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Engagement and Turnover in Registered Nurses Before and After the COVID-19 Pandemic

Laura Magstadt
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Walden University

College of Management and Human Potential

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Laura K. Magstadt

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Walden University
2023

Abstract

Engagement and Turnover in Registered Nurses Before and After the COVID-19

Pandemic

by

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MPhil, Walden University, 2023

MBA, Walden University, 2015

MS Nursing, University of Phoenix, 2005

BS Nursing, Edgewood College, 1997

Dissertation submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Management

Walden University

February 2024

Abstract

The COVID-19 pandemic exposed the underlying vulnerability of the healthcare workforce in the form of physical, psychological, and operational challenges. The purpose of this study was to understand if a difference exists in nursing engagement pre- and post-pandemic and if engagement predicts RN turnover in U.S. hospitals since the start of the COVID-19 pandemic in 2020. Fredrickson's broaden-and-build theory and Kahn's work engagement theory helped to explain the potential influence of engagement on RN turnover in hospitals. This study was a retrospective quantitative correlational design to explore the potential for relationships. Data were obtained from a healthcare organizational survey, including 11 hospitals in the western United States. The research questions explored the mean difference in engagement index and turnover rates and the potential predictive relationship of engagement on turnover. The study results indicated no statistically significant difference in mean nursing engagement index scores or turnover rates pre- and post-pandemic. The employee engagement index was a statistically significant predictor of the turnover rate in the total sample, but multiple linear regression testing revealed no significant relationship between individual years (2019 and 2022). The results of this study have potential implications for positive social change that include expanding leadership and management knowledge about the antecedents of RN turnover since the COVID-19 pandemic began.

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Dedication

For my dad.

Acknowledgments

Thank you to my husband John for your unwavering support and encouragement during this journey. To my mom and dad for always reminding me that I could make my dreams come true. A doctoral degree was my dream as a young girl and now is a reality.

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Chapter 1: Introduction to the Study

Introduction

Employers across industries are facing a confluence of significant workforce challenges. Gallup (2022) found that only 21% of the global workforce is engaged at work, costing an estimated 7.8 trillion dollars in lost productivity. The United States fares better than most, with 33% of the workforce engaged (Gallup, 2022). However, the U.S. also has some of the highest workplace-related stress, worry, and anger (Gallup, 2022). Harter (2022) reported that 50% of the U.S. workforce are “quiet quitters,” employees who are actively disengaged at work (para. 1). While the great resignation of 2021 resulted in 47 million Americans leaving their jobs, the rates of voluntary turnover have been increasing for more than a decade (Fuller & Kerr, 2022). The healthcare industry is not immune to these challenges.

Before the COVID-19 pandemic, researchers estimated burnout among physicians at 40%–50% and nurses at 35%–45% (Rehder et al., 2021). Zangaro et al. (2022) cited that up to 80% of registered nurses (RNs) have experienced burnout. The stress and workload associated with the COVID-19 pandemic worsened an existing crisis of mental health among healthcare workers (Babbar et al., 2021; Dzau et al., 2022; Serrao et al., 2021). Rutledge et al. (2021) found chronic fatigue as the highest predictor among study variables of turnover intention among RNs. Low engagement, fatigue, and burnout contribute to increasing RN turnover rates. In this study, I explored if there is a difference in nursing engagement pre- and post-pandemic and if engagement predicts RN turnover in U.S. hospitals since the start of the COVID-19 pandemic in 2020. Understanding

additional antecedents of RN turnover can impact positive social change by providing leaders with new information about factors associated with turnover and practical implications for increasing engagement in the wake of the COVID-19 pandemic.

Chapter 1 includes information on the background of the study, problem statement, purpose, research questions, and hypotheses. I include an introduction to the theoretical foundation and nature of the study. I provide a list of definitions. Chapter 1 also includes the study's assumptions, scope and delimitations, and limitations. The chapter concludes with a review of the study's significance, implications for positive social change, and a summary transition to the next chapter.

Background

The healthcare industry has experienced nursing shortages, staffing crises, and fluctuations in turnover for decades (Poon et al., 2022). Nonetheless, previous workforce challenges cannot compare to the unprecedented events surrounding the COVID-19 pandemic. Between February 2020 and November 2021, the U.S. healthcare industry experienced a net loss of 460,000 workers (Poon et al., 2022). Healthcare and social assistance resignations rose 1.1% from April 2020 to November 2021 (Gittleman, 2022). In 2022, hospital-based RN turnover reached 27.1%, increasing 8.4% from 2020 (NSI Nursing Solutions, Inc., 2022). The ongoing loss of more than 1 in 4 RNs appears unsustainable financially and from the perspective of patient safety and quality of care. Healthcare leaders may benefit from understanding the underexplored antecedents to RN turnover since the COVID-19 pandemic began. This study was conducted to explore if there is a difference in nursing engagement pre- and post-pandemic and if engagement

predicts RN turnover in U.S. hospitals since the start of the COVID-19 pandemic in 2020.

Turnover and Engagement

Antecedents of RN turnover include individual characteristics such as age, job satisfaction, level of education, peer relationships, leader relationships, staffing, workload, development opportunities, onboarding practices, salary, and benefits (Woodward & Willgerodt, 2022), fair treatment, employee–organization relationship (Kang & Sung, 2019), burnout (Kelly et al., 2021), work–life balance, flexible scheduling, and organizational commitment (Kwon, 2019). The concept of engagement was introduced through Kahn (1990), who described the dimensions of work engagement theory as psychological meaning, safety, and availability. When the organizational environment is appropriate, Kahn argued that individuals use their energy to drive physical, cognitive, and emotional labor. Schaufeli et al. (2002) expanded on the work of Kahn (1990) and others, developing the most widely used definition of *engagement* in the literature: “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” (p. 74). Keyko et al. (2016) conducted a systematic review identifying 77 antecedents of engagement and six themes, including organizational climate, job resources, professional resources, personal resources, job demands, and demographic variables (e.g., age, gender, tenure, experience, education). Slatten et al. (2022) identified that work engagement in nursing is positively correlated with job satisfaction and turnover intention.

A substantial body of current literature exists on the factors of workplace turnover and engagement, including numerous RN-specific studies (Bae, 2022; Contreras et al., 2020; Contreras et al., 2021; Dasgupta, 2016; Edwards-Dandridge et al., 2020; Gomez-Salgado et al., 2019; Halter et al., 2017; Kelly et al., 2021; Kwon, 2019; Lee et al., 2021; Mehrad et al., 2022; Pohl et al., 2022; Scanlan & Still, 2019; Slatten et al., 2022; Waltz et al., 2020; Woodward & Willgerodt, 2022; Wu et al., 2021). Nevertheless, I could not identify any peer-reviewed research comparing engagement pre- and post-pandemic or exploring nursing engagement and turnover in hospitals after 2020. A gap exists regarding whether there is a difference in nursing engagement pre- and post-COVID-19 pandemic and whether engagement predicts RN turnover after 2020. Slatten et al. (2022) identified that work engagement and nursing turnover should be explored in a larger sample and across multiple time points. Woodward and Willgerdot (2022) argued that research on RN turnover should identify actions leaders can take to prevent the formation of an intent to leave. Given the unprecedented levels of RN turnover in 2021 (NSI Nursing Solutions, Inc., 2022), learning more about how the COVID-19 pandemic may have influenced nursing engagement and turnover in hospitals could build on the work of Slatten et al. and Woodward and Willgerdot providing leaders with new insights to prevent RN turnover.

Problem Statement

Healthcare leaders face a worsening crisis of RN turnover in U.S. hospitals since the COVID-19 pandemic began (Auerbach et al., 2022; Bae, 2022; Kelly et al., 2021; Woodward & Willgerodt, 2022). In 2019, RN turnover in the U.S. was 15.9% (NSI

Nursing Solutions, Inc., 2022). By the end of 2021, RN turnover rose to 27.1% (NSI Nursing Solutions, Inc., 2022). Hospital-based RN turnover is at the highest point in more than a decade (NSI Nursing Solutions, Inc., 2016, 2022) and is unsustainable given the increasing demand for RNs (International Council of Nurses, 2021; U.S. Bureau of Labor Statistics, 2022; World Health Organization, 2020). The COVID-19 pandemic has exposed the underlying pathology of the healthcare workforce in the form of physical, psychological, and operational challenges. RNs often experience chronic fatigue (Rutledge et al., 2021), burnout (Kelly et al., 2021), and moral distress (Rushton, 2016). Adanaque-Bravo et al. (2023) determined that psychological distress and burnout significantly influence work engagement. The specific research problem addressed in this study is that healthcare leaders do not fully understand if there is a difference in nursing engagement pre- and post-pandemic and if engagement predicts RN turnover in U.S. hospitals since the start of the COVID-19 pandemic in 2020.

Purpose of the Study

The purpose of this quantitative study was to understand if there is a difference in nursing engagement pre- and post-pandemic and if engagement predicts RN turnover in U.S. hospitals since the start of the COVID-19 pandemic in 2020. Fredrickson's (1998) broaden-and-build theory and Kahn's (1990) work engagement theory helped to explain the potential influence of engagement on RN turnover in hospitals. A retrospective nonexperimental correlational design measured RN turnover (outcome variable) and nurse engagement (predictor variable) pre- and post-pandemic.

Research Questions and Hypotheses

A review of the literature supports the problem and purpose and was used to develop the following quantitative research questions. The outcome variable is RN turnover, measured at an interval level. The predictor variable is engagement, measured at an interval level.

RQ1: What is the difference in mean nursing engagement scores pre- and post-pandemic?

H₀₁: There is no statistically significant difference in mean nursing engagement scores pre- and post-pandemic.

H₁₁: There is a statistically significant difference in mean nursing engagement pre- and post-pandemic.

RQ2: What is the difference in mean RN turnover pre- and post-pandemic?

H₀₂: There is no statistically significant difference in mean RN turnover pre- and post-pandemic.

H₁₂: There is a statistically significant difference in mean RN turnover pre- and post-pandemic.

RQ3: What is the predictive relationship, if any, of nursing engagement on turnover in RNs pre- and post-pandemic?

H₀₃: Engagement is not a statistically significant predictor of turnover in RNs pre- and post-pandemic.

H₁₃: Engagement is a statistically significant predictor of turnover in RNs pre- and post-pandemic.

Theoretical Foundation

The theories that ground this study include Fredrickson's (1998) broaden-and-build theory and Kahn's (1990) work engagement theory. Fredrickson (1998) suggested that positive emotions such as joy, happiness, interest, curiosity, and contentment can broaden an individual's actions beyond their typical behavioral responses. These positive emotions can also broaden physical, intellectual, and social resources, supporting coping and resilience (Fredrickson, 1998; Fredrickson & Branigan, 2005). Kahn (1990) defined meaningfulness, safety, and availability as the core psychological constructs of work engagement. Work engagement results from individual perceptions about how meaningful and safe a work situation is and whether the individual has the personal resources to engage (Kahn, 1990). In practical terms, employees engage when they believe they are valued, can express their full selves without fear of negative consequences, and have the necessary physical, emotional, and psychological resources (Kahn, 1990).

Kahn's (1990) work engagement theory is referenced extensively in the engagement literature. Kahn described the psychological conditions resulting in individuals engaging or disengaging in their workplace based on meaning, safety, and availability. Kahn's theory provides a lens to explore if there is a difference in nursing engagement pre- and post-pandemic and if engagement predicts RN turnover since the COVID-19 pandemic began. Fredrickson's (1998) broaden-and-build theory describes how positive emotions can engender happiness and satisfaction. This phenomenon can help to explain how the positive sentiments in the engagement survey instrument (would

recommend the organization and happiness working at the organization) may influence engagement and retention (as the opposite of turnover).

Nature of the Study

To address the research questions in this quantitative study, the specific research design included a nonexperimental correlational approach. Researchers conduct correlational studies to test the strength of relationships between variables without experimental conditions or random assignment (Burkholder et al., 2020; Fitzgerald et al., 2004). Correlational research cannot determine causality but can predict potential interactions among variables (Burkholder et al., 2020).

I obtained the sample via a secondary employee engagement survey and secondary turnover data from the healthcare organization. The healthcare organization administers a third-party engagement survey every 6 months and collects turnover data monthly. Only data from RNs were included in the work engagement and turnover sample. All other healthcare worker data were excluded. Data were requested from the healthcare organization via their established process. Once approved, I entered into a contractual agreement with the organization for release, protection, and use of data. Once an agreement was made, I sought approval through the Walden University Institutional Review Board (IRB).

This study contains two variables. The outcome variable is turnover, measured at an interval level. The predictor variable is engagement, measured by two items on the employee engagement survey, “I would recommend *the organization* as a great place to work” and “How happy are you working at *the organization*?” These two questions are

measured on an interval level using a five-point Likert scale. The survey vendor uses the data from the two questions to generate an engagement index ($r^2 = 0.90$; $r = 0.95$). To answer the research question, statistical analysis will include descriptive statistics, correlation, independent samples t-test, linear regression, and two-way MANOVA.

Definitions

COVID-19: An infectious, viral disease caused by SARS-CoV-2 (World Health Organization, n.d.).

Engagement: An individual's approach to work that reflects energy, resilience, effort, dedication, concentration, and their true self (Kahn, 1990; Schaufeli, et al. 2002).

Healthcare worker: An individual working in any healthcare setting with a role oriented to the direct care of individuals seeking care (e.g., respiratory therapist, certified nursing assistant, phlebotomist, physician, nurse practitioner, etc.).

Job satisfaction: The level of fulfillment within a specific job role (Shuck et al., 2017).

Nurse: An individual with an associate or baccalaureate degree in nursing who has passed the National Council Licensure Examination (NCLEX) and is licensed as an RN.

Nurse engagement: Nurses' approach to work that reflects energy, resilience, effort, dedication, concentration, and their true self.

Nurse turnover: The rate nurses separate from an organization for any reason.

Personal resources: The psychological attributes that determine personality, coping strategies, and behaviors that foster resilience (Boccoli et al., 2023; Contreras et al., 2020).

Pre-pandemic: For this study, pre-pandemic is before March 2020.

Post-pandemic: For this study, post-pandemic is May 2022 or after.

Turnover: The rate employees separate from an organization for any reason (Halter et al., 2017; Hom et al., 2017).

Turnover intention: An early indicator of the intent to leave an organization (Irvine & Evans, 1995; San-Park & Kim, 2009).

Assumptions

I identified several assumptions for this study. Because this study's data are secondary, several assumptions exist about the data collection procedures. Relative to the employee engagement survey data collection, I assumed respondents understood and answered the questions truthfully. I assumed employees took the survey independently and were not pressured to answer the questions in a particular way. I also assumed the survey samples from November 2019 and May 2022 contained an unknown number of RNs who were employed with the organization and took the survey during both periods. RN turnover data were also obtained as secondary data. I assumed the data were collected by hospital location in the same way using a standard definition.

Scope and Delimitations

This quantitative nonexperimental correlational study was designed to explore if there is a difference in nursing engagement pre- and post-pandemic and if engagement

predicts RN turnover in U.S. hospitals since the start of the COVID-19 pandemic in 2020. The scope of the sample population were hospital-based RNs in Utah, Alaska, and Idaho, working in 2019 and 2022. While the outcomes may be similar to the experience of RNs in other healthcare settings or regions of the U.S., the findings should be generalized with caution. Other healthcare worker roles were excluded from this study, including licensed practical nurses; physicians; advanced practice providers; certified nursing assistants; respiratory therapists; imaging, laboratory, and surgical technologists; and all clinical leadership positions. Fredrickson's (1998) broaden-and-build theory and Kahn's (1990) work engagement theory were chosen to help explain the potential relationships between engagement and RN turnover pre- and post-pandemic. Other relevant theories not investigated were Herzberg's two-factor motivation theory, job demand-resources theory, and job embeddedness theory.

Limitations

The research design and methodology of this study have limitations. Due to concerns about the survey burden on RNs, the healthcare organization requested that primary data not be collected. Therefore, data for this study are secondary and released from the organization through a memorandum of understanding. O'Connor (2020) described that while using secondary quantitative data is common, a researcher should assess the survey characteristics, strengths, limitations, and potential biases. The engagement survey instrument is from a third-party vendor who provided reliability statistics to me via the healthcare organization (C. Dougherty, personal communication, December 22, 2022). A limitation of the psychometric data supplied by the vendor is that

they are not peer-reviewed. The potential for bias exists in the secondary employee engagement survey data because definitions did not accompany the survey questions, and I did not know if employees understood the terms similarly.

Limitations also exist in the use of a correlational study design. Researchers may identify the significance of variable relationships through statistical analysis. Causality must be inferred because a researcher cannot be sure other elements do not influence the variable relationships (Fitzgerald et al., 2004). Because of the causality challenge, correlational designs have less internal validity than experimental designs.

The potential for multicollinearity also exists. Multicollinearity occurs when “two or more of the predictor variables are highly correlated with one another” (Fitzgerald et al., 2004, p. 148). This finding presents a challenge for a researcher because they do not know the influence of the specific variables due to their correlation with one another (Fitzgerald et al., 2004). This limitation was mitigated through statistical testing of the correlation between variables. Finally, confounding may occur because participants may have similar experiences because they work for the same healthcare organization. This limitation is mitigated by the sample size and data aggregation across 11 hospitals.

The choice of data analysis testing also has a limitation. Independent samples t-testing was used as part of the data analysis because it is unknown if the sample of RNs from the 2019 pre-pandemic survey retook the engagement survey in 2022 post-pandemic. The limitation exists as it is possible that a majority of the RNs participated in both surveys, in which case a dependent samples t-test may have been a more appropriate analytical option.

Significance

In this study, I sought to expand the understanding of RN turnover since the COVID-19 pandemic began in the U.S. in 2020. Healthcare leaders do not fully understand if there is a difference in nursing engagement pre- and post-pandemic and if engagement predicts RN turnover in U.S. hospitals since the start of the COVID-19 pandemic in 2020.

Significance to Theory

I attempted to fill the literature gap by adding to the knowledge about why RNs leave hospital workplace settings. Learning more about how the COVID-19 pandemic may have influenced engagement and turnover could build on the work of Slatten et al. (2022) and Woodward and Willgerdot (2022) and provide leaders with new insights to prevent RN turnover.

Significance to Practice

Turnover has been a concern for leadership and management practitioners for many years. This issue is particularly salient for healthcare leaders attempting to decrease turnover in RNs. Bae (2022) described the significant financial impact of one RN leaving an organization as 1 to 3 times the RN's annual salary. For the average U.S. hospital, the expense associated with RN turnover is 5.2 million to 9 million dollars annually (Nursing Solutions, Inc., 2022). Given the financial pressures within the U.S. healthcare system, decreasing RN turnover can make a significant economic impact.

RN turnover can impact the delivery of care (Bae, 2022). Auerbach et al. (2022) cited a decrease of 100,000 RNs in the workforce during 2021, the most significant

single-year decline in four decades. Recent data suggests that 25% of RNs would not choose nursing as a career again, and 15% plan to leave the profession in the next 3 years (Auerbach et al., 2022). A shortage of RNs could harm care delivery in the United States.

Significance to Social Change

The COVID-19 pandemic has exposed the apparent underlying pathology of the healthcare workforce in the form of physical, psychological, and operational challenges. RNs often experience chronic fatigue (Rutledge et al., 2021), burnout (Kelly et al., 2021), and moral distress (Rushton, 2016), which lead to turnover. This study has the potential to support positive social change by expanding leadership and management knowledge about the antecedents of RN turnover since the beginning of the pandemic in the United States 2020.

Summary and Transition

A convergence of personal, organizational, and societal pressures on RNs leads to the highest turnover rates in over a decade. I hypothesized that a difference may exist between engagement and turnover pre- and post-pandemic and that engagement may influence turnover since the beginning of the COVID-19 pandemic in 2020. The purpose of this quantitative study was to understand if there is a difference in nursing engagement pre- and post-pandemic and if engagement predicts RN turnover in United States hospitals since the start of the COVID-19 pandemic in 2020. Two continuous variables were measured through secondary data, RN turnover (outcome, or criterion variable) and engagement (predictor variable).

In this chapter, I provided the background of the study, the problem statement, and the purpose. I articulated the study's research questions, hypotheses, and theoretical foundations and discussed the study assumptions, scope and delimitations, and limitations. In closing, I discussed the significance of the study, including potential contributions to theory, practice, and positive social change. In Chapter 2, I comprehensively review the literature relevant to this study.

Chapter 2: Literature Review

Introduction

The research problem addressed through this study is that healthcare leaders do not fully understand if there is a difference in nursing engagement pre- and post-pandemic and if engagement predicts RN turnover in U.S. hospitals since the start of the COVID-19 pandemic in 2020. The purpose of this quantitative study is to understand if there is a difference in nursing engagement pre- and post-pandemic and if engagement predicts RN turnover in U.S. hospitals since the start of the COVID-19 pandemic in 2020. Fredrickson's (1998) broaden-and-build theory and Kahn's (1990) work engagement theory were used to help explain the potential influence of engagement on RN turnover in hospitals. A retrospective nonexperimental correlational design was used to measure RN turnover and nurse engagement pre- and post-pandemic.

Prior to commencing a study, a literature review is necessary to establish extant research related to the phenomenon under study. An integrative literature review is used to synthesize literature to produce a new perspective on complex topics (Toracco, 2016). Integrative reviews are broad and include high-quality theoretical and empirical literature (Whittemore & Knafl, 2005). Toracco (2016) emphasized that critical analysis and synthesis are essential for developing a model that generates contemporary thinking about preexisting concepts. This literature review will include various methodological frameworks, including quantitative, qualitative, meta-analyses, systemic reviews, and theoretical concept papers.

The engagement literature is dominated by three general paradigms: work engagement (Schaufeli et al., 2002), job engagement (Rich et al., 2010), and employee engagement (Kahn, 1990; Saks, 2006, 2019; Shuck et al., 2017). The most referenced definition of *work engagement* has been by Schaufeli et al. (2002), who defined work engagement as “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” (p. 74). Job engagement refers to how motivated individuals are to commit their physical, cognitive, and emotional energy to job performance (Rich et al., 2010). Employee engagement is the degree to which employees derive meaning, feel psychologically safe, and have the resources to bring their whole, authentic selves to work (Kahn, 1990).

The empirical literature on engagement identifies more than 80 antecedents of engagement in the workplace (Keyko et al., 2016; Kossyva et al., 2023; Saks, 2019). In this literature review, I summarize them into personal resources and supportive relationships. Personal resources are the psychological attributes that determine personality, coping strategies, and behaviors that foster resilience (Boccoli et al., 2023; Contreras et al., 2020). Supportive relationships include coworker, leader, and organizational levels.

In this literature review, I explore turnover in the context of the COVID-19 pandemic. Current articles are synthesized based on timeframe: pre-pandemic, during the pandemic, and post-pandemic. Reviewing the literature in this way reveals nuances in the antecedents of nursing turnover and the pre-pandemic challenges that were significantly exacerbated by the stress of the pandemic. Buchan et al. (2022) described that before the

pandemic, antecedents of turnover included the workplace environment, relationships, autonomy, pay, opportunities for growth, workload, and leadership support. The pandemic expanded those factors to include access to safety equipment (i.e., personal protective equipment), vaccination, training, and support for time off and wellness activities (Buchan et al., 2022). Hospital-based RN turnover reached a 10-year peak in 2022 (Nursing Solutions, Inc., 2016, 2022) and presents an unprecedented challenge for healthcare leaders and care delivery systems.

Chapter 2 begins with a discussion of the literature search strategy. The theoretical framework comprises Fredrickson's (1998) broaden-and-build theory and Kahn's (1990) work engagement theory. I describe each theory in detail, including applying these theories to the current relevant literature. This chapter will also include a literature review of the predictor and outcome variables, engagement and turnover. The summary and conclusion summarize the current literature and address gaps in the literature.

Literature Search Strategy

I conducted an online literature search using Business Source Complete, OVID Nursing Journals, and Thoreau to identify sources and develop my understanding of work engagement and turnover in nursing. The search terms included *turnover*, *nursing turnover*, *turnover AND work engagement*, *work engagement*, and *work engagement AND nurse**. Initial search results were restricted to peer-reviewed articles and texts from 2019–2023. I narrowed the date range to 2022–2023 to identify sources published after the COVID-19 pandemic began in the United States in 2020.

In addition to database searching, I used citation chaining to identify relevant articles. Other sources were also used in this literature review. Some gray literature, such as white papers and government reports, provided context for the social problem. The literature review also includes 10 books. The inclusion criteria for this literature review were: (a) articles relevant to nursing, (b) articles relevant to the healthcare industry, (c) sources written in English, (d) recent sources on engagement, (e) recent sources on turnover, and (f) seminal articles to support Kahn's (1990) work engagement theory and Fredrickson's (1998) broaden-and-build theory.

Table 1 illustrates the literature search I conducted by database, timeframe, and search term. The three databases were chosen because they represent focused areas of the literature search. Content in the Business Source Complete database is focused on business and management literature and was an anticipated source of turnover and engagement studies from a general business perspective. The OVID Nursing Journals database is specifically focused on nursing literature and was a good source of information about turnover and engagement in the context of nursing. Finally, the Thoreau database was used to find a broad representation of literature across multiple databases, industries, and disciplines. Thoreau provided the most results but was also the most challenging to narrow to a manageable search. The specific search terms outlined below are defined in the definitions section of Chapter 1.

Table 1*Search Results*

Terms	2019–2023			2022–2023		
	Business Source Complete	OVID	Thoreau	Business Source Complete	OVID	Thoreau
Turnover	3,035	3,738	53,238	839	1,214	14,671
Nurse* turnover	41	259	626	10	96	229
Turnover and work engagement	134	63	833	40	21	285
Work engagement	1,913	128	14,598	607	40	4,604
Work engagement and nurse*	63	259	1,793	22	37	634

Seminal articles were used to establish the theoretical framework. Fredrickson’s broaden-and-build theory was first published in 1998, and Kahn’s work engagement theory was published in 1990. Articles published before 2019 were used to support the theoretical framework and represent the perspectives and findings on engagement and turnover pre-pandemic. A small number of older primary sources were also used if they were repeatedly referenced within current articles. In this chapter, 128 sources are cited; 63% were published within the last 5 years, and 37% of sources are older than 5 years.

Theoretical Foundation

The theoretical framework supporting this study includes Kahn’s (1990) work engagement theory and Fredrickson’s (1998) broaden-and-build theory. Kahn’s theory provides a lens to explore if there is a difference in nursing engagement pre- and post-pandemic and if engagement predicts RN turnover since the COVID-19 pandemic began. Fredrickson’s broaden-and-build theory describes how positive emotions can engender happiness and satisfaction. The theoretical framework for this study supports the research

questions and begins to address the gap in the current literature relative to engagement and turnover in nurses post-pandemic.

Work Engagement Theory

Kahn (1990) studied work engagement based on the assumption that the degree to which individuals bring their whole selves to work varies based on physical, cognitive, and emotional factors. Work engagement theory results from two qualitative studies conducted by Kahn—the first at a summer camp and the second at an architectural firm. The first study included a sample of 16 camp counselors. Data were collected using observation, in-depth interviews, and researcher reflection (Kahn, 1990). The second study included data collected from 16 members of an architectural firm using in-depth interviews. From these studies, Kahn identified three psychological constructs that underpin engagement: meaningfulness, safety, and availability.

Core Psychological Constructs

Kahn (1990) described that engagement is determined by an individual's perception of the meaning they derive from work, whether it is psychologically safe for them to be their full authentic self, and whether they have the availability of resources to engage. In work engagement theory, Kahn argued that engagement is fluid. Work engagement can be transitory or constant based on life circumstances, work climate, and psychological disposition (Kahn & Fellows, 2013). Sustained work engagement requires individual effort and connection to a larger purpose (Kahn & Fellows, 2013). When engaged, individuals move toward something that matters to them and aligns with their values and beliefs (Kahn & Fellows, 2013).

Psychological meaningfulness is the extent to which individuals feel others value them (Kahn, 1990). Based on his research, Kahn identified three meaningfulness factors: task characteristics, role characteristics, and work interactions. These factors provide a source of meaning that promotes engagement (Kahn, 1990; Kahn & Fellows, 2013). Kahn (1990) defined task characteristics that generate engagement as challenging work that stimulates new knowledge, skill building, and professional growth. Role characteristics can become a source of meaning by developing an identity that aligns with an individual's idea of who they want to be. Kahn and Fellows (2013) determined that this process can occur through identity connected to feeling useful and valued or through identity related to influence, status, and power. Role characteristics also stimulate meaning through individuals clearly understanding their job accountabilities, the scope of decision-making authority, and boundaries (Kahn & Fellows, 2013). Work interactions create meaning for individuals through relationships and rewards (Kahn, 1990). In work engagement theory, relationships include connection to others in the workplace, the ability for individuals to use their voice, and competent leadership (Kahn, 1990; Kahn & Fellows, 2013). Kahn and Fellows (2013) defined rewards as a source of meaning when individuals perceive their extrinsic rewards (e.g., pay, benefits, opportunities for promotion) as fair and proportionate to their work. Intrinsic rewards, such as recognition, feedback, and feeling valued, promote meaning via relationships with peers and supervisors (Kahn & Fellows, 2013).

Kahn (1990) defined psychological safety as an individual's perception of being their fully authentic self in the workplace without fear of negative consequences.

Through the research, Kahn identified four safety factors: interpersonal relationships, management style and process, group and intergroup dynamics, and organizational norms. Relationships foster psychological safety when trust is present and individuals can be open about their thoughts and ideas (Kahn, 1990). Similarly, when leaders are supportive, open, and see failure as an opportunity for learning, individuals are likelier to feel safe enough to bring their full selves to work. Group dynamics can negatively impact psychological safety if authority and power influence the suppression of individual voices based on informal or unconscious organizational roles (Kahn, 1990). Organizational norms are the written and unwritten rules that govern workplace expectations and behavior. Kahn found that individuals who stay within these boundaries feel safer in the workplace than those who do not.

Psychological availability is an individual's perception that they have the physical, emotional, or psychological resources to engage (Kahn, 1990). Based on the research, Kahn defined four distraction factors that influence availability: depletion of physical energy, depletion of emotional energy, individual insecurity, and outside life. When the physical or emotional demands of the workplace exhaust an individual's resources, withdrawal and disengagement result (Kahn, 1990). Insecurity detracts from psychological availability due to anxious and self-conscious behaviors resulting from an individual lacking competence or confidence relative to their role (Kahn, 1990). Ambivalence, lack of commitment, or worry about home-related events can also undermine psychological availability at work (Kahn, 1990).

Psychological Presence

Kahn (1992) described the role of psychological presence in workplace engagement as an “experiential state that accompanies personally engaging behaviors” (p. 2). Individuals are fully engaged in their work when they bring their full range of talents and skills into the workplace, are open to building relationships with others, and support others through genuine helping and mentoring behaviors (Kahn, 1992). When individuals are psychologically present, they can connect in ways that create bonds with colleagues, feel a part of something larger than themselves, and display empathetic behaviors (Kahn, 1992). Kahn and Fellows (2013) described psychological presence as engagement through an individual’s ability to be connected to a broader mission or purpose, to bring their fully integrated self into their work. When work is absorbing, they can enter a flow state where time moves quickly.

When psychological meaning, safety, and availability are absent, individuals may feel diminished and withdraw from the work environment. Rather than leaning into complexity or challenge, they may retreat or hide parts of themselves to limit exposure and vulnerability. An organization’s culture may perpetuate norms reinforcing employees’ feelings of risk, fear, and anxiety, creating a cycle where leaders may never see the full depth of talent in their workforce (Kahn, 1992). Kahn (1992) described that leaders model the extent to which psychological presence is acceptable in the workplace. When leaders consciously try to be psychologically present and bring their fully authentic selves to work, employees are more likely to feel empowered (Kahn, 1992). Employees

engage when they feel valued, do not fear being their authentic selves, and have the physical, emotional, and psychological resources (Kahn, 1990).

Work Engagement Theory in Research

All historical accountings of engagement in the literature begin with Kahn's (1990) seminal study. May et al. (2004) were the first to test Kahn's theory empirically. May et al. conducted a field survey within a United States insurance company. They found that meaningfulness ($r = .63, p < .05$), safety ($r = .35, p < .05$), and availability ($r = .36, p < .05$) were positively correlated with engagement. Rich et al. (2010) built upon Kahn's theory to explore the connection between job performance and engagement through task performance, organizational citizenship behavior, value congruence, perceived organizational support, and core self-evaluations. Fletcher (2017) argued that too few studies had explored the experience of engagement through psychological meaningfulness, safety, and availability, as Kahn described. Fletcher incorporated the job demands-resources model with Kahn's theory. Individual engagement fluctuates based on varying personal and relational resources, job demands, challenging work, and the organization of work systems and processes (Fletcher, 2017). Aslam et al. (2022) used Kahn's theory to explore the influence of interpersonal leadership on engagement. While Kahn's (1990) theory has been used in some studies, it is more commonly used as a framework to understand the historical evolution of engagement in the last four decades.

Broaden-and-Build Theory

Fredrickson (1998) developed the broaden-and-build theory to explain the influence of positive emotions on individuals. A positive emotional state of mind

promotes behaviors that support thoughtful actions in the moment and builds resources that can be used over time (Fredrickson, 2003). Positive emotions can influence physical, cognitive, social, and psychological resources through what Fredrickson (1998) terms “thought-action tendencies” (p. 5). From an evolutionary perspective, negative emotions trigger actions that support preserving life (Fredrickson, 2003). For example, fear can elicit a fight or flight response. In contrast, positive emotions serve to broaden an individual’s capacity for creative problem solving and decision making (Fredrickson, 1998; 2003; Fredrickson & Branigan, 2005). A broader perspective promotes novel ways of thinking, behaving, and acting.

Fredrickson (1998) described four emotions that have been empirically demonstrated to broaden the thought-action response. These four emotions are joy, interest, contentment, and love. Joy can be used interchangeably with happiness from an emotional perspective (Fredrickson, 1998). The thought-action response to joy is play. Fredrickson defined play in a general sense, including physical, social, intellectual, and artistic actions that result from joy or happiness. Play evoked from joy broadens an individual’s capacity through imagination, exploration, and invention (Fredrickson, 1998).

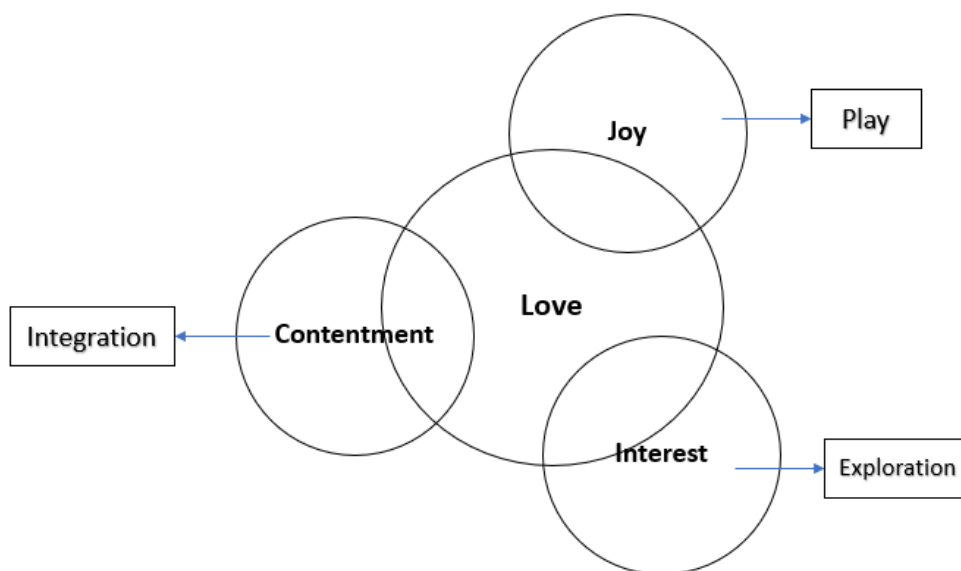
Interest emotions include curiosity, wonder, excitement, and flow (Fredrickson, 1998). The thought-action response to interest is exploration (Fredrickson, 1998). Exploration broadens an individual’s capacity through openness to new ideas and experiences and the desire to learn and grow (Fredrickson, 1998; 2004). Interest and

exploration result in an individual acquiring new knowledge, skills, and an expanded sense of self (Fredrickson, 2004).

Feelings of contentment occur when individuals feel safe in their environment and minimal effort is necessary (Fredrickson, 1998). Fredrickson asserted that contentment is not a passive state but is more cognitive than action oriented. The thought-action response to contentment is integration (Fredrickson, 1998). The broadening effect of integration reflects current life circumstances, which may foster an expanded worldview and sense of self (Fredrickson, 2004). Contentment and integration often follow from a state of joy (Fredrickson, 1998).

Fredrickson (1998) described love in the context of the broaden-and-build theory as a multitude of emotions within individual relationships. In this sense, love is not only romantic but includes caring relationships with friends, colleagues, community, and others. Fredrickson argued that love generates positive emotions of joy, interest, and contentment. Love broadens an individual's capacity by building and developing social relationships.

Using Fredrickson's description of positive emotions, I created the diagram in Figure 1. The intersection of the four emotions is illustrated using overlapping circles. While joy, contentment, and interest are unique constructs, they all intersect with the emotion of love. The arrows moving from each emotion represent the associated response; joy generates play, contentment generates integration, and interest generates exploration.

Figure 1*Broaden-and-Build Theory Emotion Interactions*

Note. Adapted from Fredrickson (1998)

In addition to broadening individual capacity, positive emotions build physical, cognitive, and social resources which endure over time. While the specific emotional states may be brief, their effect is durable (Fredrickson, 2004). Fredrickson (1998) described that physical resources are built through play associated with joy. Play associated with movement supports cardiovascular health, motor skills, and the ability to adapt (Fredrickson, 1998). Cognitive resources expand via positive emotions through interest. When individuals are intrinsically motivated to explore, knowledge acquisition serves an immediate need and builds mastery and intellectual resources over time (Fredrickson, 1998). Social resources are created in this context through the emotions of joy and love. Humans have an evolutionary need to connect, collaborate, and cooperate (Fredrickson, 1998). Social resource development occurs through behaviors such as

altruism, gratitude, and empathy, which stem from joy and love and create and reinforce positive regard (Fredrickson, 1998).

Fredrickson (1998) described an additional effect of positive emotions as the “undoing hypothesis” (p. 16). Fredrickson proposed that positive emotions may reverse the psychological and physiological hold of negative emotions on an individual’s mind. Negative emotions stimulate nervous system arousal, narrow focus, and elicit action. Positive emotions may calm this aroused state and restore creative and flexible thinking capacity. Fredrickson and Joiner (2002) identified that the broadening impact of positive emotions initiates a compounding effect that supports emotional well-being. Positive emotions strengthen effective coping mechanisms allowing individuals to build resilience over time (Fredrickson & Joiner, 2002). Positive emotions cultivate thriving, making individuals more optimistic, resilient, and connected (Fredrickson, 2003; 2004).

Broaden-and-Build Theory in Research

The broaden-and-build theory has been applied within several fields, although its application within the current healthcare literature is limited. One example is the study by Wang (2022), who explored the relationship between positive emotions outside the workplace before work, job crafting, and work engagement in the medical staff at hospitals in China over five days ($n=103$). Wang used the broaden-and-build theory to explain how an employee’s emotional state influences work-related behaviors. Daily positive emotions positively correlated with work engagement ($r=.91, p < .01$). The experience of positive emotions before work can positively influence daily work engagement, including seeking out challenges and resources (Wang, 2022). Relatedly,

Martinez-Zaragoza et al. (2017) explored whether the experience of flow improved nurses' health by mitigating stress and burnout. Martinez-Zaragoza et al. applied the broaden-and-build theory to explain how the positive psychological flow state may build individual resources and improve coping and wellbeing.

The broaden-and-build theory has been used outside the healthcare industry to understand work engagement and job satisfaction. Denovan et al. (2020) evaluated future time perspective (FTP), positive emotion, and engagement in students in the United Kingdom ($n=217$). Denovan et al. used the broaden-and-build theory to provide a framework for their findings that positive affect (emotion) fosters FTP, and engagement supports the build aspect of the broaden-and-build theory. Paliga et al. (2022) used the broaden-and-build theory to describe how psychological capital (efficacy, hope, optimism, and resilience) are resources that stem from positive emotions. Paliga et al. conducted a quantitative cross-sectional study of employees and managers from a diverse group of Polish organizations ($n=338$). The authors found that psychological capital was positively associated with individual job satisfaction ($b=.28, p< .05$), creative performance ($b=.55, p< .05$), and in-role performance ($b=.33, p< .05$).

Rationale for Theoretical Framework

The purpose of this study is to understand if there is a difference in nursing engagement pre- and post-pandemic and if engagement predicts RN turnover in United States hospitals since the start of the COVID-19 pandemic in 2020. RNs experience chronic fatigue (Rutledge et al., 2021), burnout (Kelly et al., 2021), and moral distress (Rushton, 2016), and these conditions have been exacerbated by the COVID-19

pandemic. Adanaque-Bravo et al. (2023) determined that psychological distress and burnout significantly influence work engagement.

Fredrickson (1998) suggested that positive emotions can broaden an individual's actions beyond their typical behavioral responses. These positive emotions can also build physical, intellectual, and social resources, supporting coping and resilience (Fredrickson, 1998; Fredrickson & Branigan, 2005). Employees engage when they believe they are valued, can express their whole selves without fear of negative consequences, and have the physical, emotional, and psychological resources to do so (Kahn, 1990). Work engagement theory and the broaden-and-build theory serve as a relevant theoretical framework to explore how the challenges of the COVID-19 pandemic may have impacted engagement and turnover.

Literature Review

The purpose of this study is to understand if there is a difference in nursing engagement pre- and post-pandemic and if engagement predicts RN turnover in United States hospitals since the start of the COVID-19 pandemic in 2020. This literature review provides a synthesis of study concepts and variables. The first section reviews engagement in the workplace, including the influence of personal resources and supportive relationships as antecedents to engagement. The second section provides an overview of the antecedents of nursing turnover pre-pandemic, during the pandemic, and post-pandemic.

Engagement

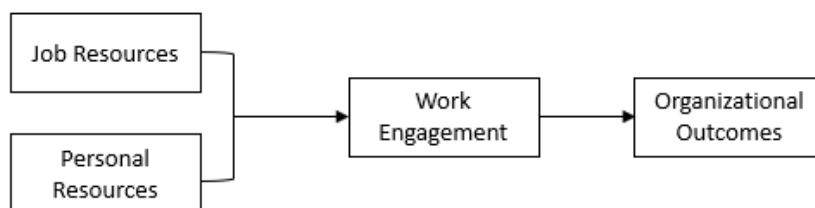
The history of empirically tested workplace engagement began with Kahn (1990). The theoretical foundation section of this dissertation outlines a description of Kahn's work. Kahn's perspective of engagement centers on the individual, their relationship to work, and their ability to bring their authentic self into what they do. Maslach and Leiter (1997) took a different approach to engagement. Maslach and Leiter argued that engagement was the opposite of burnout, focusing on energy, involvement, and efficacy. As such, engagement could be measured using the Maslach Burnout Inventory (Maslach et al., 1997). Individuals who were highly engaged did not experience symptoms of burnout and vice versa.

Schaufeli et al. (2002) furthered the work of Maslach and Leiter (1997) and identified that engagement and burnout were separate constructs through the development of the Utrecht work engagement scale (UWES). In Schaufeli et al.'s view, engagement is a persistent psychological state characterized by vigor, dedication, and absorption, not a continuum where individuals experience degrees of engagement and burnout. In this paradigm, individuals experiencing burnout could also be engaged in their work. The UWES scale remains one of the most widely used instruments for measuring engagement. Schaufeli and Bakker (2010) developed the conceptual model in Figure 2 to illustrate the antecedents and outcomes of work engagement as a psychological state. Schaufeli (2014) described the resources in Figure 2 as those means which support goal attainment, professional development, and decrease job demands (job resources) and those that support resilience, self-efficacy, optimism, and a stable emotional state

(personal resources). Resources promote engagement through vigor, dedication, and absorption which lead to positive organizational outcomes (Schaufeli, 2014; Schaufeli & Bakker, 2010).

Figure 2

Work Engagement Antecedents and Outcomes



Note. From Schaufeli & Bakker (2010)

Saks (2006) built upon the work of Kahn (1990) and Maslach and Leiter (1997), identifying those previous definitions of engagement focused on the psychological aspects. Saks identified that job and organization engagement were related but separate concepts, each with distinct antecedents and outcomes. Job characteristics (.37, $p < .001$) and organizational support (.36, $p < .010$) were antecedent variables of job engagement (Saks, 2006). Organizational support (.57, $p < .001$) and procedural justice (.18, $p < .01$) were predictors of organizational engagement. Job satisfaction (.26, $p < .01$) was the most significant consequence of job engagement (Saks, 2006). Intention to quit (-.31, $p < .01$) and organizational citizenship behaviors by the organization (.30, $p < .01$) were the most significant consequences of organizational engagement.

Engagement and job satisfaction are not interchangeable terms. Engagement is a distinctly separate construct from job satisfaction. Job satisfaction represents an

individual's feelings about work, whereas engagement describes an individual's feelings while at work (Orgambidez et al., 2020, Saks, 2019; Schaufeli & Bakker, 2010; Slatten et al., 2022). Shuck et al. (2017) described engagement as a psychological state, while job satisfaction represents a sense of fulfillment within a specific job role.

A significant body of literature empirically demonstrates a positive correlation between engagement and job satisfaction (Cote et al., 2021; Ge et al., 2021; Mukaihata et al., 2022; Orgambidez-Ramos & de Almeida, 2017; Yildiz & Yildiz, 2022). Karanika-Murray et al. (2015) identified that job satisfaction is an outcome of engagement. Yildiz and Yildiz (2022) conducted a meta-analysis of the relationship between work engagement and job satisfaction in nurses. In the quantitative studies conducted before the COVID-19 pandemic (2007–2019), engagement and job satisfaction were significantly correlated ($r=0.47$, 95% CI [0.42, 0.50], $p< 0.001$) with distinct constructs. Yildiz et al. (2022) published a follow-up meta-analysis examining the differences in engagement and job satisfaction in healthcare workers pre-pandemic and during the pandemic. Yildiz et al. found that COVID-19 moderated a shift in the relationship between engagement and job satisfaction. Pre-pandemic, the relationship between engagement and job satisfaction was positive ($r=.60$, 95% CI [.54, .65], $p<.001$). For data collected during the pandemic, Yildiz et al. (2022) identified that the relationship changed to a negative association ($r=-.01$, 95% CI [-.36, .35], $p<.05$). Yildiz and Yildiz (2022) suggested future research explore engagement in nurses post-pandemic. The findings by Yildiz et al. further support my study design and research questions.

The constructs of engagement in the literature point to two views of engagement. One, as described by Schaufeli et al. (1996; 2002), is based on engagement as the antithesis of burnout and grounded in vigor, dedication, and absorption. The other, as described by Kahn (1990), Rich et al. (2010), Saks (2006, 2019), and Shuck et al. (2014) center on the whole-person application of energy (emotional, cognitive, physical, social, behavioral) towards work and job-related functions.

There is no agreement in the literature on one definition of engagement. The definition of engagement by Schaufeli et al. (2002) is the most commonly used description of engagement in literature (Adanaque-Bravo, 2023; Boccoli et al., 2023; Contreras et al., 2020, Contreras et al., 2021; Dasgupta, 2016; Ghazawy et al., 2021; Gomez-Salgado et al., 2021; Hetzel-Riggin et al., 2020; Knight et al., 2019; Kossyva et al., 2023; Lesener et al., 2020; Lu et al., 2018; Orgambidez et al., 2020; Pohl et al., 2022; Shuck et al., 2017; Slatten et al., 2022). Yet, Kahn (1990), Rich et al. (2010), Saks (2006), and Shuck et al. (2017) have other nuanced perspectives on what defines engagement. In their reviews, Bargagliotti (2012) and Kwon and Kim (2020) use work engagement and employee engagement as interchangeable terms since both are centered on the individual application of physical, cognitive, and emotional energy toward work. Kosaka and Sato (2020) argued that due to their origination and measurement, work and employee engagement are distinctly separate concepts. I defined *engagement* as an individual's approach to work that reflects energy, resilience, effort, dedication, concentration, and authentic self (Kahn, 1990; Schaufeli, et al. 2002).

Engagement Paradigms

Focusing on the workplace setting, the existing literature is dominated by three general engagement paradigms: work engagement (Schaufeli et al., 2002), job engagement (Rich et al., 2010), and employee engagement (Kahn, 1990; Saks, 2006, 2019; Shuck et al., 2017). Although each engagement construct focuses on a unique dimension of the engagement experience in the workplace, some overlap exists between job and employee engagement in the literature.

Work Engagement

Work engagement primarily concerns employees' relationship with work (Kossyva et al., 2023). Schaufeli et al. (2002) defined work engagement as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (p. 74). Schaufeli et al. ground their work in the idea that engagement is the opposite of burnout. Burnout is characterized by emotional exhaustion, depersonalization or cynicism, and lack of personal accomplishment or professional efficacy (Maslach and Jackson, 1981). Schaufeli et al. identified that vigor and dedication were significantly negatively related to emotional exhaustion (VI=-.20, $p<.001$; DE=-.14, $p<.05$), cynicism (VI=-.27, $p<.001$; DE=-.51, $p<.001$), and reduced efficacy (VI=-.64, $p<.001$; DE=-.68, $p<.001$). An unanticipated finding in Schaufeli et al. was that reduced self-efficacy, identified initially as an aspect of burnout, was an overlapping engagement element. In this paradigm of engagement, it is not a fleeting emotional state, but a more consistent representation of energy and identification with work activity (Schaufeli & Bakker,

2010). Burnout and engagement are inextricably connected, albeit at disparate ends of a psychological continuum.

Job Engagement

Rich et al. (2010) defined job engagement as how motivated individuals are to commit their physical, cognitive, and emotional energy to job performance. Rich et al. (2010) sought to build upon Kahn's (1990) engagement theory to explain job performance. Three antecedents of engagement, value congruence, perceived organizational support, and core self-evaluations, motivate individuals to invest energy into their work (Rich et al., 2010). Saks (2006) was the first to empirically differentiate job engagement and organizational engagement. Saks identified that the psychological conditions leading to job and organization engagement differed. Job characteristics were the strongest predictor of job engagement (0.37, $p < .01$), and perceived organizational support was the strongest predictor of organizational engagement (0.57, $p < .01$) (Saks, 2006). In a follow-up study to Saks (2006), Saks (2019) found that job characteristics, including skill variety (0.43, $p < .01$), task significance (0.48, $p < .01$), task identity (0.44, $p < .01$), autonomy (0.59, $p < .01$) were the most strongly correlated with job engagement.

Employee Engagement

Employee engagement is individuals' relationship with their work and the organization (Kossyva et al., 2023). While Kahn's (1990) seminal article is titled *Work Engagement*, the engagement paradigm he describes focuses on the individual's unique experience. Kahn centers engagement in the context of whether employees are psychologically able to be their authentic selves while at work. Individuals are motivated

to engage when they derive meaning from their work, feel psychologically safe, and have the psychological resources to invest their physical, cognitive, and emotional energy (Kahn, 1990).

Schuck et al. (2017) developed their model and instrument to measure employee engagement from the work of Kahn (1990). Shuck et al. defined employee engagement as a positive psychological state that invests cognitive, emotional, and behavioral energy in work-related acts. Similar to Kahn and Rich et al. (2010), Shuck et al. acknowledged the importance of the individual's whole self in the state of engagement. Additionally, Schuck et al. empirically distinguished employee engagement from other constructs (e.g., work engagement and job engagement).

Dynamic Engagement

Another perspective on engagement is that it is a dynamic state (Bakker & Oerlemans, 2019). Bocoli et al. (2023) argued that given personal resources, emotional states, relationships, and job resources influence engagement and can fluctuate; it would follow that engagement itself would increase and decrease regularly. Bakker and Oerlemans (2019) identified that daily job crafting is positively correlated with daily work engagement through taking on challenges, looking for growth opportunities, and engaging job resources ($r=.57$, $p<.01$). Bakker and Oerlemans (2019) also found that daily work engagement was negatively correlated with reducing job demands ($r=-.32$, $p<.01$). Bakker and Oerlemans contend this could be due to detachment from the work as job aspects are removed or due fatigue associated with the energy expenditure associated with the cognitive and emotional burden of daily job crafting. Specific to healthcare

workers, Liu et al. (2021) identified that a stressful crisis event, specifically the COVID-19 pandemic, is negatively correlated to work engagement ($r=-.16, p<.01$) and mediated by work meaningfulness ($\gamma=-.53, p<.01$) based on confirmatory factor analysis. When meaningful work is low, crisis-associated stress increases, decreasing engagement.

Antecedents of Engagement

Kosssyva et al. (2023) systematically reviewed the antecedents of engagement. They identified personality characteristics, feelings and beliefs, perceptions, psychological and mental factors, work skills, and social exchange dimensions as the general categories of antecedents. Saks (2019) included job characteristics, supervisor and organizational support, procedural and distributive justice, job demands, fit perception, and opportunities for development as engagement antecedents. Keyko et al. (2016) identified 77 factors influencing engagement: organizational climate, job resources, professional resources, personal resources, and job demands.

Specific to nursing, Alkorashy and Alanazi (2023) found that age, years of experience in nursing, and participation in committees contributed to higher levels of engagement. Dasgupta (2016) described that organizational support, leader-member exchange, team-member exchange, and workplace friendship were positively related to engagement. Kato et al. (2023) identified job crafting and the nursing practice environment as antecedents to engagement. Nagai et al. (2022) identified that work characteristics and personal resources strongly correlated with work engagement in early career nurses. Given the many empirically identified antecedents of engagement, I

summarized them into two broad categories: personal resources and supportive relationships.

Personal Resources

A common theme within the current engagement literature is the influence of personal resources on engagement. Personal resources are the psychological attributes that determine personality, coping strategies, and behaviors that foster resilience (Boccoli et al., 2023; Contreras et al., 2020). Suppose the demands of the work environment exceed personal resources. In that case, individuals can develop chronic stress (Hetzler-Riggin et al., 2020), psychological distress (Adanaque-Bravo et al., 2023), fatigue, and burnout syndrome (Contreras et al., 2020). Up to 80% of registered nurses have experienced burnout (Zangaro et al., 2022). Three core elements define burnout: emotional exhaustion, depersonalization and cynicism, and inefficacy or reduced personal accomplishment (Maslach et al. 2001). Rehder et al. (2021) argued that burnout includes individual and organizational factors. Individual factors include social connection, work-life balance, connecting to purpose, and well-being activities (e.g., yoga, meditation, exercise).

Healthcare has long been a complex work environment for caregivers. Van Bogaert et al. (2017) noted that decades of research exist delineating the stress, dissatisfaction, and burnout associated with the nursing profession. Nurses must navigate the joys and stressors of caring for the ill, changes in workload, technology, and staffing. Gomez-Salgado et al. (2019) identified that nurses must be physically, cognitively, and emotionally engaged to provide quality care. Engagement is, therefore, a consequence

and predictor of behaviors in the workplace (Gomez-Salgado et al., 2019). The COVID-19 pandemic has exacerbated the existing physical and psychological strain within the healthcare workforce. I contend that the COVID-19 pandemic may have negatively impacted nurse engagement.

Increased work stress in nurses is associated with decreased engagement, energy, concentration, and investment in the workplace and increased mental detachment from patients (Hetzel-Riggin et al., 2020). High levels of work stress cause nurses to withdraw to cope with stress and preserve their existing resources (Hetzel-Riggin et al., 2020). Gomez-Salgado et al. (2021) conducted a study of health care workers in Spain from March 2020 to April 2020 and found that 80.6% of participants were experiencing psychological distress, with the most psychological distress observed in nurses (83.2%). Nurses who are psychologically distressed had significantly lower engagement (Adanaque-Bravo et al., 2023; Gomez-Salgado et al., 2021; Hetzel-Riggin et al., 2020). Contreras et al. (2020) identified that personal resources were positively related to work engagement ($r_{xy}=.40$) and negatively related to burnout ($r_{xy}=-.51$). The authors also identified that engagement and burnout were inversely related constructs ($r_{xy}=-.95$). The findings by Contreras et al. support Kahn's (1990) theory that availability of personal resources is vital to work engagement.

Supportive Relationships

Supportive work relationships significantly influence engagement. Relationships that contribute to increased engagement include coworker, leader, and organizational levels of support. Healthy, supportive work environments reinforce a culture of

engagement. Salanova et al. (2005) described that engagement in the workplace can be a shared phenomenon. When engaged people surround individuals, they are more likely to engage.

Relationships with coworkers and interprofessional colleagues are crucial to engagement. Coworker support includes job-related help, kindness, caring behaviors, compassion (Contreras et al., 2021), and emotional support through active listening and empathy (Pohl et al., 2022). Contreras et al. (2021) identified a positive correlation between colleague support and work engagement ($r=.21, p<.01$). Further, Contreras et al. regressed colleague support on work engagement and found a significant relationship ($B=.24, p=.00$). Pohl et al. (2022) found that emotional support from coworkers was positively related to engagement ($B=.37, p<.01$). Similarly, Dasgupta (2016) found a positive relationship between work engagement and team-member exchange among nurses ($B=.31, p=.00$). Haizlip et al. (2020) identified that engagement was positively correlated to an individual's perception that coworkers believe they make a difference and are inherently valuable (mattering) ($r=.50, p<.01$).

Leader support relationships include how individuals experience their leadership, for example, authenticity, approachability, participative decision-making, positivity, and wellness behavior role modeling (Rehder et al., 2021). Leader relationships are a crucial driver of engagement among employees. The statistically significant relationship between engagement and leader support is substantiated within the current literature (Contreras et al., 2021; Pohl et al., 2022). The style of leadership used by supervisors also influences engagement. Transformational leadership (Al-Dossary, 2022; Enwereuzor et al., 2018;

Mehrad et al., 2022; Shaughnessy et al., 2018) and ethical leadership (Englebrecht & Heine, 2017; McKenna & Jeske, 2021) were positively correlated with engagement in nurses.

Organizational support includes process workflows, scheduling practices, policies, psychological support mechanisms, environmental factors (Rehder et al., 2021), organizational culture (Slatten et al., 2022), and organizational climate (Keyko et al., 2016). Lesener et al. (2020) used structural equation modeling to identify the group ($B=.06, p<.01$), leader ($B=.05, p<.05$), and organization level ($B=.13, p<.001$) drivers of work engagement and found that organization level drivers have the strongest correlation to work engagement. Mehrad et al. (2022) identified that related to work engagement, perceived organizational support mediated the relationship between leadership styles and the three-outcome scale (extra effort, effectiveness of leader behavior, and satisfaction with leader) ($B=.58, p=.03$). Dasgupta (2016) identified that perceived organizational support was the most influential variable in relationship to work engagement ($r^2=.162, p=0.00$), followed by team-member exchange ($r^2=.096, p=0.00$).

Keyko et al. (2016) conducted a systematic review of work engagement in professional nursing practice ($k=18$). The authors identified 77 antecedents of work engagement which they summarize into six themes: organizational climate, job resources, professional resources, personal resources, job demands, and demographic variables. Keyko et al. suggested that personal and professional resources may change as organizational and individual circumstances evolve. Using the job demands-resource theory as a framework, Keyko et al. integrated nursing-specific elements from the

literature to develop an adapted engagement model, as shown in Figure 3. The core of Keyko et al.'s model is similar to Schaufeli's (2014) model in Figure 2 but explicitly illustrates factors associated with professional nursing that may influence engagement.

Keyko et al. (2016) built upon the job demand-resources model in three ways. First Keyko et al. suggested that organizational climate, including managerial leadership, influences work engagement through resources (job, professional, and personal) and directly as indicated by the arrows in Figure 3. Keyko et al. identified organizational climate as a distinct influence on the operational resources categories rather than a part of them. Second, the nursing literature reviewed in Keyko et al.'s systemic review led them to add professional resources as a separate sub-category of resources. Keyko et al. argued that within the profession of nursing, resources like practice environment, autonomy, role and identity, and professional development are equally important in influencing work engagement. Third, professional outcomes were added to the outcomes category. Keyko et al. proposed that consistent with the influence of professional resources on work engagement, professional outcomes may also be a result of work engagement. Keyko et al. specifically highlight the relationship between work engagement and turnover intention as an important professional outcome. The dotted lines in Figure 3 represent a feedback loop relationship between work engagement, outcomes, and operational resources that Keyko et al. could not substantiate in their systemic analysis, but suggest future research could explore.

Figure 3*Nursing Job Demands-Resources Model*

Note: From Keyko et al. (2016). Solid lines indicate significant relationships within the study.

Turnover

Employee turnover has been a topic of management interest since the early 20th century (Hom et al., 2017). The relationships between job satisfaction, organizational commitment, and turnover were topics of earlier studies. Hom et al. (2017) summarized 21st-century research on turnover as evolving to explore concepts such as job embeddedness, changes in how individuals search for and secure employment, the role of human resource management in preventing turnover, and affective organizational commitment.

Authors commonly use turnover intention as a substitute for turnover due to the challenge of acquiring actual turnover data. Turnover is the rate employees separate from an organization for any reason (Halter et al., 2017; Hom et al., 2017). Turnover intention is an early indicator of leaving an organization (Irvine & Evans, 1995; San-Park & Kim, 2009). The consensus in the literature is mixed on the use of turnover intention as a proxy for turnover. Cohen et al. (2016) found that turnover intention was a separate construct from turnover with different attributes and antecedents. In contrast, Hom et al. (2017) and Rubenstein et al. (2015) assert that turnover intention is a reliable measure to predict turnover because psychological detachment is an initial step in deciding to leave an organization.

The COVID-19 pandemic was a landmark event for the healthcare industry worldwide. Joslin and Joslin (2021) reported that the pandemic presented new workforce challenges and exacerbated existing ones. To understand the influence of the pandemic on turnover, this literature review is segmented into pre-pandemic (2017-2019), during the pandemic (2020-2022), and post-pandemic (2022-2023).

Pre-Pandemic

Before the COVID-19 pandemic, Buchan et al. (2022) estimated the global shortage of RNs at 5.9 million. In 2017 Buerhaus et al. projected that between 2020 and 2030, 640,000 nurses from the baby boomer generation will retire. Turnover and retirement of nurses was of significant concern before the pandemic began. Before 2020, nursing leaders and educators strategized how to backfill individual nurses and the loss of wisdom and experience that cannot be entirely replaced by new graduate nurses

(Buerhaus, 2021; Weston, 2022). In addition to workforce shortages, studies just before the start of the COVID-10 pandemic found significant levels of burnout (Dall’Ora et al., 2020; Kelly et al., 2021; Lasater et al., 2021; Matsuo et al., 2021; Scanlan & Still, 2019), chronic fatigue (Rutledge et al., 2021), emotional exhaustion (Sasso et al., 2019), and job stress (Lo et al., 2018) among nurses. It appears the nursing workforce entered the COVID-19 pandemic from a place of physical and psychological scarcity.

A significant body of current research exists on the antecedents of turnover in healthcare pre-pandemic. Woodward and Willgerodt (2022) conducted a systematic review of registered nurse turnover in the United States and found that individual, unit-level, and organizational factors impacted turnover. Halter et al. (2017) conducted a systematic review of systematic reviews and identified that antecedents of nursing turnover were due to job, organizational, and individual-level determinants.

Perceived leadership support can influence turnover. Employees who have a positive connection to their leader are more likely to stay. Chami-Malaeb (2022) studied Lebanese nursing staff pre-pandemic ($n=552$) and identified that perceived supervisor support was negatively related to turnover intention ($B=-.62$, $r^2=.18$, $p<.001$). As perceived supervisory support increased, turnover intention decreased. A qualitative study by Logde et al. (2018) in Sweden found that the relationship between the employee and their leader was the dominant factor in the decision to leave their position. Kurnat-Thoma et al. (2017) identified that reducing turnover begins when employees start their jobs. The relationship leaders develop with new hires in the first 90 days of employment can significantly impact their long-term loyalty to the organization (Kurnat-Thoma et al.,

2017). The culture of an organization is nurtured, in part, by the leadership team. The work environment and climate of the organization can influence nursing turnover intention (Halter et al., 2017; Kwon, 2019; Nelson-Brantley et al., 2018).

Leadership style is also an essential factor in nursing turnover. Leaders with transformational (Magbity et al., 2020; Pishgooie et al., 2019; Suliman et al., 2020), participatory (Magbity et al., 2020), or ethical (McKenna & Jeske et al., 2021) styles of leadership are associated with less turnover intention. Leaders who involve employees in decision-making, promote autonomy, and lift the voices of nurses can improve retention (Tang et al., 2019) and job satisfaction (Smokrovic et al., 2019). In contrast, abusive (Lyu et al., 2018), autocratic, and laissez-faire (Magbity et al., 2020) leadership increases nursing turnover intention to leave.

An individual's job satisfaction and work engagement are antecedents to turnover. Job satisfaction is influenced by many variables which are outside the scope of this literature review but is an essential predictor of turnover (Burmeister et al., 2019; Edwards-Dandridge, 2020; Puhakka et al., 2021; Scanlan & Still, 2019; Xiao et al., 2021). Puhakka et al. (2021) identified that nursing role autonomy improved job satisfaction ($p < .001$) and decreased turnover intention ($p = .02$). Boudrias et al. (2020) found that when the need for autonomy was satisfied, it was negatively correlated with turnover intention ($r = -.57, p < .05$). Slatten et al. (2022) found that work engagement was positively related to job satisfaction ($B = .833, p < .01$) and work engagement and turnover intention are fully mediated by job satisfaction ($R^2 = .59$). Edwards-Dandridge et al. (2020) found that of job satisfaction and work engagement, only job satisfaction

predicted turnover intention. These findings contradict other published research, which found a statistically significant relationship between work engagement and turnover intention (Slatten et al., 2022).

An additional key driver of turnover is nurse well-being. Before the pandemic, researchers were beginning to establish the work-related fatigue, stress, and burnout prevalent in nursing. When nurses cannot achieve a satisfactory balance between work and their personal lives, they are inclined to search for other job opportunities (Jaharuddin and Zainol, 2019; Logde et al., 2018; Matsuo et al., 2021; Saifan et al., 2022). Matuso et al. (2021) studied nurses in Japan ($n=975$), finding a statistically significant relationship between cynicism ($B=.31, p=.000$), exhaustion ($B=.12, p=.00$), striving for work-life balance ($B=-.07, p=.02$) and intention to leave. Guo et al. (2019) compared nurses in Australia ($n=100$) and China ($n=197$) and found that burnout was positively associated with turnover intention ($p=.001$). Rutledge et al. (2021) found the most substantial predictive factor of turnover intention was chronic fatigue compared to job satisfaction. Finding meaning and joy in work was also a negative predictor of turnover intention (Rutledge et al., 2021).

During the Pandemic

The overwhelming number of sick and dying during the pandemic increased the need for nurses on a global scale (Buchan et al., 2022). At the same time, turnover among nurses began to grow. In 2019, RN turnover in the U.S. was 15.9%; by the end of 2021, RN turnover had risen to 27.1% (NSI Nursing Solutions, Inc., 2022). Tolksdorf et al. (2022) conducted a systematic review to determine the constructs associated with nursing

turnover intentions during the COVID-19 pandemic. Tolksdorf et al. found that turnover intention was related to organizational factors (work demands, employer support, and ethical issues) and individual factors (psychological characteristics and demographic factors). Falatah (2021) conducted an integrative review of studies measuring nursing turnover before and during the COVID-19 pandemic and identified that turnover intention had increased. Additionally, nurses left traditional healthcare employers and rapidly moved to travel nursing in late 2020. Travel nursing increased by 35% during the pandemic, in part due to the draw of significantly higher wages (Yang & Mason, 2022).

Quantitative studies during the pandemic underscored the connection between physical and psychological strain and turnover. Smiley et al. (2023) surveyed 239,525 nurses in 2022 and found that more than 50% experienced regular work-related emotional exhaustion. Twenty-six percent of nurses reported burnout daily, and 25% said they intended to retire or leave the profession in the next five years (Smiley et al., 2023). Sahebi et al. (2021) conducted a meta-analysis and found that 25% of healthcare workers experienced anxiety and depression during the pandemic. Ulrich et al. (2022) studied 9,335 critical care nurses and found that 36% intend to leave their position in the next 12 months, and another 30% plan to leave in the next three years. Poor working conditions (Cornish et al., 2021; De los Santos & Labrague, 2021; Fisher et al., 2021; Lavoie-Tremblay et al., 2021; Skillman & Toms, 2022) and fear of the COVID-19 virus (Cimaroli et al., 2022; De los Santos & Labrague, 2021) were also drivers of turnover during the pandemic.

Post-Pandemic

On April 10, 2023, President Joseph R. Biden Jr. signed HJ.Res.7 officially ending the COVID-19 state of emergency in the United States (The White House, 2023). I could only identify one study where data was collected in the waning months of the pandemic after the significant variant surges had ended. Martin et al. (2023) surveyed 54,025 nurses across 45 states in the spring of 2022. Martin et al.'s findings portray a grim picture of the state of the nursing workforce in the United States. Sixty-two percent of nurses reported an increased workload, 51% report feeling emotionally drained, 45% report feeling burned out, and 30% believe they are "at the end of their rope" (Martin et al., 2023, p. 6)

Tenure and age are also influential relative to turnover intention. Martin et al. (2023) identified that nurses with less tenure in the profession (< 10 years) reported heavier workloads and higher rates of burnout than more experienced nurses. Martin et al. also found what they described as a "dumbbell distribution" in the data (p. 10). Newer nurses and nurses with more than 10 years of experience were likelier to leave the profession in the next five years (Martin et al., 2023). During the pandemic, Raso et al. (2021) similarly found that nurses under the age of 39 and older than 60 had higher intentions to leave than middle-aged nurses due to the stress of the pandemic.

Workforce issues such as unsafe staffing/work environment, underappreciation, and compensation existed before the pandemic (Burmeister et al., 2019; Dall'Ora et al., 2020; Halter et al., 2017; Lasater et al., 2021; Nelson-Brantley et al., 2018; Shimp, 2017; Woodward & Willgerodt, 2022). Martin et al. (2023) concluded that in addition to the 50

thousand nurses with 10+ years of experience who left the workforce during the pandemic, the stress of the pandemic will drive another 44% of experienced nurses to leave their position in the next five years. More research is needed to understand the full and potentially lasting impact of the COVID-19 pandemic on the nursing workforce. This study will attempt to add to the existing research on nursing turnover associated with the COVID-19 pandemic.

Summary and Conclusions

The purpose of this quantitative study is to understand if there is a difference in nursing engagement pre- and post-pandemic and if engagement predicts RN turnover in United States hospitals since the start of the COVID-19 pandemic in 2020. I could not identify any peer-reviewed research comparing engagement pre- and post-pandemic or exploring nursing engagement and turnover in hospitals after 2020. A gap exists to explore if there is a difference in nursing engagement pre- and post-COVID-19 pandemic and whether engagement predicts RN turnover. Slatten et al. (2022) identified that work engagement and nursing turnover should be explored in a larger sample and across multiple time points. Yildiz et al. (2022) found that COVID-19 moderated a shift in the relationship between engagement and job satisfaction and suggested that future research explore engagement in nurses post-pandemic. This study will begin to address these gaps using secondary data from 2019 (pre-pandemic) and 2022 (post-pandemic) from over 2,000 RNs across three states.

The literature is rife with antecedents of work engagement and turnover before 2019. There appears to be consensus within this body of literature that job satisfaction

(Cote et al., 2021; Ge et al., 2021; Mukaihata et al., 2022; Orgambidez-Ramos & de Almeida, 2017; Saks, 2006; Yildiz & Yildiz, 2022), supportive relationships (Contreras et al., 2021; Haizlip et al., 2020; Lesener et al., 2020; Pohl et al., 2022), and the ability to activate personal resources (Adanaque-Bravo et al., 2023; Gomez-Salgado et al., 2021; Hetzel-Riggin et al., 2020; Schaufeli et al. 2002) are the dominant constructs that generate engagement. Turnover is generally measured in the literature using turnover intention and, before 2019, focuses on individual, organizational, and department-level factors (Halter et al., 2017; Woodward and Willgerodt, 2022). Burnout emerged as a significant predictor of turnover intention in studies published in 2020 and early 2021 (data collection from 2017-2019).

The literature on the lasting influence of the COVID-19 pandemic on engagement and turnover is sparse. Studies exploring these variables during the pandemic point to an evolution of the drivers of engagement and turnover (Kosssyva et al., 2023; Yildiz & Yildiz, 2022). Burnout, resilience, and work-life balance have surfaced as the dominant predictive factors of engagement and turnover during the pandemic. It is unclear what if any, lasting impact the overwhelming burnout and fatigue of COVID-19 among nurses (Rutledge et al., 2021; Zangaro et al., 2022) will have on workplace engagement and turnover.

In Chapter 3, I will describe the study research design. Chapter 3 begins with a discussion of the rationale for the chosen design. The study methodology, population, sample, power analysis, variables, and procedures for obtaining data are described in detail. I will explain the plan for data analysis, including statistical assumptions and tests.

Finally, I will review the threats to study validity and the ethical procedures to protect human subjects.

Chapter 3: Research Method

Introduction

The purpose of this study was to understand if there is a difference in nursing engagement pre- and post-pandemic and if engagement predicts RN turnover in U.S. hospitals since the start of the COVID-19 pandemic in 2020. Kahn's (1990) work engagement theory and Fredrickson's (1998) broaden-and-build theory were applied to explore variable relationships over time. The nature of this study was a retrospective quantitative correlational design. The specific research problem addressed through this study is that healthcare leaders do not fully understand if there is a difference in nursing engagement pre- and post-pandemic and if engagement predicts RN turnover in U.S. hospitals since the start of the COVID-19 pandemic in 2020.

In Chapter 3, I describe the approach to research in this study. The chapter begins with a review of the research design and rationale. I describe the study methodology, including the population, sample, power analysis, and instrumentation. A detailed review of the plan for data analysis is presented. This is followed by a review of the threats to validity and the ethical procedures to ensure the integrity of the secondary data is maintained and a description of the organizational and IRB approval process. Chapter 3 will conclude with a summary of the research design and methodology and a transition to Chapter 4.

Research Design and Rationale

I used a quantitative retrospective research design to explore the potential for relationships between two variables over two time periods. Variables are attributes of a

phenomenon that can vary in relationship, strength, and influence (Curtis et al., 2016).

This study contains two variables. The outcome or criterion variable is RN turnover. The predictor variable is RN engagement. Given the research goal, methodology, and study variables, I looked for relationships between variables as they exist rather than causation manipulated through experimental design.

To address the research questions in this quantitative study, the specific research design included a nonexperimental correlational approach using secondary data obtained from a healthcare organization. The statistical analysis included descriptive statistics, correlation, independent samples t-test, linear regression, and two-way MANOVA to answer the research questions. A quantitative research approach uses data collection and analysis to answer research questions (Burkholder et al., 2020). Researchers analyze relationships between specific variables to evaluate hypotheses (Frankfort-Nachmias et al., 2021). Researchers use qualitative approaches to explore and interpret the experience of individuals and groups to achieve a meaningful understanding of the topic of study (Babbie, 2017; Burkholder et al., 2020).

A quantitative approach was appropriate for this study for several reasons. To answer the research questions, data must be used to understand what, if any, relationships exist between the variables. The research questions could not have been answered through qualitative exploration of the experiences of hospital RNs. A quantitative approach is the dominant research approach in the literature on engagement and turnover. Slatten et al. (2022) identified that work engagement and nursing turnover should be explored in a larger sample and across multiple time points. To attempt to fill this gap in

the literature, a quantitative approach allowed me to obtain data on more than 2,100 RNs from three different geographical locations in the United States and across two time periods.

Research designs are either experimental or nonexperimental. Experimental research involves identifying independent, dependent, and control variables where at least one variable is manipulated and the outcome studied (Burkholder et al., 2020). Experimental research can be randomized or quasi-experimental (nonrandomized) (Burkholder et al., 2020). It would have been impossible to use an experimental design due to the secondary nature of the data for this study. Because the healthcare organization collected the data in May 2019 and May 2022, there was no opportunity to manipulate the variables or establish a control group. For this reason, a nonexperimental design was appropriate.

Nonexperimental research designs are appropriate for studies where the variables cannot be manipulated (Burkholder et al., 2020). Nonexperimental research includes ex-post facto/causal-comparative and correlational designs. Ex-post facto research compares two or more existing groups using a categorical independent variable and continuous dependent variables and includes a control group (Schenker & Rumrill, 2004). In an ex-post facto design, examples of categorical variables include age, race, gender, and political affiliation. Researchers conduct correlational studies to test the strength of relationships between variables without experimental conditions or random assignment (Burkholder et al., 2020; Fitzgerald et al., 2004). Correlational research cannot determine causality but can predict potential interactions among variables (Burkholder et al., 2020).

While this study is comparing groups, an ex-post facto design was not appropriate as all study variables are continuous, and there is no control group.

Methodology

Population

Frankfort-Nachmias et al. (2021) described a population in the context of social science research as the entire group a researcher wishes to study. The target population for this study was hospital-based RNs. In this study, I explored variable relationships in the context of a sample of the total population of hospital-based RNs. The secondary data set for engagement and turnover represents RNs from 11 hospitals of one health care system within three states in the United States. Each hospital's engagement data are from May 2019 (pre-pandemic) and May 2022 (post-pandemic). Each hospital has turnover data from May 2019 (pre-pandemic) and May 2022 (post-pandemic). The estimated size of the secondary data set is more than 1,800 RNs.

Sampling and Sampling Procedures

The sample used to conduct quantitative and qualitative research should be representative of the broader population of interest (Faryadi, 2019; Frankfort-Nachmias, 2021). For this study, secondary data were requested from a healthcare organization to answer the stated research questions. The secondary data sample included more than 2,100 RNs from three states: Utah, Idaho, and Alaska.

The secondary data include an employee engagement survey and secondary turnover data from 11 hospitals within one healthcare organization. The healthcare organization administers a third-party engagement survey every 6 months (May and

October) and collects turnover data monthly. All RNs within the 11 hospitals included in the data set were given an opportunity to participate in the survey. The sample inclusion criteria were provided to the healthcare organization at the time the formal request for access to the data was made and include data from RNs practicing in the hospital setting, engagement index data from engagement surveys dated May 2019 and May 2022, turnover data from May 2019 and May 2022, and RN engagement and RN turnover data from the stated periods for each of the 11 hospitals. All data that do not meet the inclusion criteria were excluded.

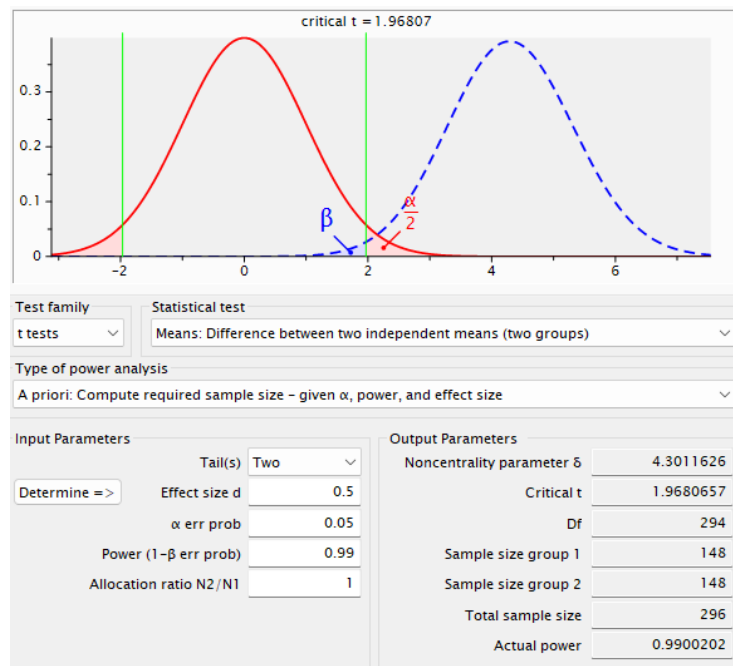
Frankfort-Nachmias et al. (2021) described that a quantitative sample more significant than 100 would likely have a normal distribution and be valid. To ensure the sample size is appropriate for statistical power, I calculated the minimum sample size for this study using G*power software Version 3.1.9.7. The determination of a sufficient sample size is critical. Faul et al. (2007) argued that statistically significant results with low power make acceptance or rejection of the null hypothesis unreliable. I used an a priori power analysis in G*power. This analysis method allows a researcher to understand the statistical power of the sample before the study is conducted (Faul et al., 2007).

A G*power analysis was run for each statistical test (independent samples t-test, two-way within factors MANOVA, and linear regression) to ensure the sample would be appropriate for all data analysis methods. The G*power software uses Cohen's d as the social science standard effect size based on the statistical test (Faul et al., 2007). Tables 4, 5, and 6 illustrate the G*power analysis output for each statistical test type. Given the

results of the G*power analysis, the target sample for this study was a minimum of 296 participants. I describe the G*power analysis for each research question in the following paragraphs.

To analyze the first and second research questions—What is the difference in mean nursing engagement scores pre and post-pandemic? What is the difference in mean RN turnover pre and post-pandemic?—I set up the independent samples t-test G*power analysis with two tails, an effect size of 0.5 (medium effect size), power of 0.99, and an alpha level of 0.05, as displayed in Table 4. The power was set to 0.99 to assess the sample size necessary for potentially significant and meaningful results. The alpha level represents the standard social science value. A two-tail analysis was chosen because I was exploring whether a relationship exists, not a specific relationship direction (Banerjee et al., 2009).

The output in Figure 4 indicates that each group must contain at least 148 participants for a total minimum sample size of 296. In the graphical display in Figure 4 the critical t of 1.96 is represented by the green vertical line at the intersection of the red and blue curves. The red curve represents the null hypothesis ($t < 1.96$) and the blue dashed curve represents the alternative hypothesis ($t > 1.96$). The B is the area to the left of the vertical green line and represents the probability of a Type II error. A Type II error occurs if the null is not rejected but is actually false (Banerjee et al., 2009). In this analysis, the $1-B$ is 0.99, indicating there is a 1% chance that a Type II error may occur (Banerjee et al., 2009). The actual power is calculated at 0.99.

Figure 4*G*Power Calculation: Independent Samples t-Test*

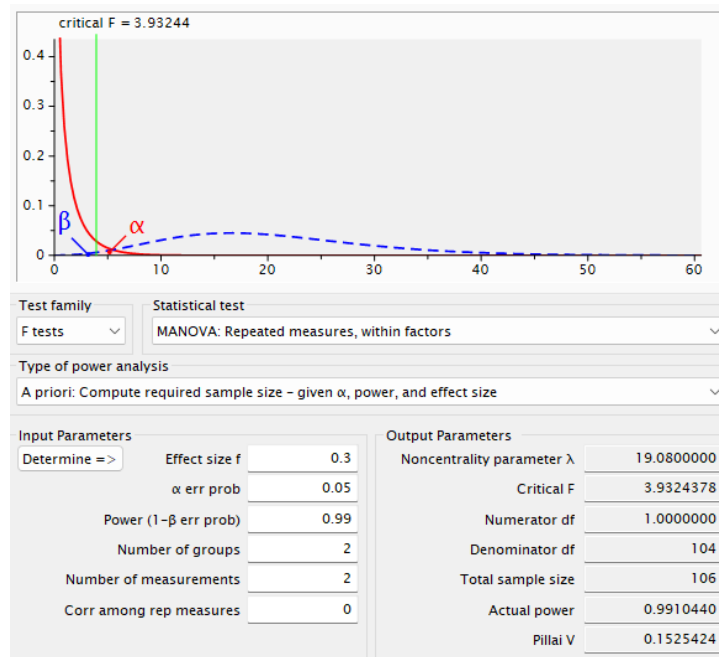
To analyze the third research question—What is the predictive relationship, if any, of nursing engagement on turnover in RNs pre-and post-pandemic?—the MANOVA repeated measures within factors tests and linear regression were used. For the MANOVA repeated measures within factors test, the G*power effect size is 0.3, assuming a small to medium effect, the power is 0.99, and the alpha level 0.05. Using these parameters, the minimum sample size was 106. To answer this research question, the research design includes two groups of RNs and two measurement time periods; therefore, the G*power group input is two and the measurement is two.

The output in Figure 5 indicates that minimum sample size is 106. In the graphical display in Figure 5 the critical f of 3.93 is represented by the green vertical line. The B is the area to the left of the vertical green line and represents the probability of a

Type II error. In this analysis, the $1-B$ is 0.99, indicating that there is a 1% chance that a Type II error may occur (Banerjee et al., 2009). The actual power is calculated at 0.99.

Figure 5

*G*Power Calculation: MANOVA Repeated Measures Within Factors*



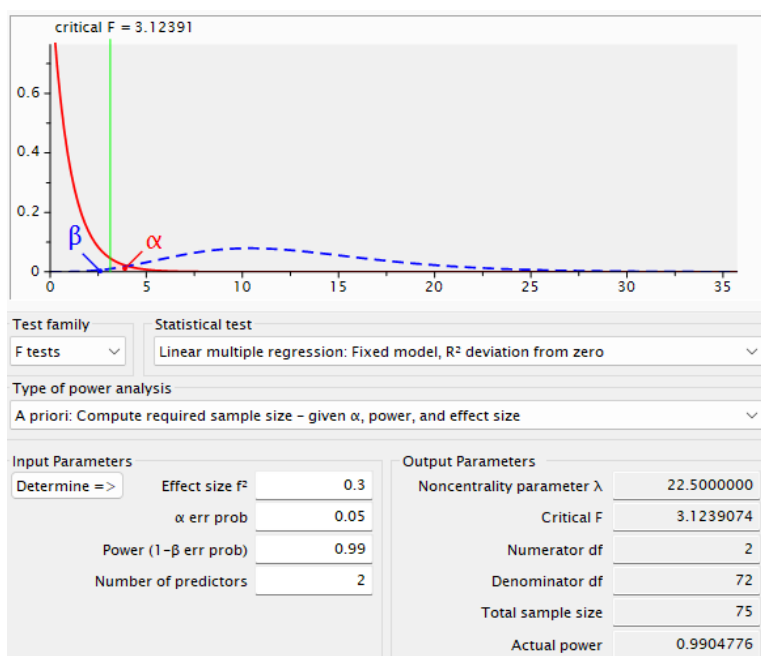
To analyze the sample size required to study the variable relationship in RQ3, a G*power for linear regression testing was calculated. The following inputs are displayed in Figure 6: effect size 0.3, alpha level 0.05, power 0.99, and two predictors. The effect size assumes a small to medium effect. The power of 0.99 will assess the sample size necessary for potentially significant and meaningful results. Two predictors were chosen because the research design to answer the third research question included two predictor variables (May 2019 RN engagement index and May 2022 RN engagement index).

In the graphical display in Figure 6, the critical f of 3.12 is represented by the green vertical line. The B is the area to the left of the vertical green line and represents

the probability of a Type II error. In this analysis, the $1-B$ is 0.99, indicating there is a 1% chance that a Type II error may occur (Banerjee et al., 2009). The actual power is calculated at 0.99. The output indicates the minimum sample size for statistical power is 75.

Figure 6

*G*Power Calculation: Linear Regression*



I worked with the healthcare organization's office of Clinical Research Compliance and Integrity to obtain permission to access and use the secondary data set. As a student conducting a personal research project, the organization required me to get an executive sponsor from the organization's division that has operational authority over the eleven hospitals in the data request. The division vice president of quality agreed to sponsor the research project with support from the division chief nursing executive. The healthcare organization's release of company data policy requires the executive sponsor

to submit information on behalf of the researcher to the external data release tool. Once submitted, the organization's office of clinical research compliance and integrity evaluates the request and determines how the data will be released to the researcher. The data request was evaluated by multiple individuals within the healthcare organization, including corporate legal counsel. The external data release approval is included in Appendix A.

Instrumentation and Operationalization of Constructs

The data for this study comes from a secondary dataset, which I requested from a healthcare organization. Smith (2008) described that a benefit of secondary data is access to data that the researcher could not obtain through primary research. Smith's assertion is true concerning this study. I would not have had access to a sample of more than 2100 RNs and data from 2019 and 2022 (pre and post-COVID-19 pandemic) to answer the research questions through primary data collection methods.

Engagement Index Data

The secondary data contains survey data collected by the healthcare organization using the Glint Employee Engagement survey instrument. Glint, founded in 2013, uses quantitative survey data (Glint, n.d.a) and an artificial intelligence platform Narrative Intelligence™ to analyze qualitative data from employees to help organizations understand and improve employee engagement (Combest, 2017). Glint (n.d.b.) developed a two-item engagement index that includes the questions: (a) "I would recommend (*insert organization*) as a great place to work" and (b) "How happy are you working at (*insert organization*)?" Both questions are measured at an interval level using a five-point Likert

scale. Glint reported the reliability of the two-item index as ($r^2 = 0.90$; $r = 0.95$) (C. Dougherty, 2022 December, personal communication).

Turnover Data

I define *turnover* as the rate employees separate from an organization for any reason (Halter et al., 2017; Hom et al., 2017). This is the exact definition the healthcare organization uses to collect turnover data. Secondary turnover data includes RN turnover by hospital for May 2019 (pre-pandemic) and May 2022 (post-pandemic). The data represent RNs who left the healthcare organization, including termination, resignation, retirement, and death. Inter-company transfers, changes in the department, or changes in full-time equivalent (FTE) hours worked are not included. Turnover data is calculated as a rate by the healthcare organization. The numerator is the number of RNs who left the organization for the month. The denominator is the total number of RNs employed for the month.

Data Analysis Plan

I will use the statistical package for social sciences (SPSS) Version 28 to conduct descriptive and inferential statistical analysis. Descriptive statistics will include mean and standard deviation for both variables. Inferential statistics testing will consist of correlation, independent samples t-test, linear regression, and two-way MANOVA. The purpose of this study is to understand if there is a difference in nursing engagement pre- and post-pandemic and if engagement predicts RN turnover in United States hospitals since the start of the COVID-19 pandemic in 2020. The research questions and statistical testing that are used to test each hypothesis are outlined below.

RQ1: What is the difference in mean nursing engagement scores pre and post-pandemic?

H_01 : There is no statistically significant difference in mean nursing engagement scores pre- and post-pandemic.

H_11 : There is a statistically significant difference in mean nursing engagement pre- and post-pandemic.

RQ2: What is the difference in mean RN turnover pre- and post-pandemic?

H_02 : There is no statistically significant difference in mean RN turnover pre- and post-pandemic.

H_12 : There is a statistically significant difference in mean RN turnover pre- and post-pandemic.

An independent samples t -test is used to analyze the data for research questions one and two. Independent samples t -tests are used when the groups being compared are independent or separate from each other (Kim, 2015). Independent t -tests can be used when the data assumptions are met, including normal distribution, homogeneity of variances, independence, and no significant outliers are satisfied (Kim, 2015; Laerd Statistics, n.d.a.). The SPSS independent samples t -test output includes each group's mean, standard error, standard deviation, and confidence interval, a combined group output, and the group difference. To interpret the analysis, the means of each group are compared, and the statistical significance is compared to the stated alpha value (0.05) (Laerd Statistics, n.d.a.).

RQ3: What is the predictive relationship, if any, of nursing engagement on turnover in RNs pre-and post-pandemic?

H₀₃: Engagement is not a statistically significant predictor of turnover in RNs pre-and post-pandemic.

H₁₃: Engagement is a statistically significant predictor of turnover in RNs pre-and post-pandemic.

Correlation analysis, linear regression, and two-way multivariate analysis of variance (MANOVA) is used to analyze the data for research question three. To understand if a relationship exists between RN engagement and turnover, the Pearson correlation coefficient is tested. Pearson's correlation coefficient measures the relationship between interval level variables and can be positive, negative, or curvilinear (Chao, 2017; Frankfort-Nachmias et al., 2021). The assumptions for Pearson correlation include variables that must be measured at an interval or ratio level, and the data must be normally distributed (Chao, 2017). The Pearson SPSS output is a matrix table of the variables, including the Pearson correlation, significance, and sample size ($n =$). To interpret the test, the Pearson correlation value is compared to the generally accepted guidelines developed by Cohen (1988) (< 0.3 small, $0.3 - 0.5$ medium, > 0.5 large correlation).

The two-way MANOVA tests the interaction of two or more independent variables on two or more dependent variables (Ntumi, 2021). A two-way MANOVA will test the variables' interaction in this study. The independent variables are the May 2019

employee engagement index and the May 2022 employee engagement index. The dependent variables are November 2019 turnover and November 2022 turnover.

Nine assumptions must be met for accurate interpretation of a two-way MANOVA, including independent and dependent variables measured at an interval level, and the variables should consist of two or more categorical groups, the variables must be independent of one another, the sample size must be large enough for the distribution of data to be normal, no outliers, the data must have multivariate normality, a linear relationship must exist between the group of independent variables and between the group of dependent variables, homogeneity of variance, and finally there must be no multicollinearity among the variables (Laerd Statistics, n.d.b; Ntumi, 2021).

The first step in interpreting the two-way MANOVA test is determining whether an interaction effect exists between the variables. The multivariate tests table (line variable*intervention) is the reference point for evaluating statistical significance in the two-way MANOVA output. If the test is statistically significant, univariate interaction effects should be evaluated. This analysis helps researchers understand if an interaction effect exists for each dependent variable (Laerd Statistics, n.d.b). Percival et al. (2020) described that using only multivariate analysis may hide significant variable interactions. If no statistical significance exists in the multivariate tests, main interaction effects should be assessed using the data on the line labeled intervention (Laerd Statistics, n.d.b). The final phase of two-way MANOVA analysis is based on whether the interaction effect is statistically significant. A simple main effects analysis is conducted if the interaction effect is significant. The univariate tests and pairwise comparison tables allow for

comparing each dependent and independent variable separately to evaluate which interactions may be statistically significant. The analysis is complete if the interaction effect is insignificant (Laerd Statistics, n.d.b).

Linear regression tests the relationship between one or more continuous independent variables and the dependent variable. Linear regression allows for analysis of how much of the variation of the dependent variable can be explained by the independent variable(s) (Laerd Statistics, n.d.c). In this study, the independent variable 2019 RN employee engagement index, is regressed on the dependent variable, 2019 RN turnover. Likewise, 2022 RN employee engagement index is regressed on 2022 RN turnover.

To obtain accurate linear regression results, the following assumptions must be met. The study must have one independent variable and one dependent variable measured at the continuous level, a linear relationship must exist between dependent and independent variables, independence of observations, no outliers, homoscedasticity, and the residual errors of the regression line must be normally distributed (Laerd Statistics, n.d.c). Once the assumptions have been satisfied, the interpretation of results includes evaluation of the R^2 and adjusted R^2 to determine the percent of the dependent variable explained by the independent variable in the sample (R^2) and the estimated population (adjusted R^2) (Laerd Statistics, n.d.c). The significance of the independent variable in the coefficients table is assessed to determine if a relationship exists.

Data Cleaning Procedures

Data cleaning is the process of detecting errors and inconsistencies within the dataset and determining how to manage them (Ram & Do, 2000). The process of data cleaning includes analysis of the data to detect errors or inconsistencies, defining data coding and mapping, verification that the coding and mapping work effectively on a subset of the dataset, transforming the entire dataset to align with the coding and mapping algorithm, and finally, remove errors (Ram & Do, 2000). In this study, an assessment of the secondary data provided by the healthcare organization is completed to compare the received dataset to the data requested. I reviewed the dataset to determine if any data elements do not meet the study inclusion criteria. Chicco et al. (2022) and IBM (2021) recommended the evaluation of a dataset for missing, duplicate, or incomplete data fields. I assessed for errors and inconsistencies, how the dataset is labeled as provided, and if a new coding system is needed. A log was kept to document data errors, inconsistencies, and any removed data.

Outliers can skew the significance of test results. While the results of one study may reveal statistical significance, if significance is based on outliers in the dataset, replication of the results may not be possible (Sullivan et al., 2021). The data for this study was evaluated to determine if there were univariate or multivariate outliers in the dependent and independent variables. Univariate outliers were tested by graphing each variable in a box plot and assessing the output for outliers (Chicco et al., 2022; Laerd Statistics, n.d.d). Multivariate outliers were assessed using a Mahalanobis distance test (Laerd Statistics, n.d.e; Sullivan et al., 2021).

Threats to Validity

Validity represents the degree to which the findings accurately reflect what is being studied and can be examined (Burkholder et al., 2020). Three types of validity include external, internal, and ecological (Coleman, 2019); Kviz, 2020). External validity represents the extent to which study findings can be generalized to the broader populations (Coleman, 2019; Frankfort-Nachmias et al., 2021). Internal validity is the degree of internal control within a study that results in accurate results (Coleman, 2019). It also determines the robustness of the study to alternative hypotheses. Ecological validity is related to the realistic nature of the experiments (Coleman, 2019) and is not relevant to this study. This section will describe the external and internal validity and the ethical procedures I employed in conducting this study.

External Validity

The sample for this study is limited to RNs; therefore, it is not generalizable to other healthcare workers or industries outside of healthcare. In addition, the RN sample represents only a hospital-based nursing practice setting, so the results may not be generalizable to nurses in practice environments outside of the hospital. RNs from three different states in the United States are included in the sample; therefore, the results may be generalizable to the broader population of hospital-based RNs.

Internal Validity

Internal validity is supported by statistical inference, using mathematical calculations to determine how well the sample represents the population (Coleman, 2019). Threats to internal validity are associated with the research design, how the study

is carried out, or how the participants react to the study (Kviz, 2020). This retrospective correlational study uses secondary data from a healthcare organization. A threat to internal validity is the potential for confounding variables. I could not control the environment the engagement survey was taken in or provide any instruction before the survey due to the sample being obtained from a secondary data source. In addition, Piotrowski (2021) argued that given the impact of the COVID-19 pandemic on the psyche of individuals, the pandemic should be considered a confounding variable in any research involving individuals' psychological state.

Bevan et al. (2013) described that the use of secondary data comes with an inherent bias, which researchers should acknowledge, including why the original data was collected, the credibility of the organization that collected the data, the reliability of the instrument(s), and the potential for selection bias in the sample. Due to secondary data, I could not control how the employee engagement survey data was collected or how the RN participants engaged with the survey. The healthcare organizations' purpose for collecting employee engagement data is to obtain insight into the level of engagement and job satisfaction within the workforce in six-month intervals (L. Johnson, personal communication, May 2023). I consider the healthcare organization a credible source as it is one of the largest in the western United States. The company that created the employee engagement survey (Glint, Inc.) has demonstrated the reliability of the instrument ($r^2 = 0.90$; $r = 0.95$) (Glint, n.d.b). The reliability of the employee engagement instrument also supports construct validity. Construct validity represents the degree to which an instrument measures a particular variable and how that variable relates to other variables

within the study (Babbie, 2017). Finally, every employee in the health care organization was invited to participate in the employee engagement surveys (L. Johnson, personal communication, May 2023). Still, I acknowledge the potential for selection bias in the sample.

Maturation is a potential threat to the internal validity of this study. Coleman (2019) described that maturation occurs when physical and psychological changes occur in subjects which may influence the study. In this study, the group of RNs that took the employee engagement survey in 2019 may be different from those RNs that took the employee engagement survey in 2022 based on expected turnover and hiring. For RNs who participated in both engagement surveys, maturation is a potential threat to internal validity. The COVID-19 pandemic negatively impacted the physical and psychological health of many RNs (Adanaque-Bravo et al., 2023) and may have influenced employee engagement scores.

Ethical Procedures

Ethical conduct in research is of critical importance. Researchers should think about and plan the research design with ethics in mind from the initial stages of problem development (Burkholder et al., 2020; Ellis, 2011). Research protocols must protect participants, particularly vulnerable populations (Burkholder et al., 2020). The Belmont Report (The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1978) and the Declaration of Helsinki (World Medical Association, 2013) described the ethical principles of human subject research. Individuals have the right to the protection of their health, informed consent, confidentiality, and

researchers who are both competent and knowledgeable in the accepted standards of ethical research conduct (World Medical Association, 2013).

I ensured the study was conducted per Walden University policies and generally accepted ethical research standards. Given that I used secondary data for this study, there is no participant interaction, and therefore no informed consent is necessary. The healthcare organization obtained the employee engagement index data directly from its employees and considers it protected (D. Vulcano, November 2022, personal communication). The employee engagement survey is anonymous when it is taken, so no deidentification process is necessary. The turnover data obtained from the healthcare organization does not contain individual employee data but was treated with the same level of confidentiality due to its proprietary nature.

I will maintain the confidentiality of the data by storing it in a secure, password-protected external hard drive and will be the only individual with access to the data. The data will be retained for 5 years under the Walden University policy (Walden University, 2021). After five years, the data will be deleted, and any printed documents with original data will be shredded. In addition to the Ph.D. in Management coursework, I completed the seven modules in the Collaborative Institutional Training Initiative for doctoral researchers evidenced in (Appendix B & C).

Summary

Chapter 3 describes the research methods I will use to conduct this retrospective quantitative correlational study. The purpose of this study is to understand if there is a difference in nursing engagement pre- and post-pandemic and if engagement predicts RN

turnover in United States hospitals since the start of the COVID-19 pandemic in 2020. The predictor variable is employee engagement as measured by the Glint, Inc. employee engagement index. The outcome variable is turnover, reported as a rate in the healthcare organization. In this chapter, I described the study methodology, including the population and sample. The process of G*power analysis was described, and the minimum sample of 296 participants was established based on the power analysis.

This chapter described the data cleaning and analysis plan to answer the stated research questions. I reviewed the process for obtaining secondary data from a healthcare organization and how the data will be stored, secured, and managed based on Walden University policies and the healthcare organization's data license agreement for research purposes. Chapter 3 included a discussion of the threats to validity, including external, internal, and construct validity and ethical procedures. Chapter 4 will consist of a discussion of the study results.

Chapter 4: Results

Introduction

The purpose of this quantitative correlational study is to understand if there is a difference in nursing engagement pre- and post-pandemic and if engagement predicts RN turnover in U.S. hospitals since the start of the COVID-19 pandemic in 2020. This study contains two variables. The outcome variable is RN turnover, measured at an interval level. The predictor variable is engagement, measured at an interval level. The research questions and hypotheses are:

RQ1: What is the difference in mean nursing engagement scores pre- and post-pandemic?

H_01 : There is no statistically significant difference in mean nursing engagement scores pre- and post-pandemic.

H_11 : There is a statistically significant difference in mean nursing engagement pre- and post-pandemic.

RQ2: What is the difference in mean RN turnover pre- and post-pandemic?

H_02 : There is no statistically significant difference in mean RN turnover pre- and post-pandemic.

H_12 : There is a statistically significant difference in mean RN turnover pre- and post-pandemic.

RQ3: What is the predictive relationship, if any, of nursing engagement on turnover in RNs pre- and post-pandemic?

H_{03} : Engagement is not a statistically significant predictor of turnover in RNs pre- and post-pandemic.

H_{13} : Engagement is a statistically significant predictor of turnover in RNs pre- and post-pandemic.

In Chapter 4, I describe the results of the study. The chapter begins with a discussion of the data collection methodology and includes descriptive statistics. I describe the study results, including statistical assumptions and analytic procedures. Finally, the results are summarized by research question.

Data Collection

Data analysis for this study was done using secondary data. Data were requested from the healthcare organization on July 19, 2023. On September 9, 2023, the organization granted approval for an external data release. The data were sent to me on September 14, 2023. The Walden IRB granted approval (IRB 10-02-23-0347053) to conduct the study on October 2, 2023. The data for both variables (RN employee engagement and RN turnover) are from two specific periods: May 2019 and May 2022.

The sample includes RNs from 11 hospitals within one health care organization. The hospitals are located in Utah, Idaho, and Alaska. In the May 2019 RN employee engagement index survey results, there were 2,170 respondents. In the May 2022 RN employee engagement index survey results, there were 2,337 respondents. Turnover data were provided by the healthcare organization as a percentage rate and reflected the actual number of RNs who left the organization for each period. The sample received from the

healthcare organization exceeds the minimum sample size of 296, as determined in the G*power analysis described in Chapter 3.

Data Cleaning

The data from the healthcare organization were assessed to ensure the data received were consistent with the data requested. All data elements met the stated study inclusion criteria. There were no incomplete or missing data fields. No participant responses were removed. The RN employee engagement index and RN turnover data were broken down by hospital and included the hospital name in the data file. To protect the identity of the individual hospital and the broader healthcare organization, each hospital was assigned a letter A through K, and a key was created for my reference. There were no discrepancies between the data plan described in Chapter 3 and the data obtained from the healthcare organization.

Results

The secondary data for this study's predictor and outcome variables are grouped by hospital entity. The total number of hospitals in the data set was 11. The healthcare organization provided the number of RNs in the employee engagement index sample per hospital, as illustrated in Table 2.

Table 2*Sample Size by Hospital*

Hospital	Employee engagement index 2019 sample size	Employee engagement index 2022 sample size
A	172	152
B	50	60
C	160	156
D	74	121
E	434	322
F	431	443
G	281	374
H	276	290
I	175	259
J	75	98
K	41	62
Total sample	2,170	2,337

Note. To protect the identity of the hospitals and larger healthcare organization, the hospital's names are represented as a letter.

Descriptive Statistics

Four variables were used in this analysis: employee engagement index from 2019, employee engagement index from 2022, turnover rate from 2019, and turnover rate from 2022. The descriptive statistics for each variable are displayed in Table 3. The employee engagement index 2019 ($M = 76.7$, $SD = 5.3$) is normally distributed based on visual inspection of the distribution curve and skewness = $-.20$. The employee engagement index 2022 ($M = 74.2$, $SD = 6.2$) is negatively skewed based on visual inspection of the distribution curve and skewness = $-.33$. The turnover index 2019 ($M = 15.1$, $SD = 6.2$) is normally distributed based on visual inspection of the distribution curve and skewness = $.54$. The turnover index 2022 ($M = 18.5$, $SD = 5.6$) is normally distributed based on visual inspection of the distribution curve and skewness = $-.24$. Some statistical tests in

this analysis also use the total employee engagement index (2019 and 2022) and the total turnover rate (2019 and 2022); therefore, descriptive statistics are also provided. The total employee engagement index ($M = 75.7$, $SD = 5.8$) is slightly negatively skewed based on visual inspection of the distribution curve and skewness = $-.35$. The total turnover rate ($M = 16.8$, $SD = 5.3$) is normally distributed based on visual inspection of the distribution curve and skewness = $.21$.

Table 3

Descriptive Statistics

Variable	N	Mean	Median	SD	Skewness	Skewness SE
Employee engagement index 2019	11	76.7	76	5.3	-.20	.66
Employee engagement index 2022	11	74.2	73	6.2	-.33	.66
Turnover rate 2019	11	15.1	14.7	4.7	.54	.66
Turnover rate 2022	11	18.5	18.6	5.6	-.24	.66
Employee engagement index total sample	22	75.7	76	5.8	-.35	.49
Turnover rate total sample	22	16.8	16.8	5.3	.20	.49

Note: The n represents aggregate hospital data. The employee engagement index

represents a total of 2,170 RNs (2019) and 2,337 RNs (2022) who participated in the engagement survey.

Assumptions

To answer RQ1 and RQ2, the independent samples t-test was used. Independent samples t-test was chosen to explore if there is a difference in mean nursing engagement scores (RQ1) and turnover (RQ2) pre- and post-pandemic. Six assumptions must be met for valid statistical results: (a) one dependent variable measured at a continuous level, (b) one independent variable with two independent groups, (c) independence of

observations, (d) no significant outliers, (e) the dependent variable is normally distributed around the independent variable, and (f) homogeneity of variance (Laerd Statistics, 2023a).

To answer RQ3, Pearson's correlation analysis, linear regression, and two-way multivariate analysis of variance (MANOVA) were used. These inferential statistical tests were chosen to explore the predictive relationship, if any, of nursing engagement on turnover in RNs pre- and post-pandemic. Five assumptions must be met for Pearson's correlation: (a) at least two variables measured at a continuous level, (b) the variables each have associated values, (c) a linear relationship exists between variables, (d) there are no significant outliers, and (e) there must be bivariate normality (Laerd Statistics, 2023b). Linear regression testing has seven assumptions that must be satisfied: (a) one dependent variable measured at a continuous level, (b) one independent variable measured at a continuous level, (c) a linear relationship between the dependent and independent variables must exist, (d) independence of observations, (e) there are no significant outliers, (f) data have homoscedasticity, and (g) the residuals are normally distributed (Laerd Statistics, 2023c).

I intended to use two-way MANOVA testing to explore the potential interaction effects between the turnover rates in 2019 and 2022 (dependent variable) and the employee engagement index in 2019 and 2022 (independent variable). The assumption requirement that the independent variables must be categorical (Laerd Statistics, 2023h) could not be met with this data set. Therefore, I used multiple linear regression instead.

The multiple linear regression test was more appropriate because the test assumptions require that variables be measured at an interval or ratio level, which is consistent with the variables in this research question. The independent variables (employee engagement index 2019 and employee engagement index 2022) were regressed on each dependent variable (turnover rate 2019 and turnover rate 2022). Eight assumptions must be assessed to use this statistical test: (a) one dependent variable measured at a continuous level, (b) two or more independent variables measured at a continuous or nominal level, (c) independence of observations, (d) a linear relationship exists between the dependent variable and each independent variable and the broader independent variable, (e) homoscedasticity of residuals, (f) multicollinearity, (g) no significant outliers, and (h) residuals are normally distributed (Laerd Statistics, 2023d)

Results of RQ1

The first research question was: What is the difference in mean nursing engagement scores pre- and post-pandemic? To answer this question, independent sample t-testing was performed. The independent grouped variable is pre- and post-pandemic (2019 & 2022). The dependent variable is the employee engagement index.

Each of the six assumptions was met. Assumptions 1, 2, and 3 were met through the study's research design. The dependent, or outcome, variable is the employee engagement index, which is measured at a continuous level. The independent, or predictor, variable has two groups: the employee engagement index 2019 and the employee engagement index 2022. Due to the secondary nature of the data, I cannot be certain about the environment in which the employee engagement data were collected.

The healthcare organization reports the data were collected anonymously by individual participants via a web-based survey platform with procedures in place to ensure that no individual can take the survey more than once (L. Johnson, personal communication May 2023). Assumptions 4, 5, and 6 were assessed using SPSS. Assumption 4 was met through a review of a boxplot where there were no values greater than 1.5 box lengths from the edge of the box (Laerd Statistic, 2023e). Assumption 5 was met using the Shapiro-Wilk test of normality (Laerd Statistics, 2023f). The employee engagement index 2019 data are normally distributed ($p = .25$). The employee engagement index 2022 data are normally distributed ($p = .88$). Assumption 6 was met using Levene's test of equality of variances to assess homogeneity, as displayed in Table 4. There was homogeneity of variances ($p = .75$; Laerd Statistics, 2023g).

Table 4

Levene's Test for Equality of Variance

	F	Sig.
Employee engagement index	.10	.75

The results of the independent samples t-test, as displayed in Tables 5 and 6, indicate that the means of the employee engagement index from 2019 and the employee engagement index from 2022 were not significantly different (95% CI, -2.5 to 7.7 , $t(20) = 1.1$, $p = .29$). Based on these results, the null hypothesis for RQ1 is accepted. There is no statistically significant difference in mean nursing engagement scores pre- and post-pandemic.

Table 5*Group Statistics*

	N	Mean	Std. deviation	Std. error mean
Employee engagement index 2019	11	76.8	5.3	1.6
Employee engagement index 2022	11	74.2	6.2	1.9

Note. N = 11 represents 11 hospitals with an aggregate sample of 2,170 RNs (2019) and 2,337 RNs (2022).

Table 6*t-Test for Equality of Means*

DV	t	df	Sig. (2-tailed)	Mean difference	95% CI of the difference	
					Lower	Upper
Employee engagement index	1.1	20	.29	2.6	-2.5	7.7

Note. Equal variance was assumed based on the Levene's test ($p = .75$).

Results of RQ2

The second research question is, what is the difference in mean RN turnover pre- and post-pandemic? To answer this question, independent sample t-testing was performed. The independent grouped variable is pre- and post-pandemic (2019 & 2022). The dependent variable is the turnover rate.

Each of the six assumptions was met. Assumptions 1, 2, and 3 were met through the study's research design. The dependent or outcome variable is the employee engagement index, which is measured at a continuous level. The independent variable is the turnover rate, which has two independent groups: turnover rate 2019 and turnover rate 2022. The healthcare organization calculated the turnover rate using the number of RNs

who left the organization as the numerator and the total number of employed RNs as the denominator. There is no risk of violating the independence of observations.

To assess assumption 4, I generated a box plot in SPSS. The turnover 2019 variable has no outliers. The turnover 2022 variable also has no outliers. Assumption 5 was met using the Shapiro-Wilk test of normality (Laerd Statistics, 2023. f). The turnover rate 2019 data is normally distributed ($p = .38$). The turnover rate 2022 data is normally distributed ($p = .88$). Assumption 6 was met using Levene's test of equality of variances to assess homogeneity, as displayed in Table 7. There was homogeneity of variances ($p = .66$; Laerd Statistics, 2023. g).

Table 7

Levene's Test for Equality of Variances

	F	Sig.
Turnover rate	.19	.66

The results of the independent samples t-test, as displayed in Tables 8 and 9, indicate that the means of the turnover rate from 2019 and the turnover rate from 2022 were not significantly different (95% CI, -7.9 to 1.3, $t(20) = -1.5$, $p = .14$). Based on these results the null hypothesis for RQ2 is accepted. There is no statistically significant difference in mean turnover rates pre- and post-pandemic.

Table 8*Group Statistics*

DV	N	Mean	Std. deviation	Std. error mean
Turnover rate 2019	11	15.1	4.7	1.4
Turnover rate 2022	11	18.5	5.6	1.7

Note. N = 11 represents 11 hospitals with an aggregate sample of 2,170 RNs (2019) and 2,337 RNs (2022).

Table 9*t-Test for Equality of Means*

	t	df	Sig. (2-tailed)	Mean difference	95% CI of the difference	
					Lower	Upper
Turnover rate	-1.5	20	.14	-3.3	-7.9	1.3

Note. Equal variance was assumed based on the Levene's test ($p = .66$).

Results of RQ3

The third research question is, what is the predictive relationship, if any, of nursing engagement on turnover in RNs pre-and post-pandemic? To answer this question, linear regression, including Pearson's correlation and multiple linear regression testing, were used.

To test linear regression within the dependent variable (combined turnover rate 2019 and 2022) and independent variable (combined employee engagement index 2019 and 2022), each of the seven assumptions were met. Assumptions 1 and 2 were met through the research design of the study. The dependent variable is the turnover rate, and

is measured at a continuous level. The independent variable is the employee engagement index and is measured at a continuous level. Assumption 3, independence of observations, is partly met based on the study design. I cannot be certain about the conditions under which the employee engagement data was collected due to the secondary nature of the data. The healthcare organization describes the data as being collected on an individual basis via a web-based survey. To be certain the independence of observations assumption is met, the Durbin-Watson test was used. The linear regression model summary provided a Durbin-Watson value of 1.54. The independence of residuals is confirmed (Laerd Statistics, 2023. h).

Assumptions 4 through 7 are assessed via SPSS. A scatterplot was created to assess assumptions 4, 5, and 6. A visual inspection of the scatterplot revealed the presence of a linear relationship between the dependent and independent variables and no significant outliers. Assumptions 4 and 5 are met. The scatterplot also demonstrated the residuals to be equally spread; therefore, homoscedasticity exists, and assumption 6 is met. A normal probability plot was used to assess whether the residuals were normally distributed. A visual inspection confirms normal distribution, and assumption 7 is met.

The results of linear regression testing are displayed in Tables 10 and 11. The employee engagement index accounted for 19% of the variation in turnover rate with adjusted $R^2 = 15.0\%$ with a medium effect size ($R = .44$; Laerd Statistics, 2023. i). The regression model is statistically significant $F(1,20) = 4.8, p = .04$. The employee engagement index was a statistically significant predictor of turnover rate. The regression equation is the turnover rate (y) = $47.5 - .41 * \text{employee engagement index (x)}$.

Table 10*Linear Regression Model Summary*

	R	R ²	Adj. R ²	Std. error of the estimate	Durbin-Watson
Model 1	.44	.19	.15	4.9	1.54

Note. Predictor (constant) employee engagement index, dependent variable turnover rate.

Table 11*Analysis of Variance (ANOVA)*

	Sum of squares	df	Mean square	F	Sig.
Regression	115.6	1	115.6	4.8	.04
Residual	482.5	20	24.1		
Total	598.2	21			

Note. Predictor (constant) employee engagement index, dependent variable turnover rate.

The final statistical test in the exploration of RQ3 is multiple linear regression.

This test will allow me to understand if the variables influence the model differently and the overall fit of the model. I regressed the independent variables (employee engagement index 2019 and employee engagement index 2022) on each of the dependent variables (turnover rate 2019 and turnover rate 2022).

Multiple Linear Regression Model 1

In this model, the dependent variable is the turnover rate in 2019. The independent variables are the employee engagement index 2019 and the employee engagement index 2022. Assumptions 1 and 2 are met through the study design. The dependent variable is measured at the continuous level, and there are two independent

variables, both measured at the continuous level. Independence of observations was assessed through the calculation of the Durbin-Watson statistic in SPSS. Assumption 3 is met based on the Durbin-Watson of 1.4.

Assumptions 4 and 5 are assessed through the creation of a scatterplot of the studentized residuals and the unstandardized predicted value (Laerd Statistics, 2023. d). Linearity was established based on visual inspection of the scatterplot. Assumption 4 is met. Homoscedasticity of residuals was established based on visual inspection of the scatterplot. Assumption 5 is met.

Assumption 6 is evaluated using the VIF value. The regression coefficients output in SPSS resulted in a VIF of 1.3. Assumption 6 is met since the VIF is greater than .1 (Laerd Statistics, 2023. k). The presence of outliers or highly influential points is tested using studentized deleted residuals and Cook's distance in SPSS (Laerd Statistics, 2023.d). The studentized deleted residuals standard deviation is 1.2 (< 3 SD), and Cook's distance is .001 to .47 (Laerd Statistics, 2023.l). Assumption 7 is met. The distribution of residual errors is evaluated through the normal P-P plot of regression standardized residual. The plot produced by SPSS was visually inspected, and the data is normally distributed. Assumption 8 is met.

The results of the first multiple linear regression model are displayed in Table 12 and Table 13. In this test, the dependent variable is the turnover rate in 2019. The independent variables are the employee engagement index 2019 and the employee engagement index 2022. There was no statistically significant correlation between the turnover rate from 2019 and the employee engagement index 2019 ($r = -.28, p = .20$) and

the employee engagement index 2022 ($r = -.09, p = .39$). The employee engagement indices from 2019 and 2022 accounted for 8% of the variation in turnover rate with adjusted $R^2 = -15\%$ with a small effect size ($R = .29$; Laerd Statistics, 2023. i). The regression model is not statistically significant $F(2,8) = .36, p = .71$. The employee engagement indices from 2019 and 2022 were not statistically significant predictors of the turnover rate in 2019.

Table 12

Multiple Regression Model 1 Summary

	R	R ²	Adj. R ²	Std. error of the estimate	Durbin-Watson
Model	.29	.08	-.15	4.9	1.4

Note: Predictor (constant) employee engagement index 2019 and 2022, dependent variable turnover rate 2019.

Table 13

Analysis of Variance (ANOVA)

	Sum of squares	df	Mean square	F	Sig.
Regression	17.7	2	8.9	.36	.71
Residual	199.8	8	24.9		
Total	217	10			

Note. Predictor (constant) employee engagement index 2019 and 2022, dependent variable turnover rate 2019.

Multiple Linear Regression Model 2

In this model, the dependent variable is the turnover rate in 2022. The independent variables are the employee engagement index 2019 and the employee engagement index 2022. Assumptions 1 and 2 are met through the study design. The dependent variable is measured at the continuous level, and there are two independent variables, both measured at the continuous level. Independence of observations was assessed through the calculation of the Durbin-Watson statistic in SPSS. Assumption 3 is met based on the Durbin-Watson of 2.7.

Assumptions 4 and 5 are assessed through the creation of a scatterplot of the studentized residuals and the unstandardized predicted value (Laerd Statistics, 2023. d). Linearity was established based on visual inspection of the scatterplot. Assumption 4 is met. Homoscedasticity of residuals was established based on visual inspection of the scatterplot. Assumption 5 is met.

Assumption 6 is evaluated using the VIF value. The regression coefficients output in SPSS resulted in a VIF of 1.3. Assumption 6 is met since the VIF is greater than .1 (Laerd Statistics, 2023. k). The presence of outliers or highly influential points is tested using studentized deleted residuals and Cook's distance in SPSS (Laerd Statistics, 2023.d). The studentized deleted residuals standard deviation is 1.3 (< 3 SD), and Cook's distance is .001 to .29 (< 1.0 ; Laerd Statistics, 2023.1). Assumption 7 is met. The distribution of residual errors is evaluated through the normal P-P plot of regression standardized residual. The plot produced by SPSS was visually inspected, and the data is normally distributed. Assumption 8 is met.

The results of the second multiple linear regression testing are displayed in Table 14 and Table 15. In this test, the dependent variable is the turnover rate in 2022. The independent variables are the employee engagement index 2019 and the employee engagement index 2022. There was no statistically significant correlation between the turnover rate from 2022 and the employee engagement index 2019 ($r = -.03, p = .47$) and the employee engagement index 2022 ($r = -.48, p = .07$). The employee engagement indices from 2019 and 2022 accounted for 27% of the variation in turnover rate with adjusted $R^2 = 9.4\%$ with a moderate effect size ($R = .52$; Laerd Statistics, 2023. i). The regression model is not statistically significant $F(2,8) = 1.5, p = .28$. The employee engagement indices from 2019 and 2022 were not statistically significant predictors of the turnover rate in 2022.

Table 14

Multiple Regression Model 2 Summary

	R	R ²	Adj. R ²	Std. error of the estimate	Durbin-Watson
Model	.52	.27	.09	5.38	2.7

Note. Predictor (constant) employee engagement index 2019 and 2022, dependent variable turnover rate 2022.

Table 15*Analysis of Variance (ANOVA)*

	Sum of squares	df	Mean square	F	Sig.
Regression	87.7	2	43.8	1.5	.28
Residual	231.3	8	28.9		
Total	319	10			

Note. Predictor (constant) employee engagement index 2019 and 2022, dependent variable turnover rate 2022.

Summary

In this chapter, I have described the statistical testing performed to answer the three stated research questions. The first research question is what is the difference in mean nursing engagement scores pre- and post-pandemic? Based on the results of the independent t-test analysis, the null hypothesis for the research question is accepted. There is no statistically significant difference in mean nursing engagement scores pre- and post-pandemic.

The second research question is what is the difference in mean RN turnover pre- and post-pandemic? Based on the results of the independent t-test analysis, the null hypothesis for the research question is accepted. There is no statistically significant difference in mean turnover rates pre- and post-pandemic.

The third research question is what is the predictive relationship, if any, of nursing engagement on turnover in RNs pre- and post-pandemic? Pearson's correlation, linear regression, and multiple linear regression testing were used to answer this question.

The linear regression model is statistically significant $F(1,20) = 4.8, p = .04$. The employee engagement index accounted for 19% of the variation in turnover rate. The employee engagement index was a statistically significant predictor of turnover rate. Pearson's correlation demonstrated no statistically significant relationship between the turnover rate from 2019 or 2022 and the employee engagement indices from 2019 or 2022. Two multiple linear regression models were used to evaluate the potential influence of the independent variables on each of the dependent variables. Neither of the models was statistically significant. Given these results, the null hypothesis for RQ3 is partially accepted.

In the final chapter of the study, I will describe my statistical interpretation of the study findings and limitations. I will provide recommendations for future research and discuss the study's implications for social change, theory, and practice.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

A gap exists in the literature regarding whether there is a difference in nursing engagement pre- and post-COVID-19 pandemic and whether engagement predicts RN turnover after 2020. I could not identify any peer-reviewed research comparing pre- and post-pandemic engagement or exploring nurse engagement and turnover in hospitals after 2020. The purpose of this retrospective nonexperimental correlational quantitative study was to understand if there is a difference in nursing engagement pre- and post-pandemic and if engagement predicts RN turnover in U.S. hospitals since the start of the COVID-19 pandemic in 2020.

I used secondary data from a healthcare organization to explore three research questions. The first research question was: What is the difference in mean nursing engagement scores pre- and post-pandemic? To answer this question, I used independent sample t-testing. The independent samples t-test results indicate the means of the employee engagement index from 2019 and the employee engagement index from 2022 were not significantly different. The null hypothesis for RQ1 is accepted; there is no statistically significant difference in mean nursing engagement scores pre- and post-pandemic.

The second research question was: What is the difference in mean RN turnover pre- and post-pandemic? To answer this question, I used independent sample t-testing. The independent samples t-test results indicate the means of the turnover rate from 2019 and the turnover rate from 2022 were not significantly different. The null hypothesis for

RQ2 is accepted; there is no statistically significant difference in mean turnover rates pre- and post-pandemic.

The third research question was: What is the predictive relationship, if any, of nursing engagement on turnover in RNs pre- and post-pandemic? To answer this question, linear regression, including Pearson's correlation and multiple linear regression testing were used. Linear regression testing revealed the employee engagement index accounted for 19% of the variation in turnover rate, and the employee engagement index was a statistically significant predictor of turnover rate. I used multiple linear regression testing to explore variable interactions. Two multiple linear regression models were tested. There was no statistically significant correlation between variables in either model. ANOVA modeling revealed no statistical significance in either model. While there were no statistically significant variable interactions, the overall regression model (independent variable employee engagement index and dependent variable turnover rate) was significant. The employee engagement index was a statically significant predictor of the turnover rate; therefore, the null hypothesis for RQ3 is rejected.

Interpretation of the Findings

In this section, I review the study's findings and describe their relevance to the current literature. Gaps in the literature underscored the need to generate new knowledge to understand the underexplored antecedents to RN turnover since the COVID-19 pandemic began. Slatten et al. (2022) identified that work engagement and nursing turnover should be explored in a larger sample and across multiple time points. Woodward and Willgerdot (2022) argued that research on RN turnover should identify

actions leaders can take to prevent the formation of an intent to leave. Yildiz and Yildiz (2022) suggested future research was needed to explore engagement in nurses post-pandemic. In the following discussion, I review the interpretation of the findings concerning the literature gaps by research question.

Research Question 1

Statistical analysis to answer the first research question revealed no statistically significant difference in mean nursing engagement scores from 2019 pre-pandemic and 2022 post-pandemic. In Chapter 2, I described personal resources and supportive relationships as the two primary categories of engagement antecedents based on the literature. Given the empirical relationship between psychological states and engagement (Adanaque-Bravo et al., 2023; Rehder et al., 2020; Rushton, 2016; Rutledge et al., 2021; Zangaro et al., 2022) and the challenges for nursing during the COVID-19 pandemic (Kelley et al., 2022), it is surprising to find no mean difference in engagement in this study. No significant mean difference in the RN engagement index pre- and post-pandemic may indicate that nursing engagement may have already been lagging before the start of the pandemic.

A potential argument for no significant difference in mean engagement is the burden of COVID-19 care was less in this study sample than for the population of RNs in the U.S. Kelley et al. (2022) found that the core experience of nurses during the pandemic was similar across three regions of the U.S. (the East, the West, and the Midwest) and hospitals of varying sizes (248–2,678 beds). The sample for this study included RNs from Utah, Idaho, and Alaska and hospitals of different sizes.

Another potential reason for non-significant findings in RQ1 is the influence of supportive relationships. Due to the nature of the study design, supportive relationships were not controlled for and could be a contributing factor. The importance of peer and colleague support in individual engagement is well documented (Contreras et al., 2021; Dasgupta, 2016; Haizlip et al., 2020; Pohl et al., 2022). Likewise, supportive leadership is a crucial driver of engagement (Al-Dossary, 2022; Contreras et al., 2021; Mehrad et al., 2022; Pohl et al., 2022; Rehder et al., 2022). How this healthcare organization supported nurses during the COVID-19 pandemic is unknown to me and could have contributed to consistent levels of engagement pre- and post-pandemic.

This study provides insight into engagement in nurses pre- and post-pandemic. The results of RQ1 should be generalized with caution. Potential reasons there is no significant difference in mean engagement between 2019 and 2022 for this study sample provide an opportunity for future research and will be discussed further in this chapter.

Research Question 2

Statistical analysis to answer the second research question demonstrated no statistically significant difference in the mean turnover rates from 2019 pre-pandemic and 2022 post-pandemic. Based on these results, the null hypothesis for RQ2 is accepted. This finding is surprising and inconsistent with the literature. In 2019, RN turnover in the U.S. was 15.9%; by the end of 2021, RN turnover had risen to 27.1% (NSI Nursing Solutions, Inc., 2022). Turnover among U.S. hospital-based RNs decreased in 2022 to 22.7% (NSI Nursing Solutions, Inc., 2023). The sample's mean turnover rate pre-pandemic mirrored the national average at 15.1%. This sample's mean turnover rate in

2022 increased to 18.5% but remained under the national average of 22.7%. Martin et al. (2023) concluded that in addition to the 50,000 nurses with 10+ years of experience who left the workforce during the pandemic, the stress of the pandemic would drive another 44% of experienced nurses to leave their positions in the next 5 years. It is too soon to determine if Martin et al.'s prediction is coming to fruition, but it does not appear valid in this sample of RNs across three states. Based on the literature, there are numerous potential influencers of turnover during and post-pandemic including level of burnout and job stress (Kelly et al., 2021; Lasater et al., 2021; Matsuo et al., 2021; Smiley et al, 2023) leadership support (Chami-Malaeb, 2022), and the number of retirement age RNs (Buerhaus, 2021; Weston, 2022). Given the scope of this study, I am unable to determine which, if any, of these variables may have contributed to the lower post-pandemic turnover rate in the sample.

Research Question 3

Statistical analysis to answer the third research question showed mixed results. The linear regression model exploring the relationship between the employee engagement index and turnover rates (combined 2019 and 2022) was statistically significant ($p < .05$). The employee engagement index accounted for 19% of the variation in turnover rate. The employee engagement index is a statistically significant predictor of the turnover rate in this sample. I tested two models of multiple regression to understand RQ3 further. Neither model was statistically significant, and no significant correlations were identified.

While the data analysis for this research question was not statistically conclusive, it does provide important insight for healthcare leaders. Woodward and Willgerdot

(2022) encouraged researchers to identify actions leaders can take to prevent the formation of intent to leave. For the healthcare organization leaders who provided the data, understanding that RN engagement may not drive turnover rate is important information. Generalizing these results to the broader population of RNs in the U.S. should be done with care but may indicate the possibility that the challenge and stress of the COVID-19 pandemic caused a shift in the previously established relationship between engagement and turnover. Yildiz et al. (2022) found that COVID-19 moderated a shift in the relationship between engagement and job satisfaction. More research is needed to determine if such a change between engagement and turnover has occurred.

Limitations of the Study

I discussed study limitations in Chapter 1. Some of those limitations remain, and I identified a new limitation during data analysis. The design of the study has several inherent limitations. The instrument used by the healthcare organization to collect secondary data is not peer-reviewed, and the organization that developed the survey reports only instrument reliability, not reliability and validity. Additionally, I could not influence or understand the conditions under which each RN took the survey or if the terms were fully understood.

Using a correlational study design limits understanding of potential cause-and-effect relationships between variables. Independent samples t-testing was used as part of the data analysis because it is unknown if the sample of RNs from the 2019 pre-pandemic survey retook the engagement survey in 2022 post-pandemic. The limitation exists as it is possible that a percentage of RNs participated in both surveys. A dependent samples t-

test may have been a more appropriate analytical option. Confounding may occur because participants may have similar experiences working for the same healthcare organization. This limitation is mitigated by the sample size and data aggregation across eleven hospitals. I was able to resolve the potential for multicollinearity. Multiple regression testing of the correlation between variables demonstrated no multicollinearity.

I identified a new study limitation. The data obtained from the healthcare organization was aggregated by the hospital, so while the number of participants who took the employee engagement surveys in 2019 and 2022 was more than 2,100 RNs in each survey sample, the individual participant data was not in the data set. This limitation represents an opportunity for extension of this study in future research.

Recommendations

Given the findings of this study and the identified limitations, there are several recommendations for future research. I recommend using a study design that includes primary data collection. While secondary data allowed me access to a sample of RNs that was unavailable otherwise and actual turnover rates, collecting primary data offers several advantages. The instrument for measuring engagement can be chosen by the researcher, ensuring a reliable and valid peer-reviewed tool. The study design can be developed to meet the research goals, and through primary data collection, the researcher has more control over survey administration.

Using more periods for each variable may be interesting to explore. In this study, I used two points in time, May 2019 and May 2022, for each variable. Future researchers could use more than one month each year and expand the years further before and after

the pandemic (e.g., 2018 and 2023 data) to obtain more detailed information. Bakker and Oerlemans (2019) and Boccoli (2023) described that engagement fluctuates based on personal and job resources, emotions, and opportunities for job crafting. It would follow then that a study design that captured engagement at additional intervals may provide greater insight.

Future research could also control for the support of organizational leadership as a critical antecedent of engagement. The literature is consistent in the positive relationship between supportive work relationships and engagement. Expanding the sample to include RNs from multiple unaffiliated healthcare organizations may increase the generalizability of the research and decrease confounding due to the potential for participants to have similar experiences with leadership in the organization.

Implications

Implications for Positive Social Change

Positive social change is a cornerstone of education at Walden University. Stephan et al. (2016) describe positive social change as “the process of transforming patterns of thought, behavior, social relationships, institutions, and social structures to generate beneficial outcomes...” (p. 1252). Generating change at the individual level is complex; attempting to effect change at an organizational or societal level is even more challenging. The interplay of multi-faceted relationships and evolving circumstances requires new ways of thinking and challenging previously understood assumptions (Waddell, 2016). Researchers and leaders are still uncovering the impacts of the COVID-19 pandemic. Leaders are compelled to reexamine how we engage with and operate

organizations. This study has the potential to support positive social change by expanding leadership knowledge about the antecedents of RN turnover since the beginning of the U.S. pandemic in 2020. More research is needed to understand whether the results of this study are an anomaly or if the COVID-19 pandemic has altered the previously understood relationship between high engagement and decreased turnover.

Implications for Theory

Kahn (1990) assumed that the degree to which individuals bring their whole selves to work varies based on physical, cognitive, and emotional factors. Building on Kahn's (1990) work, Fletcher (2017) found that engagement fluctuated based on personal and relational resources, job demands, challenging work, and the organization of work systems and processes. My study adds to the theoretical understanding of engagement by identifying that the relationship of engagement to turnover in the workplace may be changing due to the COVID-19 pandemic. However, more research is required to generalize this finding to the broader population of RNs in the U.S. Kahn's (1990) work engagement theory is commonly used as a framework to understand the historical evolution of engagement. This study is no exception.

Fredrickson (1998) suggested that positive emotions can broaden an individual's actions beyond their typical behavioral responses. These positive emotions can also build physical, intellectual, and social resources, supporting coping and resilience (Fredrickson, 1998; Fredrickson & Branigan, 2005). Employees engage when they believe they are valued, can express their whole selves without fear of negative consequences, and have the physical, emotional, and psychological resources to do so (Kahn, 1990). Based on this

study's results, it is unclear why RN engagement did not change pre- and post-pandemic. Fredrickson's (1998) broaden-and-build theory suggests that positive emotions and the level of physical, intellectual, and social resources may have played a role. Organizational support, the burden of COVID-19 illness, and community-based resources (political, societal, and spiritual) may have been different within this sample compared to other regions of the U.S.

Implications for Practice

Twenty-five percent of registered nurses would not choose nursing again, and 15% plan to leave the profession in the next three years (Auerbach et al., 2022). Martin et al. (2023) concluded that in addition to the 50 thousand nurses with 10+ years of experience who left the workforce during the COVID-19 pandemic, the stress of the pandemic will drive another 44% of experienced nurses to leave their positions in the next five years. U.S. hospital-based RN turnover has improved 4.4% over the last 12 months but remains 6.8% higher than pre-pandemic levels (NSI Nursing Solutions, Inc., 2023). The healthcare industry will not know the full impact of the COVID-19 pandemic for several years.

I could not identify any peer-reviewed research comparing engagement pre- and post-pandemic or exploring nursing engagement and turnover in hospitals. This study contributes to leadership and management practice by exploring the relationship between RN engagement and RN turnover in light of the COVID-19 pandemic. While the results of this study showed no mean difference in engagement or turnover pre- and post-pandemic, the lack of significance is information that may spur further investigation

about potential mediating or moderating factors. The results may also cause leaders to explore other factors that have emerged as being more likely to lead to RN turnover than engagement.

Conclusions

The purpose of this retrospective nonexperimental correlational quantitative study was to understand if there is a difference in nursing engagement pre- and post-pandemic and if engagement predicts RN turnover in U.S. hospitals since the start of the COVID-19 pandemic in 2020. Results indicate no mean difference in RN engagement or RN turnover pre- and post-pandemic. Whether RN engagement predicts turnover pre- and post-pandemic was partially supported.

The healthcare industry has experienced nursing shortages, staffing crises, and fluctuations in turnover for decades (Poon et al., 2022). Previous workforce challenges cannot compare to the unprecedented events surrounding the COVID-19 pandemic. While national RN turnover rates improved in 2022 (NSI Nursing Solutions, Inc., 2023), the modeling of RN turnover in the coming years is alarmingly high (Auerbach et al., 2022; Martin et al., 2023). It is unclear what, if any, lasting impact the overwhelming burnout and fatigue of COVID-19 among nurses (Rutledge et al., 2021; Zangaro et al., 2022) will have on workplace engagement and turnover. Recommendations for future research were discussed to help healthcare leaders understand the complex and multifaceted relationship between engagement and turnover in nursing in the U.S.

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Appendix A: Data Release Approval Communication

EDR - Laura Magstadt (PHD Student) : Research - 07/18/2023



VO



RO



RA



VMC

[Save Request \(/ApproveRequest/GeneratePDF?requestId=13444\)](#)**External Entity** Laura Magstadt (PHD Student)**Business Purpose****Research**

The approved purpose of her study (from my university) is to understand if there is a difference in nursing engagement pre and post-pandemic and if engagement predicts RN turnover since the start of the COVID-19 pandemic. Here are the data points she would like to request: - RN turnover data by Mountain division hospital for the months of May 2019 and May 2022. - RN engagement index data (Glint Engagement Survey) by Mountain division hospital for the surveys in May 2019 and May 2022.

What is the limitation of the External Entity to use the data? Unrestricted Use**Request Status** APPROVED**What type of sensitive data will be included in the release?** Internal Data**What type(s) of data will be released?** Employee/Provider**What subcategory(ies) applies (y) to this type of data?** Employee Data**How will data be released to the External Entity?** One time data release**What is the anticipated date to begin releasing data** 8/1/2023**Business Owner Name** Patty Bishop**Facility** HCA Clinical Services Group (06653)**Division** Practice Service Cost Division (00056)**Responsible Officer** David Vulcano**Who is the Responsible Attorney for this data release?** Christopher Jones**What happens to the data upon termination of the agreement or relationship?** Published

Appendix B: CITI Program Certificate



Completion Date 08-Jul-2023
Expiration Date N/A
Record ID 54585001

This is to certify that:

Laura Magstadt

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Student's
(Curriculum Group)
Doctoral Student Researchers
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

Walden University



101 NE 3rd Avenue, Suite 320
Fort Lauderdale, FL 33301 US
www.citiprogram.org

Verify at www.citiprogram.org/verify/?w552d527e-7c89-40db-a25a-1ebdf1583c99-54585001

Appendix C: CITI Program Completion Report

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)
COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS*

* NOTE: Scores on this [Requirements Report](#) reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

• **Name:** Laura Magstadt (ID: 12059838)
 • **Institution Affiliation:** Walden University (ID: 2906)
 • **Institution Email:** laura.magstadt@waldenu.edu
 • **Phone:** 715-891-1778

• **Curriculum Group:** Student's
 • **Course Learner Group:** Doctoral Student Researchers
 • **Stage:** Stage 1 - Basic Course

• **Record ID:** 54585001
 • **Completion Date:** 08-Jul-2023
 • **Expiration Date:** N/A
 • **Minimum Passing:** 60
 • **Reported Score*:** 88

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
History and Ethical Principles - SBE (ID: 490)	08-Jul-2023	4/5 (80%)
Assessing Risk - SBE (ID: 503)	08-Jul-2023	5/5 (100%)
Informed Consent - SBE (ID: 504)	08-Jul-2023	4/5 (80%)
Privacy and Confidentiality - SBE (ID: 505)	08-Jul-2023	4/5 (80%)
Unanticipated Problems and Reporting Requirements in Social and Behavioral Research (ID: 14928)	08-Jul-2023	5/5 (100%)
Students in Research (ID: 1321)	08-Jul-2023	4/5 (80%)
Vulnerable Subjects - Research Involving Workers/Employees (ID: 483)	08-Jul-2023	4/4 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/?k7192cda2-61ca-43ce-b7d3-8a56f9a50892-54585001

Collaborative Institutional Training Initiative (CITI Program)
 101 NE 3rd Avenue
 Suite 320
 Fort Lauderdale, FL 33301 US

Email: support@citiprogram.org
 Phone: 888-529-5929
 Web: <https://www.citiprogram.org>

Appendix D: Walden University IRB Approval

 IRB <irb@mail.waldenu.edu>

To: Laura Magstadt
Cc: IRB; Jean Gordon



Mon 10/2/2023 3:39 PM

Dear Laura Magstadt,

This email is to notify you that the Institutional Review Board (IRB) confirms that your study entitled, "Engagement and Turnover in Registered Nurses Pre and Post COVID-19 Pandemic," meets Walden University's ethical standards. Our records indicate that you will be analyzing data provided to you by HCA Healthcare as collected under its oversight. Since this study will serve as a Walden doctoral capstone, the Walden IRB will oversee your capstone data analysis and results reporting. The IRB approval number for this study is 10-02-23-0347053, which expires when your student status ends.

This confirmation is contingent upon your adherence to the exact procedures described in the final version of the documents that have been submitted to IRB@mail.waldenu.edu as of this date. This includes maintaining your current status with the university and the oversight relationship is only valid while you are an actively enrolled student at Walden University. If you need to take a leave of absence or are otherwise unable to remain actively enrolled, this is suspended.

If you need to make any changes to your research staff or procedures, you must obtain IRB approval by submitting the IRB Request for Change in Procedures Form. You will receive confirmation with a status update of the request within 1 week of submitting the change request form and are not permitted to implement changes prior to receiving approval. Please note that Walden University does not accept responsibility or liability for research activities conducted without the IRB's approval, and the University will not accept or grant credit for student work that fails to comply with the policies and procedures related to ethical standards in research.

When you submitted your IRB materials, you made a commitment to communicate both discrete adverse events and general problems to the IRB within 1 week of their occurrence/realization. Failure to do so may result in invalidation of data, loss of academic credit, and/or loss of legal protections otherwise available to the researcher.

Both the Adverse Event Reporting form and Request for Change in Procedures form can be obtained on the Tools and Guides page of the Walden website: <https://academicguides.waldenu.edu/research-center/research-ethics/tools-guides>

Doctoral researchers are required to fulfill all of the Student Handbook's [Doctoral Student Responsibilities Regarding Research Data](#) regarding raw data retention and dataset confidentiality, as well as logging of all recruitment, data collection, and data management steps. If, in the future, you require copies of the originally submitted IRB materials, you may request them from Institutional Review Board.

Both students and faculty are invited to provide feedback on this IRB experience at the link below:

http://www.surveymonkey.com/s.aspx?sm=qHBJzkJMUx43pZegKImdiQ_3d_3d

Sincerely,
Caroline Wright
Research Ethics Support Specialist
Research Ethics, Compliance, and Partnerships
Walden University
100 Washington Avenue South, Suite 1210

Appendix E: Research Question 1 Statistical Outputs

Assumptions Output

Figure E1*Assumption 4 Boxplot for Assessment of Outliers***Table E1***Assumption 5 Tests of Normality*

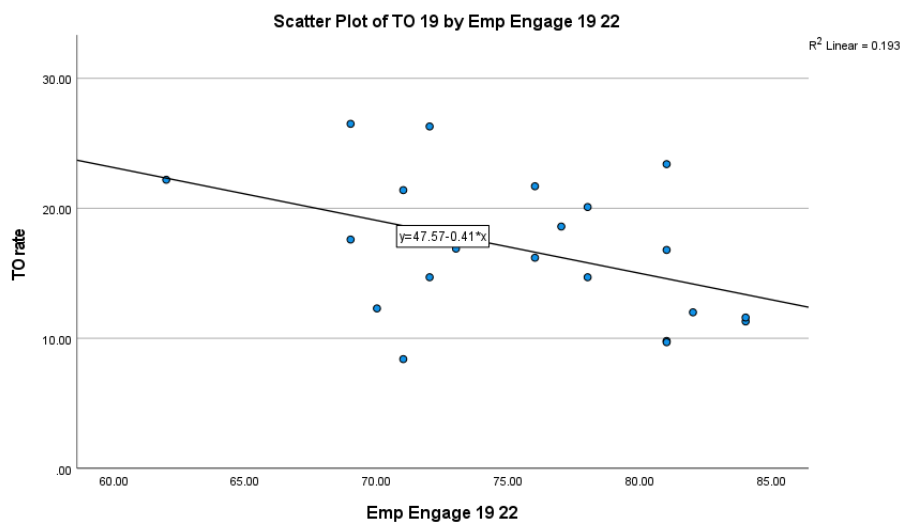
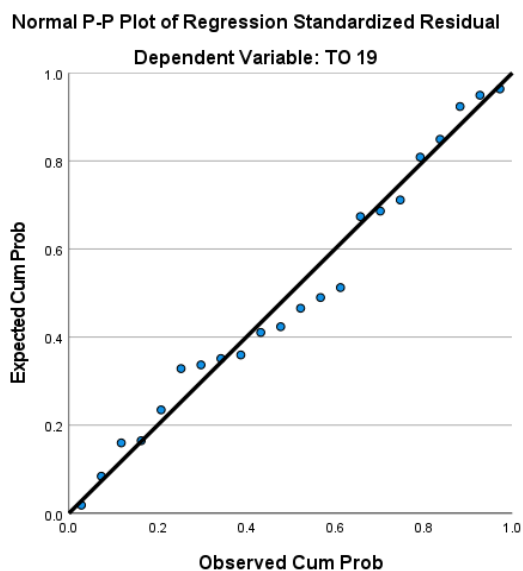
		Shapiro-Wilk	
	df	Sig.	Statistic
Employee Engagement Index 2019	11	.25	.91
Employee Engagement Index 2022	11	.88	.97

Appendix F: Research Question 2 Statistical Output

Assumptions Output**Figure F1***Assumption 4 Box Plot for Assessment of outliers***Table F1***Assumption 5 Tests of Normality*

		Shapiro-Wilk	
	df	Sig.	Statistic
Turnover Rate 2019	11	.39	.92
Turnover Rate 2022	11	.88	.97

Appendix G: Research Question 3 Statistical Output

Linear Regression Assumptions**Figure G1***Assumption 4 Linearity***Figure G2***Assumption 7 Normal P-P plot of Regression Standardized Residual*

Linear Regression Analysis

Table G1

Correlations

		Turnover Rate	Employee Engagement Index
Pearson Correlation	Turnover Rate	1.00	-.44
	Employee Engagement Index	-.44	1.00
Sig. (1-tailed)	Turnover Rate		.02
	Employee Engagement Index	.02	
N	Turnover Rate	22	22
	Employee Engagement Index	22	22

Table G2

Coefficients

	Unstandardized		Standardized Coefficients Beta	t	Sig.	95% CI for B	
	B	Std. Error				Lower Bound	Upper Bound
(Constant)	47.6	14.1		3.38	.003	18.2	76.9
Employee Engagement Index	-.41	.19	-.44	-2.2	.04	-.79	-.02

Table G3*Residuals Statistics*

	Min.	Max.	Mean	Std Dev.	N
Predicted value	13.4	22.3	16.8	2.3	22
Residual	-10.3	8.8	.00	4.8	22
Std. Predicted value	-1.5	2.3	.00	1.0	22
Std. Residual	-2.1	1.8	.00	.97	22

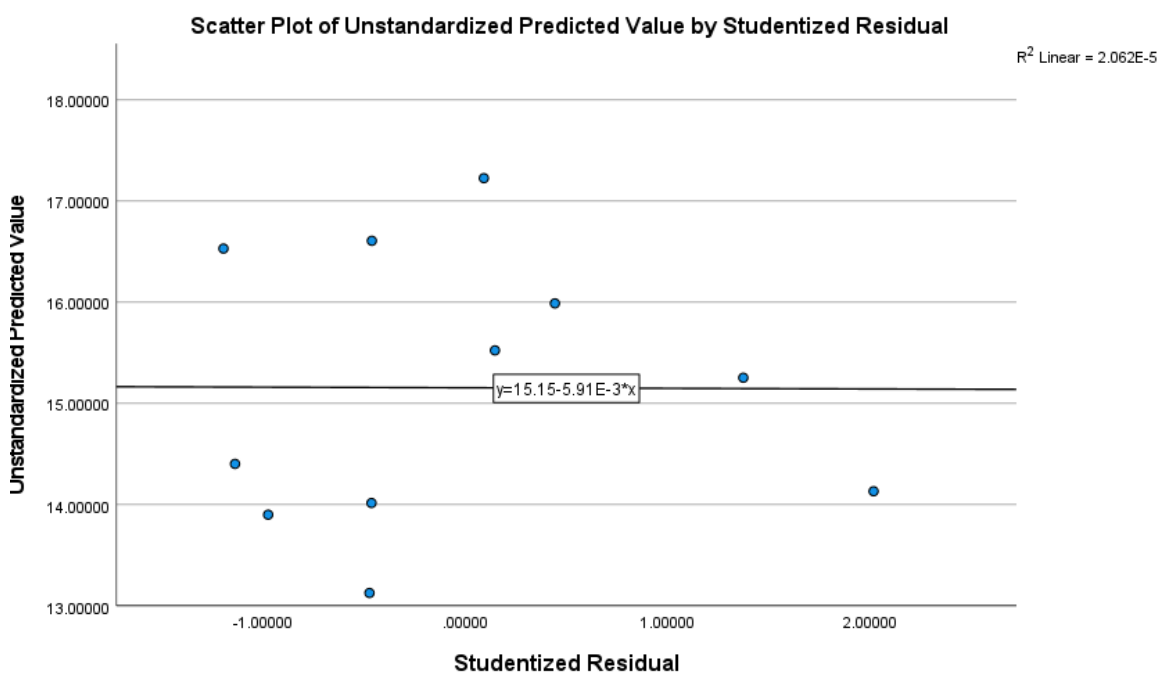
Multiple Linear Regression Assumptions: Model 1**Figure G3***Linearity Testing Scatterplot*

Table G4*Residuals Statistics*

	Min.	Max.	Mean	Std Dev.	N
Predicted Value	13.1	17.2	15.1	1.3	11
Residual	-4.6	9.3	.00	4.5	11
Std. Predicted Value	-1.5	1.6	.00	1.0	11
Std. Residual	-.9	1.8	.00	.9	11
Stud. Deleted Residual	-1.2	2.7	.01	1.2	11
Cook's Distance	.001	.47	.11	.15	11

Table G5*Collinearity Statistics*

	Tolerance	VIF
Employee Engagement Index 2019	.78	1.3
Employee Engagement Index 2022	.78	1.3

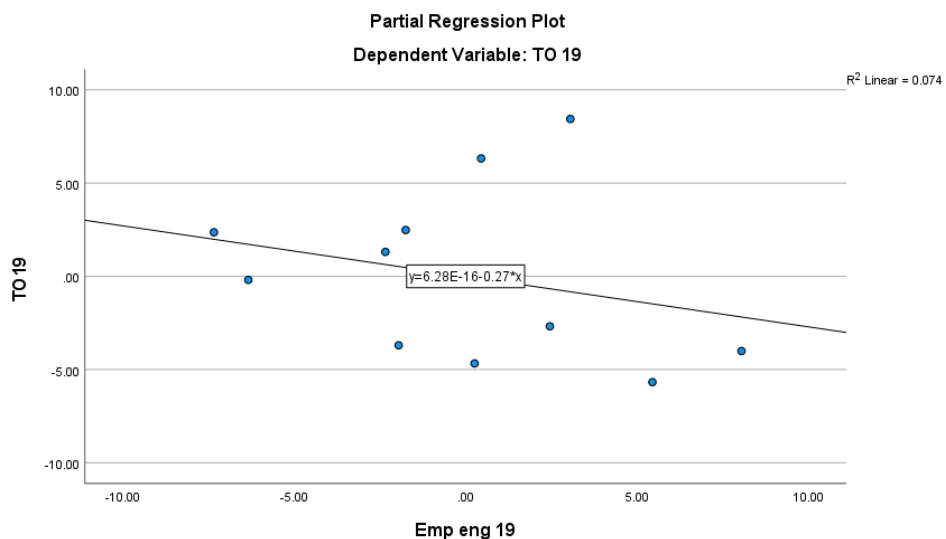
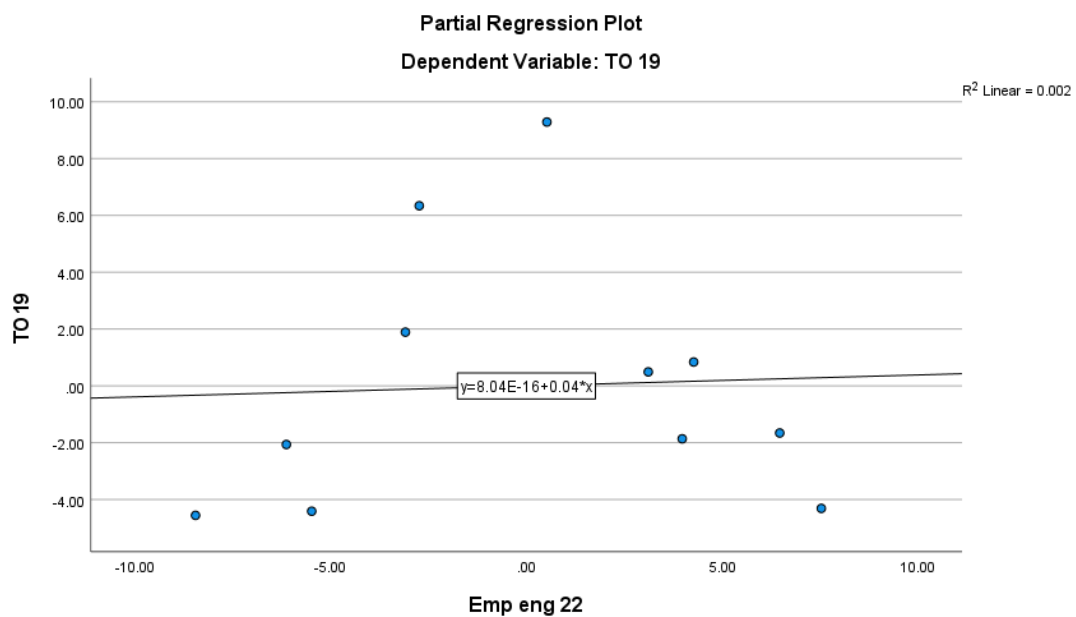
Figure G4*Partial Regression Plot: Employee Engagement 2019*

Figure G5*Partial Regression Plot: Employee Engagement 2022*

Multiple Linear Regression Assumptions: Model 2

Figure G6

Linearity Testing Scatterplot

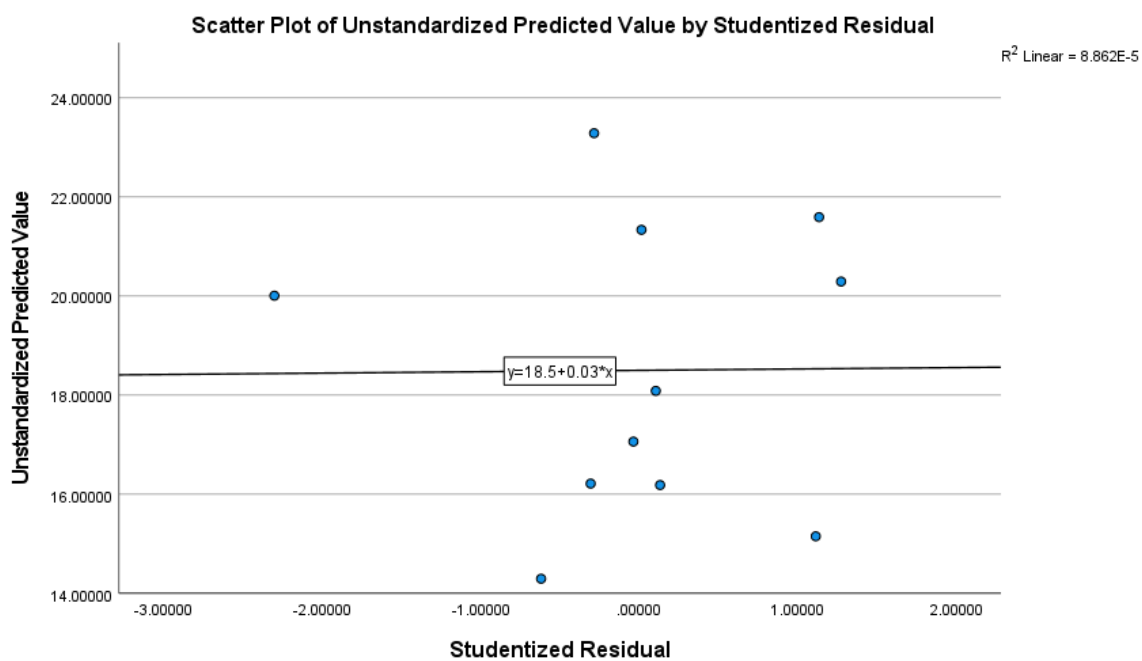


Table G6

Residuals Statistics

	Min.	Max.	Mean	Std Dev.	N
Predicted Value	14.3	23.3	18.5	2.9	11
Residual	-11.6	6.2	.00	4.8	11
Std. Predicted Value	-1.4	1.6	.00	1.0	11
Std. Residual	-2.1	1.1	.00	.9	11
Stud. Deleted Residual	-3.7	1.3	-.9	1.4	11
Cook's Distance	.00	.29	.08	.11	11

Table G7*Collinearity Statistics*

	Tolerance	VIF
Employee Engagement Index 2019	.78	1.3
Employee Engagement Index 2022	.78	1.3

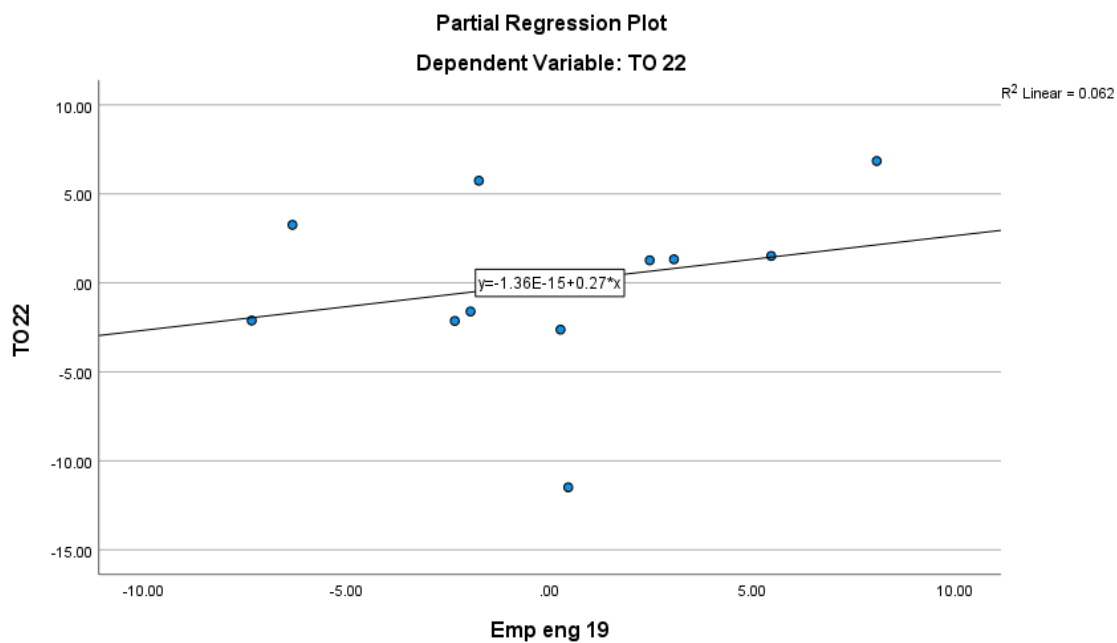
Figure G7*Partial Regression Plot: Employee Engagement 2019 and Turnover Rate 2022*

Figure G8

Partial Regression Plot: Employee Engagement 2022 and Turnover Rate 2022

