfaction scores (Anders, 2021). Low registered nurse staffing associated with reports of missed nursing care in hospital. Missed care is a promising indicator of nursing staffing adequacy (Griffiths et al., 2018).

Providing optimal end-stage kidney disease (ESKD) management requires an adequately trained and sufficiently staffed workforce, including doctors, nurses, and patient care technicians (PCTs; Gaietto & Williams, 2020).The center of Medicare and Medicaid Services, which oversees the payment and quality of care for patients receiving dialysis, does not mandate specific staffing rations for dialysis facilities but has focused instead on tracking and publicly reporting outcomes in an effort to ensure safe and effective care (Rastogi & Chertow, 2018).

Most of the nursing homes in the United States are overloading their healthcare workers and assigning them more responsibilities than they could handle, which generally effects on the quality of the provided medical services. Myhre et al. (2020) stated that there is an association between low levels of staffing and patient's neglect. The number of nurses available to care for patients, measured by full-time equivalents and hours per patient day (HPPD), is inversely correlated with patient mortality and failure to rescue (Paulsen, 2018).

Staffing procedures in nursing homes: De Hert (2020) stated that healthcare workers seem to be at particular risk for burnout, which may have significant professional consequences

such as lower patient satisfaction, impaired quality of care, and even major medical errors. Insufficient staffing leads to the rationing of time of care, which has an important impact on the occurrence of missed care (Haegdorens et al., 2019). Most nursing homes do not provide sufficient staffing to ensure basic quality (Harrington, Dellefield, Halifax, et al., 2020). New payroll-based data reveals large daily staffing fluctuations, low weekend staffing, and daily staffing levels often below the expectations of the Centers for Medicare and Medicaid Services (CMS; Geng et al., 2019). The delivery of nursing assistant care hours per resident per day was significantly associated with higher quality of resident care (Boscart et al., 2018).

Staffing federal regulations: The Center of Medicare and Medicaid does not provide a rigid ratio for nursing homes to follow regarding to staffing policy, just stating that they are required to have enough staff to provide medical services pertain to the patient status and needs. The law requires nursing homes ‘to provide sufficient staff and services to attain or maintain the highest possible level of physical, mental, and psychosocial well-being of each resident’ (Zhang et al., 2006). Sofer (2017) stated that the CMS also chose not to mandate the presence of RNs at these facilities, despite evidence of greater acuity of illness among residents today and research findings of care deficiencies. Wiener (2003) stated that the CMS rely on the states to actually administer the process; CMS's regional offices oversee and monitor the state’s activities. Most of the recent critique of inadequate regulation involves allegations of weak enforcement rather than inadequate nursing home quality standards.

New federal and states regulations of healthcare staffing: In 2015, the U.S. government proposed new nursing home regulations to strengthen the quality of nursing home care. Unfortunately, the proposed regulations did not change the federal staffing standard (Harrington et al., 2016). Most nursing homes do not provide sufficient staffing to ensure basic quality. More

than half of U.S. nursing homes were found to have a lower RN, CNA, and total nurse staffing levels rather than those recommended by experts, with one quarter of nursing homes dangerously low on staffing (Harrington, Dellefield, Halifax, et al., 2020). Depending on the experts' estimations, California was the only state who identified the minimum hours of nursing care provided to patients in nursing homes. Most governments and healthcare organizations are hesitant to support a mandated ward-based minimum, and the only mandatory nurse staffing levels are in places in the state of California (Haegdorens et al., 2019). California law requires all nursing homes to provide at least 3.5 nursing hours per resident day (hprd; Harrington, Dellefield, Halifax, et al., 2020).

Staffing and patients' care: Griffiths et al. (2020) state that patient outcomes have been shown to improve when staffing is increased above levels identified as 'optimal' using professional judgements and a widely used prototype system. Rome and Harris-Kojetin (2016) stated that in 2014, the total registered, licensed practical, vocational, and aide staffing level among all residential care communities was about 2 hours and 50 minutes per resident day (hprd). State minimum standards are generally well below the levels recommended by researchers and experts to consistently meet the needs of each resident (Harrington, Dellefield, Halifax, et al., 2020).

Patient Satisfaction

Customer satisfaction can be defined as the overall experience with a purchase. Customer satisfaction has a very strong influence on the competitiveness of the product and, therefore, on the company (Suchánek & Králová, 2019). The concept of patient experience is surprisingly complex and generally linked with patient satisfaction. As reimbursement and performance policies have become more normative within healthcare. Patient experience has become a metric

to measure payment systems for quality (Berkowitz, 2016). With the evolving healthcare industry toward patient-centered orientation, inputs from the patient's perspective are valuable. Improved patient satisfaction is associated with increased level of adherence to treatment process and recommended prevention, and improved health outcomes (Chandra et al., 2019). Patient satisfaction is increasingly used as a method to rate, rank, and compare medical facilities. Patient satisfaction has been recognized as an important metric of health-care quality (Chen et al., 2019). The satisfaction score is based on many factors that a patient experiences before, during, and after an episode of care, along with characteristics of the care environment (Berkowitz, 2016). Patient satisfaction surveys have become a popular and common approach to measure the quality of healthcare and patient experience. Healthcare providers usually take the results of the survey into consideration while they are planning a new strategy or evaluating current practice and healthcare services (Huang et al., 2018). Measuring satisfaction is necessary to understand patient preferences. Measuring and reporting satisfaction with care may be important in helping seniors and their families choose a nursing home and may be important in helping facilities improve some aspects of quality (Castle et al., 2018). Patient satisfaction, which refers to the conclusion reached by patients and their families after comparing their feeling during the medical service with their families and after comparing their feelings during the medical service with their previous expectations, was the criterion of medical service quality (Fang et al., 2019).

Measuring patient's satisfaction with nursing care could be effective in improving nursing service quality by facilitating the creation of standards for care while monitoring both results and patients' perception of quality (Karaca & Durna, 2019). Satisfaction/experience information is currently used by the CMS in both the Hospital Value-Based Purchasing (VBP) program and the Home Health VBP demonstration, where providers are paid according to their

performance scores based in part on patient experience scores (Gaudet Hefele, 2020). The patient complaints described experiences of patients' and/or relatives' dissatisfaction with healthcare services. These reports commonly described experiences of significant incidents, disadvantages and problems with an impact on the patient's health, medical or nursing care, or patient safety (Raberus et al., 2019). Patient complaints is a widely accepted measure of patient satisfaction, can inform improvement in service quality, and contribute towards overall health systems performance (Mirzoev & Kane, 2018). Over time there has been a regulatory and clinical care response to the concept of patient satisfaction and patient experience. Nurses, the primary caregivers in all health promoting environments, including hospitals, clinics, and community settings, have responded in various ways to regulatory and clinical mandates (Berkowitz, 2016).

Complaints could be linked to overall patient satisfaction rates to reveal latent incidents that may explain changes over time (van Dael et al., 2020). Resident satisfaction is not only a direct reflection of medical care but represents additional important dimensions of resident nursing home experiences, such as the closeness of their bond with caregivers or the presence of daily comfort in their lives (Plaku-Alakbarova et al., 2019). The lack of information of nursing homes regarding to resident/patient satisfaction means consumers cannot use it for decision-making and are forced to rely on other quality measures like the five stars rating program (Gaudet Hefele, 2020). The state of Minnesota uses satisfaction and quality of life information in their state Medicaid nursing home pay-for-performance program (Gaudet Hefele, 2020).

Health care provision has also shifted toward a marketplace model, and thus consumer satisfaction has taken on economic implications, because as an outcome, it reflects both consumer opinion and choice (Castle et al., 2018). A confluence of policy priorities, stimulated by the Affordable Care Act and CMS Quality Strategy, have brought a focus on the need to

deliver care that provides a quality patient experience within healthcare systems. To incentivize health systems to implement these goals, CMS created ways to reward innovation related to how these strategies are implemented across health systems (Berkowitz, 2016).

Using Convergent Parallel Mixed Method in Healthcare Research

Although researchers have combined qualitative and quantitative data for many years, current conceptualizations of mixed methods research did not emerge until the 1980s, especially in some fields such as education, health sciences, psychology and sociology (Molina-Azorin, 2016). The qualitative method is based on numbers to claim objectivity whereas qualitative method generates theories relying on subjectivity. Mixed method is the intentional integration or combination of the two methods, that is, quantitative and qualitative, to draw on the strengths of each to answer real life research questions (Kaur, 2016). The use of mixed methods research in business studies may play an important role in the development of our field because results obtained from different methods have the potential to enrich our understanding of business problems and questions (Molina-Azorin, 2016). In mixed methods, the data collected are more comprehensive and provide a more complete understanding of the problem and potential solutions (Vedel et al., 2019). When applied, the mixed method research allows the strengths of one approach to complement the restrictions of another (Regnault et al., 2018). In the mixed method, the integration is most commonly undertaken in the interpretation phase of the study, where the results were presented separately and there was some integration that took place in the discussion and conclusion sections of the report (Campbell et al., 2017). The most important, and perhaps most difficult, aspect of mixed methods research is integrating qualitative and quantitative data (Tariq & Woodman, 2013).

In the convergent parallel mixed-methods design, the quantitative and qualitative data were analyzed separately and then merged for final comparative analysis (Creswell, 2014). Combining two methods in one study can be time consuming and requires experience and skills in both quantitative and qualitative methods. This can mean, in reality, that a mixed methods project requires a team rather than a lone researcher in order to conduct the study rigorously and within the specified time frame (Tariq & Woodman, 2013). Robust mixed method requires research teams with experience in both qualitative and quantitative research. Moreover, a thorough understanding of the underlying principles of mixed research method is recommended at the point of study conception all the way through to implementation and knowledge dissemination (Regnault et al., 2018). Among other applications, Mixed research method can be used to enhance the creation of conceptual models and development of new instruments, to interpret the meaningfulness of outcomes in a clinical study from the patient perspective and inform health care policy (Regnault et al., 2018).

Historically, quantitative methods have dominated health research. As the value of qualitative approaches has been recognized, there has been a growing interest in combining qualitative and quantitative methods (Tariq & Woodman, 2013). Mixed methods research has found an increased interest in the field of health outcomes research. Consideration for both qualitative and quantitative perspectives has become key to contextualizing patient experiences in a clinically meaningful measurement framework (Regnault et al., 2018). Tomasi et al. (2018) used the convergent parallel mixed-method study design to characterize when, where, and how healthcare providers exchange clinical information in the Department of Critical Care Medicine at the hospital for sick children and explore the factors that currently facilitate, or counter established best rounding practices therein. Giesinger et al. (2018) used the convergent parallel

mixed-method study design to investigate what makes a symptom or functional impairment clinically important, that is, relevant for a patient to discuss with a health care professional. Alwashmi et al. (2019) used the convergent parallel mixed-method study design to demonstrates how the iterative convergent mixed methods design provides a novel framework for generating unique insights into multifaceted phenomena impacting health usability.

Anticipated and Discovered Themes

Table 1

Anticipated and Discovered Themes

Theme	Theme Description	Literature references
Staffing	Each nursing home has to provide a sufficient number of healthcare workers to cover the varied needs of its residents (patients)	Harrington et al. (2020); Zhang et al. (2006); Wiener (2003); Myhre et al. (2020); Harrington et al. (2016); Barton (2009); Barton (2009); Haegdorens et al. (2019); Griffiths et al. (2020); Drennan and Ross (2019); (de Cordova et al., 2019); Anders (2021);
Medical errors	Medical errors are a preventable adverse effect of medical care and could result in increasing workload as presented within the literatures	Metcalf et al. (2018); Carrez et al. (2019); Chang et al. (2019); Gorgich et al. (2016); Rodziewicz &

		Hipskind (2020); Gluck (2008); Makary and Daniel (2016); Kapp (2003); Haegdorens et al. 2019; Griffiths et al. (2020); Anders (2021); Allhoff and Borden (2019).
Patients' satisfaction	Measure the degree of happiness and satisfaction of patients regarding the provided medical services.	Richter and Muhlestein (2017); Jiang et al. (2011); Pascoe (1983); Batbaatar et al. (2015); Goncalves and Sampaio (2012); Hudak et al. (2004); De Hert (2020); Skär and Söderberg (2018).
Profitability	It is a measure of efficiency and success. Implication of high workload on nursing home profitability	Muhlestein (2017); Clement (2016); Geng., Stevenson, & Grabowski, (2019); Sofer (2017).
Quality of care	It is providing safe, effective, patient centered, timely, efficient and equitable healthcare services.	Buljac-Samardžić and van Woerkom (2018); Lepore and Leland (2015); Gillespie and Reader (2016); (van Dael et al., 2020).

	Limiting time due to high workload will be reflected on the quality of medical services.	
Work stress	Work stress will show up when there is no balance between the requirements of a job and the employee capability. Work stress as a result of high workload effects on patients' satisfaction	Plaku-Alakbarova et al. (2019); Sturm et al. (2019); Juraschek et al. (2019).
Communication	Communication at healthcare facilities is an essential factor in providing accurate medical services. With a high workload, the communication efficacy will drop.	Plaku-Alakbarova et al. (2019).
Time	Limited time effects on the degree of focus and increases probability of errors	Kaneman (1973).
Employee capacity	Mental capacity is limited and short when handling many missions in a limited timeframe with a reasonable efficiency.	Bruya and Tang (2018).

Demographic change	Population aging has a negative impact on the society and overloads the healthcare system.	Marć et al., (2019); Spurlock (2020); Abeliansky., Erel and Strulik (2020)
Education and training	Medical providers education and training is an essential factor in providing accurate medical services. With the shortage of providing a sufficient and reasonable education through the availability of medical institutes, this will reflect on the workload of medical staff.	Marć et al. (2019); Abeliansky., Erel and Strulik (2020); Juraschek et al. (2019); Scheffler and Arnold (2019); Iheduru-Anderson (2021); Zhang et al. (2020).
Insurance reimbursement	Healthcare facilities depend on insurance companies' reimbursement to cover their expenses and gain profit.	(Grabowski, 2021); Johnson and Wang (2019); Harrington et al. (2020); Unruh, Khullar and Jung (2020)

Summary of Section 1

The heavy workload of healthcare workers is one of the major problems in the United States' health system. The heavy workload is affecting the quality of healthcare services and patients' safety. The study shed a light on the effect of heavy workload on patient satisfaction and the financial stability of nursing home facilities in Houston, Texas. The effect of workload on the patients' satisfaction and business profitability cannot be explored by using one way of

research, but a mixed approach that can better help in diagnosis and in finding the truth regarding the problem. The research problem was explored by using a mixed convergent parallel method, since it provides more in-depth information and gives the ability to converge the data extracted from both qualitative and quantitative approaches.

The convergent parallel mixed methods converge two types of data collected in two different methods and analyzed separately to get the final result. In the process of reaching out the data, honesty, confidentiality, and trustworthiness should be provided in sake of reaching out the most fulfilling and accurate results. The framework of the convergent parallel mixed method design for this study is driven by a pragmatism paradigm that provides a comprehensive view of the phenomena. To collect data free of bias, the source of potential bias has been identified and its effects on the study have been measured in order to be reduced to a minimal level. The complexity of the convergent parallel mixed method requires the researcher to have qualitative and quantitative analytical skills from the designing process to converge and articulate the results. Results from the data analysis of a convergent parallel mixed method provided insight into the effect of high workload and shed a light on this phenomenon. Part of the data were extracted from The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system, while the other part of the data were extracted from face-to-face interviews with the research participants.

To fulfill the purpose of the research to understand the effect of high workload on patient satisfaction and profitability of nursing homes in Houston, Texas, qualitative and quantitative data collection methods were implemented parallelly, analyzed separately, and then the results were compared and converged to get a deeper insight of the phenomena. The next section of the study focused on identifying the research population and selecting the individual members of the

population to make a statistical inference to formulate the population's sample, which represented the whole population. Identifying the sample size is also an essential factor in getting statistically significant results and answering the research questions. The quantitative approach focused on understanding the relationship between the staff-patient ratio (as an indicator of workload) with the number of patients' complaints (as an indicator of patient satisfaction) and the bed occupancy rate (as an indicator of nursing home financial profitability). The data were extracted from the Medicare public document (Nursing Home Compare). The qualitative approach handled the constructs by interviewing the sample participants to understand how a high workload is affecting the quality of medical services and medical errors, and how it is also affecting the patients' satisfaction.

Section 2: Introduction

Although the United States is considered one of the richest nations in the world, and its spending on healthcare is considered one of highest among the developed countries, the healthcare system in the United States is suffering many down sides. Nursing homes play an important role hand by hand with other kinds of healthcare facilities to service the medical needs of the elderly population, which is increasing rapidly, globally, and nationwide. Nursing homes provide a wide range of health services to residents who end up in their facilities due to the lack of patients' ability to serve themselves or due to other health-related issues. Poor quality of healthcare services is a problem in many nursing homes in Texas. The study walks the readers through the current process in nursing homes regarding the staffing policy and its effects on patient satisfaction and business profitability. More explanation was provided concerning the causes of staff shortages and employee overload as well as the federal and state regulations, which govern and control the staffing ratio.

Purpose Statement

The purpose of this mixed design convergent parallel method is to understand the effect of high workload on patient satisfaction and the profitability of nursing homes in Houston, Texas. A convergent mixed methods design was used, which is a type of design where the qualitative and quantitative data are collected parallel, analyzed separately, and then merged. In this study, the quantitative data were obtained from the Medicare public document (Nursing home compare) and used to test the relationship between the staff-patient ratio, patient complaints, and bed occupancy rate. In 2002, the Centers for Medicare and Medicaid Services (CMS) substantially expanded its quality improvement efforts by launching Nursing Home Compare (NHC), a national effort to publicly report the quality of care in all US nursing homes,

thereby informing consumers and incenting the improvement of quality (Brauner et al., 2018). NHC was modified to feature a five-star composite rating system for overall quality in late 2008, assigning each nursing home a rating of one to five stars with more stars indicating higher quality (Brauner et al., 2018). At the same time, the qualitative method was applied by exploring the effect of high workload through interviewing healthcare workers in multiple nursing homes in Houston, Texas. The reason for collecting both quantitative and qualitative data are to get a deeper insight on the effect of high workload on patient satisfaction and nursing home profitability.

Role of the Researcher

Actions to Conduct the Study

Since the convergent parallel mixed method had been determined as a required method for answering the research questions, the next step was to draw a plan of action that fits with the method and components of the study. The main goal of the study focused on collecting and analyzing the data. The results of both researchers were converged at the end to explore the conformity between the results of the two approaches. Using an independent sampling plan in a mixed methods study commits the researchers to propose at least two distinct samples, defined as having unique sampling frames but not requiring nonoverlapping participants (Curry & Nunez-Smith, 2015). A defining feature of qualitative methods is the use of purposeful sampling techniques. These techniques are primarily intended to generate depth of information (hence enhancing credibility) to address a defined research question (Curry & Nunez-Smith, 2015). Nursing home administrators, directors of nurse departments, nurses, and nurses' assistants, have all been interviewed in-person.

The data were gathered from the participants of the study by using a semi-structured interview, which was done by asking questions within a predetermined framework. Busetto et al. (2020) stated that in comparison to written surveys, qualitative interviews have the advantage of being interactive and allowing for unexpected topics to emerge and to be taken up by the researcher. Semi structured in-depth interviews are commonly used in qualitative research and are the most frequent qualitative data source in health services research (DeJonckheere & Vaughn, 2019). This method typically consists of a dialogue between researcher and participant, guided by a flexible interview protocol and supplemented by follow-up questions, probes and comments (DeJonckheere & Vaughn, 2019). The interview is a critical component of data collection in qualitative studies. Great value is placed on the interview process from which an intimate conversation, key data, and interpreted results emerge (Fritz & Vandermause, 2018).

A quantitative approach employs strategies of inquiry such as experiments and surveys and collects statistical data on predetermined instruments (Signorell et al., 2021). The recorded answers to the open-ended interview questions have been coded to organize the data regarding workload, quality, and patient satisfaction. Participants were chosen to participate in the research based on their department (e.g., managers, nurses, and nurses' assistants). As an example, the study excluded the rehab health care providers, kitchen workers, housekeeping, and even the pharmacy workers. The reason behind that is because most nursing homes outsource these services and are not involved directly in the staffing process regarding these departments. Chen (2018) stated that in a typical skilled nursing facility (SNF), numerous parties exchange goods and services in the delivery of care. Specifically, resident care is rendered through a complex series of transactions among various parties including, but not limited to physicians, pharmacists, equipment distributors and manufacturers, rehabilitation therapists, laboratorians, and dieticians.

The collected raw data from interviewing the participants has been coded and converted into usable data through the identification of themes, concepts, or ideas that have connections to each other. Codes can be thought of as individual puzzle pieces which, as a collection, contribute to a researcher's depiction of the data. Individually, codes do not tell the entire story. For that to occur, the researcher must understand how codes (inter) relate and contrast with one another (Lester et al., 2020). The participant answers to the in-person interview questions were cross analyzed to better represent emerging thematic codes. The analysis of data was done by using thematic analysis, which supported theme development while staying grounded in the data.

The quantitative study explores the relationship between staff-patient ratio and the number of patient complaints as well as the bed occupancy rate in nursing homes in Houston, Texas. The quantitative research was conducted by extracting the data from The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes. The correlation was measured between three variables: staff-patients ratio, patient complaints, and bed occupancy. Correlation, in the broadest sense, is a measure of an association between variables. In correlated data, the change in the magnitude of 1 variable is associated with a change in the magnitude of another variable, either in the same (positive correlation), or in the opposite (negative correlation) direction (Schober et al., 2018). The data were collected from The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes. Strategies were adopted to reduce the incidence of missing data, but these had to be thought through before the first data collection. Whenever the problem of missing data are present, its implications for interpreting results have to be examined, particularly where they are to be generalized to a broader population.

Discussion of Bracketing to Avoid Personal Bias

Bias, perhaps best described as any process at any stage of inference that tends to produce results or conclusions that differ systematically from the truth (Yarborough, 2021). Galdas (2017) stated that the research proposals and manuscripts that do not provide satisfactory detail on the mechanisms employed to minimize bias are unlikely to be viewed favorably. The whole population consists of all individuals that fit the study. While studying the whole population is impractical, sampling is considered a crucial step in research. The data analysis of the research could also be subject to bias by giving more preference to the conclusions in favor of research hypothesis. In order to get overall data about the constructs of the qualitative section of the research like workload, quality of medical services, and patient satisfaction, the face-to-face interview was conducted with the sample participants like nurses, nurse assistants, directors of nursing, and nursing home administrators.

Bracketing is a method used in qualitative research to minimize the potentially deleterious effects of preconceptions that may taint the research process (Tufford & Newman, 2012). The notion of bracketing is not about getting rid of subjective components and removing pre-understandings but raising awareness of them so that they can be explored, made use of, and explicitly incorporated. The essential part of bracketing is to isolate researcher experience from what is being studied. Dörfler and Stierand (2020) stated that bracketing can be conceptualized as the researchers' attempt to hold abeyance to their pre-understandings and assumptions to attain experiences before making sense of them. The first stage of bracketing is to leave the bias aside by listening carefully to the participant without interruption while recording the interview to be analyzed and coded later during the analysis process. McGrath et al. (2019) stated that actively listening to the interviewees means respecting silence and identifying such silent

moments as an opportunity for ongoing reflection. Interviews on subjects that have profound meaning for interview subjects may prompt deep reflection on behalf of respondents. The next stage of bracketing, according to Dörfler and Stierand (2020), is to raise the awareness of presumptions and previous knowledge and beliefs the interviewer was not aware of. This has been achieved by transpersonal reflexivity. Berger (2015) stated that reflexivity means turning off the researcher lens back onto oneself to recognize and take responsibility for one's own situatedness within the research and the effect that it may have on the setting and people being studied, questions being asked, and data being collected and its interpretation. The qualitative analysis is subject to many types of bias like data collection bias, and the bias in analyzing and reporting the data. Reflexivity by reducing the research bias will provide more credibility to the research. Undertaking the initial bracketing discussions and reflections allow the researcher to step aside to some degree from this known lifeworld in order to make the familiar strange and problematic, and to subject it to scrutiny and questioning (McNarry et al., 2019).

Research Methodology

Introductory Paragraph

The research was conducted by using a mixed method that addressed the research questions more comprehensively than either qualitative or quantitative methods by themselves. Mixed methods research requires a perspective equal and inclusive of both quantitative and qualitative approaches and a different way of thinking (McKenna et al., 2021). The mixed methods design for this study is a convergent parallel design. The convergent parallel design is appropriate for the study as both qualitative and quantitative data are needed to have a comprehensive understanding of the effects of work overload. The framework of the convergent parallel mixed method design driven by a pragmatism paradigm provides a comprehensive view

of the study. The pragmatism paradigm aligns with the core of the study that reveals the effect of high workload on the provided medical services and business profitability. The pragmatism approach facilitates the mixing of quantitative and qualitative approaches in a way that best addresses the research questions (McKenna et al., 2021). In undertaking mixed research, there are key informed decisions that need to be made. Firstly, the priority to be afforded to the individual components needs to be determined. Secondly, the timing of data collection is crucial (McKenna et al., 2021).

The Appropriateness of the Mixed Design for the Research Study

The use of the mixed design method in the healthcare sector offsets the vulnerabilities in various methods and generates a more complete picture (Curry & Nunez-Smith, 2015). Schoonenboom and Johnson (2017) stated that a mixed methods design is characterized by the combination of at least one qualitative and one quantitative research component. The research was conducted by using a mixed method that addresses the research questions more comprehensively than neither qualitative nor quantitative methods could achieve solely. Raven et al. (2011) stated that mixed methods research therefore has the potential to harness the strengths and counterbalance the weaknesses of both approaches and can be especially powerful when addressing complex, multifaceted issues such as health services interventions. Fetters et al. (2013) stated that mixed methods research offers powerful tools for investigating complex processes and systems in health and health care. Mixed methods research offers great promises for practicing researchers who would like to see methodologists describe and develop techniques that are closer to what researchers actually use in practice (Johnson & Onwuegbuzie, 2004). As providers and policy makers strive to ensure quality and safety for patients and families,

researchers can use mixed methods to explore contemporary healthcare trends and practices across increasingly diverse practice settings (Shorten & Smith, 2017).

A qualitative dimension is needed to gather community perspectives at each stage of the research process, while a quantitative dimension provides the opportunity to demonstrate outcomes that have credibility for community members and scholars (Mertens, 2007). Mixed methods researchers need to establish a purpose for their mixing; a rationale for the reasons why quantitative and qualitative data need to be mixed in the first place (Creswell, 2014). The mixed methods approach has emerged as a "third paradigm"' for social research. It has developed a platform of ideas and practices that are credible and distinctive and that mark the approach as a viable alternative to quantitative and qualitative paradigms (Denscombe, 2008). High workload effects on patient satisfaction research are complex and multifaceted. The integration of both qualitative and quantitative methods optimized the breadth and depth of the study, taking into consideration the real-world environment and socio-cultural context of the nursing homes.

Vedel et al. (2019) stated that in mixed methods research the data collected is more comprehensive and provides a more complete understanding of the problem and potential solutions. Mixed methods research is versatile, pragmatic, and adaptable to constraints and opportunities during a research process (Kaur, 2016). Mixed methods provide opportunities for participants to have a strong voice and share their experiences across the research process, and they can facilitate different avenues of exploration that enrich the evidence and enable questions to be answered more deeply (Shorten & Smith, 2017). The critical strength of mixed method approaches is that they typically capitalize on data reflecting individual lived experiences in the qualitative strand. Mixed methods can facilitate the involvement of other key stakeholders, such as partners, family members, and/or other knowledge users, in the process of developing the

research question(s) and outlining the research designs. It appears clearly that Mixed method is a strong option to leverage effective patient engagement and supports ongoing research focused on patient-identified priorities and the improvement of patient outcomes (Regnault et al., 2018). This ensures that the results are considered from the patients' perspective. Incorporating patients' voice in mixed method helps ensure that the research is focused on the needs and priorities of patients (Regnault et al., 2018).

The main reasons for conducting the mixed method in this study is to support the qualitative findings with quantitative findings, triangulate results, provide more comprehensive understanding of effects of high workload on patient satisfaction, and the profitability of the nursing homes. The mixed design provides at least three advantages: (a) helps researchers examine an issue from multiple perspectives, (b) by triangulating two different methods and including several forms of data, and (c) the mixed design tends to be pragmatic that the researchers can flexibly adapt the design and methods to constraints and opportunities that pop up during the research process (Kaur, 2016).

The Appropriateness of the Convergent Parallel Method for the Research Study

The convergent parallel design is appropriate for the study as both qualitative and quantitative data are needed to have a comprehensive understanding of the effects of work overload. Fetters et al. (2013) stated that in a convergent design, the qualitative and quantitative data are collected and analyzed during a similar timeframe. During this timeframe, an interactive approach may be used where iterative data collection and analysis drives change during the data collection procedures. The convergent parallel mixed method design is used to analyze the effect of the workload on the patients' satisfaction and the profitability of the business. Results from the data analysis of a convergent parallel mixed method provided insight into the effect of high

workload and shed light on that phenomenon. The quantitative portion was built on analyzing previously collected data, while the qualitative portion depended on interviewing the participants to extract in-depth data. Parallel-results convergent synthesis design consists of independent syntheses of qualitative and quantitative evidence and an interpretation of the results in the discussion (Hong et al., 2017). Creswell (2014) stated that in convergent parallel mixed study, the researcher will first report the quantitative statistical results and then discuss the qualitative findings (e.g., themes), that either confirm or disconfirm the statistical results. In this research, the findings of the quantitative and the qualitative components were used to enrich the findings and provide further insight into the research subject.

The Appropriateness of the Convergent Parallel Method for the Triangulation for the Research

Triangulation is a measurement technique often used by surveyors to locate an object in space by relying on two known points in order to "triangulate" on an unknown fixed point in that same space. Early on, social scientists borrowed the concept of triangulation to argue for its use in the validation process in assessing the veracity of social science research results (Mertens & Hesse-Biber, 2012). Triangulation is used to help understand the experience of a common phenomenon and add depth to data that is collected (Fusch et al., 2018). Terms such as "triangulation," "combining methods," and "multiple methods" have been around for quite a while to designate using different methods of data analysis in empirical studies. However, this practice has gained new momentum through a research strand that has recently emerged and that explicitly aims to offer a framework for combining methods (Timans et al., 2019). The mixed method is lending itself to triangulate the date in collecting and analyzing the data and presenting the results of the research. Triangulation has proved useful in confirming and finding analogies

and correlations between results obtained using different methods. The complementarity method validates, describes, and clarifies the results obtained using other methods (Piccioli, 2019). With the purpose of corroboration and validation, the researcher aims to triangulate the methods by directly comparing the quantitative statistical results and qualitative findings (Demir & Pişmek, 2018).

Hadi and Closs (2016) stated that the convergent design is best suited when the researchers intend to obtain complementary data on the same topic for the purpose of triangulation. It also allows researchers to overcome certain weaknesses of one methodology by complementing it with another methodology and gain in-depth understanding of the research problem. Salmon (2016) stated that convergent parallel design involves collecting and analyzing two independent strands of quantitative and qualitative data in a single phase: merging the results of the two strands and then looking for convergence, divergence, contradictions, or relationships between the two datasets. Convergent triangulation is when the data interpretation phase uses the results of two parallel studies to confirm and support (with greater relevance) the results obtained (Piccioli, 2019). Edmonds and Kennedy (2017) explained that the convergent parallel method involves the collection of different but complementary data on the same phenomena. Thus, it is used for the converging and subsequent interpretation of quantitative and qualitative data. This approach is often referred to as the concurrent triangulation design (single-phase) because the data are collected and analyzed individually but at the same time. The parallel-databases design is structured so that the quantitative and qualitative data are collected separately (not within the same measures) but at the same time (Edmonds & Kennedy, 2017). Mixed methods offer a number of advantages over qualitative or quantitative methodologies alone. Mixed-methods

methodology is of strategic significance when the research questions require triangulating (Hadi & Closs, 2016).

The current research method contains an in-built method triangulation that uses data from different types of resources. qualitative research does not require specific sample sizes, nor does it require that the sample size be determined a priori. While there are no specific "rules" for determining sample size, researchers must collect enough quality data to answer the research question. Often, the pre-determined sample size is not feasible, or the area of study requires additional participants; it is understood that the desired sample size may change as the research progresses (Gill, 2020). Sample size can only be a useful quality indicator when related to the research purpose, the chosen methodology and the composition of the sample, i.e., who was included and why (Busetto et al., 2020).

Research Questions

The qualitative results addressed three research questions (RQ1, RQ2, and RQ3). The data were collected by the in-person interview method and the results of the qualitative data were organized by research questions. To address the quantitative question (RQ4) and hypotheses, ANOVA methodology has been used.

RQ1- How does increased workload experienced by employees in nursing homes impact the quality of provided healthcare services?

RQ2- How does the increase in medical errors (complaints) in nursing homes, as an indicator of the quality of provided healthcare services, impact the level of customer satisfaction and reflect on the profitability of the business?

RQ3- What are the relational and professional practices that can help overcome the obstacles of increased workload experienced by employees in nursing homes?

RQ4- What is the relationship between the staff-patient ratio and the number of patient complaints as well as the bed occupancy rate in nursing homes in Houston, Texas?

Summary Paragraph

The heavy workload of healthcare workers is one of the major problems in the United States' health system. The heavy workload is affecting the quality of healthcare services and patients' safety. The study shed a light on the effect of heavy workload on patient satisfaction and the financial stability of nursing home facilities in Houston, Texas. The effect of workload on the patients' satisfaction and business profitability cannot be explored by using one way of research, but a mixed approach that can better help in diagnosis and in finding the truth regarding the problem. The research problem was explored by using a mixed convergent parallel method because it provides more in-depth information and gives the ability to converge the data extracted from both qualitative and quantitative approaches.

Participants

Quantitative Approach

The data of the quantitative approach were collected from The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes. CMS created the Five-Star Quality Rating System to help consumers, their families, and caregivers compare nursing homes more easily. The Nursing Home Compare web site features a quality rating system that gives each home a rating of between 1 and 5 stars. Nursing homes with 5 stars are considered to have above average quality and nursing homes with 1 star are considered to have quality much below average (Centers of Medicare and Medicaid Services, 2019). There is one overall 5-star rating for each nursing home, and a `separate rating for each of the following three source of information: (1) Health Inspections: the health inspection rating

contains the most recent health inspections and investigations due to complaints, (2) Staffing: the staffing rating has information about the number of hours of care provided on average to each resident each day by nursing staff, and (3) Quality measures: the quality measure rating has information on 15 different physical and clinical measures for nursing home residents (Centers of Medicare and Medicaid Services, 2019).

The data were collected from The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes. The staffing rating is based on these measures: (1) Registered Nurses (RN) hours per resident per day and (2) total nurse staffing (Including RN, licensed vocational nurse [LVN], and certified nurse assistants) hours per resident per day. To get more accurate data, the Medicare website provided detailed data of time provided per healthcare workers to patients (residents) in nursing homes.

If a complaint about a nursing home is filed, the state may decide an inspection is needed. A single complaint may contain multiple allegations. Complaints can be filed by residents, families, or others with concerns about the care a resident is receiving (Peterson et al., 2021). If a complaint results in an inspection that finds citation, it is counted, and the citations are included in the nursing home's rating. As part of the onsite-inspection process, an important question for the surveyors is whether the allegations in the complaint are substantiated, which means there are indications that the practices of the nursing home are likely inconsistent with regulatory standards. Only substantiated complaints are further assessed to determine if any federal regulations have been violated, and if so, what level of deficiency citation should be issued (Peterson et al., 2021). The occupancy rate has been extracted by dividing the average resident per day by the number of facility beds.

Qualitative Approach

Participants of the qualitative approach were chosen to participate in the research based on their department (e.g., nurses, CNAs, management, etc.). The study excluded the rehab health care providers, kitchen workers, housekeeping, and even the pharmacy workers. The reason behind that is that most nursing homes outsource these services and are not involved directly in the staffing process regarding these departments. Chen (2018) stated that in a typical skilled nursing facility (SNF), numerous parties exchange goods and services in the delivery of care. Specifically, resident care is rendered through a complex series of transactions among various parties, including, but not limited to physicians, pharmacists, equipment distributors and manufacturers, rehabilitation therapists, laboratorians, and dieticians.

Population and Sampling

Introductory Paragraph

A fundamental difference between quantitative and qualitative designs is the type of data that is collected. Quantitative designs rely upon numerical data that allow one to conduct statistical tests to compare groups or examine relationships between variables. As a result, large samples are required to provide sufficient data (Casteel & Bridier, 2021). Sample sizes must be ascertained in qualitative studies like in quantitative studies but not by the same means. The prevailing concept for sample size in qualitative studies is saturation (Malterud et al., 2016). In quantitative studies, power calculations determine which sample size (N) is necessary to demonstrate effects of a certain magnitude from an intervention. For qualitative interview studies, no similar standards for assessment of sample size exist (Malterud et al., 2016). Generalizability, important for quantitative research, is not a goal of qualitative research. Therefore, sample sizes are much smaller than those needed for quantitative designs.

Quantitative researchers typically use large samples, determined by a power analysis, while qualitative samples are smaller in order to examine a phenomenon in depth (Gill, 2020).

Quantitative Approach

Quantitative methods rely on probability sampling techniques, sometimes referred to as random sampling techniques. These techniques aim to achieve high generalizability through representativeness so that inferences from the sample units can be made reliably to the larger population from which the sample was drawn (Curry & Nunez-Smith, 2015).

Population

Population is the group of individuals restricted to a geographical region (e.g., neighborhood, city, state, country, continent, etc.), or certain institutions (e.g., hospitals, schools, health centers, etc.), that is, a set of individuals that have at least one characteristic in common (Martínez-Mesa et al., 2014). Greater Houston consists of nine counties: Austin, Brazoria, Chamber, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller. The population for these counties as of 2016 was 6.77 million (Greater Houston Partnership, 2017). The number of nursing homes in Greater Houston is 163. The number of nursing homes are licensed by both Medicare and Medicaid and have more than one hundred licensed beds in each of 124 nursing homes (Texas Health and Human Services, 2021). The 124 nursing homes with more than 100 beds licensed sent by Medicare and Medicaid are the population of the study. The residents often stay in a skilled nursing home facility temporarily in sake of solving a special medical need outside of a hospital. Skilled nursing facilities (SNFs) are a particular type of nursing home that provide short-term skilled nursing care and rehabilitation services to patients following a stay in an acute-care hospital. Skilled nursing home (SNF) services are covered by Medicare that are considered the second largest payer for nursing home (Gu et al., 2019). The small licensed

skilled nursing home facilities, which have less than one hundred beds, have been excluded from the study, which leaves us a population of 124 SNFs in the research.

Sampling

The nature of quantitative designs is distinctly different, which affects the size of the sample. Using non-numerical forms of data, the requirements for sample size are also less numerically based (Casteel & Bridier, 2021). Sample size calculation is an essential item to be included in the project to reduce the probability of error, respect ethical standards, and define the logistics of the study (Martínez-Mesa et al., 2014). The higher the confidence level (greater expected precision), the larger the sample size. This parameter is usually fixed as 95% (Martínez-Mesa et al., 2014). Because the population size is considered small (124), the sample size is better off as 97. Quantitative methods rely on probability sampling techniques, sometimes referred to as random sampling techniques. These techniques aim to achieve high generalizability through representativeness so that inferences from the sample units can be made reliably to the larger population from which the sample was drawn (Curry & Nunez-Smith, 2015). The quantitative study explores the relationship between staff-patient ratio and the number of patient complaints as well as the bed occupancy rate in nursing homes in Greater Houston, Texas. The quantitative research was conducted by extracting the data from The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes. The correlation was measured between three variables: staff-patients ratio, patient complaints, and bed occupancy. Strategies have been adopted to reduce the incidence of missing data, but these have to be thought through before the first data collection. Whenever the problem of missing data are present, its implications for interpreting

results have to be examined, particularly where they are to be generalized to a broader population.

A sample frame is generally thought of as a file from which a sample is selected (DiGaetano, 2013). The sample frame for the quantitative approach of the study includes all the licensed nursing homes in greater Houston area that have more than 100 licensed beds. The table below shows the distribution map of the licensed skilled nursing facilities in the Greater Houston area. Depending on the sample size calculator with 95% confidence level and five confidence intervals, the sample size should be 97 out of the whole population of skilled nursing facilities in Greater Houston (Creative Research Systems, 2012).

Table 2

Nursing Home Distribution in Greater Houston, Texas

County	Number of licensed skilled nursing home (more than 100 licensed beds)
Austin	1
Brazoria	9
Chambers	2
Fort Bend	8
Galveston	11
Harris	78
Liberty	3
Montgomery	10
Waller	2
Total	124

Note. Nursing homes which have less than 100 beds have been excluded from the study.

Qualitative Approach

The qualitative approach is useful in identifying and understanding the beliefs and behaviors of the population. Qualitative approach incorporates the recording, interpreting, and analyzing of non-numeric data with an attempt to uncover the deeper meanings of human experiences and behaviors (Renjith et al., 2021).

Population

Registered nurses (RNs) play a critical role in health care delivery. With an aging US LVN (Licensed Vocational Nurse) population, health care demand is growing at an unprecedented pace (Juraschek et al., 2019). RN staff were more often focused on resident safety and putting the "big picture" together, whereas staff were more often focused on the administrative assignment and "completing the task." (Vogelsmeier et al., 2011). LVN works under the direction of an RN or another medical practitioner and are expected to consult with an RN if the client becomes unstable and thus requires more complex care. LVN is able to work as a team member only, whereas the RN can work as an independent practitioner or as a team member in all clinical settings (Prentice et al., 2020). About 70% of licensed nursing care in nursing homes is provided by licensed practical or vocational nurses (LVNs) rather than RNs (Corazzini et al., 2013). LVNs were described frequently being in supervisory positions and the only licensed nursing staff in the nursing home during evening or weekend shifts. LVNs also described that sometimes they functioned beyond their scope of practice because an RN was not present in the nursing home (Corazzini et al., 2013). Licensed practical nurses/licensed vocational nurses have a program of study of historically 12 to 18 months, though some programs are now 2 years in length. In this short time frame, only a minimal scientific and

theoretical foundation can be offered. Therefore, it is essential that LVNs working in occupational and environmental health settings have on-site or consultative supervision.

Texas is home to 190,000 registered nurses (RNs), 72,000 licensed vocational nurses (LVNs), and 86,000 certified nursing assistants (CNAs). While these professionals work in every city across the state, the Greater Houston metro area contains the largest population of nurses, including 44,450 RNs, 12,920 LVNs, and 16,610 CNAs (Nursing School Almanac, 2021). Houston offers some of the best nursing career opportunities and salaries in all of Texas. The city's RNs earn a median annual salary of $75,830, while its LVNs earn $45,360 annually and its CNAs earn $24,510 per year (Nursing School Almanac, 2021).

Nursing home top management teams, which includes the nursing home administrator, director of nursing (DON), and medical director, can have an important role in influencing quality in nursing homes. Top managers are responsible for overall oversight of nursing home care delivery (Krause, 2012). A nursing home facility has to have one nursing home administrator and one director of nursing. The nursing home administrator has to have specifically a nursing home administrators license, while the director of nursing services should have a registered nurse license (Texas Health and Human Services, 2021). Even though DONs do not typically provide direct resident care, DONs may be particularly central to quality of care because of their role in coordinating, executing, and overseeing nursing care (Krause, 2012). The director of nursing services is responsible for: (1) coordinating each resident's comprehensive plan of care and (2) ensuring that only personnel with an appropriate license or permit administer medication (Texas Health and Human Services, 2021). Directors of nursing (DON) are central to quality of care in nursing homes (NH) because of their role in coordinating and overseeing nursing care (Krause, 2012). Each institution must have a licensed nursing facility administrator.

The nursing home administrator shall: (1) manage the institution, (2) be responsible for: delivery of quality care to all residents and implementation of the policies and procedures of the institution, and (3) work at least 40 hours per week on administrative duties (Texas Health and Human Services, 2021).

Sampling

Regarding the nonuniformity of the distribution of nursing homes in Greater Houston, the total number of nursing homes that are certified by Medicare and Medicaid and have more than 100 beds were divided by the county that they are located in. The table below shows that Harris County contains the majority of nursing homes, with 78 out of 124 being in the area, while the rest of the nursing homes are divided regarding their county distribution as follows: Galveston contains 11 nursing homes; Montgomery: 10, Brazoria: 9, Fort Bend: 8, Liberty: 3, Waller: 2, Chambers: 2, and Austin: only one nursing home. Since we do not have access to the entire population due to the limitation of time, Quota sampling was used in choosing the nursing homes that I ran the participants' interviews into by giving a quota for each county depending on the proportion of nursing homes located in that specific county. Luborsky and Rubinstein (1995) stated that quota sampling is a method for selecting a number of subjects to represent the conditions to be studied rather than to represent the proportion of people in the universe.

The quota was calculated by dividing the number of nursing homes in each county by the total number of nursing homes in Greater Houston, which is currently standing at 124 nursing homes. As mentioned before, this sampling method was used solely to identify the number of nursing homes I ran the in-person interview into. This sampling method is ideal, especially when there are multiple groups of known size within the main sample. The goal of using this method is to represent each subgroup fairly in the final sample. After identifying the proportion or the

quota for each county, the next step is to identify how many nursing homes will be chosen from each county. I have conducted face-to-face interviews in a total of seven nursing homes. The quota for each county has been calculated by multiplying its proportion percentage by seven (i.e., the chosen sample size).

Relating to the number of nursing homes in counties in the Greater Houston area, the following quotas have been allocated to each county: four nursing homes from Harris County, one from Brazoria County, one from Galveston County, and one from Montgomery County. When I successfully identified the quota in each subgroup (county), the nursing homes were then chosen at random depending on the computer random number calculation. When the nursing homes were chosen, the participants that were interviewed from each one of the selected nursing homes were divided as follows: I interviewed one registered nurse, one licensed vocational nurse, one certified nursing assistant, one director of nursing, and one nursing home administrator in each nursing home the study took place in. The participants have been chosen from each facility depending on the availability of the employees and permission given by the management team. I took into consideration that the interviews were conducted during the day shift only.

One nursing home administrator refused to conduct the research in his facility. This was due to the mother company's policy in the nursing home and the busyness of its staff. Because of this shortcoming, I concurred to conduct the research in another facility located in the same county that matched the set-out criteria of the nursing homes under study. The purpose of using a face-to-face interview is to allow participants to share in-depth perspectives and experience of the provided healthcare services. The purposive sampling technique was used to examine a diverse range of cases relevant to the subject of the research. The reasons for adopting a

purposive strategy are based on the assumption that, given the aims and objectives of the study, specific kinds of people may hold different and important views about the ideas and issues at question and therefore need to be included in the sample (Campbell et al., 2020). Purposive sampling strategies move away from any random form of sampling and are strategies to make sure that specific kinds of cases of those that could possibly be included are part of the final sample in the research study (Campbell et al., 2020).

The number of participants is therefore dependent on the richness of the data, and more than 15 cases can make analysis complicated and "unwieldy" (Austin & Sutton, 2014). The collected raw data from interviewing the participants was coded and converted into usable data through the identification of themes, concepts, or ideas that have connections to each other. A particularly important part of the thematic analysis process involves coding the data. A code is simply a short, descriptive word or phrase that assigns meaning to the data related to the researcher's analytic interests (Lester et al., 2020). The whole population consists of all individuals that fit the study. While studying the whole population is impractical, sampling is considered a crucial step in research. As a primary method, qualitative interviews seek to harness the potential qualitative data for nuanced, in-depth, and sometimes new understandings of social issues (Braun et al., 2021).

In order to get overall data about the constructs of the qualitative section of the research like workload, quality of medical services, and patient satisfaction, face-to-face interviews were held with sample participants in the likes of nurses, nurse assistants, directors of nursing, and nursing home administrators. To constitute an appropriate sample size in the qualitative portion of the research is only really answerable within the context and scientific paradigm of the research being conducted (Boddy, 2016). The most widely used principle for determining sample

size and evaluating its sufficiency is that of saturation (Vasileiou et al., 2018). Data saturation is the most commonly employed concept for estimating sample sizes in qualitative research (Guest et al., 2020). Saturation refers to the point during data analysis at which incoming data points (interviews) produce little or no new useful information relative to the study objectives (Guest et al., 2020).

Table 3

The Percentage of Nursing Homes' Quotas for Each County

County	Number of Nursing Home	Quota	Selected nursing homes based on counties
Austin	1	0.81%	0
Brazoria	9	7.26%	1
Chambers	2	1.61%	0
Fort Bend	8	6.45%	0
Galveston	11	8.87%	1
Harris	78	62.90%	4
Liberty	3	2.42%	0
Montgomery	10	8.06%	1
Waller	2	1.61%	0
Total	124	1	7

Note: the percentages (Quota) have been calculated by dividing the number of nursing homes in each county by the total number of nursing homes in the Greater Houston area.

The saturation was reached when there was no more data collected through the qualitative interviews or data changing the coding manual. Guest et al. (2020) stated that the saturation is considered met and there is no need for more interviews when the new interview does not substantially add to the body of information collected. The number of participants was sufficient enough that during the last several in-person interviews with the participants, I found that the data gathered were adequate and no further interviews should be conducted.

Data Collection and Organization

Data Collection Plan

Since the convergent parallel mixed method has been determined as a required method for answering the research questions, the next step is to draw a plan of the actions that fit with the method and components of the study. The main goal of the study focuses on collecting and analyzing the data. The results of both parallel studies (qualitative and quantitative) were converged together at the end of the study to represent the conformity between the results of the two approaches. Using an independent sampling plan in a mixed methods study commits the researchers to propose at least two distinct samples, defined as having unique sampling frames but not requiring nonoverlapping participants (Curry & Nunez-Smith, 2015). A defining feature of qualitative methods is the use of purposeful sampling techniques. These techniques are primarily intended to generate a depth of information (i.e., enhancing credibility) to address a defined research question (Curry & Nunez-Smith, 2015).

The convergent parallel design is appropriate for the study as both qualitative and quantitative data are needed to have a comprehensive understanding of the effects of work overload. Fetters et al. (2013) stated that in a convergent design, the qualitative and quantitative data are collected and analyzed during a similar timeframe. The convergent parallel mixed

method design was used to analyze the effect of the workload on the patients' satisfaction and profitability of the business. Results from the data analysis of a convergent parallel mixed method provided insight into the effect of high workload and shed light on that phenomenon. The quantitative portion built on analyzing previously collected data are explained in the validity and reliability section. A pilot test had been run to measure the validity and reliability of the data. The qualitative portion depended on interviewing the participants to extract in-depth data. Parallel-results convergent synthesis design consists of independent syntheses of qualitative and quantitative evidence and an interpretation of the results in the discussion (Hong et al., 2017). In this research, the findings of the quantitative and the qualitative components are used to enrich the results and provide further insight to the research subject. Salmon (2016) stated that convergent parallel design involves collecting and analyzing two independent strands of quantitative and qualitative data in a single phase, merging the results of the two strands, and then looking for convergence, divergence, contradictions, or relationships between the two datasets.

Quantitative Approach

Quantitative methods rely on probability sampling techniques, sometimes referred to as random sampling techniques. These techniques aim to achieve high generalizability through representativeness so that inferences from the sample units can be made reliably to the larger population from which the sample was drawn (Curry & Nunez-Smith, 2015). The quantitative study explores the relationship between staff-patient ratio and the number of patient complaints as well as the bed occupancy rate in nursing homes in Grand Houston, Texas. The quantitative research was conducted by extracting the data from The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes. The

correlation was measured between three variables: staff-patients ratio, patient complaints, and bed occupancy. Strategies have been adopted to reduce the incidence of missing data, but these have to be thought through before the first data collection. Whenever the problem of missing data are present, its implications for interpreting results have to be examined, particularly where they are to be generalized to a broader population.

Qualitative Approach

The participants of the study, such as nursing home administrators, directors of nurse departments, nurses, and nurses' assistants, have been interviewed and their responses to the in-person interview questions have been recorded. The recorded answers to the open-ended interview questions have been coded to organize the data regarding workload, quality, and patient satisfaction. The research face-to-face interviews were constructed to contain the most related information that can help the researcher in extracting the most beneficial items to the research. Staffini et al. (2022) stated that reducing the number of items in the interview while maintaining relevant information is important as it is associated with advantages such as higher respondent engagement and reduced response error. Participants were chosen to participate in the research based on their department (management, nurses, and nurse assistants). The study excluded rehab health care providers, kitchen workers, housekeeping, and pharmacy workers. The reason behind that is that most nursing homes outsource these services and are not involved directly in the staffing process regarding these departments. Chen (2018) stated that in a typical skilled nursing facility (SNF), numerous parties exchange goods and services in the delivery of care. Specifically, resident care is rendered through a complex series of transactions among various parties including, but not limited to physicians, pharmacists, equipment distributors and manufacturers, rehabilitation therapists, laboratorians, and dieticians.

The purpose of a face-to-face interview is to allow participants to share in-depth perspectives and experience of the provided healthcare services. The collected raw data from interviewing the participant were coded and converted into usable data through the identification of themes, concepts, or ideas that have connections to each other. The participant responses to the in-person interview questions were cross analyzed to better represent emerging thematic codes. The analysis of data was done by using thematic analysis, which supported theme development while staying grounded in the data.

Member Checking

The trustworthiness of results is the bedrock of high-quality qualitative research. Member checking, also known as participant or respondent validation, is a technique for exploring the credibility of results (Birt et al., 2016). To constitute an appropriate sample size in the qualitative portion of the research is only really answerable within the context and scientific paradigm of the research being conducted (Boddy, 2016). Relating to the number of nursing homes in counties in the Greater Houston area, the following quota had been allocated to each county: four nursing homes from Harris County, one from Brazoria County, one from Galveston County, and one from Montgomery County. When I successfully identified the quota in each subgroup (county), the nursing homes were chosen at random depending on the computer random number calculation. When the nursing homes were chosen, the participants that were interviewed from each one of the chosen nursing homes were divided as follows: one registered nurse, one licensed vocational nurse, one certified nursing assistant, one director of nursing, and one nursing home administrator in each nursing home the interviews were conducted in. The participants were chosen from each facility depending on the availability of the employees and

the permission given by the management team. I took into consideration that the interviews were only run during the day shift, excluding night shift.

One nursing home administrator refused to have the research take place in his facility. This is because it did not comply with the mother company's policy and the busyness of his staff. Because of this setback, I conducted the in-person interviews in another facility located in the same county and matched the established criteria of the nursing homes under study. The purpose of using a face-to-face interview is to allow participants to share in-depth perspectives and experience of the provided healthcare services. The purposive sampling technique was used to examine a diverse range of cases relevant to the subject of the research. The reasons for adopting a purposive strategy assume that, given the aims and objectives of the study, specific kinds of people may hold different and important views about the ideas and issues at question and therefore need to be included in the sample (Campbell et al., 2020). Purposive sampling strategies move away from any random form of sampling and are strategies to make sure that specific kinds of cases of those that could possibly be included are part of the final sample in the research study (Campbell et al., 2020). The transcript of the first interview foregrounds the second interview during which the researcher focuses on confirmation, modification, and verification of the interview transcript (Birt et al., 2016). The transcripts were returned to the participants and a second interview was undertaken to discuss the data. By doing this, it will empower the participant to remove or add some data to the findings. Birt et al. (2016) stated that the transcript of the first interview foregrounds the second interview during which the researcher focuses on confirmation, modification, and verification of the interview transcript.

Follow-up Interviews

During the initial interview, the main matters were discussed with the participants, and if there was a new topic or information that was brought up during the analysis process, then a new question would be addressed to the same participant. The participants were notified if there may be a follow-up interview or if only a few additional questions needed to be asked as a follow-up step. A follow-up interview gives both the interviewer and the participant an opportunity to reflect on what was talked about in the first interview, allowing new insights or aspects to emerge. It also gives the researcher an opportunity to clarify questions or test interpretations with the participant directly, giving more nuanced data and enhancing validity (Holter et al., 2019).

Instruments

Qualitative Approach

Semi-structured interviews were used during the qualitative section of the research, which typically consisted of dialogue with the participant and guided by a flexible protocol and supplemented follow-up questions. DeJonckheere and Vaughn (2019) stated that semi structured interviews allow the researcher to collect open-ended data to explore participant thoughts, feelings, and beliefs about a particular topic and to dive deeply into personal and sometimes sensitive issues. Although there is certainly an appropriate place in qualitative approach for other data collection methods, a primary benefit of the semi-structured interview is that it permits interviews to be focused while still giving the investigator the autonomy to explore pertinent ideas that may come up in the course of the interview (Adeoye-Olatunde & Olenik, 2021). The semi-structure interview varies depending on the type of participants, which are organized in two levels: nurses and managers. The interview guide is explained thoroughly in appendix A. The purpose of the research was explained to the participants of the research with refereeing to the

confidentiality of their answers. The interview guide was customized depending on the participants' categories which are identified, as explained before, among two main categories: (1) direct health care providers (e.g., RN, LVN, and CNA) and (2) the management team (facility administrator, DON). As explained in the interview guide, the participants were notified that the interview will be recorded in sake of registering all participants' information and comments. The interviews began by establishing a rapport with the participants, then the topic would shift in order to ask more in-depth, open-ended questions.

Quantitative Approach

CMS created the Five-Star Quality Rating System to help consumers, their families, and caregivers compare nursing homes more easily. The Nursing Home Compare website features a quality rating system that gives each home a rating of between 1 and 5 stars. Nursing homes with 5 stars are considered to have above average quality and nursing homes with 1 star are considered to have quality much below average (Centers of Medicare and Medicaid Services, 2019). There is one overall 5-star rating for each nursing home, and a separate rating for each of the following three sources of information: (1) Health Inspections: the health inspection rating contains the most recent health inspections and investigations due to complaints, (2) Staffing: the staffing rating has information about the number of hours of care provided on average to each resident each day by nursing staff, and (3) Quality measures: the quality measure rating has information on 15 different physical and clinical measures for nursing home residents (Centers of Medicare and Medicaid Services, 2019). The data were collected from The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes. The staffing rating is based on these measures: (1) Registered Nurses (RN) hours per resident per day and (2) total nurse staffing (Includes RNs, licensed vocational

nurses (LVN), and certified nurse assistants) hours per resident per day. If a complaint about a nursing home is filed, the state may decide an inspection is needed. If a complaint results in an inspection that finds citations, it is counted, and the citations are included in the nursing home's rating. The occupancy rate was extracted from dividing the average resident per day to the number of facility beds.

Data Organization Plan

Participants were chosen to participate in the research based on their department (managers, nurses, nurse assistants. The study excluded rehab health care providers, kitchen workers, housekeeping, and pharmacy workers. The reason behind this is that most nursing homes outsource these services and are not involved directly in the staffing process regarding these departments. Chen (2018) stated that in a typical skilled nursing facility (SNF), numerous parties exchange goods and services in the delivery of care. Specifically, resident care is rendered through a complex series of transactions among various parties including, but not limited to physicians, pharmacists, equipment distributors and manufacturers, rehabilitation therapists, laboratorians, and dieticians. The sample size was chosen to address the qualitative question of the study. The number of participants is therefore dependent on the richness of the data, and more than 15 cases can make analysis complicated and "unwieldy" (Austin & Sutton, 2014). The collected raw data from interviewing the participant were coded and converted into usable data through the identification of themes, concepts, or ideas that have connections to each other. The participant responses to the in-person interview questions were cross analyzed to better represent emerging thematic codes. The analysis of data was done by using thematic analysis, which supported theme development while staying grounded in the data. The coding process highlighted relevant words based on the frequency of a participants' declaration to a

single question of the interview. Codes and sub-codes were marked, referring to the significant words and statements of the participants' declaration. When the coding process was done, the code book was then developed. The answers to the interview questions were cross analyzed to identify the emerging thematic codes of workload, patient satisfaction, and facility profitability.

Greater Houston consists of nine counties: Austin, Brazoria, Chamber, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller. The population for these counties as of 2016 was 6.77 million (Greater Houston Partnership, 2017). The number of nursing homes in Greater Houston is 163. The number of nursing homes are licensed by both Medicare and Medicaid and have more than one hundred licensed beds in each of 124 nursing homes (Texas Health and Human Services, 2021). The 124 nursing homes with more than 100 beds licensed sent by Medicare and Medicaid are the population of the study. The quantitative study explores the relationship between staff-patient ratio and the number of patient complaints as well as the bed occupancy rate in nursing homes in Greater Houston, Texas. The quantitative research was conducted by extracting the data from The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes. The correlation was measured amongst three variables: staff-patients ratio, patient complaints, and bed occupancy. Strategies have been adopted to reduce the incidence of missing data, but these have to be thought through before the first data collection. Whenever the problem of missing data are present, its implications for interpreting results have to be examined, particularly where these are to be generalized to a broader population. A sample frame is generally thought of as a file from which a sample is selected (DiGaetano, 2013). The sample frame for the quantitative approach of the study includes all licensed nursing homes in the greater Houston area that have more than 100 licensed beds. Depending on the sample size calculator with a 95% confidence level and five

confidence intervals, the sample size was 97 out of the whole population of skilled nursing facilities in Greater Houston (Creative Research Systems, 2012).

Data Analysis

Quantitative Approach

A quantitative research study collects numerical data that must be analyzed to help draw the study's conclusions. The goal of data analysis is to reveal the underlying patterns, trends, and relationships of a study's contextual situation (Albers, 2017). The goal of the quantitative approach is to reveal the relationship between the independent variables (Staff/Patient Ratio) and dependent variables (Patient complaint and Bed occupancy rate). The variables are categorized as dependent and independent variables. The changes of the independent variable will affect the reading of the dependent variable. A variable is an essential component of any statistical data. It is a feature of a member of a given sample or population, which is unique, and can differ in quantity or quality from another member of the same sample or population. Variable is defined as a characteristic of the participants or situation in a given study that has different values (Morgan et al., 2013). The extracted data were analyzed by using the SPSS software, which helps to analyze, transform, and produce a characteristic pattern between the research variables.

The Variables

Variables may be independent or dependent. Independent variables influence the value of other variables; dependent variables are influenced in value by other variables. A hypothesis states an expected relationship between variables (Andrade, 2021). The quantitative research was conducted by extracting the data from The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes. The correlation was measured between three variables: staff-patients ratio, patient complaints, and bed occupancy.

The independent variable is something that is not affected by the experiment itself but can be manipulated to affect the dependent variable, while the dependent variable is directly linked to the primary outcome of the study (Kaliyadan & Kulkarni, 2019).

Independent variable: The independent variable was nursing hours per patient per day as an ordinal value, which was reflected through a star rating system from 1 star to 5 stars. To get more accurate data, the Medicare website provided detailed data of time provided per healthcare workers to patients (residents) in nursing homes. Barton (2009) stated that heavy workload put on staff in the American health system is mainly to reduce staffing. In facilities without enough staff, providers "may be forced to 'cut corners' in order to cope with their workload. This may seriously reduce the quality of health services they provide" (Kovacs & Lagarde, 2022). Griffiths et al. (2020) stated that the low nurse staffing levels were related to higher reports of missed care.

The data were collected from The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes. Notably, in 2002, the Centers for Medicare and Medicaid Services (CMS) substantially expanded its quality improvement efforts by launching Nursing Home Compare (NHC), a national effort to publicly report the quality of care in all U.S. nursing homes, thereby informing consumers and incenting the improvement of quality (Brauner et al., 2018). The staffing rating is based on these measures: (1) Registered Nurses (RN) hours per resident per day and (2) total nurse staffing, including RN, licensed practical nurse (LPN), licensed vocational nurse (LVN), and certified nurse assistants hours per resident per day.

Dependent variable: patient complaints and incident reports: these are valuable resources for monitoring the quality of health-care services. Gillespie and Reader (2016) stated that

patients can provide reliable data on a range of issues; healthcare complaints have been shown to reveal problems in patient care like medical errors, breaching clinical standards, and poor communication, which is hard to capture through safety and quality monitoring systems. Patients and families who make a formal complaint primarily desire two outcomes: a patient-centric response and system-level quality improvement (van Dael et al., 2020). The data were collected from The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes. If a complaint about a nursing home is filed, the state may decide an inspection is needed. If a complaint results in an inspection that find citation, it is counted, and the citations are included in the nursing home's rating.

Dependent variable: bed occupancy rate: The study shed light on the effect of high workload on the bed occupancy rate, which mainly affects business profitability. Clement (2016) stated that the occupancy rate is positively associated with higher profitability. The data were collected from The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes, and the occupancy rate was extracted from dividing the average resident per day to the number of facility beds.

The health inspection rating is based on the number of deficiencies identified in the 3 most recent state surveys across several areas, including staff-resident interactions and adequate infection control protocols. The quality measures rating is based on the weighted mean of performance across 15 quality measures (e.g., avoidable hospitalizations, pressure ulcers, urinary tract infections, etc.). The nurse staffing domain is based on the mean staffing hours per resident by qualified nursing staff. The three variables mentioned above include Staff-patient as ordinal value from 1 star to 5 stars [as determined by the CMS- The staffing rating is based on these measures: (1) Registered Nurse (RN) hours per resident per day and (2) total nurse staffing,

including RN, licensed practical nurse (LVN) and nurse aide hours per resident per day and patient complaints as a discrete value, and occupancy rate as a continuous value.

Descriptive Statistics

Descriptive statistics summarize various aspects of the data, giving details about the sample and providing information about the population from which the sample was drawn. Each variable's type determines the nature of descriptive statistics that one calculates and the manner in which one reports or displays those statistics (Larson, 2006). The independent variable was nursing hours per patient per day as an ordinal value, which was reflected through a star rating system from 1 star to 5 stars. To get more accurate data, the Medicare website provided detailed data of time provided per healthcare workers to patients (residents) in nursing homes. This independent variable (Staff/Patient Ratio), as an ordinal value, was divided into six categories. Dependent variables were patient complaints as a discrete value, and bed occupancy rate as a continuous value. Once data are collected, statistical analysis typically begins by calculating descriptive statistics—numbers that characterize features of those specific data— and by presenting the descriptive statistics in tables or graphs (Larson, 2006). All the collected data were grouped together to make it more readable, like the number of patient complaints and the bed occupancy rate. The frequency distribution was depicted in two ways: as a table and as a graph.

Table 4

Types of Variables

Variable	Variable type	Data type	
Staff/Patient Ratio (Nursing hours per patient)	Independent	Ordinal	2-2.5 daily nursing hours per patient 2.51-3.00 daily nursing hours per patient 3.01-3.50 daily nursing hours per patient 3.51-4.00 daily nursing hours per patient 4.01-4.50 daily nursing hours per patient 4.51-ABOVE daily nursing hours per patient
Patient complaint	Dependent	Discrete	A variable is considered to be discrete when it can assume only a finite number of real values within a given interval. Number of complaints range between 0 and 50.
Bed occupancy rate	Dependent	Continuous	A variable is considered to be continuous if it can assume an infinite number of real values within a given interval. The occupancy rate range is between 0 and 100

Note. Three variables have been identified: Staff/Patient Ratio, Patient complaint, and Bed occupancy rate.

Hypothesis

Significance-based hypothesis testing begins with the formulation of the null hypothesis. This hypothesis, denoted H_0, typically represents "no effect" or "no relationship" between the variables under study (Turner et al., 2020).

H4o. There is no statistically significant relationship between staff-patient ratio and patient complaints and the profitability of the nursing home.

Alternative H4a. There is a significant relationship between staff-patient ratio and patient complaints and the profitability of the nursing home.

The staff-patient ratio can determine the dedicated time spent by the healthcare provider with the patient during the patient's stay in a medical facility. The high overload of patients on the medical staff will increase the burden to take care of patients and provide accurate medical services. H4 address RQ4 seeks to explain the influence of high workload on patient satisfaction and business profitability. Variable included: H4 contains staff-patient which is the time provided per healthcare workers to patients (residents) in nursing homes as an ordinal value, patient complaint as discrete value, and occupancy rate as continuous value. Statistical hypothesis testing is a set of methods for statistical inference that has a fascinating and contentious history (Turner et al., 2020). The hypothesis testing is used to make judgments regarding any claim or issue using the sample data to obtain the correct decision that guides researchers to accomplish the research and achieve the objectives (Alkarkhi, 2020). The hypothesis was tested using the on-way or single facto ANOVA to compare six levels of nursing hours per resident on two dependent variables (patient complaints, bed occupancy rate). As is well known, ANOVA is designed to test differences among the means of the subpopulations, and one may observe that 'equal' means having different distributions (Fraiman & Fraiman, 2018).

Due to the familiarity, simplicity, and robustness of ANOVA methodology, this approach has been frequently used for repeated ordinal data (Stiger et al., 1998).

Hypotheses Testing

Significance-based hypothesis testing begins with the formulation of the null hypothesis. This hypothesis, denoted H_0, typically represents "no effect" or "no relationship" between the variables under study (Turner et al., 2020). RQ4- Staff-patient ratio can sometimes determine dedicated time spent by the healthcare provider with the patient during the patient's stay in a medical facility. The high overload of patients on the medical staff will increase the burden to take care of patients and provide accurate medical services. Variables included- H4 includes Staff-patient as ordinal value from 1 star to 5 stars [as determined by the CMS- The staffing rating is based on these measures: (1) Registered Nurse (RN) hours per resident per day, and (2) total nurse staffing, including RN, licensed practical nurse (LPN), and nurse aide hours per resident per day, and patient complaint as discrete value, and occupancy rate as continuous value.

Statistical hypothesis testing is a set of methods for statistical inference that has a fascinating and contentious history (Turner et al., 2020). Hypothesis testing is used to make judgments regarding any claim or issue using the sample data to obtain the correct decision that guides researchers to accomplish the research and achieve the objectives (Alkarkhi, 2020). The hypothesis was tested using the one-way or single factor ANOVA to compare five levels of nursing home star rates on two dependent variables (patient complaints, bed occupancy rate). Due to the familiarity, simplicity, and robustness of ANOVA methodology, this approach has been frequently used for repeated ordinal data (Stiger et al., 1998).

Qualitative Approach

Emergent Ideas

After identifying the sample, the data were collected and organized as codes. Creswell and Poth (2018) stated that an important step in the process is to find people or places to study and to gain access to and establish rapport with participants so that they will provide good data. The data were analyzed and coded through the recommended process by Creswell and Poth (2018), which starts by taking notes while recording, sketching reflective thinking, summarizing field notes, working with words, identifying codes, reducing codes to themes, counting frequency of codes, relating categories, relating categories to analytic framework in literature, creating a point of view, and displaying and reporting the data. Sutton and Austin (2015) concluded that coding refers to the identification of topics, issues, similarities, and differences that are revealed through the participants' narratives and interpreted by the researcher. Sutton and Austin (2015) stated that one way of establishing the "credibility" of the coding is to ask another researcher to code the same transcript and then to discuss any similarities and differences in the two resulting sets of codes. When validating the study, the Corroboration Evidence and Collaborating with Participants methods were applied. A mix of the two methods was consistent with the flexible design of the research. Tigges et al. (2019) concluded that the collaboration measures were identified using both a literature review based on specific keywords and an environmental scan.

Interpretations

Bradley et al. (2007) conclude that once the data were reviewed and there is a general understanding of the scope and contexts of the key experiences under study, coding provides the analyst with a formal system to organize the data and uncovering and documenting additional

links within and between concepts and experiences described in the data. An important tool in the process of turning the raw qualitative data into a communicative and trustworthy "story" is coding. The core operation of coding involves examining a coherent portion of the research empirical material – a word, a paragraph, a page – and labeling it with a word or short phrase that summarizes its content (Skjott Linneberg & Korsgaard, 2019). The first phase of collected data analysis started by listening, recording, writing, reading, and re-reading the answers to be more familiar with the data and start getting used to the pattern. The second phase was generating the initial codes and giving a full description of how the codes are related to the participants' answers. In the third phase, the codes were combined into themes with an explanation of how the codes were formulated to themes. Attride-Stirling (2001) stated that the development of thematic networks aims to take the researcher deeper into the meaning of the texts, exploring the themes that emerged and identifying the patterns that underlie them. Sutton and Austin (2015) found that theming refers to the drawing together of codes from one or more transcripts to present the findings of qualitative research in a coherent and meaningful way. Thematic analysis is a straightforward way of conducting hermeneutic content analysis, which is from a group of analyses that are designed for non-numerical data. It is a form of pattern recognition used in content analysis, whereby themes (or codes) that emerge from the data become the categories for analysis (Roberts et al., 2019). The process involves the identification of themes with relevance specific to the research focus, the research question, the research context, and the theoretical framework. This approach allows data to be both described and interpreted for meaning (Roberts et al., 2019).

Analysis for Triangulation

In a mixed methods research, triangulation has been lauded as a strategy for exploring viewpoints revealed through divergent data (Campbell et al., 2020). Triangulation is a measurement technique often used by surveyors to locate an object in space by relying on two known points in order to "triangulate" on an unknown fixed point in that same space. Early on, social scientists borrowed the concept of triangulation to argue for its use in the validation process in assessing the veracity of social science research results (Mertens & Hesse-Biber, 2012). Triangulation is used to help understand the experience of a common phenomenon and add depth to data that are collected (Fusch et al., 2018). Terms such as "triangulation," "combining methods," and "multiple methods" have been around for quite a while to designate using different methods of data analysis in empirical studies. However, this practice has gained new momentum through a research strand that has recently emerged and that explicitly aims to offer a framework for combining methods (Timans et al., 2019). The mixed method lends itself to triangulate the date in collecting and analyzing the data and presenting the results of the research. Broader interpretations of mixed methods triangulation would involve crossing the methodological boundary to include both qualitative and quantitative work, with varied data collection methods, within or across stakeholder groups (Campbell et al., 2020).

Hadi and Closs (2016) stated that the convergent design is best suited when the researchers intend to obtain complementary data on the same topic for the purpose of triangulation. It also allows researchers to overcome certain weaknesses of one methodology by complementing it with another methodology and gain in-depth understanding of the research problem. Salmon (2016) stated that the convergent parallel design involves collecting and analyzing two independent strands of quantitative and qualitative data in a single phase; merging

the results of the two strands and then looking for convergence, divergence, contradictions, or relationships between the two datasets. Edmonds and Kennedy (2017) explained that the convergent parallel method involves the collection of different but complementary data on the same phenomena. Thus, it is used for the converging and subsequent interpretation of quantitative and qualitative data. This approach is often referred to as the concurrent triangulation design (single-phase) because the data are collected and analyzed individually but at the same time. The parallel-databases design is structured so that the quantitative and qualitative data are collected separately (not within the same measures) but at the same time (Edmonds & Kennedy, 2017). Mixed methods offer a number of advantages over qualitative or quantitative methodologies alone. Mixed-methods methodology is of strategic significance when the research questions require triangulating (Hadi & Closs, 2016). The current research method contains an in-built method triangulation that used data from different types of resources. qualitative research does not require specific sample sizes, nor does it require that the sample size be determined a priori. Sample size can only be a useful quality indicator when related to the research purpose, the chosen methodology, and the composition of the sample (Busetto et al., 2020).

Reliability and Validity

Reliability

Reliability is the extent to which an experiment, test, or procedure yields the same results on repeated trials and the validity is the extent to which an indicator measures what it purports to measure (Scott et al., 2019). In this research's quantitative approach, the purpose of establishing reliability and validity is to make sure that the collected data are replicable, and the result of the analysis is accurate. Reliability and validity have been taken care of even during the research

design and planning methods as well as writing the research result after the analysis of the gathered data. As stated by Morgan et al. (2013) reliability is used to indicate the extent to which scores are consistent with one another and the extent to which the data are free from measurement error. The interrater reliability is a degree of agreement between rates. As stated by Scheel et al. (2018), “Inter-rater reliability refers to the consistency of data recorded by two or more raters by measuring the same subjects over a single trial.” Internal consistency is a measure of reliability, which means that we can get the same result if we repeat the test (reliable). As stated by Tavakol and Dennick (2011): “Internal consistency describes the extent to which all the items in a test measure the same concept or construct and hence it is connected to the inter-relatedness of the items within the test.” As stated by Morgan et al. (2013), “measurement validity is concerned with establishing evidence for the use of a measure or instrument in a particular setting with a specific population for a given purpose.” The KMO measure should be > .70, and the Bartlett’s test shoud be less than .05. This means that the data are correlated high enough to provide a valid and reasonable analysis. Before analyzing the collected quantitative data, a pilot study was applied to nine readings out of the sample. The results plotted in Table 5 are as following: KMO=7 and the Bartlett’s test result is less than 0.05. In the reliability statistics, the alpha coefficient was used to measure the reliability of the data. If the result was higher than .70, then the data were considered reliable. The items should be correlated and the scale should indicate a good internal consistency.

Leung (2015) identified that validity in qualitative research means “appropriateness” of the tools, processes, and data. Leung (2015) explained that validity is checking whether the research question is valid for the desired outcome, the choice of methodology is appropriate for

answering the research question, the design is valid for the methodology, the sampling and data analysis is appropriate, and that the results and conclusions are valid for the sample and context.

Researchers should consider validity during every step in developing the research, from the designing phase until writing the final research results. Qualitative research could not be trustworthy without validating the used methods and be sure that it measures what is intended to be measured. On the other side, research reliability is identified as used methods that are consistent and produce the same result if researchers use it again under the same conditions. Cypress (2017) stated that reliability and validity are two factors that any qualitative researcher should be concerned about while designing a study, analyzing results, and judging its quality. While in quantitative research, Roberts and Priest (2006) explained that validity describes the extent to which a measure accurately represents the concept it claims to measure, and reliability is the proportion of variability in a measured score that is due to variability in the true score. Mixed methods design necessitates the validity of the result from the quantitative approach and the results from the qualitative approach. The validation and reliability construct that was used and applied is a mix of corroborating evidence and collaborating with participants. By reviewing the literature and holding conversations with the participants, the main codes were originated and organized. After conducting the interviews and triangulating the data, some of the codes were validated and new codes emerged. Creswell and Poth (2018) explained the corroborating evidence that researchers make use of multiple and different sources, methods, investigations, and theories to provide corroborating evidence. Collaboration with participants methods was also used in sake of getting some ideas from a few researchers' articles that handled the same subject. Tigges et al. (2019) explained that collaboration measures were identified using both a literature review based on specific keywords and an environmental scan.

Table 5

Pilot Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.684
Bartlett's Test of Sphericity	Approx. Chi-Square	9.915
	df	3
	Sig	0.019

Note. Nine readings have been chosen randomly from the sample.

Bracketing

Bracketing adds scientific rigor and validity to any qualitative study. Bias, perhaps best described as any process at any stage of inference that tends to produce results or conclusions that differ systematically from the truth (Yarborough, 2021). Galdas (2017) stated that the research proposals and manuscripts that do not provide satisfactory detail on the mechanisms employed to minimize bias are unlikely to be viewed favorably. The whole population consists of all individuals that fit the study. While studying the whole population is impractical, sampling is considered a crucial step in research. Simundić (2013) stated that to ensure that a sample is a representative of a population and to lessen the bias of data collection, sampling should be random and every subject needs to have equal probability to be included in the study. The data analysis of the research could also be subject to bias by giving more preference to the conclusions in favor of research hypothesis. In order to get overall data about the constructs of the qualitative section of the research like workload, quality of medical services, and patient

satisfaction, face-to-face interviews were conducted with sample participants in the likes of nurses, nurse assistants, directors of nursing, and nursing home administrators.

Bracketing is a method used in qualitative research to mitigate the potentially deleterious effects of preconceptions that may taint the research process (Tufford & Newman, 2012). The notion of bracketing is not about getting rid of subjective components and removing pre-understandings, but about raising awareness of them so that they can be explored, made use of, and explicitly incorporated. The essential part of bracketing is to isolate researcher experience from what is being studied. Dörfler and Stierand (2020) stated that bracketing can be conceptualized as the researchers' attempt to hold abeyance to their pre-understandings and assumptions to attain experiences before making sense of them. The first stage of bracketing is to put bias aside by listening carefully to the participant without interruption while recording the interview to be analyzed and coded later during the analysis process. McGrath et al. (2019) stated that actively listening to the interviewer means respecting silence and identifying such silent moments as an opportunity for ongoing reflection. Interviews on subjects that have profound meanings for the interview subjects may prompt deep reflection on behalf of respondents. The next stage of bracketing, according to Dörfler and Stierand (2020), is to raise the awareness of presumptions and previous knowledge and beliefs the interviewer was not aware of. This has been achieved by transpersonal reflexivity. Berger (2015) stated that reflexivity means turning off the researcher lens back onto oneself to recognize and take responsibility for one's own situatedness within the research and the effect that it may have on the setting and people being studied, questions being asked, and data being collected and its interpretation. The qualitative analysis is subject to many types of bias like data collection bias,

and the bias in analyzing and reporting the data. Reflexivity by reducing research bias provides more credibility to the research.

Summary of Section 2

The heavy workload of healthcare workers is one of the major problems in the United States' health system. Heavy workload is affecting the quality of healthcare services and patients' safety. The study shed a light on the effect of heavy workload on patient satisfaction and the financial stability of nursing home facilities in Houston, Texas. The effect of workload on the patients' satisfaction and business profitability cannot be explored by using only one way of research, but a mixed approach that can better help in diagnosis and in finding the truth regarding the problem. The research problem was explored by using a mixed convergent parallel method that provides more in-depth information and gives the ability to converge the data extracted from both qualitative and quantitative approaches. The convergent parallel mixed method converged two types of data collected in two different methods, analyzed separately, and converged to get the final result. In the process of gathering data, honesty, confidentiality, and trustworthiness were provided for the sake of reaching the most fulfilling and accurate results. To collect data free of bias, the source of potential bias was identified and its effects on the study were measured and reduced to a minimal level. The complexity of the convergent parallel mixed method requires the researcher to have qualitative and quantitative analytical skills from the designing process to converge and articulate the results. Results from the data analysis of a convergent parallel mixed method provided insight into the effects of high workload and shed light on this phenomenon.

Section 3: Introduction

Poor quality of healthcare services is an increasing problem in many nursing homes in Houston, Texas. This problem threatens the lives of elderly patients, who are the most vulnerable of the population. A convergent mixed methods design was used, where the qualitative and quantitative data were collected parallelly, analyzed separately, and then merged. In this study, the quantitative data were obtained from the Medicare public document (Nursing Home Compare) and used to test the relationship between the staff-patient ratio and patient complaints, as well as the relationship between staff-patient ratio and bed occupancy rate. At the same time, the qualitative method was applied by exploring the effect of high workload by interviewing healthcare workers and patients in seven nursing homes in Houston, Texas. The reason for collecting both quantitative and qualitative data were to get a deeper insight into the effect of high workload on patient complaints and the profitability of nursing homes.

The findings from the study show that high workload affects the profitability of the nursing homes in Grand Houston, TX. Both the qualitative and the quantitative approaches revealed the same result. Results of both the qualitative and the quantitative approaches did not give the same result regarding the effect of high workload on the quality of healthcare. Since the quantitative approach showed that there is no effect of high workload on the quality of healthcare services, the qualitative approach revealed the opposite result.

Poor quality of healthcare services is an increasing problem in many nursing homes in Houston, Texas. This problem threatens the life of elderly patients, who are the most vulnerable of the population. The problem is that the increased workload experienced by employees in nursing homes in Houston, TX is potentially creating an increase in medical errors, resulting in the loss of customer satisfaction and profitability to the business. The purpose of this mixed

design convergent parallel method was to understand the effect of high workload on patient satisfaction and the profitability of nursing homes in Houston, Texas.

A convergent mixed methods design was used, which is a type of design where the qualitative and quantitative data are collected parallel, analyzed separately, and then merged. In this study, the quantitative data were obtained from the Medicare public document (Nursing Home Compare) and used to test the relationship between staff-patient ratio and patient complaints, as well as the relationship between staff-patient ratio and bed occupancy rate. At the same time, the qualitative method was applied by exploring the effect of high workload through interviewing healthcare workers and patients in seven nursing homes in Houston, Texas. The reason for collecting both quantitative and qualitative data were to get deeper insight on the effect of high workload on patient complaints and the profitability of the nursing homes.

Data Collection

Qualitative Data Collection

In order to get overall data about the constructs of the qualitative section of the research like workload, quality of medical services, and patient satisfaction, the face-to-face interview were conducted with the sample participants like nurses, nurse assistants, directors of nursing, and nursing home administrators. The directors of the nursing home facilities that I have done in-person interviews with have reviewed the interview questions that were asked to the facility members, and I was given the final approval to do my in-person interview there. The participants have been chosen depending on availability. In each facility I have collected data for my study from, I interviewed one administrator, one director of nurses (DON), one registered nurse (RN), one license vocational nurse (LVN), and one certified nursing assistant (CNA). Interviewing patients was not an option in any one of the chosen facilities. The reasoning behind the refusal to

interview current patients varied, with reasons like the State of Texas does not allow for it, patient confidentialities, and treatment interruptions of patients.

The number of the chosen nursing homes to be interviewed was determined to be 7 through random computer choice. The number of the planned interviews were 35. The declaration was read out loud to each participant, which states that declared information during the interview would stay confidential and would not be shared with the management team. The approvals were received from each participant and the consents were signed from each participant before each interview began. The consent was handed and fully explained to each participant. The final number of interviews was 35 instead of 42 (as originally planned), since the patients were now excluded from being interviewed. One registered nurse (RN) from a nursing home the study was conducted in held the position of both the interim director of nurses (DON) and a registered nurse (RN), since the facility did not have a DON in place as of that moment. This participant was interviewed twice as an on-floor RN as well as a DON. The qualitative approach handled the constructs by interviewing the sample participants to understand how high workload affected the quality of medical services and medical errors, and how it also affected on the patients' satisfaction and the profitability of the nursing homes.

Table 6

Selection of Final Participants Sample

Participant Category	Number of Participants
Participant initially identified as meeting selection criteria	35
Participants who are not available	0
Final Sample	35

Quantitative Data Collection

The data were collected from a primary source of information (Medicare.gov). The results of the quantitative data were organized by research questions and hypotheses. Quantitative methods rely on probability sampling techniques, sometimes referred to as random sampling techniques. The quantitative study explored the relationship between staff-patient ratio and the number of patient complaints and between staff-patient ratio and the bed occupancy rate in nursing homes in Grand Houston, Texas. The quantitative research was conducted by extracting the data from The Centers for Medicare and Medicaid Services Nursing Home Compare website's star-rating system for individual nursing homes. The correlation was measured between three variables: staff-patients ratio, patient complaints, and bed occupancy rate.

The independent variable was nursing hours per patient per day as an ordinal value, which was reflected through a star rating system from 1 star to 5 stars (i.e., to get more accurate data, the Medicare website provided detailed data of time provided per healthcare workers to patients [residents] in nursing homes). Dependent variables were patient complaints as a discrete value, and bed occupancy rate as a continuous value. Greater Houston consisted of nine counties: Austin, Brazoria, Chamber, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller. The population for these counties as of 2016 was 6.77 million (Greater Houston Partnership, 2017). The number of nursing homes in Greater Houston is 163. The total number of nursing homes that are licensed by both Medicare and Medicaid and have more than one hundred licensed beds consisted of 124 nursing homes in greater Houston (Texas Health and Human Services, 2021). The 124 nursing homes with more than 100 licensed beds sent by Medicare and Medicaid were the population of the study. Depending on the sample size calculator with a 95% confidence

level and a 5% margin of error, the sample size was 97 out of the whole population of skilled nursing facilities in Greater Houston (Creative Research Systems, 2012).

Qualitative Component

The qualitative data were gathered using information acquired from the face-to-face interviews. Each of the interview questions were crafted to allow insight into the feelings and perspectives of participants about the work overload. The responses were reviewed, and tips were registered, allowing the participants to review answers for accuracy before submitting a response. Thematic analysis as an independent method of qualitative analysis has been supported by colleagues in the field of psychology (Braun & Clarke, 2008). All audio recordings were listened to after the interviews. The recorded interviews were listened to for the second time prior to the preliminary coding process. The first step of the coding process focused on identifying the key ideas to serve as initial codes. After finishing the preliminary coding of all 35 interviews, the audio recording interviews were listened to again, and the near-identical codes were merged where appropriate. During the merger process, the codes belonging to a similar idea were grouped together into code families. The final stage was using the code families to identify themes and subthemes based on the frequency and the number of times the code appeared across interviews.

Quantitative Component

The quantitative data collection consisted of pulling out data from Medicare.gov. The data were registered into an Excel sheet. The information was then exported from Microsoft® Excel into Statistical Package for Social Sciences (SPSS) software for final analysis.

To address the quantitative question (RQ4) and hypotheses, ANOVA methodology was used. One-way ANOVA was used is to compare the means of the independent variable groups to

determine if there is a statistically significant difference between the corresponding population means. The hypotheses were tested using the on-way or single facto ANOVA to compare six levels of nursing hours on two dependent variables (patient complaints and bed occupancy rate). ANOVA is designed to test differences among the means of the subpopulations, and one may observe that 'equal' means having different distributions (Fraiman & Fraiman, 2018). Due to the familiarity, simplicity, and robustness of ANOVA methodology, this approach has been frequently used for repeated ordinal data (Stiger et al., 1998). The independent variable (daily nursing hours per patient) was divided into six groups, 2-2.5 daily nursing hours per patient, 2.51-3.00 daily nursing hours per patient, 3.01-3.50 daily nursing hours per patient, 3.51-4.00 daily nursing hours per patient, 4.01-4.50 daily nursing hours per patient, and 4.51-ABOVE daily nursing hours per patient. The first dependent value was the number of complaints leading to a citation in the last 3 years. The second independent variable was the bed occupancy rate, which was calculated by dividing the average daily census by the number of the nursing homes' licensed beds.

Data Analysis and Results

All data were firmly stored and accessible only by the researcher. All the electronic data and paper consents was stored on a USB and were kept in a locked safe. Password-protected electronic data includes the face-to-face interview responses. The researcher was the only individual with access to the data. All data collected for the study will be stored for three years and then destroyed. All of the participants were notified of the confidential process of keeping the information. In the convergent mix method, the qualitative and quantitative data were collected separately and concurrently, the two data sets were analyzed separately and then merged for overarching analysis in sake of understanding the effect of high workload on patient

satisfaction and profitability of the nursing homes in Greater Houston. The research questions were essential to the presentation of the research results. The following section concludes the results of each of the qualitative and quantitative research section.

Qualitative Results

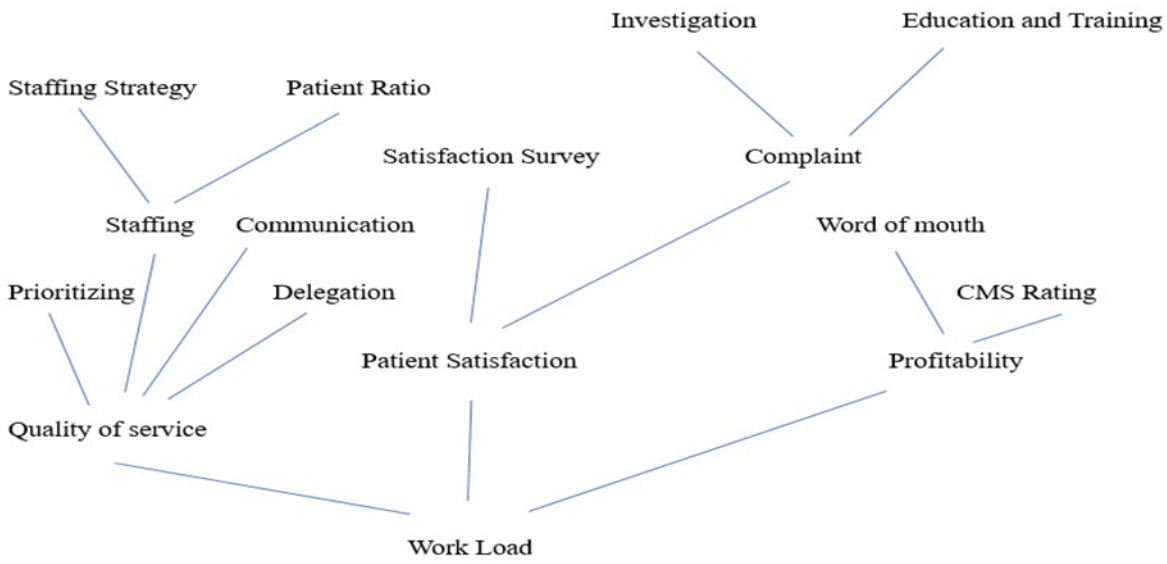
The qualitative data were organized in an Excel sheet and the codes and themes were developed accordingly. The coding process highlights symmetric words. Codes and sub-codes are identified, conveying the work experience or information relevant to the in-person interview questions. When the coding process was complete, the preliminary coding report was developed for every individual research question for the sake of being presented in the codebook. The participants of the study were divided into two categories and the questions varied to each category depending on its specifications. The questions which were asked to the nursing homes management team (administrators and directors of nurses) were different than the questions that were asked to workers like registered nurses (RN), licensed vocational nurses (LVN), and certified nursing assistants (CNA). Actual interview times ranging from 5 to 15 minutes and were conducted in many locations depending on the availability, including conference rooms or places of employment.

The participant answers to the in-person questions were cross analyzed to better represent emerging thematic codes. The analysis of data was done by using thematic analysis, which supported theme development while staying grounded in the data. The coding process highlighted relevant words based on the frequency of a participants' declaration to a single question of the interview. Codes and sub-codes were marked, referring to the significant words and statements of the participants' declaration. When the coding process was done, the code book was then developed. The answers to the interview questions were cross analyzed to identify

the emerging thematic codes of workload, patient satisfaction, and facility profitability. The following cluster map was developed to show the relationship between categories and sub-categories to help deepen the research.

Figure 2

Cluster Map of Thematic Categories Regarding Work Overload



A refined review of the thematic categories revealed five major themes: (a) patients' complaints and how health care workers and management deal with said complaints, (b) overcoming workload and how health care workers deal with high workload, (c) patient satisfaction, (d) patient retention and admitting new patients, and (e) staffing policy.

Figure 3

Refined Cluster Map of Thematic Categories Regarding Work Overload

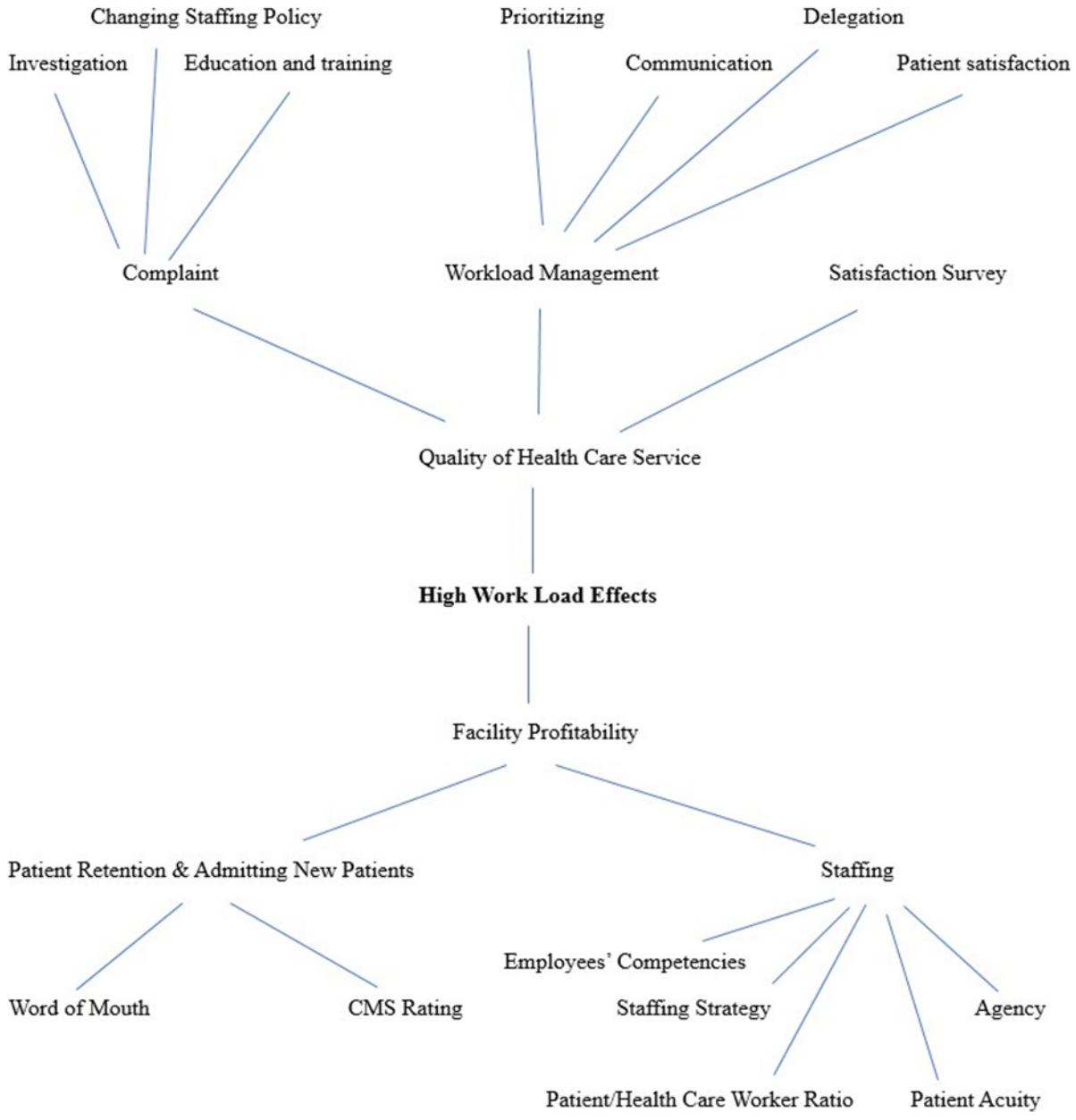


Table 7

Themes Emerging from Participants' Statements

Quality of Health Care Services	Profitability
Complaint	*Patient Retention& Admit New Patients*
- Investigation	- Word of Mouth
- Education and Training	- CMS Rating
- Changing Staffing Policy	
	Staffing
	- Patients' Acuity
	- Staffing Strategy
	- Employees' Competencies
	- High Patient to Health Care Worker Ratio
Workload Management	- Agency
- Patient Satisfaction	
- Prioritizing	
- Delegation	
- Communication	
Patient Satisfaction Survey	
-Daily Management Round	

Table 8

Workload Effects on the Quality of Healthcare Services and Profitability of Nursing Homes' Theme, Themes, and Subthemes of 35 Participants (Admins and Workers)

Themes	Subthemes
Complaint	Investigation
	10 out of 14 admins said that the complaint would be investigated immediately and the corrective action will be taken as soon as possible. The other 4 admins said that the complaint will be addressed to the right department to take care of.
	Education and training
	2 out of 14 admins said that the employees are trained on how to handle the grievance or complaint forms and then afterwards address them to the admin office.
	16 out of 21 healthcare workers said that in order to handle high workload, the management team has to provide enough training.
	Changing the assignment
	2 out of 14 from the admin participants are able to change the assignment in case of an unsatisfied patient.
Workload	Patient Satisfaction
Management	16 out of 21 healthcare workers mentioned that increased workload will decrease patient satisfaction.
	Prioritization
	5 out of 21 health care workers said that the quality of healthcare services is not affected by high workload, and it could be managed by prioritizing and delegating their tasks, as well as asking for help from the clinical management team.
	Delegation
	5 out of 21 health care workers said that the quality of healthcare services is not affected by high workload, and it can be managed by prioritizing and delegating their tasks, as well as asking for help from the clinical management team.

	Communication 1 out of 21 healthcare workers said that in cases of high workload, they explain the situation to the patients and clarify that they have to fulfil the more urgent needs first.
Satisfaction Survey	Daily Management Round 14 out of 14 admin teams declared that there is no in-house patient satisfaction survey in place, but they have daily manger rounds to figure out if patients are satisfied or not. Two admin teams added that they depend on a third-party company to conduct a post-discharge survey.
Patient Retention& Admit New Patients	Word-of-mouth 12 out of 14 admin teams mentioned that word-of-mouth affects the availability of receiving a new patient, which affects the profitability of the facility.
	CMS Rating 2 out of 14 admin teams stated that most patients depend on the CMS rating and not on the reputation of the facility.
Staffing	High Patient to Health Care Worker Ratio Staffing strategy depends on the admin team's declaration: CNA 8-20 and nurses 12-30. Depending on health care workers' declaration, CNA ranges from 10-26, while the nurses range from 15-32 patients. 10 out of 21 health care workers said they are usually assigned more patients than they can handle. Patient Acuity 13 out of 14 admin participants declared that the staffing policy depends on patient acuity. Changing The Staffing Strategy 2 out of 14 admins declared that they should hire more staff to handle the unsatisfied patients relating to the clinical health services provided.

16 out of 21 health care workers declared that the admin department has to hire more staff in response to high workload problems.

Employees' Competencies

1 out of 14 admin participants declared that the staffing policy depends on the employees' competencies.

Agency

2 out of 14 of the admins shared that they are using agencies in case of a shortage of staffing and high workload.

Themes and Subthemes

Complaint. Three themes have emerged from participant statements that display how leading teams in nursing homes deal with patients' complaints and unsatisfied patients. Investigating, training, educating, and changing employee assignments have been used individually or in combination when going through the patients' complaint process.

Investigation. The number of complaints related to the clinical services were between 2 to 5 on a monthly basis, according to the administrators and the directors of the nursing department. In case of a complaint, the administration department were involved and were to investigate the source of the complaint. The grievance book will be preserved by the regulations of the Center of Medicare and Medicaid Services (CMS) and the State of Texas as well. When the complaint was documented, it became a grievance, and the feedback from the management department about the result of the investigation was transferred over to the patient and the patient's family. In order to prevent the complaint from taking place once more, techniques were applied to train and educate the health care workers, and changing the worker assignment was also likely. The first theme was the investigation following each patient's complaint. Ten participants from the admin team stated that the complaints would be investigated immediately,

and the corrective action will be taken as soon as possible. Administrator #1 stated: “We have a grievance book. The grievance form will be filled in by the resident or his/her family members and it will be investigated.” Four participants from the admin team said that the complaint will be addressed to the right department to take care of. Previous literature defines grievance as “a formal or informal written or verbal complaint that is made to the healthcare facility by a patient, or the patient’s representative, regarding the patient’s care, abuse or neglect, or issues related to the hospital’s compliance with the CMS” (Bayer et al., 2021). Regarding to the reasons behind the complaints, Raberus et al. (2019) stated that “the purpose regarding the complaints is often reflected across six factors; access to healthcare services, continuity and follow-up, incidents and patient harm, communication, attitudes and approaches, and healthcare options pursued against the patient’s wishes.” This research used complaints and grievances as indicators of the quality of the health care services. How the healthcare providers and the management team approach the complaints shows the degree and the persistence of the healthcare quality. van Dael et al. (2020) stated that “Complaints could be linked to overall patient satisfaction rates to reveal latent incidents that may explain changes over time.” The process of handling grievances is by having the patients or their families fill out a grievance form, which is then analyzed in order to figure out the root cause/causes of the event, then the corrective actions are taken if needed. This process, in addition to its main goal of fixing the current status and eliminating the cause of the complaints, also eliminates the severity and the occurrence of the complaint’s cause in the future. Through the steps taken during the process of handling the patients’ complaints, it is evident that the healthcare admin teams are involved directly or indirectly in the investigation process to solve the complaint and prevent further future occurrences.

Education and Training. Training and education, as mentioned in the in-person interviews, was an essential tool for providing healthcare services effectively and efficiently, which leads to a decrease in patient dissatisfaction and limits the number of patients' complaints. The process starts from the first day on the job by providing new employees with full and thorough training. Further training has been provided as well in cases of complaints or grievances related to lack of training or knowledge. In the response of handling patient complaints, the second theme, education and training, was identified. Two participants from the leadership team said that the employees are trained in how to handle the grievance or complaint forms, and then afterwards addressing them to the admin office. Administrator #2 stated:

> The quality of training during the new staff orientation is very thorough. We make sure that all staff members are trained very well, their needs are respected, their initial training is sufficient, and ensure that they get a full introduction to the facility nuances and job specifications. In cases of complaints, investigation and education is our main tool for handling the situation and prevents it from occurring in the future.

Health care providers provided their input as well. They mentioned that continuous training and education will help them in handling critical situations. Sixteen healthcare workers said that in order to handle a high workload, the management team has to provide enough training. Continuous training even after hiring is an important factor in providing optimum healthcare services. As mentioned, employees are trained to handle complaints, which start from the reporting stage (by patient or family member), and how the complaint form will be delivered to the management team to get investigated and resolved. This participation matches previous studies that insist on the cruciality of employees' training and education before and during their job journey. Kim et al. (2022) stated that organizational factors, such as the staff education

system and the composition of appropriate personnel, should be strengthened to establish a patient safety culture in nursing homes, for which policy support is crucial. Eastman and Kernan (2022) stated that following nursing education, it is expected that the nursing staff will have a better understanding of patient acuity and thus create more equitable nurse-patient assignments that take into consideration current and future needs of the individual patient's care.

Changing the Assignment. Changing the staffing assignment by increasing the number of employees is costly and sometimes cannot be applied abruptly due to shortages of staff delaying the hiring process. Some staff changes could be applied without having to increase the number of staff, like changing the assignment by giving more of the workload to the expert healthcare workers or changing the assignment according to the patients' preferences. The third theme identified was changing the employees' assignments in response to complaints and unsatisfied patients. Two participants from the admin team said that they are able to change the assignment in cases of unsatisfied patients. Director of Nursing (DON) #7 stated that

> If the complaint is about the provided health care or a delay in providing the health care service, the staffing policy will be adjusted accordingly, like hiring more staff members or making changes to the staffing assignment in sake of satisfying patient needs.

In spite of its cost inefficiency, admin teams occasionally adjust employees' assignments by increasing the number of employees or replacing unskilled employees with more skilled ones. This was consistent with previous studies that manifest the relation between the quality of health care services and the employees' assignments. Koca et al. (2024) stated "To increase the quality of work life, it is necessary to balance the workload distribution among employees and create a suitable organizational climate. For this, it can benefit all stakeholders, especially managers, to act together."

Workload Management. While answering their in-person interview questions, participants of the study mentioned that the satisfaction of the patient is affected by high workload. When handling high workload, healthcare providers develop several individual coping mechanisms to meet patients' needs and to lower the possibilities of mistakes during a high workload situation. There are several themes that have been identified when coping with high workload, like prioritization, delegation, and communication.

Patient Satisfaction. Upon the declarations of health care workers and the management teams, the quality of the provided health care services was affected by high workload. The fourth theme identified regarding high workload was the level of patient satisfaction. Sixteen participants from the health care workers mentioned that increased workload will decrease patient satisfaction. Nurse Assistant (CNA) #1 stated,

> By assigning me more patients than I can handle or tolerate, it is hard to provide the proper care due to the high workload, which affects the work ethics of providing the right healthcare services and accurate customer services and deteriorates patient satisfaction.

Registered Nurse (RN) #2 said "An increased number of patients certainly does affect patient satisfaction. I will still do everything required of me, but patient services will be affected." Licensed Vocational Nurse (LVN) #6 stated:

> Most likely, it's possible that in assigning more patients, it can delay the process of giving certain medications and taking care of patients in the right way, affecting the quality of services and the empathy towards the patient. In summary, when we have a higher workload, we are in a rush to give medications or other medical services and cannot provide decent customer services.

Most of the participants mentioned the effect of a high workload on patient satisfaction and the quality of the provided healthcare services like medication dissemination, customer services, and the number of complaints. This was consistent with previous literature. Wang et al. (2023) stated that Overloads, including extended working hours and high workloads, left healthcare workers without good rest and prone to occupational fatigue, which affected their mental and physical health. Harrington et al. (2020) stated that more than half of U.S. nursing homes were found to have lower RN, CNA, and total nurse staffing levels than what is recommended by experts, with one quarter of nursing homes that have dangerously low staffing. Griffiths et al. (2020) stated that low nurse staffing levels are associated with adverse outcomes, most notably mortality.

Prioritization. A number of the health care workers who were interviewed and were in a situation where they had to deal with high workload developed a methodology of handling a great deal of workload by prioritizing the work that had to be done. The process started by healthcare workers analyzing their workload at first glance at the start of each shift and after receiving summary reports from the health care workers in the previous shift. In response to the high workload and how to manage it from health care workers' perspectives, another theme that emerged was work prioritization. Health care workers, in response to high workload, prioritize their daily activities by tackling the most important task and moving on to less important ones. Five health care workers dictated that high workload could be managed by prioritizing activities. Nurse Assistant (CNA) #3 said that "In the situation of having to handle more patients than I can usually tolerate, I know how to handle it by prioritizing tasks and meeting the most important needs first." Licensed Vocational Nurse (LVN) #2 said that "In case of work overload, I prioritize my tasks." For example,

> I focus first on patients that need their pain medication and then proceed to shift my focus to patients that have a feeding tube. This way, I focus on the most critical patients first then move on to other patients.

In sake of handling workload and the level of stress, healthcare workers have developed a coping mechanism like prioritizing their activities and rearranging their work based on the cruciality of the patients' needs. The data are compatible with previous literature. Søvold et al. (2021) stated that to avoid accumulation of stress during times of crisis or other challenging working conditions, healthcare workers should try to prioritize and simplify tasks; focus on one task at a time whenever possible; set healthy boundaries; communicate in a self-assertive way; and seek support for important clinical decisions.

Delegation. Delegation of tasks during work overload was highly usable in nursing home facilities, especially when it was applicable depending on the scope of practice and the ability of the tasks to be delegated. Upon the health workers' declarations (i.e., nurses and nurses assistants), the delegation proceeded to decide if it was applicable to other health care workers or to one of the available clinical management team members. A few interviewed healthcare employees (i.e., nurses and nurses' assistants) mentioned that delegation can be used in a nursing home setting to handle the work overload, but to a certain extent. Delegation is not usually acceptable, depending on the employee's scope of practice and skills level. In response to the high workload, delegation has emerged as a theme in handling the high workload in nursing homes. Five health care workers dictated that the high workload could be managed by delegating some activities to another coworker or to the clinical management team. Licensed Vocational Nurse (LVN) #4 stated,

> When I'm overwhelmed, some activities are delegated to other health care workers, especially the medical aid and the nurse assistants, or someone on the management team who's available and willing to help. Even when there is work overload, the work can be handled efficiently.

Nurse Assistant (CNA) #4 said, "In instances of work overload, I will ask for help, especially if I am dealing with a critical patient and when there is no way to delay the delivery of health care services." The participants' dictations align with previous literatures that mention using delegation as a technique of handling high workload and lack of manpower. Shore et al. (2022) stated that delegation may not improve care but may prevent deterioration of care, or missed care, that can occur due to a lack of resources.

Communication. Communication in nursing homes was an essential tool when it came to solving issues or grievances from unsatisfied patients or families. The communication between health care workers and between the direct health care providers and the management team eliminates a lot of staffing problems and the excess workload. In the circumstances of a direct provider having an overwhelming assignment on their hands, they can communicate with management to get more help from them, like getting extra help with patients or being offered a less challenging assignment if possible. Communication between healthcare providers and patients was crucial in getting more information about patient needs and how they were satisfied. The health care workers can, through communication, prioritize their tasks more efficiently as well. In response to the high workload, another coping mechanism of handling work overload is by healthcare services providers communicating with patients and explaining the cruciality of another patient's situation to get them to symphonize and be patient before their needs are able to be met. This method of handling workload is not as familiar or widespread in nursing homes.

Just one participant explained that communication with patients will help in managing workload. Licensed Vocational Nurse (LVN) #5 said,

> When I am in a stressful situation where I have a lot of work to get done, I communicate with patients who wish for my assistance and explain to them that there are other patients who require urgent attention right now, and I promise to fulfill their needs after working through the more urgent situation.

No previous study has been found or recognized in the area. However, as mentioned in previous literature, the communication with peers and the management team is crucial in reaching the objectives of the healthcare facilities and increasing patient satisfaction. Novaes et al. (2023) stated that communication and interprofessional teamwork are fundamental to optimal outcomes in healthcare, as they are the basis of good professional practice.

Satisfaction Survey. In nursing homes, it was not required to hold a weekly or even monthly patient satisfaction survey. They did, however, have different processes of screening patient satisfaction through daily management rounds and partaking in a discharge survey for patients using a third-party.

Daily Management Round. A satisfaction survey is not as common in the nursing home setting, especially since there are no federal or state regulations that force nursing homes to do periodic patient satisfaction surveys. Usually, nursing homes depend on patient complaints or undocumented daily rounds to check the degree of patient satisfaction experience throughout the facility. In response to sequences of patient satisfaction surveys, a new theme was identified: the daily management round is a widespread technique in scanning the level of patient satisfaction in the nursing home and solving a patient's complaint early on. All participants from the admin team (administrators and directors of nursing department) declared that there is no in-house

patient satisfaction survey in place, but they have daily manger rounds to figure out if patients are satisfied or not. Administrator #5 said, "We meet with patients periodically and assign managers to complete rounding on a daily basis from Monday to Friday and ask questions relating to satisfaction and complaints." Director of Nursing (DON) #3 said:

> We have a patient satisfaction survey on a discharge basis only. We send discharged patients a link to rate the provided health care service during their stay. We also have management perform rounding, and each department's managers have been assigned several patients to check on weekly. If there's any complaints or unsatisfied patients, the situation will be discussed in our daily meeting and handled directly.

There is no previous research conducted regarding the existence of a satisfaction survey in nursing homes.

Patient Retention and Admitting New Patients. The profitability of nursing homes relates directly to the number of patients they have. A low number of patients will hinder the nursing home's ability to cover its fixed and variable expenses. Patients or their families, according to the leader team's declarations, rely on the facility's reputation (word of mouth) and CMS rating website to choose the nursing home they want to reside in.

Word-of Mouth. Nursing homes, like any other business or facility, depend on their reputation to get more patients. The number of patients (the patient census) correlated directly to the profitability of the nursing home. The greater the number of patients, the more reimbursement collected from public insurance companies (Medicare and Medicare) and private insurance companies (commercial insurance). Early discharge due to unsatisfied patients through unsolved complaints or poor healthcare services set the facility at risk of penalties or even more serious consequences. A new theme has been identified during the in-person interviews, which

recognizes that word-of-mouth plays a part in acquiring new patients. Word-of-mouth reveals the level of patient satisfaction and the quality of the provided health care services in nursing homes. Twelve participants from the admin team mentioned that word-of-mouth affects how frequently a nursing home receives a new patient, which affects the profitability of the facility.

Administrator #3 said, "In this facility, word-of-mouth, reputation, and patient contentment is very important in order to get new patients and retain current patients." Director of Nursing (DON) #4 said,

> Patient satisfaction relates to our profitability since feedback and bad reviews will ruin our reputation and negatively affect the number of patients being admitted. Also, reputation can affect our relationship with doctors who rely on us and send patients to our facility.

In order for nursing homes to stay financially feasible and profitable to their owners, they have to attract more clients (patients), and decrease the interruption stay or early leave. Most of the leadership teams in nursing homes believe that word-of-mouth is the main factor that patients or their families rely on in their nursing home choosing process. This was consistent with previous literature. Lu et al. (2021) stated that service quality supplied by nursing homes has the following important features: First, quality is delivered after purchase, allowing caregivers to "shirk" relative to the implicitly promised quality level. Second, it is difficult for patients to identify quality ex-ante and verify it ex-post. Instead, patients rely on report cards, word of mouth, or brand reputation to form their expectations of quality.

CMS Rating. Prospective patients sometimes depend solely on the CMS rating website during their process of choosing the right facility fit for them. Nursing homes were given ratings from 1 star to 5 stars depending on the quality of care, staffing, and survey performance. The

CMS rating website gave more information about the nursing home, which the prospective patient could rely on to choose the most efficient and convenient nursing home for their needs. The CMS rating program reflects the quality of the provided health care services. CMS ratings address care quality, and the families' satisfaction measures quality of life and care quality. High satisfaction is associated with high care quality and quality of life; lower satisfaction is associated with lower care quality (Kusmaul et al., 2023). Regarding patient retention and attracting more patients to nursing home facilities, a new theme has been identified during the in-person interviews. According to a few administrators, the CMS rating affects patients' decisions in choosing a nursing home. Two participants from the admin team declared that the CMS rating is what most patients depend on in choosing their nursing home, rather than the facility's reputation. Administrator #7 said, "Word-of-mouth or reputation are not the only factors that patients rely on to seek out where they want to reside. Some of the patients or their families choose their facility depending on the CMS rating." As mentioned before, a few of the nursing home leaders mentioned that the patients or their families rely more on the CMS rating in choosing the nursing home. This is consistent with previous literature, which exhibits the importance of the CMS rating website and its reflection on the degree of patient satisfaction. Kusmaul et al. (2023) stated that there is a strong association between CMS ratings and satisfaction at the extremes of the 5-star system.

Staffing. The staffing process is an essential process in any nursing home. Several themes emerged while interviewing the participants. Patient acuity and the employees' competencies have been incorporated when creating the assignments. Handling workload, from the management teams' stand points, can be handled through changing assignments or using

temporary employees. The patient-healthcare worker ratio is not unified and varies from nursing home to nursing home.

High Patient to Health Care Worker Ration. Depending on the administrators' and the DONs' declarations, the average nurse-patient ratio had a range of 1:12 to 1:30. The certified nurse assistant patient ratio had a range of 1:8 to 1:20. Because of patient acuities and specifications of the nursing homes, some nursing homes were provided with extra services like in-house dialysis and ventilation. Depending on the health care workers' declaration, the number of assigned patients to each nurse assistant (CNA) was between 10 and 26 patients for one CNA, while the nurse-to-patient ratio was 15-32 patients for a nurse. The labor cost is the main contributor to the variable cost in nursing homes. In the absence of the staffing requirement, nursing homes can increase the number of patients an employee has to take care of, which could possibly be more than they can handle, in sake of decreasing the variable cost. This theme was made clear in the participant declaration. Employees in one nursing home were taking care of 32 patients per employee, while employees at the same level of licensure and experience were taking care of 15 patients each in another nursing home. This is consistent with previous literature. Harrington et al. (2020) stated that nurse staffing is one of the primary cost components for nursing homes. During the in-person interview, ten participants mentioned that they are usually assigned more patients than they can handle. The theme of a high patient to health care ratio was clearly identified during the in-person interviews. Licensed Vocational Nurse (LVN) #6 said, "Usually, I'm being assigned more patients than expected, like 30 patients instead of 20. At nights, the number of patients I'm in charge of can reach to about 60 patients." This theme is consistent with previous literatures. Geng et al. (2019) stated that it is common for nursing homes to keep staffing costs as low as possible to maximize profits. New payroll-based

data reveals large daily staffing fluctuations, low weekend staffing, and daily staffing levels often below the expectations of the Centers for Medicare and Medicaid Services (CMS). Harrington et al. (2020) stated that most nursing homes do not provide sufficient staffing to ensure basic quality.

Patient Acuity. The management team (administrators and DONs) take into consideration each patient's acuity and needs when it comes to drafting the staffing policy. There is no specific number of patients that were assigned to each nurse or nurse assistant; it depends on how the facility views the patient requirements and employees' competencies. Patient acuity, according to most of the leadership teams' declaration, is the main factor in deciding the appropriate assignment. The more critical a patient's situation is, the more skilled personnel or the more manpower needed to handle the cruciality of the situation. Thirteen participants from the management team mentioned that acuity is the factor that they rely on the most when drafting the staffing policy. Administrator #1 said,

> The staffing policy is based on the patient's acuity and the number of patients. For example, if the patient came in with a trach (artificial windpipe) or high acuity, then we decide that we need a higher licensure healthcare worker or a greater number of staffing.

This is consistent with previous literature, which also considers patient acuity a leading factor when it comes to determining the staffing and drafting the assignment. Juvé-Udina et al. (2020) stated that the nurse managers play a pivotal role in exercising best leadership practices that consider nurse expertise and patient acuity, in designing and implementing plans to improve the work environments to minimize missed nursing care, and in hustling policymakers to address structural understaffing in general wards to improve patient outcomes.

Staffing Strategy. The administrators and the DONs insisted on the importance of orientation and fully educating the new hires about the nuance of the facility before having them fully participate in the work environment. The nurses and the nurse assistants, on the other hand, voiced that administrations should hire additional staff in cases of continuous high workload and surges in the number of patients. Two participants from the leading team mentioned that the staffing assignment can be changed in sake of handling an unsatisfied patient. Administrator #2 said,

> We hire employees who have a passion in providing elderly patients the services that they need. Hiring the right employees decreases the turnover rate. When needed, PRN (used as needed) employees are hired to cover any shortages or employee absenteeism. We always hire PRN employees in case we need coverage. Usually, we schedule two months in advance.

Sixteen healthcare workers mentioned that leaders should increase the number of employees in cases of high workload. Licensed Vocational Nurse (LVN) #6 said, "Management should hire enough staff and PRN to effectively handle emergencies or employee absence." This is consistent with previous literatures, which show that many nursing homes are understaffed, which consequently leads to an increase in the risk of medical errors and impaired quality of healthcare services, ultimately leading to lower patient satisfaction. Harrington et al. (2020) stated that most nursing homes do not provide sufficient staffing to ensure basic quality. De Hert (2020) stated that healthcare workers seem to be at particular risk for burnout, which may have significant professional consequences such as lower patient satisfaction, impaired quality of care, and even major medical errors. Insufficient staffing leads to the rationing of time of care, which has an important impact on the occurrence of missed care (Haegdorens et al., 2019).

Employees' Competencies. The staffing assignment were dependent on the employees' competencies as well. The more skilled and higher licensure employees were assigned additional patients, or the most critical and time-consuming patients. A theme regarding employees' competencies has been identified when interviewing the admin team concerning employees' staffing. One administrator declared that the staffing policy depends on the employees' competencies in addition to patient acuity. Administrator #4 said, "If the patient came with a trach (artificial windpipe) or high acuity, then we determine if we need a higher licensure healthcare worker or a greater number of staffing."

This administrator mentioned that there is another factor that should be considered when developing staffing and the assignment, which is the employees' competencies. This is consistent with previous research, which also shows that employee competencies are part and parcel of the level of quality of the provided health care services. Neves et al. (2020) stated that nurse staffing (the quantity and competencies) and teamwork indirectly influence the quality of care. This process is mediated by the response capacity, the use of new techniques and work methods and patient's surveillance capacity. Neves et al. (2020) stated that optimizing nursing care safety and quality requires an adequate nurse staffing level, both in terms of number and competencies, as well as teamwork.

Agency. Like any other healthcare facility, nursing homes temporarily outsourced employees when they had a quick surge of patient numbers or did not have enough employees on board to cover the patients' needs. Hiring the right employee and training them well limited the turnover rate and increased the quality of provided health care services. Two participants from the admin team shared that they are using agencies in cases of shortage of staffing and high workload. These nursing home leaders mentioned that the temporary employees (temporary

workers acquired from agencies) could be used to deal with high workload. The use of agencies is an expensive method of handling a high workload. DON (Director of Nurses) #6 said,

> In situations where there is a staffing problem like lack of staffing, we use a staffing agency for the shortages of staff temporarily. If the issue of a shortage of staff turns out to be long-term, we hire more people that can provide sufficient training in order to cover the shortages and limiting the use of an agency (agencies are generally considered more expensive and less efficient).

No research has been previously done that covers the use of agencies in handling the high workload, but research still shows that the use of agencies is still common, especially during the persistent situation of the shortage of healthcare providers. Knutsen (2018) stated that the huge shortage of nurses predicted for the coming years because of the growing elderly population is an important motivation for temporary work agencies to remain in the market for temporary nurses.

Qualitative Research Questions

The qualitative results addressed three research questions (RQ1, RQ2, and RQ3). The data were collected by the in-person interview method and the results of the qualitative data were organized by research questions.

RQ1- How does increased workload experienced by employees in nursing homes impact the quality of provided healthcare services?

Each participant provided significant statements explaining their personal and professional experience at their time in nursing homes. Several participants had agreeing statements about the effects of high workload on the quality of health care services. Sixteen health care workers mentioned in their statements that with handling more patients than they can tolerate, the quality of health care services and patient satisfaction decreased, due to the shorter

time dedicated to each patient. In addition to the quality of the health care services, three health care workers mentioned that the quality of customer services were affected as well, since the insufficient time assigned to patients led to low customer services, such as not answering all of the patients' questions.

RQ2- How does the increase in medical errors (complaints) in nursing homes, as an indicator of the quality of provided healthcare services, impact the level of customer satisfaction and reflect on the profitability of the business?

According to the administration department, the grievance number on a monthly basis ranged from 2 to 5 per month, which was handled through investigation and additional education of employees. After receiving the complaint form (grievance form), the administrator and the DON would go over the details of the complaint and go through with the investigation process until they found the root cause. If the complaint was substantiated and related to one of the health care providers, additional training to the employee was applied and documented as a corrective action. When replying to the interview question of how the management team handles patient complaints, which were often associated with the provided healthcare services, 10 participants mentioned that complaints were handled by investigating the find the root cause of the issue and further educating and training of employees. The complaint, or grievance forms, were preserved in the grievance book for a State of Texas review during the annual survey or in case there are any litigations against the facility. In addition to that, the complaint would be reported to the state if the complaint is reportable. In some cases, the complaint should be reported to the State of Texas. The form of self-report by the nursing home would be filled out and sent to the State of Texas attached with a full documentation of the complaint and the taken corrective action. The state would check the issue out and make a site visit if proven needed.

Relating to the profitability, 12 out of 14 nursing home management teams agreed that the profitability, which correlated to patient retention and admitting more patients, was related to the reputation of the facility and the quality of the provided healthcare services. The remaining two department management teams specified that the profitability was not affected by the reputation of the facility, but rather to the CMS rating program, which gets its results from the result of the last state site visit (i.e., annual visit or visit related to an incident or complaint) and the staffing policy.

RQ3- What are the relational and professional practices that can help overcome the obstacles of increased workload experienced by employees in nursing homes?

In handling high workload, health care workers prioritize their daily activities, delegate some of their tasks (i.e., if applicable depending on the scope of practice), and ask for the management team's (clinical team's) help. 12 out of 14 health care workers depended on prioritizing work in order to handle daily activities. Communication in nursing homes was an essential tool in solving complaints, issues, and unsatisfied patients' problems. Communication between one health care worker to another health care worker, between the health care providers and the management team, and between health care providers with patients eliminates numerous staffing problems and the overload of work. In an event where health care providers were assigned an overwhelming assignment, they can communicate with management to get help in serving patients or changing the assignment if possible. Health providers can communicate with patients about their concerns and get their needs satisfied in an order relating to the levels of urgency of the situations. Communication with management was considered a way of handling high workload by having health care providers explain to the management team the drawbacks of high workload to get more management involvement of daily work.

Quantitative Results

The data were collected from a primary source of information (Medicare.gov). The results of the quantitative data were organized by research questions and hypotheses.

Research question 4: What is the relationship between the staff-patient ratio and the number of patient complaints, as well as between the staff-patient ratio and bed occupancy rate in nursing homes in Houston, TX?

Hypotheses, H4o: There is no statistically significant relationship between the staff-patient ratio and the probability of the nursing home, and between patient complaints and the profitability of the nursing home.

H4a: There is a significant relationship between the staff-patient ratio and the probability of the nursing home, and between patient complaints and the profitability of the nursing home.

H4 addressed RQ4 and sought to explain the influence of high workload on patient complaints as an indication of patient satisfaction and business profitability. The independent variable was nursing hours per patient per day as an ordinal value which is reflected as a star rating system from 1 star to 5 stars (to get more accurate data, the Medicare website has provided detailed data of the time provided per healthcare workers to patients (residents) in nursing homes). The dependent variables were patient complaints as a discrete value, and bed occupancy rate as a continuous value. The results were exported from Microsoft® Excel into SPSS for analysis.

Pilot Test

Reliability is the extent to which an experiment, test, or procedure yields the same results on repeated trials and the validity, is the extent to which an indicator measures what it purports to measure (Scott et al., 2019). In this research's quantitative approach, the purpose of establishing

reliability and validity was to make sure that the collected data were replicable, and the result of the analysis was accurate. The reliability and validity of the research has been carefully attended to, starting from the research design and planning methods to writing the research result after the analysis of the gathered data. The interrater reliability is a degree of agreement between rates. As stated by Scheel et al. (2018), "Inter-rater reliability refers to the consistency of data recorded by two or more raters by measuring the same subjects over a single trial." Internal consistency is a measure of reliability, which means that we can get the same result if we repeat the test. In the reliability statistics, the alpha co-oefficient will be used to measure the reliability of the data, and the results have to be higher than .70 to consider the data reliable. The items should be correlated and the scale should indicate a good internal consistency. The KMO measure should be greater than .70, and the Bartlett's test shoud be less than .05. This means that the data are correlated high enough to provide a valid and reasonable analysis. Before going further into analyzing the collected quantitative data, a pilot study was applied to nine readings out of the sample. The results plotted in Table 9 are as following: KMO is equal to seven and the Bartlett's test result is less than 0.05.

Researchers should consider validity during every step in developing the research, from the designing phase until publishing the final research results. Qualitative research could not be trustworthy without validating the used methods and confirming that it measures what is intended to be measured. On the other hand, research reliability is identified as used methods that are consistent and produce the same result if researchers use it again under the same conditions. Cypress (2017) stated that reliability and validity are two factors that any qualitative researcher should be concerned about while designing a study, analyzing results, and judging its quality. Roberts and Priest (2006) explained that validity describes the extent to which a measure

accurately represents the concept it claims to measure, and reliability is the proportion of variability in a measured score that is due to variability in the true score.

Mixed methods design necessitates the validity of the results of the quantitative approach and the results of the qualitative approach. The validation and reliability construct that is used and applied is a mix between corroborating evidence and collaborating with participants. By reviewing the literature and holding conversations with the participants, the main codes will be organized. After conducting the interviews and triangulating the data, some of the codes may be validated and many emerged codes may show up. Creswell and Poth (2018) explained that researchers make use of multiple and different sources, methods, investigations, and theories to provide corroborating evidence. The collaboration with participants method was also used in sake of getting some ideas from a number of research articles that handled the same subject. Tigges et al. (2019) explained that collaboration measures were identified using both a literature review based on specific keywords and an environmental scan.

Table 9

Pilot Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.684
Bartlett's Test of Sphericity	Approx. Chi-Square	9.915
	df	3
	Sig	0.019

Note. Nine readings have been chosen randomly from the sample.

The fourth research question, "What is the relationship between the staff-patient ratio and the number of patient complaints, and between the staff-patient ratio and the bed occupancy rate in nursing homes in Houston, TX?," was addressed through the ANOVA method. The ANOVA method was conducted to compare the effect of staff-patient ratio (i.e., daily nursing hours provided per patient) on patient complaints and bed occupancy which reflects on the nursing homes' profitability. Comparisons were made between 2.51-3.00 daily nursing hours per patient, 3.01-3.50 daily nursing hours per patient, 3.51-4.00 daily nursing hours per patient, 4.01-4.50 daily nursing hours per patient, and 4.51-ABOVE daily nursing hours per patient. On one side, there was no significant difference in the number of the provided nursing hours per patient among patients' complaint at the $p > .05$ level for the six groups $F(5, 91) = 1.376$, $p = 0.241$. One the other side, there was a significant difference in the number of the provided nursing hours among the bed occupancy rate at the $p < .05$ level for the six groups $F(5, 91) = 4.639$, $p < .001$. if the P-value of the ANOVA is statistically significant, then the null hypothesis will be rejected and the alternative hypothesis will be accepted as "There is a significant relationship between staff-patient ratio and the profitability of the nursing home."

The post-hoc comparison between groups was conducted, which allows us to explore the differences between the multiple groups' means. The LSD post hoc test results revealed that 2-2.5 nursing hours per patient had a significantly higher bed occupancy rate ($M = 80.93$, $SD = 10.53$) compared to the 3.51-4.00 nursing hours per patient ($M = 59.01$, $SD = 9.50$) and 4.01-4.50 nursing hours per patient ($M = 41.17$, $SD = 20.73$). There was no significant difference in bed occupancy rate between 2-2.5 nursing hours per patient and 2.51-3.00 nursing hours per patient, 3.01-3.50 nursing hours per patient, and 4.51-ABOVE nursing hours per patient.

The LSD post hoc test results revealed that the 2.51-3.00 nursing hours per patient had a significant lower bed occupancy rate (*M*= 67.84, *SD*= 17.63) compared to the 2-2.5 nursing hours per patient (*M*= 80.93, *SD*= 10.53) and a significant higher bed occupancy rate to the 4.01-4.50 nursing hours per patient (*M*= 41.17, *SD*= 20.73). There was no significant difference in bed occupancy rate between 2.51-3.00 nursing hours per patient and 3.01-3.50 nursing hours per patient, 3.51-4.00 nursing hours per patient, and 4.51-ABOVE nursing hours per patient.

The LSD post hoc test results revealed that the 3.01-3.50 nursing hours per patient had a significant higher bed occupancy rate (*M*=71.25, *SD*=12.83) to 3.51-4.00 nursing hours per patient (*M*= 59.01, *SD*= 9.50) and 4.01-4.50 nursing hours per patient (*M*= 41.17, *SD*= 20.73). There is no significant difference in bed occupancy rate between 3.01-3.50 nursing hours per patient and 2-2.5 nursing hours per patient, 2.51-3.00 nursing hours per patient, and 4.51-ABOVE nursing hours per patient.

The LSD post hoc test results revealed that 3.51-4.00 nursing hours per patients had a significant lower bed occupancy rate (*M*= 59.01, *SD*= 9.50) to 2-2.5 nursing hours per patient (*M*= 80.93, *SD*= 10.53) and 3.01-3.50 nursing hours per patient (*M*= 71.25, *SD*= 12.83), as well as a significantly higher bed occupancy rate to the 4.01-4.50 nursing hours per patient (*M*= 41.17, *SD*= 20.73). There is no significant difference in bed occupancy rate between 3.51-4.00 nursing hours per patient and 2.51-3.00 nursing hours per patient and 4.51-ABOVE nursing hours/patient.

The LSD post hoc test results revealed that 4.01-4.50 nursing hours per patient had a significantly lower bed occupancy rate (*M*= 41.17, *SD*= 20.73) to the 2-2.5 nursing hours per patient (*M*= 80.93, *SD*= 10.53), 2.51-3.00 nursing hours per patient (M= 67.84, *SD*= 17.63),

3.01-3.50 nursing hours per patient (*M*=71.25, *SD*=12.83), 3.51-4.00 nursing hours per patient (*M*= 59.01, *SD*= 9.50), and 4.51-ABOVE nursing hours per patient (*M*= 71.23, *SD*= 21.09).

The LSD post hoc test results revealed that 4.51-ABOVE nursing hours per patient had a significantly higher bed occupancy rate (*M*=71.23, *SD*=21.09) compared to 4.01-4.50 nursing hours per patient (*M*= 41.17, *SD*= 20.73). There was no significant difference in the bed occupancy rate between 4.51-ABOVE and 2-2.5 nursing hours per patient, 2.51-3.00 nursing hours patient, 3.01-3.50 nursing hours per patient, and 3.51-4.00 nursing hours per patient.

Table 10

Mean Differences Between Nursing Hours Per Patient and Number of Complaints and Between Nursing Hours Per Patient and Bed Occupancy Rate

Descriptives

						95% Confidence Interval for Mean			
		N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Bed Occupancy Rate	2-2.5 hours	4	80.94	10.54	5.27	64.17	97.70	67.90	92.93
	2.51-3.00 hours	25	67.84	17.63	3.53	60.56	75.12	29.45	95.75
	3.01-3.50 hours	50	71.25	12.84	1.816	67.60	74.90	43.08	97.95
	3.51-4.00 hours	10	59.02	9.51	3.01	52.22	65.81	45.19	71.62
	4.01-4.50 hours	4	41.17	20.73	10.37	8.1741	74.1559	11.15	56.10

	4.51-ABOVE hours	4	71.24	21.09	10.55	37.68	104.80	40.27	85.89
	Total	97	68.27	15.89	1.61	65.07	71.47	11.15	97.95
Complaints	2-2.5 hours	4	20.25	30.73	15.36	-28.65	69.15	0	66
	2.51-3.00 hours	25	12.56	15.21	3.043	6.28	18.84	0	56
	3.01-3.50 hours	50	11.92	13.67	1.93	8.03	15.81	0	65
	3.51-4.00 hours	10	15.70	18.73	5.92	2.30	29.10	1	60
	4.01-4.50 hours	4	29.75	47.08	23.54	-45.16	104.66	2	100
	4.51-ABOVE hours	4	.75	1.50	.75	-1.64	3.14	0	3
	Total	97	13.09	17.51	1.78	9.56	16.62	0	100

Table 11

ANOVA Test Result.

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Complaints	Between Groups	2067.975	5	413.595	1.376	p= 0.241
	Within Groups	27362.190	91	300.683		
	Total	29430.165	96			
Bed Occupancy Rate	Between Groups	4921.525	5	984.305	4.639	<.001
	Within Groups	19310.088	91	212.199		
	Total	24231.613	96			

Table 12

LSD Post Hoc Test Results

Multiple Comparisons

Dependent Variable: Bed Occupancy Rate
LSD

(I) Time level	(J) Time level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
2-2.5 hours	2.51-3.00 hours	13.10	7.84	.098	-2.49	28.68
	3.01-3.50 hours	9.68	7.57	.204	-5.35	24.72
	3.51-4.00 hours	21.92*	8.62	.013	4.80	39.04
	4.01-4.50 hours	39.77*	10.30	<.001	19.31	60.23
	4.51-ABOVE hours	9.70	10.30	.349	-10.76	30.16
2.51-3.00 hours	2-2.5 hours	-13.10	7.84	.098	-28.68	2.49
	3.01-3.50 hours	-3.41	3.57	.341	-10.50	3.68
	3.51-4.00 hours	8.83	5.45	.109	-2.00	19.65
	4.01-4.50 hours	26.68*	7.84	.001	11.09	42.26
	4.51-ABOVE hours	-3.40	7.84	.666	-18.98	12.18
3.01-3.50 hours	2-2.5 hours	-9.68	7.57	.204	-24.72	5.35
	2.51-3.00 hours	3.41	3.57	.341	-3.68	10.50
	3.51-4.00 hours	12.24*	5.05	.017	2.21	22.261
	4.01-4.50 hours	30.09*	7.57	<.001	15.05	45.12
	4.51-ABOVE hours	.06	7.57	.998	-15.02	15.05
3.51-4.00 hours	2-2.5 hours	-21.92*	8.62	.013	-39.03	-4.80

	2.51-3.00 hours	-8.83	5.45	.109	-19.65	2.00
	3.01-3.50 hours	-12.24*	5.05	.017	-22.26	-2.21
	4.01-4.50 hours	17.85*	8.68	.041	.73	34.96
	4.51-ABOVE hours	-12.22	8.62	.160	-29.34	4.90
4.01-4.50 hours	2-2.5 hours	-39.77*	10.30	<.001	-60.23	-19.31
	2.51-3.00 hours	-26.68*	7.84	.001	-42.26	-11.09
	3.01-3.50 hours	-30.09*	7.57	<.001	-45.12	-15.05
	3.51-4.00 hours	-17.85*	8.618	.041	-34.97	-.73
	4.51-ABOVE hours	-30.07*	10.30	.004	-50.53	-9.61
4.51-ABOVE hours	2-2.5 hours	-9.70	10.30	.349	-30.16	10.76
	2.51-3.00 hours	3.40	7.84	.666	-12.18	18.98
	3.01-3.50 hours	-.06	7.57	.998	-15.05	15.02
	3.51-4.00 hours	12.22	8.618	.160	-4.90	29.34
	4.01-4.50 hours	30.07*	10.30	.004	9.61	50.53

Note. * denotes that statistic is Statistically significant. The mean difference is significant at the 0.05 level.

Analysis of Qualitative and Quantitative Data Combined

Following the convergent mixed methods procedures allows the qualitative and quantitative data to be collected concurrently, analyzed separately in parallel, and then integrated through merging. A narrative approach has been used in the process of final analysis of merging the quantitative and qualitative data. Integrating the results (known as weaving) connects each data set thematically, allowing the analysis of the qualitative and quantitative data to weave back and forth around similar themes or concepts. The mixed methods study resulted in a

comprehensive understanding to how the qualitative components provide information about high workload's effect on patient satisfaction and profitability of nursing homes.

Quality of Health Care Services

When asked about patients' complaints during the in-person interview, admin teams presented by the administrators and the director of nurses mentioned that the number of complaints were between 2 to 5 on a monthly basis, and the complaints are investigated, and corrective action is taken appropriately. The healthcare workers will be trained accordingly in case the cause of the complaint is related to insufficient training. Little admin teams mentioned that they will change the staffing assignment in case of a patient's complaint regarding dissatisfaction. Health care workers have mentioned that patient satisfaction will be decreased when there is a high workload. From their standpoint, high workload could be managed by prioritization, delegation, and communication. The quantitative approach showed that there was no significant difference in the number of the provided nursing hours per patient among patient's complaint at the $p > .05$ level for the six groups $F(5, 91) = 1.376$, $p = 0.241$.

Profitability

As mentioned by the admin team, the patients' assignment and staffing depends on the patient acuity (patient's health status) and employees' competencies. In cases of a shortage of staff, the admin team can hire more staff, change the assignment, or use a temporary worker through an agency. Most of the admin team groups mentioned that word-of-mouth and the facilities' reputations were the main factors to patient retention and acquiring new patients. A few of the admin teams said that the patients or their families depend on the Medicare rating when choosing a nursing home. When running the ANOVA test for the collected quantitative data, the results showed that there was a significant difference in the number of the provided

nursing hours among the bed occupancy rate at the $p<.05$ level for the six groups $F(5, 91) = 4.639$, $p<.001$.

Findings, Interpretations, and Conclusions

The results of the data analysis explained in the previous sections provides the required information to address the hypotheses and research questions. The interpretation and conclusions were drawn from the study's conceptual framework of pragmatism. The framework of the convergent parallel mixed method design driven by a pragmatism paradigm provided a comprehensive view of the study. The pragmatism paradigm aligned with the core of the study that revealed the effect of high workload on the provided medical services and business profitability. The theory aligned with the methodology of the study by exploring the relationship between the staff-patient ratio and business profitability. Pragmatism framework sheds light on multiple experiences of the high workload phenomena and directs to problem solving by observing what participants say and how they act. Pragmatic inquiry recognizes that individuals within social settings (including organizations) can experience action and change differently, and this encourages them to be flexible in their investigative techniques (Kelly & Cordeiro, 2020). Shannon-Baker (2016) stated that pragmatism is characterized by an emphasis on communication and shared meaning-making in order to create practical solutions to social problems. The study was guided by the following research questions:

Research Questions 1: How does increased workload experienced by employees in nursing homes impact the quality of provided healthcare services?

Research Questions 2: How does the increase in medical errors (complaints) in nursing homes, as an indicator of the quality of provided healthcare services, impact the level of customer satisfaction and reflect on the profitability of the business?

Research Questions 3: What are the relational and professional practices that can help to overcome the obstacles of increased workload experienced by employees in nursing homes?

Research Questions 4: What is the relationship between the staff-patient ratio and the number of patient complaints, and between the staff-patient ratio and the bed occupancy rate in nursing homes in Houston, Texas?

Hypothesis:H4o: There is no statistically significant relationship between staff-patient ratio and the profitability of the nursing home, and between patient complaints and the profitability of the nursing home.

H4a: there is a significant relationship between staff-patient ratio and the profitability of the nursing home, and between patient complaints and the profitability of the nursing home.

Findings Related to the Research Questions

To address the qualitative research questions (RQ1, RQ, and RQ3), the use of in-person interviews allowed participants to share thorough information regarding perceptions and experiences. To address the quantitative question (RQ4) and hypotheses, One-way ANOVA was used to compare the means of the independent variable groups to determine if there was a statistically significant difference between the corresponding population means.

For Research Question 1, the data revealed four themes. The themes were (a) high workload will effect on the quality of health care services, (b) patient satisfaction surveys, for the most part, have not been applied yet in nursing homes, (c) health care workers are usually assigned patient more than what they can handle, and (d) staffing (assigning patient to healthcare workers) depends on patients' acuity (health status) and employee competencies.

For Research Question 2, the data revealed five themes: (a) patients' satisfaction (indicated by word-of-mouth) will affect patient retention and acquiring new patients. (b)

complaints (which is reflected through the Medicare rating) is considered a factor patients rely on to choose their nursing home, (c) complaints will be investigated from the management team (represented by the administrator and director of nursing), (d) health care workers will be trained if the complaint is related to the quality of healthcare services, and (e) workload will be handled more effectively if healthcare workers are provided with more training.

For Research Question 3, data revealed five themes: (a) high workload is managed by prioritizing activities, (b) delegation is considered by healthcare workers when managing high workload, (c) healthcare workers communicate with patients and the management team to decrease the stress of high workload, (d) staffing assignments can be changed to manage patient complaints, and (e) an outsource agency can be used to handle staff shortages.

For Research Question 4, the statistical test measured the significant relationship between three variables: nursing hours per patient per day, patient complaints, and bed occupancy rate. there was no significant difference in the number of the provided nursing hours per patient among patients' complaint at the $p > .05$ level for the six groups $F(5, 91) = 1.376$, $p = 0.241$. There was, however, a significant difference in the number of the provided nursing hours among the bed occupancy rate at the $p < .05$ level for the six groups $F(5, 91) = 4.639$, $p < .001$.

Interpretation of Findings

The qualitative and quantitative findings of the study were based on the conceptual framework described previously in this study. The pragmatism paradigm shaped the conceptual framework for the convergent mixed methods research study, which was the paradigm of this research. The pragmatism paradigm aligned with the core of the study reveals the effect of high workload on the provided medical services and business profitability. Pragmatism framework allowed for a light to be shed on multiple experiences of the high workload phenomena and

directs to problem solving by observing what participants say and how they act when studying the phenomena. Pragmatism encourages researchers to base choices on the relevance of these methods and methodologies ‘in terms of carrying us from the world of practice to the world of theory and vice-versa (Kelly & Cordeiro, 2020). For pragmatism, creativity is always embedded in a situation; actors confront problems in a particular set of circumstances. However, the solution to these problems, the choice of action to be taken, is not clearly prescribed beforehand by reality but calls for creativity (Ormerod, 2021).

The following theories align with the methodology of the study by exploring the relationship between the staff-patient ratio and the quality of health care services and between the staff-patient ratio and business profitability. Ruf et al. (2022), regarding the capacity theory, stated that capacity shortfalls occur when the workforce is too small. They are most evident when making medium- to short-term personnel scheduling decisions that involve the construction of weekly timetables, and short-term operational planning, such as the daily assignment of tasks. Consolidation includes the stabilization and integration of memory into long-term storage to increase resistance to interference and decay. This process creates enduring structural modification in the brain and thereby has consequential effects on the function by reorganizing and strengthening neural connections. Diverse sources like sleep and stress and the release of neurotransmitters can influence memory consolidation (Sridhar et al., 2023). Ruf et al. (2022), regarding the discrepancy theory, stated that when the delivered experience is at odds with the customer’s closely held beliefs and values, this creates cognitive dissonance, and instead of happiness, it is supposed to generate unhappiness and disengagement results. Karande et al. (2021), regarding the medical error theory, stated that lengthy working hours and heavy workloads are being increasingly recognized as factors that cause stress, chronic fatigue, and

sooner or later burnout in physicians, residents, and nurses. Burnout in these healthcare professionals is being recognized to result in suboptimal patient care practices and appreciably increase the risk of medical errors (Karande et al., 2021). The theories were considered throughout the study. The mixed methods study supported the conceptual framework concerning the high workload, quality of health care services, and nursing home profitability.

The research was built on literature and develops the understanding of how high workload will affect the quality of the healthcare services and the profitability of the nursing homes in Grand Houston, TX. Chang et al. (2019) stated that the increased workload experienced by healthcare service providers increases the rate of medical errors, which can lead to a loss of customer satisfaction, with common mistakes consisting of patient falls, infections, medications, and incorrect documentation. Metcalf et al. (2018) stated that understaffing and healthcare workers' work overload will increase the rate of medical errors. Sturm et al. (2019) stated that high workload can lead to more job-related stress and strain, which will effect on the patients' outcomes. Qualitative interviews were conducted to address the workload status in the targeted nursing homes. Patients were most dissatisfied when they were not met in a professional manner (Skär & Söderberg, 2018). Rosko et al. (2020) stated that the occupancy rate is positively associated with higher profitability. patients' feedback on their treatment has also become an economic factor since reimbursement as well as the reputation of hospitals in some healthcare systems are also dependent on patients' judgements of their received care (Friedel et al., 2023).

The findings from the study showed that high workload effects on the profitability of the nursing homes in Grand Houston, TX. Both the qualitative and the quantitative approach revealed the same result. Results of both the qualitative and the quantitative approaches did not give the same result regarding the effect of workload on the quality of healthcare. Since the

quantitative approach showed that there is no effect of high workload on the quality of healthcare services, the qualitative approach revealed the opposite result. The findings of the study revealed that healthcare workers sought out many ways in handling high workload, like prioritizing and delegating their activities and through communication, especially when there was a limited ability for the admin team to change the assignment and decrease workload.

Conclusion

Four research questions shaped the basis of the mixed methods research. The qualitative questions let admin teams and healthcare workers share information about personal experiences with high workload in nursing homes. The quantitative question and hypothesis provided statistical information about the relationship between variables. The data did not provide a solid answer about high workload being a contributing factor to the quality of healthcare services, while the data deepens the belief that high workload is a contributing factor on the profitability of the nursing homes. The study added additional data on how healthcare workers deal with high workload when little to no help is provided from the management team regarding the changing of the staffing assignment and increasing the number of the employees.

Application of Professional Practice

Introduction

Nursing homes play an important role hand by hand with other kinds of healthcare facilities to service the medical needs of the elderly population, which is increasing rapidly globally and nationwide. Nursing homes provide a wide range of health services to residents who end up in their facilities due to the lack of patients' ability to serve themselves or due to other health-related issues. Poor quality of healthcare services is a problem in many nursing homes in Texas. This problem threatens the life of elderly patients, who are the most vulnerable of the

population. The aim of this research is to shed light on the effect of high workload on the quality of the health care services in nursing homes in Houston, Texas, and how high workload will have an effect on the profitability of the nursing homes. Defining the problem itself will help find solutions for it. Many practices can be applied at many levels, such as federal, state, organizational, or even individually to overcome the problem being examined.

Improving General Business Practice

The Center of Medicare and Medicaid Services (CMS) and the State of Texas, represented by the Texas Department of State Health Services, did not identify the maximum number of patients that each health care worker in the nursing home should handle (health care workers such as registered nurses, licensed vocational nurses, and certified nurse assistants). This number is determined by the facility admin team, represented by the administrator and the director of the nursing department, to decide the ratio of patients to health care workers for the sake of providing the best health care services to their patients (residents). For this reason, the staffing policy (patient to health care worker ratio) varies between nursing homes in Houston, Texas. The idea of the research is that the number of patients handled by health care providers more than their capacity (high workload) is associated with the low quality of health care services, and in the long run will negatively affect the profitability of the nursing home.

The quality of the healthcare services provided in nursing homes is affected by many factors. The study was conducted to figure out if high workload is one of the factors that can affect the quality of the provided healthcare services and the profitability of the nursing homes. As I found when reviewing previous literature, there were few studies that have been done in this field regarding this topic.

Workload can be measured by the number of patients that the healthcare worker is assigned to take care of. The quantitative part of the study showed that there was no significant relation between the workload and the quality of the health care services, while the qualitative study showed the opposite result and revealed that the quality of the provided health care services will be affected by the level of workload. Most of the healthcare workers agreed that with higher workload, the quality of provided health care services will be affected, and patient satisfaction will deteriorate accordingly. Medicare and Medicaid Services (CMS) and the State of Texas call for nurse staffing to be determined by factors such as patient acuity and staff competencies, rather than by mandatory staffing ratios. All the nursing home facilities should be in compliance with the federal agency (which delegate the authorities to the CMS and the State agencies to enforce its regulations) for the sake of receiving payment from Medicare and Medicaid. Unroe et al. (2018) stated that nursing homes are a highly regulated setting of care and are regularly visited by both federal and state surveyors. Harrington et al. (2020) stated that nurse staffing is one of the primary cost components for nursing homes. It is common for nursing homes to keep staffing costs as low as possible to maximize profits. Many studies that have been conducted before mentioned indirectly the effect of high workload on the quality of health care services and the facility's reputation. Buljac-Samardžić and van Woerkom (2018) stated that the stress of workload has negatively impacted patient safety and may lead to issues such as infections, patient falls, medication errors, and patient mortality. Low nurse staffing levels are associated with adverse outcomes, most notably mortality (Griffiths et al., 2018).

The reasons behind assigning more patients to healthcare workers are to reduce the cost of healthcare services and increase the margin of profit. Nursing homes with an environment lacking federal or state regulation of staffing might reduce the number of healthcare workers or

reduce the number of patients the one employee can handle in sake of cutting expenses. They can take advantage that there are no federal or state regulations regarding mandatory staffing policies. California and Massachusetts are the only states that have regulations regarding the nurse-to-patient ratio. All nursing homes in the United States, however, are required to report their staffing ratio to the Center of Medicare and Medicare to be publicly reported in the Medicare Compare website to provide transparency to the public so patients can make legitimate decision about where to receive health care services.

This study made the CMS and the State of Texas aware of the importance of regulating the staffing policies instead of leaving it to the nursing homes to decide, which can lead to the nursing homes abusing their rights and reduce staffing, jeopardizing patient health status. This study sheds light on the importance of proper staffing to improve the quality of the health care services and simultaneously improve the financial situation of the nursing homes in Houston, Texas by improving their reputation. The study can also expand the vision of the health care workers to apply positive coping mechanisms like prioritizing, delegating, or seeking help from the management team to handle the work overload and stress level associated with it.

Potential Application Strategies

The general business practice is to assign an adequate number of patients to healthcare workers without any restriction or predetermined ratios preidentified by the CMS or the state of Texas. This study could play an important role in leading the Center of Medicare and Medicaid Services (CMS) and the State of Texas to reconsider the staffing regulation and update its regulations, start stipulating rules and regulations in staffing policies, and require nursing homes in Houston Texas to follow the new staffing regulations. All nursing homes in Houston, Texas are mandated to follow the federal and state rules and regulations. If the regulation of staffing

has changed, like requiring all nursing homes to have no more than the set maximum number of patients that the health care worker can handle, nursing homes will be required to follow this regulation to keep business open and continue getting reimbursements from public health care insurance like Medicare and Medicaid. Updating the staffing regulations will affect positively the level of stress and work overload that the health care workers are suffering from and improve the quality of the provided health care services in nursing home settings. This update will shift the administrative interest from cutting the cost to increasing the admission by focusing on increasing the quality of the health care services instead of reducing the number of employees. These changes will likely increase the cost of the health care services provided by the nursing homes, but, in the long run, will improve nursing homes' reputations and increase the number of patient admissions.

On a facility level, even with a shortage of regulations governing the staffing policy, they can increase the number of healthcare workers in their facility, which leads to a decrease in the level of the workload and stress level, increasing the time dedicated to each patient and gives fewer opportunities for medical errors. This will lead to better health care services and will be reflected, in the long run, in the profitability of the nursing homes. The monthly quality Assurance and Performance Improvement (QAPI) committee are required to meet on a monthly basis to review the quality indicators in order to improve their healthcare services. Leger and Forest (2021) stated that The QAPI model offers healthcare organizations a systematic, comprehensive, and data-driven strategy for maximizing outcomes. During the committee meetings, the staffing ratio can be reviewed and adjusted according to the expected number of patients, the patient satisfaction survey results, and patient complaints summaries.

Individually, I found in this study that healthcare workers have developed their own strategies to handle the high level of workload. Strategies such as prioritization, delegation, and seeking help from the management team have been used in varied ways and on an individual basis. These techniques could be more widespread and regulated more thoroughly in the nursing home setting. Many participants mentioned that they can use prioritizing techniques as a mechanism for handling high workload. This technique, instead of leaving it to be done on an individual basis without any restriction or rules, can be organized and documented as a policy and protocol that each healthcare worker can follow in cases of being in a situation of high workload. Delegation should be more restricted, especially since every employee should do the job depending on the scope of practice which is initiated from the level of education, licensure, and experience. Delegation, if not done properly, might initiate more problems if the task is delegated to a non-competent employee. Delegation should be regulated in the facility and healthcare workers must follow these regulations to limit the span of mistakes and errors. Seeking help from the management team is another coping mechanism that healthcare workers can use to relieve the high workload burden. In this case, the management team should be more involved and provide help to the health care providers when help is needed. The healthcare management team should be a teamwork player and be more involved in health care workers' situations and provide help when needed.

Summary

Because of the absence of regulations identifying the maximum number of patients a health care worker can handle in the nursing home setting, it induces nursing home facilities to depend on many other factors to build their staffing policies. Due to the variation of the staffing ratio between each nursing home, the quality of the provided healthcare services has varied as

well. Some practices can be applied on a federal or state level to limit the variation of staffing policies. Also, some procedures or processes can be implemented on organizational and individual levels and can alleviate the effect of high workload.

Recommendations for Further Studies

The quantitative part of the study displayed that high workload would affect the quality of health care services and patient satisfaction. Regarding this finding, more research can be done to compare the health care quality between nursing homes depending on nursing hours per patient (how much nursing time is dedicated per patient). Many factors can be considered as an indicator of quality, like number of complaints, medical errors, patient satisfaction, and the State of Texas annual site evaluation results.

Very few nursing homes in Houston, Texas conduct a periodic patient satisfaction survey. This survey is not mandated by the CMS or the State of Texas. The benefit of the periodic survey should be studied more thoroughly as well, which may lead to changing the regulations regarding the survey and requiring it to be mandated.

Efficiency of employee training can be measured by the orientation and training program types and longevity. The efficiency of these programs can be reflected in the quality of healthcare services. Studies can be done in this field to see the difference between these programs and how the programs can reflect on the quality of healthcare services.

The shortages of healthcare providers in nursing homes can be studied. Is the shortage of health care providers more severe in nursing homes, or is standard and match with the national shortage level in the U.S. health system?

The qualitative and quantitative analysis of this study show that workload will affect the profitability of nursing homes. Quantitative studies can be done to define the relationship

between the staffing ratio and financial profitability. In the short term, increasing the staffing ratio will increase the cost of the nursing homes. In the long term, it will reflect positively on the facility's reputation and the CMS rating, which, in the conducted study, are considered the only two factors affecting the patient's choice to choose between nursing homes.

Reflections

Introductory Paragraph

Research in general is a long journey. Sometimes, it takes years to accomplish. Students should be very interested in the subject of the research and enthusiastic to keep pursuing the research to the end. Pursuing research will affect the personal and professional lives of the researchers, as it develops their critical thinking skills along with written and oral communication skills. A lot of other benefits will be reaped during and after finishing the research project, depending on the field and type of said research.

Personal & Professional Growth

I have been working in the healthcare field in Houston, Texas since 2012. The DBA program and the dissertation widened my view of the healthcare system in general, especially in the nursing home field. The dissertation taught me how to be more organized and dedicated, starting from choosing the problem that I found deserved to be studied until I got to analyzing and presenting what I found out from the research. The skills that I learned from this study were crucial and its advantages spread to my personal and professional life. My conceptual understanding improved a lot and led me to view the studied problem from different sides, especially during the literature review task and data collection. The mixed method research design sharpened my qualitative and quantitative research skills. This is considered a huge advantage to me, since it gave me an opportunity to implement two research designs in one

study. During the qualitative research, I learned more about how to introduce myself in the right way and how to convince the participants to cooperate with me and get their feedback. During the in-person interviews, I collected unexpected data from healthcare workers, especially regarding coping mechanisms they apply to limit the effect of high workload. Methods like delegation and prioritizing were not expected when collecting feedback.

I feel more confident and skillful in doing research relating to similar problems in the healthcare field. The health healthcare field is not static; regulations and the types of healthcare services continue to change over time, which can bring more difficulties and problems to the healthcare system. These problems deserve to be studied and analyzed thoroughly to find adequate solutions. Health care is a sensitive industry, and any delay in solving any emergent problem will cost patients' lives and amplify the problem. As a DBA student, the dissertation itself is not just a valuable teaching methodology that increases student research skills, but also provides valuable information that can be used in solving the problem being researched.

Biblical Perspective

Christianity supports research and insists on finding the best for humanity. Christianity encourages all of us to ask questions and find reasons behind the phenomenon. This would seem like "God's work" and some previous mathematicians have proposed that math is actually searching for the patterns of God (Nickel, 2001). Jeremiah 9:23-24: Thus says the LORD:

> Let not the wise man boast in his wisdom, let not the mighty man boast in his might, let not the rich man boast in his riches, but let him who boasts boast in this, that he understands and knows me, that I am the LORD who practices steadfast love, justice, and righteousness in the earth. For in these things, I delight, declares the LORD.

Understanding how one's cultural experiences can mix with religious faith is an important understanding of the self (Ripley & Dwiwardani, 2014). The purpose of the research was to analyze the effect of high workload on the quality of healthcare services and the financial profitability of nursing homes, as well as help the community overcome the bad effects of high workload. The qualitative and the quantitative methodologies have been used in this research to give more reliability to the study. Christianity leads researchers to do robust research and provide information that the community can get help from. Deuteronomy 13:14, 15, BBE: "Let a full search be made, and let questions be put with care." Seeking health care treatment is supported by Christianity, it is a responsibility for both patients and caregivers to seek health care treatment when needed. James 5:13-15:

> Is anyone among you suffering? Let him pray. Is anyone cheerful? Let him sing praise. Is anyone among you sick? Let him call for the elders of the church, and let them pray over him, anointing him with oil in the name of the Lord. And the prayer of faith will save the one who is sick, and the Lord will raise him up. And if he has committed sins, he will be forgiven.

Research is not easy work. When things do not go according to plan, we can lose our faith in ourselves and the potential outcome in our lives. However, what does not kill you makes you stronger; we have to keep our faith and find our purpose in life. God found us for a reason, and our job is to find that reason, and never lose our faith. James 2:14-26 ESV: "What good is it, my brothers, if someone says he has faith but does not have works? Can that faith save him?" If a brother or sister is poorly clothed and lacking in daily food, and one of you says to them, "Go in peace, be warmed and filled," without giving them the things needed for the body, what good is that? So also faith by itself, if it does not have works, is dead. But someone will say, "You have

faith and I have works." Show me your faith apart from your works, and I will show you my faith by my works."

Health care providers' job is to provide the best services, especially for elderly people, the most vulnerable of our population. The number of Americans over the age of 65 is increasing much faster than the overall population's growth rate. These changes can be largely attributed to the improvement in life expectancy (Chiu & Pinto, 2018). Due to the aging situation, the use of medical services for the elderly is exceeding the rest of the population, which, therefore, puts more pressure on the healthcare system. With an increasing aging population worldwide, there is a need for a greater focus on the spirituality of older people, to better support them and lead them to an enhancement of their inner peace (Lepherd et al., 2020). Christianity is a monotheistic religion based on the life teachings and miracles of Jesus Christ. With the attainment of eternal life with God at the heart of most Christian beliefs, the acknowledged relationship between death and religion is not surprising (Choudry et al., 2018). Oberholzer (2019) stated that spirituality and healthcare have depended on and supported one another from the earliest times. Patients all over the world seek the services of faith healers for all kinds of ailments, including social and psychological issues (Peprah et al., 2018). The nurse-patient relationship is understood as the basis for transforming the patient illness experience into an encounter where patients and families gain knowledge and experience that fosters health (Pfeiffer, 2018). Genesis 2:15 "The Lord God took the man he had created and placed him in the Garden of Eden to work it and keep it." Christianity encourages people to provide the best work and services with enthusiasm, leading health care providers to take their jobs seriously and provide adequate, rather than poor, services. Ecclesiastes 9:10 says, "Whatever your hands find to do, do it with all you might, for there is no work, knowledge, or wisdom in the grave where we all end up in." Christianity speaks

very lowly of lazy individuals. Proverbs 18:19, "He who is slothful in his work is a brother to him who is the destroyer of everything good."

The financial stress on the healthcare facilities and management team can lead them to lower costs in many ways. One of the big chunks that make up the expenses is the manpower cost or staffing cost. Decreasing the number of healthcare workers means assigning more patients to each provider, which, in turn, increases the workload and the stress level. The data in the qualitative part of the study displays that increased workload will affect the quality of the provided health care services. Providing unfair work or unfair treatment is prohibited by Christianity, clearly defined in Hosea 10:13:

> You have plowed iniquity; you have reaped injustice; you have eaten the fruit of lies. Because you have trusted in your own way and in the multitude of your warriors, therefore the tumult of war shall arise among your people.

Summary of Section 3

High workload of healthcare workers is one of the major problems in the United States health system. Heavy workload continues to affect the quality of healthcare services and patients' safety. The study sheds light on the effect of heavy workload on patient satisfaction and the financial stability of nursing home facilities in Houston, Texas. The effect of workload on patients' satisfaction and business profitability is explored by using a mixed approach that can better help diagnosis and find the root of the problem. The research was explored by using a mixed convergent parallel method for the sake of providing more in-depth information and gives the ability to converge the extracted data from both qualitative and quantitative approaches.

Summary and Study Conclusions

The heavy workload of healthcare workers is one of the major problems in the U.S. health system. Heavy workload is affecting the quality of healthcare services and patients' safety. The study shed a light on the effect of heavy workload on patient satisfaction and the financial stability of nursing home facilities in Houston, Texas. The significance of the study was to understand the phenomena of high workload and its effects on the residents and the nursing home facilities in Houston, Texas. The intention was to provide more in-depth information regarding how much high workload will reflect on the quality of medical services and finances of the nursing homes. Four research questions shaped the basis of the mixed methods research. The qualitative questions let admin teams and healthcare workers share information about personal experiences with high workload in nursing homes. The quantitative question and hypothesis provided statistical information about the relationship between variables. The data did not provide a solid answer about high workload being a contributing factor to the quality of healthcare services, while the data deepens the belief that high workload is a contributing factor on the profitability of the nursing homes. The study added additional data on how healthcare workers deal with high workload when little to no help is provided from the management team regarding the changing of the staffing assignment and increasing the number of the employees.

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Appendix A: Semi-Structure Interview Guide for employees in the nursing department (RN, LVN, CNA)

Introduction

Thank you for agreeing to participate in this interview. We are interviewing you to better understand how the work overload will affect the quality of the provided medical services. There are no right or wrong answers to any of our questions; we are interested in your own experiences. Participation in this study is voluntary and your decision to participate or not participate will not affect your job and your answers will stay confidential and will not be exposed to your management team. The interview should take approximately twenty minutes depending on how much information you would like to share. Can you give me your permission to audio record this interview so that I don't miss any of your comments? You may decline to answer any question or stop the interview at any time and for any reason. Please let me know if you have any questions. May I start recording?

Establishing Rapport:

Before we begin, it would be nice if you could tell me a little bit about yourself. and how long have you been working in the medical field? It looks like a nice place to work in, can you tell me how long you have been working at this nursing home?

1- Workload Experience:

I want to start asking you the interview questions now. Can you tell me, in your opinion, what is a decent number of patients you can usually handle?

Prompts: How many patients are you assigned to take care of?

Prompts: Have you been assigned more patients over your usual expectation?

Prompts: when you handle more patient than you can tolerate, could the quality of the provided medical service be affected? In other words, does the increased number of the assigned patients decrease your ability to take care of them properly?

2- Relating to patient satisfaction:

Can you tell me how you are handling the work overload and what is needed to be done from the management part to be more realistic in assignment preparations?

Prompts: When you take care of more patients, was there a decrease of patient satisfaction? For example, was there an increase of complaints filed against you?

3- Conclusion Is there anything else that you would like to comment on that I haven't already asked you about?

Thank you for the opportunity to interview you and for the valuable information you shared today.

Appendix B: Semi-Structure Interview Guide for Management Team (Administrator, DON)

Introduction

Thank you for agreeing to participate in this interview. We are interviewing you to better understand how work overload affects the quality of the provided medical services. There are no right or wrong answers to any of our questions: we are interested in your own experiences. Participation in this study is voluntary and your decision to participate, or not participate, will not effect on your job and your answers will stay confidential and will not be exposed to your management team. The interview should take approximately twenty minutes depending on how much information you would like to share. Can you give me your permission to audio record the interview so that I don't miss any of your comments? You may decline to answer any question or stop the interview at any time and for any reason. Please let me know if you have any questions.

May I start recording?

Establishing Rapport:

Before we begin, it would be nice if you could tell me a little bit about yourself. How long have you been working in the medical field? This looks like a nice place to work in, can you tell me how long you have been working at this nursing home?

1- Staffing policy

May you tell me what is your nursing and nursing assistant staffing policy?

Prompts: What are the factors that play an important role in constructing your staffing plan?

Prompts: What is the patient/CNA ratio in your facility?

Prompts: What is the patient/nurse ratio in your facility?

2- Patient satisfaction:

Do you have a patient satisfaction policy in place? Are you doing any patient satisfaction surveys in your facility? If yes, how frequently, and is it possible if I could see the survey charts?

Prompts: Can you tell me what your policy of handling patients' complaints is?

Prompts: How many complaints are you receiving per month relating to the quality of the provided medical services?

Prompts: What is your staffing plan in response to unsatisfied patients relating to the quality of the provided health services?

3- Patient Retention:

From your standpoint, do you think that patient retention or getting a new patient is related to patient satisfaction and quality of medical services?